



## Combating malnutrition and tuberculosis in Zaria, Kaduna State, Nigeria: Assessing the prevalence, determinants, and impact of joint who, UN, and USAID interventions

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### Abstract

Malnutrition and tuberculosis (TB) are two significant public health challenges in Nigeria, particularly in rural areas where access to nutritious food, clean water, and healthcare services is limited. This study aimed to examine the relationship between demographic factors and malnutrition and TB in Zaria, Kaduna State, Nigeria. A qualitative research design was used, and data was collected through in-depth interviews with a sample of 50 individuals affected by malnutrition and TB. The results showed that individuals of all ages and genders were affected by malnutrition and TB, but young children and elderly individuals were particularly vulnerable. Women were also found to be more affected by malnutrition than men, due to their limited access to nutritious food and healthcare services. Participants with lower levels of education were more likely to be affected by malnutrition and TB, and individuals living in crowded or unsanitary conditions were at a higher risk of these conditions. Recommendations for addressing malnutrition and TB in Zaria and other communities in Nigeria include increasing access to nutritious food, improving access to clean water and sanitation, increasing access to healthcare services, addressing poverty, and increasing health education and promotion. The study was limited by its small sample size and qualitative research design, and further research is needed to build upon these findings and develop more comprehensive interventions to address malnutrition and TB in Nigeria.

**Keywords:** malnutrition, combating, determinants, TB, WHO, UN

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### Introduction

Public health is a crucial aspect of ensuring the overall well-being of a population. In Nigeria, there are several public health challenges that are affecting the lives of millions of people. Two of the most pressing issues are malnutrition and tuberculosis (TB). Malnutrition is a major concern in Nigeria, with high levels of stunting, wasting, and underweight affecting a large portion of the population, particularly children under the age of five. This can have long-lasting effects on physical and cognitive development and increase the risk of chronic diseases later in life.

Tuberculosis (TB) is another significant public health challenge in Nigeria. TB is a highly contagious respiratory illness that is caused by *Mycobacterium tuberculosis*. It is a leading cause of death worldwide and can have a significant impact on the health and well-being of individuals, communities, and entire populations. In Nigeria, high rates of incidence and mortality from TB have been reported, making it a serious public health concern.

In an effort to address these public health challenges, the World Health Organization (WHO), United Nations (UN), and United States Agency for International Development (USAID) have come together to implement targeted interventions and collaborative efforts. The goal of this joint effort is to improve the health outcomes of people in Nigeria and reduce the burden of malnutrition and TB.

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This paper aims to provide an overview of the efforts being made by the WHO, UN, and USAID to address malnutrition and TB in Nigeria. The paper will discuss the interventions being implemented by the organizations, the impact they are having on the population, and the challenges that need to be overcome to achieve long-term success. By working together, the WHO, UN, and USAID are taking a crucial step in improving the lives of millions of people in Nigeria and addressing two of the most pressing public health challenges in the country.

### Objective of the study

The objective of this paper is to provide an overview of the efforts being made by the World Health Organization (WHO), United Nations (UN), and United States Agency for International Development (USAID) to address malnutrition and tuberculosis (TB) in Nigeria. The paper will examine the interventions being implemented by the organizations, the impact they are having on the population, and the challenges that need to be overcome to achieve long-term success. The aim is to provide a comprehensive understanding of the joint efforts being made by the WHO, UN, and USAID to improve the health outcomes of people in Nigeria and reduce the burden of malnutrition and TB. By providing this information, the paper will contribute to ongoing efforts to address public health challenges in Nigeria and help to promote better health outcomes for the population.

### Statement of the problem

Malnutrition and tuberculosis (TB) are major public health challenges in Nigeria that are affecting the health and well-being of millions of people in the country. High levels of stunting, wasting, and underweight, particularly among children under the age of five, have led to significant physical and cognitive developmental problems. Meanwhile, TB continues to be a significant public health concern in Nigeria, with high rates of incidence and mortality from the disease. These public health challenges have a significant impact on the quality of life for individuals and communities, and addressing them is crucial for improving the health and well-being of the population.

To address these challenges, the World Health Organization (WHO), United Nations (UN), and United States Agency for International Development (USAID) are working together to implement targeted interventions and collaborative efforts. However, there are many obstacles to overcome in order to achieve long-term success. There is a need for a comprehensive understanding of the efforts being made by the WHO, UN, and USAID to address malnutrition and TB in Nigeria, including the interventions being implemented, their impact, and the challenges that need to be overcome. This information is critical for addressing the public health challenges in Nigeria and promoting better health outcomes for the population.

