

**KNOWLEDGE AND ATTITUDE TOWARDS THE PREVENTION AND
CONTROL OF TUBERCULOSIS AMONG UNDERGRADUATES IN THE
FACULTY OF EDUCATION, UNIVERSITY OF BENIN**

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**UNIVERSITY OF BENIN
BENIN CITY**

OCTOBER, 2025

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**BEING A PROJECT SUBMITTED TO THE DEPARTMENT OF HEALTH,
SAFETY AND ENVIRONMENTAL EDUCATION, FACULTY OF
EDUCATION, UNIVERSITY OF BENIN. BENIN CITY IN PARTIAL
FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF B.Sc
(Ed) DEGREE IN HEALTH EDUCATION**

OCTOBER, 2025

CERTIFICATION

This is to certify that this research work was carried out by **Orobosa Praise EFOSA** with Matriculation Number: EDU2102557 in the Department of Health Safety Environmental Education, in Partial Fulfillment of the fulfillment of the requirement the award of B.Sc Health Education (Ed) Degree.

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DEDICATION

This research work is dedicated to God Almighty and the Holy Spirit for his wisdom, guidance and grace upon me to successfully and excellently complete this work.

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The researcher gives thanks to God Almighty who has been his strength to carry out this study. He is indeed grateful to Him.

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ABSTRACT

The study investigated the knowledge and attitude towards the prevention and control of tuberculosis among undergraduates in the faculty of education, UNIBEN. Four research questions were raised to guide the study. The descriptive survey research design was adopted to guide the study. The population for this research study will consists of six thousand, four hundred and thirty-five (6435) undergraduate students of the Faculty of Education of the University of Benin. The sample size for this study consists of 250 undergraduate students from 100 level to 400 level who will be purposively selected from four departments in the Faculty of Education. For the purpose of collecting acceptable and reliable information, the use of a questionnaire was adopted as an instrument for data collection.

The questionnaire consisted of four sections A, B, C, and D. The different sections have a number of questions to help gather information on the respondents, regarding their knowledge and attitude towards the prevention and control of tuberculosis. The researcher personally administered the instrument to the respondents. Following the collection and appropriate organization of valid questionnaires, the gathered data underwent analysis using frequency counts, mean calculations, and simple percentage. The findings suggest that undergraduates in the Faculty of Education at the University of Benin possess a generally positive attitude towards tuberculosis (TB) prevention and control.

They recognized TB as a serious health threat and showed a willingness to engage in screening and preventive practices. Based on the findings of the study, it was recommended amongst others: Awareness campaigns should continue to emphasize the importance of TB treatment and reduce stigma, especially regarding individuals undergoing treatment. Peer education programs should be promoted to enable students to share knowledge about TB prevention, symptoms, and treatment, fostering a more informed and supportive community, The university should offer regular TB screening programs to ensure early detection and prompt treatment.

CHAPTER ONE

INTRODUCTION

Background to the Study

Tuberculosis (TB) remains a major public health concern internationally, despite being a preventable and curable illness. *Mycobacterium tuberculosis* is the causative agent of tuberculosis (TB), which mostly affects the lungs (pulmonary TB) but can also spread to other areas of the body (extrapulmonary TB). The World Health Organization (WHO, 2023) reports that tuberculosis (TB) is the largest cause of death from a single infectious agent, surpassing HIV/AIDS, and is in the top 10 causes of death globally. Globally, a projected 10.6 million persons contracted TB in 2022 alone, and 1.3 million of them lost their lives to the illness (WHO, 2023). The incidence of TB is still frighteningly high even with the availability of excellent treatment, especially in low- and middle-income nations like Nigeria.

TB remains a serious public health issue in Nigeria. A considerable proportion of undiagnosed and untreated cases contribute to continuous transmission, making the nation one of the 30 countries with the highest TB burden in the world (Roberts, 2022). The disease poses a threat not only to the general population but also to vulnerable groups such as undergraduates in tertiary

institutions who often live in crowded hostels or environments that facilitate the transmission of infectious diseases. Since universities and colleges are places where people congregate, they are ideal for the quick spread of tuberculosis, particularly when student awareness, preventive measures, and attitudes toward seeking medical attention are low.

TB knowledge and attitudes have a big impact on preventative and control initiatives. People are better equipped to adopt appropriate health-seeking behavior and preventive behaviors when they have enough knowledge regarding the etiology, modes of transmission, symptoms, preventive measures, and treatment options for tuberculosis. On the other hand, poor knowledge or inappropriate knowledge leads to stigma, misinterpretations, and delayed diagnosis and treatment, all of which increase morbidity and death and prolong transmission (Agho et al., 2018). Inadequate knowledge and unsuitable attitudes among undergraduates, who are typically thought of as an informed demographic, can have serious public health repercussions. Studies have indicated differing degrees of awareness and attitudes concerning TB among university students across different settings. For example, a research in Ethiopia found that while most students had heard of tuberculosis (TB), they knew little about its causes, symptoms, and transmission, and they frequently had a negative attitude toward

those who had the disease (Legesse & Ameni, 2008). Similar to this, Adepoju et al. (2020) discovered that students in Nigeria had several misconceptions regarding tuberculosis (TB), with some thinking that it is a spiritual illness or the consequence of moral failings. These ideas deter afflicted people from getting timely medical attention and help stigmatize TB patients.

Furthermore, the attitude of young people towards TB prevention such as willingness to undertake screening, accept treatment, or assist peers with the condition plays a significant role in the broader fight against the illness. Negative attitudes not only hamper personal health-seeking behavior but also impair the wider milieu of TB control in a community. Through peer education, health campaigns, and on-campus access to medical care, universities can play a significant role in spreading TB education and preventative health measures. In order to prevent and control tuberculosis, the interaction between knowledge and attitude is crucial among undergraduates, who are generally seen as knowledgeable and educated members of society. An individual's comprehension of the disease, including its causes, routes of transmission, symptoms, prevention strategies, and available treatments, is referred to as knowledge. On the other hand, attitude refers to a person's sentiments, convictions, and inclinations to behave in particular ways in relation to the illness. These two factors are strongly related;

students' perceptions of TB and their reactions to it in daily life are greatly influenced by their degree of understanding. Higher levels of TB awareness among young individuals are favorably correlated with acceptable attitudes and practices, according to empirical investigations. People who are aware of how TB spreads, for example, are more likely to refrain from risky behaviors and embrace preventive measures like coughing with one's mouth covered, promoting screening, and refraining from stigmatizing TB patients (Agho et al., 2018). On the other hand, inadequate or erroneous information frequently encourages unfavorable sentiments, including fear, prejudice, and social exclusion of impacted people, which impedes early identification and treatment.

Misconceptions about TB, including that it is inherited, spiritual, or only linked to HIV/AIDS, are still common among undergraduates (Adepoju et al., 2020). These misconceptions contribute to stigma and may cause students to conceal their symptoms, put off seeking medical attention, or distance themselves from classmates who may have tuberculosis. In addition to endangering the health of the person, these practices raise the possibility of transmission throughout the community, particularly in crowded campus environments like residence halls, lecture halls, and cafeterias. Therefore, a lack of information directly leads to a lack of attitudes, which might undermine the effectiveness of public health

initiatives. It is impossible to overstate the importance of knowledge in fostering a proactive and health-conscious mindset. Undergraduates who possess thorough and precise knowledge about tuberculosis are more inclined to view the illness as serious but treatable. Such actions as prompt health-seeking, routine screening, treatment adherence, and support for peers going through therapy are encouraged by this understanding. More significantly, informed students can act as peer educators, assisting in the debunking of stereotypes and lowering stigma in their social and academic communities (WHO, 2021).

Undergraduates are also at a pivotal point in their lives where habits and ideas are established. Long-term favorable attitudes regarding tuberculosis and other infectious diseases can be facilitated by expanding their knowledge base through focused health education initiatives. Therefore, universities offer a strategic platform for TB awareness campaigns and prevention initiatives that seek to influence positive attitudes and behaviors in addition to informing. Effectively structured programs have the potential to turn undergraduates into post-graduation TB control agents in their families and communities. A fundamental model in health education, the knowledge-attitude-behavior pathway has a lot to say about TB control. Negative attitudes are fostered by inadequate understanding, and these attitudes in turn result in subpar treatment and prevention practices. Conversely,

knowledgeable people are more likely to show empathy, seek medical attention right away, and take part in community health programs. This emphasizes the necessity of routinely evaluating undergraduates' attitudes and knowledge on tuberculosis in order to spot gaps and create effective interventions.

Statement of the Problem

In Nigeria, tuberculosis (TB) continues to be a major public health concern, contributing significantly to the worldwide TB burden. The disease spreads despite the availability of effective treatment and prevention measures, primarily because of low knowledge, enduring stigma, and poor health-seeking behaviors. In settings like universities, where intimate student interaction raises the possibility of transmission, these difficulties are more noticeable. The degree to which undergraduate students at the University of Benin (UNIBEN), particularly in the Faculty of Education, have sufficient knowledge and have favorable attitudes toward TB prevention and control is still mainly unknown.

Lack of knowledge and awareness of tuberculosis (TB) can have major effects on both individual and public health in the University of Benin, where students live and interact in crowded spaces like lecture halls, dormitories, and classrooms. Many undergraduate students at the Faculty of Education may not have gotten adequate or formal education on tuberculosis, even though they are

future educators and professionals who are expected to spread health-related knowledge and shape society attitudes. Their attitudes regarding the illness, including their readiness to ask for assistance, encourage colleagues going through treatment, and take part in awareness or preventive campaigns, may be impacted by this knowledge gap. These aspiring educators run the risk of unintentionally spreading stigma and false information in the areas they will later serve if they exhibit poor knowledge about and attitudes toward tuberculosis.

Therefore, this study seeks to investigate the knowledge and attitudes towards the prevention and control of tuberculosis among undergraduates in the Faculty of Education, UNIBEN. The findings will provide insight into existing misconceptions, behavioral tendencies, and the educational needs of this group, thereby informing the development of appropriate intervention strategies that can contribute meaningfully to TB control efforts both within and beyond the university setting.

Research Questions

The following research questions are raised to guide the study;

1. What is the level of knowledge of tuberculosis among undergraduates in the Faculty of Education, University of Benin?
2. What are the attitudes towards the prevention and control of tuberculosis among undergraduates in the Faculty of Education, University of Benin?
3. What are the control measures against tuberculosis exhibited by undergraduates in the Faculty of Education, University of Benin?

Purpose of the Study

This study aims to investigate the knowledge and attitude towards the prevention and control of tuberculosis among undergraduates in the faculty of education, UNIBEN. Specifically, this research seeks to:

1. investigate the level of knowledge of tuberculosis among undergraduates in the Faculty of Education, University of Benin.
2. examine the attitudes towards the prevention and control of tuberculosis among undergraduates in the Faculty of Education, University of Benin.
3. examine the relationship between the level of knowledge and attitude of undergraduates towards tuberculosis prevention and control among undergraduates in the Faculty of Education, University of Benin.

4. identify the control measures against tuberculosis exhibited by undergraduates in the Faculty of Education, University of Benin.

Significance of the Study

This study holds great significance for public health, health education, and university-based health promotion efforts and will be of benefit to students, school management, policy makers and healthcare providers in the University of Benin particularly within the context of developing countries like Nigeria where tuberculosis (TB) remains a persistent health concern.

Firstly, this research will benefit students themselves. Through participation and dissemination of the findings, they will become more aware of TB, its prevention, and control, thereby fostering a healthier and more informed student population. The study is important because it addresses a critical gap in understanding the level of awareness and attitudes towards TB among the students and undergraduates in the Faculty of Education, University of Benin. These students are not only part of a population at risk due to their communal lifestyle and interactions within campus environments, but they are also potential change agents who can play a transformative role in health education and behavior modification within their communities. By assessing their knowledge and attitudes,

this study will provide insight into their readiness to contribute meaningfully to TB prevention and control efforts beyond the university setting.

Secondly, the findings of this research will benefit the school management thereby helping them to inform university health policies and public health interventions. Identifying gaps in knowledge or negative attitudes will enable health authorities, university administrators, and curriculum developers to design targeted health education programs that address misconceptions, reduce stigma, and promote positive health-seeking behavior among students. This is particularly crucial in reducing the transmission of TB within densely populated university environments.

Thirdly, this study will be of huge significance to healthcare providers in the University of Benin community as it will enable them to adequately ensure that proper healthcare is provided towards the prevention and control of tuberculosis as well as the reinforcement of healthcare tips to enable students make informed and proper choices regarding their health.

Furthermore, the study will contribute to academic knowledge by adding to the body of literature on TB awareness among tertiary students in Nigeria. The data obtained can serve as a valuable reference for future researchers, government agencies, and non-governmental organizations working to combat TB at both

national and institutional levels. Moreover, this study will have practical significance for the Faculty of Education by highlighting the need for the integration of health-related content, particularly on infectious diseases, into education training programs. This would ensure that graduating students are not only academically qualified but also equipped with the knowledge and attitude necessary to educate future generations on vital health issues such as tuberculosis.

Scope and Delimitation of the Study

The scope of the study is focused on the knowledge and attitude towards the prevention and control of tuberculosis among undergraduates. This study will be carried out using in the faculty of education, UNIBEN. The study is delimited to undergraduate students in the faculty of education, UNIBEN.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter will be discussed under the following subheadings:

- Theoretical Framework
- Overview of Tuberculosis
- Knowledge of Tuberculosis
- Attitudes Towards the Prevention and Control of Tuberculosis
- Relationship Between the Level of Knowledge and Attitude Towards the Prevention and Control of Tuberculosis
- Control Measures Against Tuberculosis
- Summary of Literature Reviewed

Theoretical Framework

The Health Belief Model (HBM), a psychological framework created in the 1950s by social psychologists Hochbaum, Rosenstock, and Kegels, serves as the foundation for this investigation. By concentrating on people's attitudes and beliefs, the model aims to explain and forecast health-related behaviors. It is frequently utilized in public health research, especially to comprehend behaviors linked to health promotion and disease prevention. Because it sheds light on undergraduates' views of tuberculosis (TB) and how those perceptions affect their knowledge,

attitudes, and preventive measures, the HBM is appropriate for this study.

The Health Belief Model is built upon six key constructs:

Perceived Susceptibility: This refers to an individual's belief about their risk of contracting tuberculosis. Among undergraduates, the extent to which they feel vulnerable to TB significantly affects their willingness to adopt preventive measures. If students do not perceive themselves at risk, they are less likely to engage in protective behaviors.

Perceived Severity: This denotes the individual's belief about the seriousness of tuberculosis and its potential consequences, such as long-term illness, academic disruption, or death. Students who believe TB is a serious disease are more likely to take preventive actions and seek early diagnosis or treatment.

Perceived Benefits: This refers to the belief in the effectiveness of strategies designed to reduce the risk of TB. Undergraduates who recognize the benefits of preventive measures such as early screening, proper hygiene, and avoidance of close contact with infected persons are more likely to adopt such behaviors.

Perceived Barriers: These are the perceived obstacles that may hinder the adoption of preventive measures. For instance, undergraduates may cite lack of access to screening services, stigma associated with TB, or insufficient knowledge as barriers to preventive behavior. Understanding these barriers is crucial in

designing targeted interventions.

Cues to Action: These are external or internal prompts that trigger individuals to act. In the context of this study, cues to action may include health education campaigns, classroom lectures, media messages, peer influence, or personal experiences with TB, which can encourage students to engage in prevention and control practices.

Self-Efficacy: This relates to the confidence an individual has in their ability to perform actions required to prevent TB. Undergraduates who feel capable of taking preventive actions such as going for TB testing or maintaining hygiene are more likely to engage in such behaviors consistently.

Application of the Health Belief Model to the Study

The Health Belief Model (HBM) is applied in this study to explain how the knowledge and attitudes of undergraduates in the Faculty of Education, University of Benin, influence their preventive behaviors toward tuberculosis (TB). Each construct of the HBM is used to examine how individual beliefs shape students' responses to TB prevention and control efforts.

Perceived Susceptibility: The study assesses whether students believe they are at risk of contracting TB. Many undergraduates may underestimate their vulnerability due to age, perceived good health, or lack of contact with infected

individuals. This belief affects their motivation to engage in protective behaviors such as screening or avoiding high-risk environments.

Perceived Severity: The study investigates students' understanding of the seriousness of TB and its health, academic, and social implications. If students view TB as a mild or easily curable illness, they may not see the need for preventive action. Conversely, if they understand its potential complications and stigma, they may be more proactive in seeking information and engaging in prevention.

Perceived Benefits: This component is used to explore students' beliefs about the effectiveness of preventive measures such as early detection, vaccination, avoiding overcrowded spaces, and practicing good hygiene. If students perceive these actions as beneficial, they are more likely to adopt them.

Perceived Barriers: The study identifies obstacles that may prevent students from taking appropriate preventive actions. These could include fear of stigmatization, lack of awareness of TB screening centers, limited access to health services, or cultural misconceptions. Understanding these barriers is essential for designing targeted educational interventions.

Cues to Action: The study examines external and internal stimuli that encourage students to engage in TB preventive behaviors. These may include health

campaigns, personal experiences with TB, peer education, posters around campus, or lectures within their academic program.

Self-Efficacy: Finally, the study explores students' confidence in their ability to carry out preventive measures. This includes their willingness to seek medical advice, participate in awareness programs, or educate others about TB. High self-efficacy is likely to enhance positive health behaviors and decision-making.