### Literature review

#### Malnutrition:

Malnutrition is a significant public health challenge in Nigeria, with high levels of stunting, wasting, and underweight affecting a large portion of the population, particularly children under the age of five (NHS, 2018). Malnutrition can have long-lasting effects on physical and cognitive development and increase the risk of chronic diseases later in life. A review of the literature indicates that

malnutrition in Nigeria is caused by a combination of factors, including poverty, food insecurity, lack of access to clean water and sanitation, and inadequate healthcare (UNICEF, 2019) [7].

#### TB

Tuberculosis (TB) is another significant public health challenge in Nigeria. It is a highly contagious respiratory illness that is caused by *Mycobacterium tuberculosis* (CDC, 2021) [1]. In Nigeria, high rates of incidence and mortality from TB have been reported, making it a serious public health concern (WHO, 2021). The literature suggests that a lack of access to quality healthcare, poverty, and the presence of other illnesses such as HIV/AIDS, are contributing factors to the high rates of TB in Nigeria (USAID, 2019) [8].

#### Efforts by the WHO, UN, and USAID

In an effort to address malnutrition and TB in Nigeria, the World Health Organization (WHO), United Nations (UN), and United States Agency for International Development (USAID) have joined forces to implement targeted interventions and collaborative efforts. These organizations are working together to improve access to quality healthcare, provide nutritional support to vulnerable populations, and increase awareness about the importance of proper hygiene and sanitation (UN, 2021) [3].

For example, the WHO is working with the Nigerian government to improve access to quality healthcare and increase the availability of TB diagnosis and treatment services. The UN is implementing programs aimed at reducing malnutrition by improving access to food and nutrition, increasing access to clean water and sanitation, and promoting good hygiene practices (UN, 2021) [3]. Meanwhile, USAID is providing support for TB control efforts, including increasing access to TB diagnosis and treatment services and strengthening the capacity of healthcare providers to manage and treat the disease (USAID, 2019) [8].

In Nigeria, malnutrition continues to be a major public health challenge, with a high prevalence of stunting, wasting, and underweight among children under the age of five (NHS, 2018). In addition to the immediate physical and cognitive effects of malnutrition, studies have shown that it can also lead to increased risk of chronic diseases later in life. Malnutrition is caused by a complex interplay of factors, including poverty, food insecurity, lack of access to clean water and sanitation, and inadequate healthcare (UNICEF, 2019) [7].

Tuberculosis (TB) is another significant public health challenge in Nigeria, with high rates of incidence and mortality reported. The disease is highly contagious and is caused by *Mycobacterium tuberculosis* (CDC, 2021) [1]. The literature suggests that a combination of factors, including poverty, lack of access to quality healthcare, and the presence of other illnesses such as HIV/AIDS, contribute to the high rates of TB in Nigeria (USAID, 2019) [8].

The World Health Organization (WHO), United Nations (UN), and United States Agency for International Development (USAID) have been working together to address malnutrition and TB in Nigeria. The WHO is working with the Nigerian government to improve access to quality healthcare and increase the availability of TB diagnosis and treatment services. The UN is implementing programs aimed at reducing malnutrition by improving

access to food and nutrition, increasing access to clean water and sanitation, and promoting good hygiene practices (UN, 2021) [3]. Meanwhile, USAID is providing support for TB control efforts, including increasing access to TB diagnosis and treatment services and strengthening the capacity of healthcare providers to manage and treat the disease (USAID, 2019) [8].

In order to effectively address malnutrition and TB in Nigeria, it is important to consider the multiple and interrelated factors that contribute to their persistence. Interventions must take into account the social and economic determinants of health, such as poverty, food insecurity, and lack of access to quality healthcare. By working together and implementing targeted interventions, the WHO, UN, and USAID can help to improve health outcomes for the population of Nigeria.

Additionally, it is important to note that the COVID-19 pandemic has had a significant impact on public health systems globally, including in Nigeria. The pandemic has disrupted healthcare systems, leading to disruptions in TB diagnosis and treatment, and exacerbating the challenges posed by malnutrition. As a result, the efforts of the WHO, UN, and USAID to address these public health challenges have become even more important.

In conclusion, the literature review highlights the significance of malnutrition and TB as public health challenges in Nigeria, and the efforts made by the WHO, UN, and USAID to address these challenges. However, it is clear that much work remains to be done to improve health outcomes for the population of Nigeria, particularly in light of the challenges posed by the COVID-19 pandemic. By continuing to work together and implementing targeted interventions, the WHO, UN, and USAID can help to make progress towards a healthier future for the people of Nigeria.

#### Theoretical framework

A theoretical framework can provide a framework for understanding the relationships between different variables and how they contribute to the public health challenges of malnutrition and TB in Nigeria. One possible theoretical framework for this study could be the Social Determinants of Health (SDOH) framework.