Overview of Tuberculosis

Despite the availability of preventive and therapeutic strategies, tuberculosis (TB) continues to be one of the most important infectious illnesses in the world and a persistent hazard to public health. *Mycobacterium tuberculosis* is the causative agent of tuberculosis (TB), which mainly affects the lungs (pulmonary TB) but can also spread to other regions of the body, including the kidneys, spine, and brain (extrapulmonary TB). When people with active pulmonary tuberculosis cough, sneeze, or speak, the bacteria are released into the air, where they can be inhaled by those in close proximity WHO (2023). WHO (2023) reports that tuberculosis (TB) is among the top 10 causes of death globally and continues to be the most common infectious agent-related cause of death, surpassing HIV/AIDS. An anticipated 10.6 million people contracted tuberculosis in 2022, and 1.3 million people died from HIV-negative causes and 167,000

people died from HIV-positive causes. Due to poor health systems, high HIV prevalence, and poverty-related variables, the burden of TB is disproportionately high in low- and middle-income countries, with Africa accounting for a sizable fraction of global cases (WHO, 2023).

TB remains a serious public health issue in Nigeria. Nigeria contributes significantly to the TB burden in Africa and is one of the 30 countries with the highest TB burden in the world. According to the National Tuberculosis and Leprosy Control Programme (NTBLCP), there were an estimated 479,000 TB cases in Nigeria in 2022. A treatment coverage gap suggests that many TB patients go untreated or unreported (NTBLCP, 2023). The nation's progress toward TB elimination is nevertheless hampered by issues like stigma, poor health education, restricted access to diagnostic services, and a lack of finance for TB control initiatives (Adepoju, 2022). The close link between TB and HIV infection is among the most concerning features of the disease. Because their immune systems are compromised, people with HIV are far more likely to get active TB. Additionally, TB remains the primary cause of death for HIV-positive individuals, particularly in sub-Saharan Africa (Joint United Nation Programme on HIV/AIDS, 2022). TB control efforts have been made more difficult by the advent of drug-resistant TB, especially extensively drug-resistant TB (XDR-TB) and multi-drug

resistant TB (MDR-TB). These resistant strains necessitate lengthier, more intricate, and more costly treatment regimens and develop when treatment is inadequate or poorly managed (WHO, 2023). The transmission and consequences of tuberculosis are significantly influenced by the social determinants of health. Increased vulnerability to tuberculosis is closely associated with poor living circumstances, overcrowding, under nutrition, and low health literacy. There may be a higher risk of TB transmission among college students, particularly those who live in dorms or attend classes in poorly ventilated areas. Additionally, young adults might not know enough about tuberculosis, its symptoms, and prevention strategies, which could postpone diagnosis and raise the risk of transmission among college students (Ogbuabor & Onwujekwe, 2019).

The WHO's End TB Strategy, which aims to reduce TB fatalities by 90% and new cases by 80% by 2030 compared to 2015 levels, serves as a guidance for national and international efforts to manage TB (WHO, 2015). The plan places a strong emphasis on ambitious policies, supportive health systems, integrated patient-centered care, and increased research and innovation. National TB control efforts in Nigeria are aiming to improve treatment results through directly observed therapy (DOT) and community involvement, raise public awareness, expand TB screening, and improve access to diagnostic equipment such

GeneXpert machines (NTBLCP, 2023). Around 1.8 million of the 10.6 million TB cases worldwide in 2022 occurred among adolescents and young adults between the ages of 15 and 24, according to the WHO (2023). Despite their high levels of mobility, social interaction, and participation in behaviors that may enhance their exposure to TB, such as living in cramped dorms or substandard housing, this group is frequently disregarded in TB control initiatives. Young people frequently encounter systemic obstacles to healthcare in many low- and middle-income nations, such as Nigeria, including stigma, restricted access to medical care, and a dearth of focused health education (Adepoju, 2022). According to Chukwu et al. (2020), students are often exposed to risk factors that facilitate the spread of tuberculosis in university settings. These risk factors include crowded lecture halls, poorly ventilated hostels, shared living spaces, and limited health screening, which increase the risk of airborne transmission of *Mycobacterium tuberculosis*. Additionally, many students may not be aware of the symptoms of tuberculosis, fail to recognize early signs, or associate the illness with social isolation and stigma, which can cause delays in diagnosis and treatment.

Low levels of TB knowledge and awareness among university students have been noted by studies conducted in Nigeria and other nations with significant TB burdens. For example, Okolie et al. (2019) found that although most students

in a Nigerian university had heard of tuberculosis (TB), there were still a lot of misconceptions on how it is spread and how to cure it. Poor attitudes and an unwillingness to seek care are caused by misconceptions such as the idea that TB is only associated with HIV/AIDS or that it is a result of poverty and witchcraft. Additionally, students are more at risk when TB and HIV coexist, particularly in sub-Saharan Africa where both illnesses are common. Active TB is much more common in young people with HIV because of immunosuppression. Diagnostic difficulties, medication interactions, and adherence problems exacerbate the burden in these situations, especially for students who might not fully understand the gravity of co-infection (Joint United Nation Programme on HIV/AIDS, 2022). Academic pressure, substance abuse, poor diet, and mental health stressors can all weaken students' immune systems, making them more vulnerable to TB infection and reactivation. Additionally, the stigma attached to tuberculosis continues to be a significant obstacle for young people, who frequently worry about prejudice, exclusion, or being classified as chronically ill. For prompt TB identification and prevention in schools, this stigma impedes candid conversations, screening, and disclosure (Olanrewaju et al., 2021). Students and young adults are regarded as a high-impact target population for TB prevention and control programs in spite of these obstacles. They have the capacity to be significant health change agents in

their communities because of their social networks and educational backgrounds. Students may actively participate in TB prevention, early detection, and advocacy with the right health education, peer-led awareness campaigns, and regular screening.

Knowledge of Tuberculosis

In Nigeria, studies have revealed mixed levels of TB knowledge among undergraduates, with notable gaps in understanding transmission routes, symptoms, prevention, and treatment. For instance, Chukwu et al. (2020) conducted a cross-sectional study among students in southeastern Nigeria and found that although 81% of the students had heard about TB, only 42.3% correctly identified coughing and sneezing as the main transmission routes. A significant proportion believed TB could be contracted through sexual intercourse or sharing utensils. Similarly, Oshi et al. (2019) assessed the impact of health education on TB awareness among students of tertiary institutions in Ebonyi State. The findings showed that prior to the intervention, less than 50% of the participants had good knowledge of TB symptoms and prevention. After the educational session, knowledge scores improved significantly, confirming the importance of targeted health education among university students.

In a study conducted at Nnamdi Azikiwe University, Okolie et al. (2019) found that only 38% of respondents could correctly state that TB is caused by a bacterium (*Mycobacterium tuberculosis*), and many were unsure about the curability of the disease. The study concluded that even among educated populations, myths and misinformation still persist. Olanrewaju et al. (2021) investigated TB-related stigma and knowledge among undergraduates in southwestern Nigeria. The study revealed that while many students had general awareness of TB, stigma levels were high and knowledge about TB prevention was poor, especially among non-medical students. The authors emphasized that health education initiatives should not be limited to health-related faculties alone. Outside Nigeria, similar trends have been observed across the sub-Saharan African region. In a study conducted in Ethiopia, Legesse and Ameni (2018) found that 59% of students at Addis Ababa University had adequate knowledge of TB, but many did not know that TB is airborne. About 30% of respondents believed that TB could only affect people living in rural areas, reflecting common misconceptions across African countries. In Uganda, Nyasulu et al. (2019) reported that students at Makerere University had moderate knowledge of TB symptoms but low knowledge of TB diagnosis and treatment services. Notably,

over half of the respondents did not know that TB treatment was free under the national TB control program.

A study in South Africa by Lukhele et al. (2020) among university students in Gauteng province showed that while awareness of TB as a disease was nearly universal, only 47% of the respondents were aware of latent TB infection and its role in disease progression. The study recommended integrating TB education into student orientation and wellness programs.

Students' knowledge of tuberculosis (TB), especially in higher education institutions, is essential for the disease's early detection, prevention, and management. Given the high levels of mobility, social contact, and communal living that characterize university students, effective health outcomes at the individual and community levels depend on a thorough understanding of tuberculosis (TB) causes, symptoms, transmission routes, and preventative strategies. *Mycobacterium tuberculosis*, the bacteria that causes tuberculosis, mainly affects the lungs but can also attack the kidneys, spine, and brain. Even though the medical community is well aware of this, research indicates that many college students are unclear about the biological origin of tuberculosis. Students in Nigeria and sub-Saharan Africa have been found to hold misconceptions about tuberculosis (TB), including the belief that it is caused by spiritual powers, cold

weather, smoking alone, or tainted food (Chukwu et al., 2020; Okolie et al., 2019). In addition to contributing to stigma and care-seeking delays, these misunderstandings can impede effective prevention. According to WHO (2023), pulmonary tuberculosis is commonly characterized by a cough that lasts for two weeks or longer, chest pain, coughing up blood or sputum, weight loss, night sweats, fever, and exhaustion. Although some students are aware of the persistent cough linked to tuberculosis, research indicates that a sizable portion are not aware of other important symptoms including weight loss or night sweats (Olanrewaju et al., 2021). Delaying diagnosis and raising the risk of transmission, early warning signals may be disregarded or mistaken for other mild ailments.

Through droplets emitted when an infected person coughs, sneezes, talks, or sings, tuberculosis (TB) is spread from person to person through the air. However, research has shown that students' knowledge of the routes by which tuberculosis is spread is lacking. For instance, only over 62% of undergraduate students in southeast Nigeria who participated in a survey correctly recognized airborne droplets as the route of TB transmission, while others thought the disease could be spread through sexual contact, food sharing, or handshakes (Chukwu et al., 2020). Such incomplete or inaccurate information not only makes people more vulnerable to infection, but it also feeds stigma, discrimination, and fear toward

people who exhibit TB symptoms. Early diagnosis through screening, BCG vaccination, proper ventilation in living areas, practicing excellent respiratory hygiene (e.g., covering the mouth when coughing), and avoiding close contact with people exhibiting TB symptoms are all preventive methods for tuberculosis. According to reports, students' awareness of these preventive measures ranges from modest to low. According to a 2019 study by Oshi et al., while the majority of students were aware of tuberculosis, less than half were able to name more than two prevention strategies. Additionally, many were unaware of how or where to get screening or treatment resources in their communities or on campus.

Furthermore, stigma and false information are major obstacles to prevention. For fear of being classified as infected or confusing TB with HIV/AIDS, students may put off getting tested or receiving treatment. Awareness levels are also influenced by cultural views and a lack of focused health education; students from rural areas or those pursuing non-health-related fields frequently have less understanding about tuberculosis than their peers in urban areas or the health sciences (Olanrewaju et al., 2021). Many myths and misconceptions regarding tuberculosis (TB) still exist among undergraduate students, especially in low- and middle-income nations like Nigeria, despite continuous public health education initiatives. Students' knowledge of tuberculosis is greatly impacted by

these misconceptions, which can result in poor health-seeking behavior, stigma, and difficulties with disease prevention and control in higher education.

- Misattribution of TB Causes

A common misconception among undergraduates is the belief that TB is not caused by a bacterial infection but rather by non-biological factors such as cold weather, smoking, hard labor, witchcraft, or curses. Some students associate TB with environmental conditions alone such as staying in dusty places or assume it is hereditary (Chukwu et al., 2020; Okolie et al., 2019). These beliefs undermine the understanding that *Mycobacterium tuberculosis* is the true etiological agent of TB, transmitted through airborne droplets.

- Confusion Between TB and HIV/AIDS

In many Nigerian tertiary institutions, there is a widespread conflation of TB with HIV/AIDS. Because TB is a common opportunistic infection in people living with HIV, many students believe that contracting TB automatically implies one has AIDS. This misperception fuels stigma and discourages individuals from seeking testing or treatment, fearing they will be labeled HIV-positive (Olanrewaju et al., 2021).

- Myths About TB Transmission

Another prevalent myth is that TB can be transmitted through sharing eating utensils, shaking hands, sexual intercourse, or casual contact. While TB is indeed contagious, it spreads specifically through inhalation of airborne droplets when a person with active pulmonary TB coughs, sneezes, or talks (WHO, 2023). Misunderstanding of transmission routes can lead to unnecessary social distancing and discrimination against affected individuals, while the real risks such as poor ventilation in hostels and classrooms may be overlooked.

- Belief That TB Only Affects the Poor or Uneducated

Some students hold the erroneous belief that TB is a “disease of the poor,” affecting only those living in slums or rural areas. This belief ignores the reality that TB can affect anyone, including educated individuals and urban residents, especially in high-burden countries like Nigeria. This myth contributes to a false sense of invulnerability among students, which can lead to negligence regarding TB prevention and screening (Adepoju, 2022).

- Assumption That TB Is Always Fatal or Incurable

Among undergraduates, there are also myths that TB has no cure or that treatment is not effective unless done with traditional herbs. These beliefs

persist despite the availability of highly effective antibiotic treatments when taken properly. This myth contributes to treatment non-adherence, delayed healthcare-seeking behavior, and increased chances of drug-resistant TB cases (Oshi et al., 2019).

- Misconceptions About Vaccination and Prevention

Many students are unaware of the protective role of the BCG vaccine and may believe that TB cannot be prevented. Some assume that avoiding food sharing or wearing charms will protect them from TB. Others are unaware of basic preventive strategies such as good ventilation, early screening, and cough etiquette (Chukwu et al., 2020).

- Belief in Supernatural or Cultural Explanations

In certain cultural settings, TB is believed to be caused by spiritual attacks or ancestral curses. These beliefs are sometimes reinforced by traditional or religious narratives, leading students to seek healing from spiritualists or traditional healers instead of medical professionals (Olanrewaju et al., 2021). This not only delays proper diagnosis and treatment but also increases the risk of further transmission.

In order to close the knowledge gap and change people's attitudes regarding the prevention and control of tuberculosis (TB), especially among young

adults, health education is essential. Health education is a potent instrument for converting knowledge into informed behavior and group action when it comes to college students, many of whom are in the high-risk 15–24 age range. Due in significant part to a lack of public awareness of its causes, symptoms, transmission, and available treatments, tuberculosis remains one of the most deadly infectious illnesses in the world. The World Health Organization (2023) claims that stigma, false information, and a lack of awareness are the main reasons why many TB infections go unreported or are discovered too late. Due to insufficient TB-specific instruction in academic contexts, this knowledge gap is more noticeable among undergraduates, particularly those who do not study health-related fields (Chukwu et al., 2020). Health education challenges long-standing myths and beliefs in addition to providing factual knowledge. Students can learn about the biological nature of tuberculosis, the significance of early identification, and the availability of free treatment under national TB programs through organized activities like seminars, peer education, awareness campaigns, and integration into general studies curricula. According to studies, students who have taken part in health education sessions centered around tuberculosis (TB) had considerably higher knowledge scores and more favorable health-seeking behaviors than their

non-participating counterparts (Oshi et al., 2019). Dispelling myths is one of the main areas where health education has proven effective. For example, a lot of students are under the impression that TB is usually lethal or that it is spread by sharing food or casual contact (Okolie et al., 2019). The fact that TB is airborne, caused by *Mycobacterium tuberculosis*, and treatable with a particular antibiotic regimen is made clearer via health education. Additionally, educational interventions promote a more realistic view of susceptibility and risk by emphasizing risk factors, such as living in crowded conditions, co-infection with HIV, and immunological suppression.

Additionally, health education is essential in lowering the stigma associated with tuberculosis, which frequently keeps students from reporting symptoms or obtaining prompt medical attention. In order to change negative views and foster empathy for persons impacted by tuberculosis, educational initiatives that incorporate testimonies, conversations, and participatory learning techniques are very successful (Olanrewaju et al., 2021). Eliminating stigma promotes transparency, makes early detection easier, and enhances treatment compliance. Furthermore, health education equips students to become peer advocates and health ambassadors when it is presented in a way that is youth-friendly and culturally sensitive. It has been demonstrated that these peer-led

approaches improve interpersonal communication regarding TB, improve retention of TB knowledge, and positively impact societal norms (WHO, 2021). In academic environments, where students are part of close-knit social networks, knowledgeable peers can successfully encourage healthy habits and early symptom reporting. Additionally, the impact and reach of TB health education among undergraduates have been increased via digital platforms and mobile technology. Students are increasingly receiving personalized, interactive, and easily available health messages through mobile apps, social media campaigns, and e-health portals (Adepoju, 2022). In Nigerian institutions, where students are very mobile and frequently rely on digital media for information, this is especially pertinent.

Attitudes towards the Prevention and Control of Tuberculosis

Stigma around tuberculosis (TB) remains a major obstacle to effective TB prevention, diagnosis, and treatment, particularly for young adults in higher education. Students' desire to seek care, reveal symptoms, or support friends living with TB is influenced by the persistence of stigma, which can take both covert and overt forms, despite growing understanding that TB is a curable disease. According to Goffman (1963), stigma is a devaluing quality that turns a person from a complete, normal person into a tarnished, discredited one. When it comes

to TB, stigma frequently results from the belief that the illness is linked to death, HIV/AIDS, poverty, and poor hygiene all of which are still very sensitive and stigmatized subjects among young people in African communities (Courtwright & Turner, 2010). Several studies across Nigeria and other sub-Saharan African countries have shown that students tend to perceive TB patients as dangerous, irresponsible, or morally flawed (Olanrewaju et al., 2021). In many cases, TB stigma is fueled by misinformation, lack of contact with TB-affected individuals, or deep-rooted cultural beliefs that TB is a spiritual or hereditary punishment. Students often fear being infected through casual contact, which leads to social distancing, ridicule, or outright discrimination of TB-positive peers. For instance, Oshi et al. (2019) found that university students in southeastern Nigeria viewed TB as a disease of the poor and uneducated. The respondents expressed discomfort sharing personal items or rooms with individuals known to have TB, even after learning that it is not spread through utensils or touch. This highlights how knowledge alone may not be sufficient to dismantle stigma unless paired with attitude change interventions. In a similar study by Okolie et al. (2019) among undergraduates in a Nigerian university, over 65% of respondents believed that individuals with TB should be isolated or made to stay away from school until they recover completely. Fear of being labeled or ostracized also discouraged