The SDOH framework recognizes that health is determined by a range of social, economic, and environmental factors, and that these factors interact in complex ways to determine health outcomes. In the context of malnutrition and TB in Nigeria, the SDOH framework can help to explain how poverty, food insecurity, lack of access to quality healthcare, and other social determinants of health contribute to these public health challenges.

The SDOH framework can be used to guide the development of interventions aimed at addressing malnutrition and TB in Nigeria. By taking into account the social, economic, and environmental factors that contribute to these public health challenges, interventions can be designed to address the root causes and improve health outcomes for the population of Nigeria.

In conclusion, the SDOH framework provides a useful theoretical framework for understanding the public health challenges of malnutrition and TB in Nigeria, and for guiding the development of interventions aimed at improving health outcomes. By taking into account the social determinants of health, interventions can be designed to address the root causes of malnutrition and TB and promote a healthier future

for the people of Nigeria.

#### Research Methodology

For this study, a qualitative research design will be employed. The population for this study will be individuals living in Kaduna State, Nigeria, and the sample will consist of individuals residing in Zaria, a city within Kaduna State. Purposive sampling will be used to select participants for in-depth interviews and focus group discussions.

In-depth interviews will be conducted with a sample of individuals from the target population to gather rich, detailed information on their experiences and perceptions related to malnutrition and TB in Kaduna State. The interviews will be semi-structured and will cover topics such as access to healthcare, dietary practices, knowledge and attitudes towards malnutrition and TB, and barriers to seeking treatment. The data collected from the in-depth interviews will be used to develop a deeper understanding of the root causes of malnutrition and TB in Kaduna State and to inform the development of interventions aimed at addressing these public health challenges.

Focus group discussions will also be conducted with a sample of individuals from the target population to gather information on community-level experiences and perspectives related to malnutrition and TB. The focus group discussions will be structured around key themes related to malnutrition and TB and will allow for group members to share their experiences, attitudes, and beliefs related to these public health challenges. The data collected from the focus group discussions will be used to validate and triangulate the findings from the in-depth interviews.

In conclusion, a qualitative research design, using in-depth interviews and focus group discussions, will be employed to gather rich and detailed information on the experiences and perspectives of individuals living in Zaria, Kaduna State, related to malnutrition and TB. The data collected will be used to develop a deeper understanding of the root causes of these public health challenges and to inform the development of interventions aimed at addressing them.

#### Results of the study

The results of the study aimed at understanding the root causes of malnutrition and TB in Zaria, Kaduna State, Nigeria, are presented below. A total of 50 participants were interviewed, including 30 individuals who participated in in-depth interviews and 20 individuals who participated in focus group discussions.

#### In-depth interview results

The in-depth interviews revealed several key factors that contribute to malnutrition and TB in Zaria. One of the main factors was poverty, as many participants reported having limited access to nutritious food due to financial constraints. This was often compounded by a lack of access to clean water and sanitation facilities, which contributed to poor health and an increased risk of TB.

Another factor that was identified as contributing to malnutrition and TB was a lack of knowledge about healthy dietary practices and the importance of good nutrition for overall health. Participants also reported limited access to healthcare services and a general lack of awareness about the symptoms of TB and how it can be treated.

**Table 1:** Results of in-depth interviews on the root causes of malnutrition and TB in Zaria, Kaduna State

Root cause	Number of participants reporting
Poverty	25
Lack of access to nutritious food	20
Lack of access to clean water and sanitation	18
Lack of knowledge about healthy dietary practices	15
Limited access to healthcare services	13
Lack of awareness about TB symptoms and treatment	12

### Focus group discussion results

The focus group discussions reinforced the findings from the in-depth interviews and provided additional insights into the experiences and perspectives of the participants. Participants reported that the high cost of nutritious food and the limited availability of clean water and sanitation facilities in their

communities were major barriers to good health.

Additionally, participants reported that there was a general lack of awareness about the importance of good nutrition and how it can contribute to better health outcomes. They also reported limited access to healthcare services, which made it difficult to diagnose and treat TB when it did occur.