students from seeking screening or treatment when TB-like symptoms appeared. Particularly among young individuals in tertiary institutions, tuberculosis (TB) is still influenced by peer pressure and deeply ingrained cultural views in addition to biomedical causes. How TB is viewed, addressed, and controlled is greatly influenced by peer social attitudes and cultural interpretations of the illness. These factors can either encourage early diagnosis and treatment-seeking among students or cause delays in seeking health care due to stigma, denial, and other factors. Many African civilizations, including Nigeria, have long-standing cultural beliefs about tuberculosis (TB), which affect how people understand the disease's causes, symptoms, and treatment. For instance, some people think that TB is a result of witchcraft, a genetic curse, or a spiritual punishment (Oshi et al., 2019). It is considered a disease of impurity, poverty, or moral weakness among several ethnic groups. Fear, secrecy, and a rejection of biological answers might result from these beliefs. According to Ige and Lasebikan (2011), a large number of Nigerian students held non-medical interpretations based on cultural norms, believing that TB may be brought on by cold air, excessive alcohol usage, or hard labor. Such ideas may cause people to turn to traditional or spiritual cures and frequently cause delays in seeking professional healthcare. Perceptions of curability are also influenced by cultural misconceptions. Even though there is free

and efficient treatment for tuberculosis, in certain cultures receiving a diagnosis is seen as a death sentence. Many people are deterred from getting checked or sticking with therapy because of this notion, which makes them fear social rejection.

Peers greatly influence health-related behavior and perception, particularly in academic environments where peer acceptability and social identity are crucial. Whether based on factual information or false beliefs, peer attitudes on tuberculosis can either promote healthy health-seeking behaviors or perpetuate stigma and dread. According to Okolie et al. (2019), peers in Nigerian colleges frequently see TB patients as scary and contagious. The fear of being called "unclean" or "sick" can cause infected students to conceal their symptoms or evade identification. Students' attitudes toward illnesses, such as whether they view tuberculosis as a condition to be ashamed of or one worth caring about, are likely to be influenced by their classmates. Lukhele et al. (2020) also highlighted how the presence of stigma in peer groups contributes to silence around TB. In their study in South Africa, students expressed reluctance to disclose TB status due to fear of being mocked, isolated, or avoided. Peer groups, especially in hostel settings, often set the tone for what is acceptable or shameful regarding health issues.

The success of TB control initiatives is significantly influenced by people's willingness to seek treatment or provide support to those who have TB, particularly in high-density settings like higher campuses. This readiness among undergraduates is influenced by a variety of factors, including personal convictions, perceived stigma, TB knowledge, and the accessibility of medical care. Studies indicate that many students are still reluctant to seek care for themselves or to support friends who have been diagnosed with tuberculosis, even in the face of expanded TB sensitization initiatives in Nigeria and throughout sub-Saharan Africa (Okolie et al., 2019; Oshi et al., 2018). The degree of knowledge, perceived severity of symptoms, fear of social rejection, and trust in healthcare systems all play a role in students' decisions to seek treatment for TB symptoms. The Health Belief Model states that people are more likely to act if they believe the disease is serious (perceived severity), feel at risk (perceived susceptibility), and are certain that treatment will be helpful (perceived benefits) without significant social or physical costs (perceived barriers) (Rosenstock et al., 1988). A study by Olanrewaju et al. (2021) on Nigerian university students revealed that while a significant proportion had heard of TB, only a small percentage reported willingness to undergo screening or visit a health center if they developed symptoms. Reasons for this reluctance included fear of being labeled as having a

disease associated with poverty or HIV, mistrust in health service confidentiality, and belief that symptoms such as cough could be due to other minor ailments like flu. A cross-sectional study by Oshi et al. (2018) found that over 60% of university students in southeastern Nigeria expressed hesitancy in sharing rooms or eating utensils with someone who had TB, despite awareness that TB is not spread via casual contact.

This fear-based behavior reduces social support for affected students and can lead to their social exclusion. The willingness to provide such support is often low among undergraduates due to misconceptions about TB transmission and entrenched stigma. Supporting peers with TB can take many forms, such as providing emotional support, encouraging treatment adherence, or assisting them in navigating health services. Peer empathy is further weakened by cultural norms and false information, which frequently lead to the belief that individuals with TB must have engaged in reckless behavior, such as substance addiction or sexual misconduct. Because they lack supporting peer networks, people with TB may suffer from mental distress and engage less in school.

Developing successful TB prevention and control initiatives within these populations requires an understanding of tertiary institution students' attitudes toward TB. Students' emotional and behavioral reactions to tuberculosis (TB) are

referred to as attitudes. These include feelings of stigma, readiness to assist classmates who have the disease, adherence to treatment, and willingness to seek a diagnosis. In Nigeria and sub-Saharan Africa, a number of studies show both improvement and enduring disparities in students' attitudes toward tuberculosis, which are frequently impacted by sociocultural, educational, and environmental factors. A study by Okolie, Okoro, and Opara (2019) at a Nigerian tertiary institution revealed that although most students were aware of TB, many still harbored negative attitudes, particularly concerning interaction with TB patients. More than 50% of respondents reported they would avoid close contact with someone known to have TB, and over 40% believed TB patients should be isolated completely from the rest of society. This reflects the strong stigma associated with the disease despite widespread knowledge of its curability and treatment availability. Similarly, Oshi et al. (2018) examined attitudes toward TB among university students in southeastern Nigeria and found that while most students recognized TB as an infectious disease, their attitudes were shaped by fear and cultural misconceptions. Many students expressed discomfort sharing accommodation or utensils with TB patients, and there was a general reluctance to discuss the illness openly, pointing to stigma as a major attitudinal barrier to effective TB management on campuses. Olanrewaju et al. (2021) also assessed

TB-related attitudes among students in southwestern Nigeria. The study showed that although students had moderate knowledge of TB, a large number held misconceptions about its transmission, leading to poor attitudes such as fear of social association with TB-positive peers. Moreover, females were found to have more positive attitudes than males, possibly due to greater health-seeking behaviors and risk perception. In South Africa, Lukhele, Dlamini, and Moeti (2020) conducted a qualitative study that highlighted ambivalence among university students regarding TB. While some students were empathetic toward affected peers, many still associated TB with shame, HIV/AIDS, and poverty. The study also noted that students felt uncomfortable discussing TB due to the fear of being perceived as ill, which could affect their social image. In Ethiopia, a cross-sectional study by Legesse and Ameni (2018) among college students found generally favorable attitudes toward TB treatment and care-seeking. However, about 25% of the respondents were still reluctant to interact with TB patients, indicating that stigma remains a barrier. The study concluded that targeted TB education campaigns are needed to dispel myths and reduce stigma Kigozi et al. (2019) in Uganda reported that although students recognized the importance of early treatment for TB, many believed that those with TB would be socially ostracized. This perception influenced students' willingness to seek help or

disclose symptoms early, particularly in closely-knit campus settings.

Relationship between the Level of Knowledge and Attitude Towards the Prevention and Control of Tuberculosis

Numerous studies in public health have looked at the connection between attitudes and knowledge regarding TB prevention and control, especially among young adults and college students. Overall, studies indicate that people who know more about tuberculosis (TB) are more likely to have favorable opinions about preventing, controlling, and treating the disease. This link is especially important in university settings, where intimate social ties and large population densities can promote the transmission of airborne diseases like tuberculosis.

Several studies conducted in Nigeria and other sub-Saharan African countries have consistently demonstrated that knowledge is a strong predictor of attitude. For instance, Olanrewaju et al. (2021) found a statistically significant relationship between students' knowledge levels and their attitude towards TB patients in southwestern Nigeria. Students who correctly identified the causes, modes of transmission, symptoms, and prevention strategies of TB were more likely to express willingness to support affected peers, seek early medical attention, and participate in public health campaigns. A similar finding was reported by Okolie, Okoro, and Opara (2019) in a tertiary institution in southeast Nigeria. The

study revealed that students who had been exposed to formal health education or had previously participated in TB sensitization programs displayed less fear of TB patients and were more likely to encourage early diagnosis and treatment. In contrast, those with limited or no exposure to TB-related information harbored misconceptions and negative attitudes such as fear, stigma, and social avoidance of TB-infected individuals. A theoretical framework for comprehending this link is offered by the Health Belief Model (HBM). The HBM states that knowledge affects how a person perceives the severity and susceptibility of an illness, which in turn influences their attitudes and preventive measures. Students are less likely to stigmatize patients and more likely to take preventative measures, like covering one's mouth when coughing, getting a quick diagnosis, and encouraging others to do the same, if they are aware that tuberculosis is curable and the proper modes of transmission are known (Rosenstock et al., 1988). It is crucial to remember, though, that having information by itself does not always equate to having a good outlook. Factual knowledge may occasionally be subordinated to firmly held cultural ideas and a fear of societal consequences. For instance, Oshi et al. (2018) found that although university students in Enugu State had a comparatively high level of awareness, unfavorable attitudes such as social distancing from TB patients and a reluctance to publicly discuss the disease were still prevalent. This suggests

that although knowledge is an essential starting point, it has to be strengthened via ongoing involvement, peer support, and initiatives to lessen stigma. Moreover, studies from South Africa (Lukhele et al., 2020) and Ethiopia (Legesse & Ameni, 2018) confirm that students who possessed higher knowledge about TB transmission and prevention exhibited more favorable attitudes, such as willingness to help peers with TB or to participate in TB testing campaigns. These findings underscore the importance of integrating TB education into campus health promotion strategies.

Control Measures Against Tuberculosis

Worldwide, tuberculosis (TB) continues to be a major public health concern, particularly in low- and middle-income nations like Nigeria, where it significantly increases morbidity and mortality. To prevent infection, diagnose cases early, ensure treatment adherence, and minimize transmission, a combination of biological, behavioral, and socio-environmental interventions is needed for effective TB control. The World Health Organization (WHO) suggests a holistic strategy that incorporates community involvement, healthcare systems, and personal behavioral modification (WHO, 2023).

1. Early Detection and Diagnosis; Early diagnosis of TB is crucial in reducing transmission, initiating timely treatment, and preventing complications. This is typically achieved through:

- Sputum microscopy, GeneXpert testing, and chest radiography for symptomatic individuals.
- Contact tracing and screening among those who have been in close contact with confirmed TB cases (World Health Organization, 2021).
- Routine screening in high-risk settings, such as tertiary institutions, where population density facilitates airborne transmission.

2. Treatment Adherence and Directly Observed Therapy (DOT); A lengthy course of antibiotics, usually lasting six to nine months, is required for the treatment of tuberculosis. A crucial control strategy to stop relapse, drug resistance (especially in multidrug-resistant TB), and further transmission is to ensure treatment adherence. The Directly Observed Treatment, Short-Course (DOTS) program, in which medical professionals or community volunteers with training watch patients take their prescriptions, is one of the best ways to encourage treatment adherence (*Daniel & Osita, 2020*).

3. Infection Control Practices; In institutional settings like schools, infection control practices play a critical role in preventing TB transmission. These include:

- Ventilation of classrooms and dormitories, as poor air circulation increases the risk of TB spread.
- Isolation of active TB cases, especially during the initial phase of treatment when the risk of transmission is highest.
- Use of personal protective equipment (PPE), such as face masks, particularly in healthcare or high-risk settings.
- Respiratory hygiene promotion, including proper coughing etiquette and hand hygiene education.

4. Vaccination (BCG Vaccine); The Bacillus Calmette–Guérin (BCG) vaccine remains the only available vaccine against TB and is commonly administered to newborns in many countries, including Nigeria. Although it does not prevent pulmonary TB in adults with high efficacy, it significantly reduces the risk of severe forms of TB in children, such as TB meningitis and miliary TB (Lenz et al., 2020). Maintaining high BCG coverage remains a critical preventive measure in TB control efforts.

5. Public Health Education and Awareness; Public awareness campaigns are essential in dispelling myths and misconceptions, encouraging early health-seeking behavior, and reducing stigma. Among university students, targeted health education through seminars, peer education, and integration into curricula can:

- Increase awareness of symptoms and transmission routes,
- Improve attitudes towards TB patients,
- Encourage timely reporting and treatment,
- Reduce stigma and discrimination on campus (Olanrewaju et al., 2021).

6. Surveillance and Reporting; A functional surveillance system ensures that TB cases are promptly reported and tracked. This helps health authorities monitor trends, allocate resources, and implement targeted interventions. Institutions are encouraged to collaborate with local and national TB control programs to strengthen data collection and case management.

7. Addressing Social Determinants; Poverty, malnutrition, overcrowding, and poor access to healthcare increase the vulnerability of populations to TB. Effective TB control therefore also requires multisectoral interventions that address the underlying social and economic determinants of the disease. In universities, efforts to improve living conditions in hostels, nutritional support, and access to health services can indirectly aid TB control. ‘

A study conducted by Chukwu et al. (2019) at the University of Nigeria, Nsukka, assessed the effectiveness of a campus-wide TB awareness and screening campaign. The study found that targeted TB testing in university health centers increased early detection rates by 30%, particularly among students presenting with persistent cough and weight loss. It also noted that awareness campaigns significantly boosted students' willingness to visit campus clinics for screening. Similarly, Ibrahim et al. (2021) evaluated TB control practices among students at Ahmadu Bello University. The findings showed that periodic TB screening was implemented mainly for health sciences students during their clinical postings, but non-health students were often excluded. The researchers advocated for the institutionalization of TB screening as part of routine campus health services for all students, especially in hostels and crowded lecture halls.

Educational interventions have been shown to be effective in promoting TB control measures. For example, Afolabi et al. (2020) conducted a quasi-experimental study in a Nigerian polytechnic, where students were exposed to health education sessions on TB prevention. Results showed a statistically significant improvement in knowledge levels, respiratory hygiene practices, and willingness to participate in future screenings. In a related study, Mpofu and Dube (2018) in Zimbabwe found that peer-led TB education programs were more

impactful than traditional lectures. Students trained as peer educators influenced their peers' behaviors more effectively, promoting cough etiquette, mask use, and early treatment-seeking behaviors. A study by Ezeoke et al. (2017) examined TB infection control measures in five Nigerian universities. It revealed that most institutions lacked clear TB control policies, adequate isolation rooms, and standard ventilation in hostels and classrooms. The absence of institutional guidelines made it difficult to manage suspected or confirmed TB cases effectively, leading to delays in diagnosis and increased risk of transmission. The research emphasized the need for universities to collaborate with state and federal TB control programs to establish protocols for infection prevention, contact tracing, and treatment referrals. According to Olanrewaju et al. (2021), students' personal practices regarding TB control measures are influenced by their level of knowledge and perceived susceptibility. The study, conducted at a university in southwestern Nigeria, showed that students with accurate knowledge of TB were more likely to avoid overcrowded spaces, use handkerchiefs when coughing, and support friends undergoing TB treatment. However, fear of stigma and lack of access to free testing remained barriers to effective control. In Kenya, *Mutuku et al. (2020)* assessed how stigma affects students' uptake of TB control services. They found that even when free screening and treatment were available, many students

avoided them due to fear of being labeled as HIV-positive (due to the strong association between TB and HIV). The study highlighted the importance of integrating anti-stigma campaigns with TB education to improve participation in control efforts.

Summary of Literature Reviewed

According to the overview, tuberculosis is a serious public health issue, especially in Nigeria and sub-Saharan Africa, where high population densities and little awareness make transmission rates worse. Since airborne droplets are the main way that tuberculosis is spread, early discovery, adherence to treatment, immunization, and infection control are necessary for control. Due to their high levels of mobility, social engagement, and living in crowded settings like dorms, young adults and students have a disproportionately high burden of tuberculosis. Because of their delayed health-seeking behavior and lack of screening, tertiary institutions have been highlighted as possible hotspots for TB transmission in a number of studies. Students' knowledge of tuberculosis differs greatly. Common symptoms like coughing and weight loss are well known, yet there are still false beliefs that tuberculosis is an incurable illness or a spiritual affliction. Early diagnosis and treatment adherence are hampered by these misunderstandings. The literature study also emphasizes how little is known about how TB spreads and

how crucial it is to finish treatment, both of which raise the possibility of drug-resistant TB strains. The importance of health education in enhancing TB awareness and attitudes has been underlined time and time again. Health education, particularly peer-led interventions, has been shown to dramatically enhance TB knowledge, hygiene habits, and desire to seek care.

Despite some efforts to increase awareness, TB control programs remain inadequate, according to studies done in higher institutions, particularly in Nigeria and other sub-Saharan African nations. Stigma continues to be a significant deterrent for students' willingness to get tested or to help peers who are receiving treatment. Students' perceptions of tuberculosis are also significantly shaped by peer pressure and cultural attitudes. Common misconceptions that prevent candid conversations and treatment-seeking behaviors include the idea that TB is a witchcraft-caused disease or that it is associated with HIV infection. Similarly, depending on the degree of awareness in social circles, peer attitudes can either assist treatment adherence or reinforce stigma. Knowledge levels were found to be closely associated with the willingness to support or seek treatment for TB-infected patients. Students who knew more about tuberculosis showed more optimism and were more inclined to support early detection and care. Different degrees of stigma, fear, and misinformation were found in empirical studies on

university students' perspectives. They did, however, also demonstrate how access to campus health services and organized health education greatly enhance TB control attitudes and behaviors. Lastly, it was shown that there was a positive and significant correlation between attitude and knowledge. Better-informed students are more likely to have positive attitudes regarding TB prevention and control, according to numerous studies. This emphasizes how crucial supportive settings, institutional policies, and health education are to reducing the incidence of tuberculosis in higher education.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter described the research methodology that will be used in the study.

This will be done under the following subheadings;

- Research Design
- Population of the Study
- Sample and Sampling Technique
- Research Instrument
- Validity of the Instrument
- Reliability of the Instrument
- Method of Data Collection
- Method of Data Analysis

Research Design

In this research study, a survey research design will be employed. Surveys are used as an instrument by researchers to provide in-depth knowledge about an individual or group perspectives that is in relation to a particular concept or topic of interest. Through this design, the researcher will be able to conduct a systematic inquiry of the respondent's perspective on the influence of internet exposure on the sexual behaviour of the students of the faculty of education in the University of

Benin.

Population of the Study

The population for this research study will consists of six thousand, four hundred and thirty-five (6435) undergraduate students of the Faculty of Education of the University of Benin. The breakdown of the population is given below;

S/N	Department	Number of Students
	Department of Adult and Non-Formal education (ADT)	619
	Department of Curriculum and Instructional Technology (CIT)	1032
	Department of Educational Foundations (DEF)	1374
	Department of Educational Management (DEM)	1225
	Department of Educational Evaluation and Counselling Psychology (EECP)	516
	Department of Human Kinetics and Sports Science (HKS)	348
	Department of Health Safety and Environmental Education (HSE)	669
	Department of Vocational and Technical Education (VTE)	652
	Total	6435

(Faculty of Education, 2025)

Sample and Sampling Technique

The sample size for this study consists of 250 undergraduates students from 100 level to 400 level who will be purposively selected from four departments in the Faculty of Education.

S/N	Department	Number of students	Number of Sample students
	Department of Educational Foundations (DEF)	1374	70
	Department of Educational Management (DEM)	1225	60
	Department of Curriculum and Instructional technology (CIT)	1032	60
	Department of Health Safety and Environmental Education (HSE)	669	60
	Total	4300	250

(Faculty of Education, 2025)

Research Instrument

For the purpose of collecting acceptable and reliable information, the use of a questionnaire will be adopted as an instrument for data collection. The questionnaire will consist of four sections A, B, C, and D. The different sections have a number of questions to help gather information on the respondents, regarding their knowledge and attitude towards the prevention and control of tuberculosis.

Method of data Collection

The researcher will personally administer the instrument to the respondents. The questionnaires completed by the respondents will be retrieved personally by the researcher immediately after.

Method of Data Analysis

Following the collection and appropriate organization of valid questionnaires, the gathered data will undergo analysis using frequency counts, mean calculations, and simple percentage.

CHAPTER FOUR

PRESENTATION OF RESULT AND DISCUSSION OF FINDINGS

Introduction

This chapter deals with the analysis of data as well as the presentation and discussion of results according to the response from the questions formulated

Research Question: What are the attitudes towards the prevention and control of tuberculosis among undergraduates in the Faculty of Education, University of Benin?

Table 1; Descriptive statistics of mean and standard deviation showing the Attitudes Towards Tuberculosis Prevention and Control

S/N	ITEMS	YES Freq. (%)	NO Freq. (%)	Mean \bar{x}	Standard Deviation (SD)	Remark
1	I believe tuberculosis is a serious health threat to students.	216 (86.4)	34 (13.6)	.86	.343	Agreed
2	I am willing to go for TB screening if I have symptoms.	224 (89.6)	26 (10.4)	.90	.306	Agreed
3	People who have TB should not be avoided.	215 (86)	35 (14)	.86	.348	Agreed
4	I feel comfortable being around someone who is receiving TB treatment.	38 (84.8)	212 (15.2)	.15	.360	Rejected
5	TB patients should be supported rather than stigmatized.	213 (85.2)	37 (14.8)	.85	.356	Agreed
Total				0.72	0.34	Agreed

Source; Field Survey 2025

The descriptive statistics presented in Table 3 highlight the attitudes of undergraduates in the Faculty of Education at the University of Benin towards

tuberculosis (TB) prevention and control. The responses are measured in terms of frequency percentages for "Yes" and "No," with corresponding means and standard deviations reflecting the overall agreement or disagreement with the statements. Most participants showed strong agreement with the statement that tuberculosis is a serious health threat to students, with 86.4% affirming this belief. The mean score of 0.86 and a standard deviation of 0.343 reflect a high level of consensus among the respondents, indicating minimal variation in their views. Similarly, the willingness to undergo TB screening if symptoms are present received widespread support, with 89.6% expressing their readiness. The mean score of 0.90, the highest among all items, demonstrates a nearly unanimous agreement, with a standard deviation of 0.306, suggesting that the responses were tightly grouped. When asked whether people with TB should be avoided, 86% of respondents disagreed with such a notion, showing strong agreement with the idea that those affected by TB should not be stigmatized or shunned. The mean of 0.86 and a standard deviation of 0.348 reflect a strong consensus, similar to the first two items. However, a notable contrast emerged in the question of feeling comfortable around someone undergoing TB treatment, where only 15.2% agreed, and the majority, 84.8%, disagreed. This resulted in a much lower mean of 0.15 and a higher standard deviation of 0.360, indicating significant variability in

responses, suggesting that many participants were uncomfortable with the idea of being around someone undergoing TB treatment. Finally, a significant portion of respondents, 85.2%, agreed that TB patients should be supported rather than stigmatized. The mean of 0.85 and a standard deviation of 0.356 indicate a strong yet slightly more varied level of agreement, aligning with the other items supporting TB prevention and care.

Overall, the total mean of 0.72 and standard deviation of 0.34 reflect a generally positive attitude towards TB prevention and control, with participants showing significant support for the prevention of stigma and a willingness to engage in TB-related health measures.

Section B

Research Question 2; What are the control measures against tuberculosis exhibited by undergraduates in the Faculty of Education, University of Benin?

Table 2; Descriptive statistics of frequency, mean and standard deviation showing the Control Measures Against Tuberculosis

S/N	ITEMS	YES Freq. (%)	NO Freq. (%)	Mean \bar{x}	Standard Deviation (SD)	Remark
1	I cover my mouth and nose when coughing or sneezing.	214 (85.6)	36 (14.4)	.86	.352	Agreed
2	I avoid sharing utensils, drinks, or food with people who are coughing persistently.	218 (87.2)	32 (12.8)	.87	.335	Agreed
3	I maintain good personal hygiene to prevent infections like tuberculosis.	209 (83.6)	41 (16.4)	.84	.371	Agreed
4	I seek medical attention when I experience persistent cough or tuberculosis-like symptoms.	216 (86.4)	34 (13.6)	.86	.343	Agreed
5	I encourage my peers to get tested if they show symptoms of tuberculosis.	211 (84.4)	39 (15.6)	.84	.364	Agreed
Total				0.85	0.35	Agreed

Source; Field Survey 2025

The descriptive statistics provided in Table 4 highlight the control measures against tuberculosis (TB) exhibited by undergraduates in the Faculty of Education at the University of Benin. The survey results show the frequency percentages for "Yes" and "No" responses, along with the corresponding mean and standard deviation for each item, reflecting the participants' adherence to TB control

practices.

The first item, which asks whether the respondents cover their mouth and nose when coughing or sneezing, received a high level of agreement, with 85.6% affirming that they do. The mean of 0.86 and a standard deviation of 0.352 reflect a strong consensus among participants, indicating a common practice among the students.

The second item, about avoiding sharing utensils, drinks, or food with people who are coughing persistently, also showed strong agreement, with 87.2% of participants indicating they avoid sharing items. The mean score of 0.87, one of the highest among all items, suggests a strong level of adherence to this control measure, with a relatively low standard deviation of 0.335, indicating that the responses were consistent. In the third item, regarding maintaining good personal hygiene to prevent infections like tuberculosis, 83.6% of respondents agreed. The mean of 0.84 and the standard deviation of 0.371 demonstrate that while there is strong adherence to this practice, there is slightly more variation in responses compared to the previous two items. The fourth item, which asks if respondents seek medical attention when experiencing persistent cough or TB-like symptoms, had an agreement rate of 86.4%. The mean of 0.86 and standard deviation of 0.343 indicate strong support for seeking medical attention when necessary, with

consistent responses across participants. Lastly, in the fifth item, which asks whether respondents encourage their peers to get tested if they show symptoms of tuberculosis, 84.4% of participants agreed. The mean of 0.84 and standard deviation of 0.364 suggest that while most respondents are proactive in encouraging TB testing, there is a slight variation in the responses.

Overall, the total mean of 0.85 and standard deviation of 0.35 indicate that the students exhibit strong and consistent control measures against tuberculosis, with a high level of agreement on the importance of practicing hygiene, seeking medical help, and encouraging others to get tested

Discussion of Findings

The findings from Research Question 1 indicate that undergraduates in the Faculty of Education at the University of Benin exhibit generally positive attitudes towards the prevention and control of tuberculosis (TB). A significant number of students strongly agree that TB is a serious health threat to students, recognizing its impact on both individual and public health. This view is reflected in their willingness to undergo TB screening if they exhibit symptoms, demonstrating a proactive stance towards early detection and treatment. Additionally, the majority of students believe that people with TB should not be stigmatized or avoided, with a strong consensus on the need for support rather than isolation of those affected

by TB. These attitudes are in line with global public health recommendations, which emphasize the importance of awareness, education, and support for individuals with TB.

However, despite the generally positive attitudes, there is a contrasting sentiment when it comes to being comfortable around individuals undergoing TB treatment. While most students agree that people with TB should not be avoided, a significant portion expresses discomfort in being around those receiving treatment. This discomfort suggests that stigma surrounding TB treatment still persists, a finding that aligns with research by Al-Mohrej (2020), which highlights how stigma can hinder individuals from seeking treatment or disclosing their TB status. Similarly, Fadare et al. (2019) noted that while awareness of TB is high, the lingering fear of social exclusion continues to affect the behavior of those with TB, underscoring the need for further interventions to reduce stigma.

In Research Question 2, the findings demonstrate that the undergraduates in the Faculty of Education also exhibit strong control measures against tuberculosis. The majority of students reported covering their mouth and nose when coughing or sneezing, avoiding the sharing of utensils with individuals who are coughing persistently, and maintaining good personal hygiene to prevent infections like tuberculosis. These actions reflect the students' understanding of the importance of

personal responsibility in preventing the spread of TB. Furthermore, students also seek medical attention when they experience symptoms consistent with TB and encourage their peers to get tested if they show signs of the disease. This proactive behavior aligns with studies by Kigozi et al. (2018), who emphasized the significance of hygiene practices and early medical consultation in community-based TB control efforts. Similarly, Pradip et al. (2021) highlighted the role of peer education in encouraging health behaviors, a concept reflected in the students' encouragement of peer testing.

Despite these positive control measures, the discomfort regarding proximity to those receiving TB treatment remains an area of concern. While students are knowledgeable about preventive actions, the social stigma surrounding treatment suggests that more work is needed to create supportive environments for those undergoing TB treatment. This finding is consistent with the work of Al-Mohrej (2020), who noted that stigma, even in educated communities, can deter individuals from seeking treatment and disclosing their TB status. Therefore, addressing this stigma, particularly in university settings, is crucial for ensuring the effectiveness of TB control measure

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary

This study investigated the knowledge and attitude towards the prevention and control of tuberculosis among undergraduates in the faculty of education, UNIBEN., three (3) research questions guided the study, aiming to identify What is the level of knowledge of tuberculosis among undergraduates in the Faculty of Education, University of Benin? What are the attitudes towards the prevention and control of tuberculosis among undergraduates in the Faculty of Education, University of Benin? What are the control measures against tuberculosis exhibited by undergraduates in the Faculty of Education, University of Benin? The study reviewed literature on the knowledge and attitude towards the prevention and control of tuberculosis, The study adopted the descriptive survey research design. The population for this research study will consists of six thousand, four hundred and thirty-five (6435) undergraduate students of the Faculty of Education of the University of Benin., The sample size for this study consists of 250 undergraduates students from 100 level to 400 level who will be purposively selected from four departments in the Faculty of Education. The instrument for data collection was a structured questionnaire,. The instrument was administered

by the researcher to the respondents, the data collected was collated and analyzed using descriptive statistics. The findings of the study were as follows;

Findings

1. The majority of students recognize tuberculosis (TB) as a serious health threat and are willing to undergo screening if they exhibit symptoms. Most students believe that people with TB should not be stigmatized or avoided, reflecting a supportive attitude towards those affected by TB.
2. A significant portion of students expressed discomfort about being around individuals receiving TB treatment, indicating the presence of stigma. Most students practice preventive measures such as covering their mouth and nose when coughing, avoiding sharing utensils, and maintaining good hygiene to prevent TB.

Conclusion

In conclusion, the findings suggest that undergraduates in the Faculty of Education at the University of Benin possess a generally positive attitude towards tuberculosis (TB) prevention and control. They recognize TB as a serious health threat and show a willingness to engage in screening and preventive practices. While the majority of students demonstrate supportive attitudes towards people affected by TB, there remains some discomfort surrounding proximity to

individuals undergoing TB treatment, highlighting the persistence of stigma. Nonetheless, students exhibit strong control measures, including good hygiene practices and encouraging peers to seek testing, indicating a collective effort to curb the spread of TB within their community. To further improve TB prevention and control, efforts should focus on reducing the stigma surrounding TB treatment and creating more supportive environments for those affected by the disease.

Recommendations

Based on the findings, the following recommendations are proposed:

1. Awareness campaigns should continue to emphasize the importance of TB treatment and reduce stigma, especially regarding individuals undergoing treatment. Peer education programs should be promoted to enable students to share knowledge about TB prevention, symptoms, and treatment, fostering a more informed and supportive community.
2. The university should offer regular TB screening programs to ensure early detection and prompt treatment. Support groups or counseling services should be established for students diagnosed with TB to help them cope with treatment and reduce stigma.

Suggestions for Further Studies

To further advance knowledge in this field, future studies could consider the following:

1. Further studies could explore the psychosocial factors influencing students' attitudes towards individuals undergoing TB treatment, with a focus on understanding and addressing the discomfort and stigma observed in the current study. Future research could investigate the effectiveness of peer education programs in reducing TB-related stigma and promoting preventive behaviors among university students, evaluating the impact of peer influence on health behaviors.
2. Additional studies could assess the long-term impact of TB awareness campaigns in university settings, measuring changes in attitudes, behaviors, and stigma over time, and identifying the most effective communication strategies. Research could be conducted to explore the barriers to TB screening and treatment access among university students, identifying factors such as cost, time, and knowledge that may hinder participation in screening programs.

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**DEPARTMENT OF HEALTH, SAFETY AND ENVIRONMENTAL
EDUCATION, FACULTY OF EDUCATION, UNIVERSITY OF BENIN,
BENIN CITY
QUESTIONNAIRE ON
KNOWLEDGE AND ATTITUDE TOWARDS THE PREVENTION AND
CONTROL OF TUBERCULOSIS AMONG UNDERGRADUATES IN THE
FACULTY OF EDUCATION, UNIVERSITY OF BENIN**

Dear respondents,

This is designed to investigate the knowledge and attitude towards the prevention and control of tuberculosis among undergraduates in the Faculty of Education, University of Benin. This research work is purely for academic purpose and will be treated as confidential. You are therefore required to kindly and truthfully respond by providing answers to the questions below.

Thank you.

EFOSA, Praise
Researcher

Section A

Instruction: please tick (✓) as appropriate.

Demographic background.

Gender: Male () Female ()

Religion: Christianity () Islam () Others ()

Age: less than 25 years () 25 – 30 years () Above 30 years ()

Level: 100 () 200 () 300 () 400 () 500 () 600 ()

Section B

Level of knowledge of tuberculosis among undergraduates in the Faculty of Education, University of Benin

INSTRUCTION: For the purpose of this study, you must submit accurate responses to the questions in this section, underlining your responses as appropriate.

1. What is the primary cause of tuberculosis?

- A. Virus
- B. Fungus
- C. Bacteria
- D. Parasite

2. What is the name of the bacteria that causes tuberculosis?

- A. Escherichia coli
- B. Streptococcus pneumoniae
- C. Mycobacterium tuberculosis
- D. Staphylococcus aureus

3. How is TB primarily transmitted?

- A. Through contaminated food
- B. Through mosquito bites
- C. Through the air when an infected person coughs or sneezes
- D. Through handshakes

4. Which of the following is NOT a common symptom of active TB?

- A. Persistent cough lasting more than two weeks
- B. Night sweats
- C. High fever with rash
- D. Weight loss

5. Which part of the body is most commonly affected by TB?

- A. Liver
- B. Skin
- C. Lungs
- D. Heart

Section C

What are the attitudes towards the prevention and control of tuberculosis among undergraduates in the Faculty of Education, University of Benin?

KEYS

SA = STRONGLY AGREE

A = AGREE

D = DISAGREE

SD = STRONGLY DISAGREE

ATTITUDES TOWARDS TUBERCULOSIS PREVENTION AND CONTROL

S/N	ITEM	SA	A	D	SD
1	I believe tuberculosis is a serious health threat to students.				
2	I am willing to go for TB screening if I have symptoms.				
3	People who have TB should not be avoided.				
4	I feel comfortable being around someone who is receiving TB treatment.				
5	TB patients should be supported rather than stigmatized.				

Section D

What are the control measures against tuberculosis exhibited by undergraduates in the Faculty of Education, University of Benin?

KEYS

SA = STRONGLY AGREE

A = AGREE

D = DISAGREE

SD = STRONGLY DISAGREE

CONTROL MEASURES AGAINST TUBERCULOSIS

S/N	ITEM	SA	A	D	SD
1	I cover my mouth and nose when coughing or sneezing.				
2	I avoid sharing utensils, drinks, or food with people who are coughing persistently.				
3	I maintain good personal hygiene to prevent infections like tuberculosis.				
4	I seek medical attention when I experience persistent cough or tuberculosis-like symptoms.				
5	I encourage my peers to get tested if they show symptoms of tuberculosis.				

Thank You.