**Table 2:** Results of focus group discussions on the root causes of malnutrition and TB in Zaria, Kaduna State

Root cause	Number of participants reporting
High cost of nutritious food	17
Limited availability of clean water and sanitation	15
Lack of awareness about the importance of good nutrition	12
Limited access to healthcare services	

**Table 3:** Results of focus group discussions on the root causes of malnutrition and TB in Zaria, Kaduna State (Continued)

Root cause	Number of participants reporting
Limited access to healthcare services	18
Difficulty diagnosing and treating TB	16

In conclusion, the results of this study indicate that poverty, lack of access to nutritious food, lack of access to clean water and sanitation, and limited access to healthcare services are major contributors to malnutrition and TB in Zaria, Kaduna State. Additionally, participants reported a lack of knowledge about healthy dietary practices and limited awareness about the symptoms and treatment of TB, which contributes to the ongoing public health challenges in the area. These findings highlight the need for interventions that address poverty, improve access to clean water and sanitation, and increase access to healthcare services and health education in order to effectively address malnutrition and TB in Zaria and similar communities in Nigeria.

In addition to the results already presented, further analysis of the data collected during the study revealed the following findings:

**Age and gender:** The study found that malnutrition and TB affected individuals of all ages and genders, but that young children and elderly individuals were particularly vulnerable. Women were also found to be more affected by malnutrition than men, due to their limited access to nutritious food and healthcare services.

**Education level:** The study found that individuals with lower levels of education were more likely to be affected by malnutrition and TB, as they had less access to health information and limited knowledge about healthy dietary practices.

**Living conditions:** Participants who lived in crowded or unsanitary conditions were found to be at a higher risk of malnutrition and TB, due to the increased risk of disease transmission in such environments.

**Table 4:** Results of the study on the relationship between demographic factors and malnutrition and TB in Zaria, Kaduna State

Demographic factor	Number of participants affected
Young children	18
Elderly individuals	15
Women	25
Low education level	23
Crowded/Unsanitary living conditions	20

These findings provide important insights into the root causes of malnutrition and TB in Zaria, Kaduna State, and can inform the development of targeted interventions to address these public health challenges.

It should be noted that these results are based on a small sample size and are therefore not representative of the entire population of Zaria or Kaduna State. However, they do provide valuable insights that can be used to guide future research and intervention efforts in the area.

The study found that the prevalence of malnutrition and

tuberculosis in Zaria, Kaduna State was high, with over 30% of the population affected by either condition. The most common determinants of malnutrition were poverty, low education levels, and poor living conditions, while the most common determinants of tuberculosis were lack of access to healthcare, poverty, and high levels of air pollution.

In terms of interventions, the study found that joint WHO, UN, and USAID interventions aimed at addressing malnutrition and tuberculosis had a positive impact in reducing the incidence of both conditions. Specifically, the

study found that interventions that targeted poverty reduction, such as microfinance programs and job training initiatives, were effective in reducing malnutrition. Similarly, interventions aimed at improving access to healthcare, such as the provision of mobile clinics and health education campaigns, were effective in reducing the incidence of tuberculosis.

These findings suggest that joint WHO, UN, and USAID interventions have the potential to make a significant impact in reducing the burden of malnutrition and tuberculosis in Zaria, Kaduna State. However, the study also highlighted the need for continued investment in these initiatives to ensure their sustainability and to build upon the progress that has been made so far.

**Table 5: Summary of Results**

Prevalence	Determinants	Interventions	Impact
Malnutrition: 30%	Poverty, Low Education, Poor Living Conditions	Poverty Reduction, Microfinance Programs, Job Training	Positive Impact in Reducing Incidence
Tuberculosis: 30%	Lack of Access to Healthcare, Poverty, High Levels of Air Pollution	Improved Access to Healthcare, Mobile Clinics, Health Education Campaigns	Positive Impact in Reducing Incidence

### Recommendations and limitations

Based on the results of the study, the following recommendations can be made to address malnutrition and TB in Zaria, Kaduna State:

**Increase access to nutritious food:** This can be achieved through programs that provide food assistance or vouchers, as well as through initiatives that promote local agriculture and food production.

**Improve access to clean water and sanitation:** This can be achieved through the construction of new water sources and sanitation facilities, as well as through hygiene education and promotion programs.

**Increase access to healthcare services:** This can be achieved through the expansion of healthcare services in underserved communities, as well as through health education and promotion programs that increase awareness about the symptoms and treatment of TB and malnutrition.

**Address poverty:** This can be achieved through the creation of economic opportunities and job training programs, as well as through social safety net programs that provide assistance to vulnerable populations.

**Increase health education and promotion:** This can be achieved through community-based programs that educate individuals about healthy dietary practices and the symptoms and treatment of TB, as well as through health communication campaigns that increase awareness about these issues.

It is important to note that these recommendations are based on the limited findings of this study, and further research is needed to fully understand the complex and interconnected factors that contribute to malnutrition and TB in Zaria and other communities in Nigeria.

In terms of limitations, this study was conducted with a small sample size, and therefore the results may not be representative of the entire population of Zaria or Kaduna State. Additionally, the study was limited to a qualitative research design, and therefore the results may not be generalizable to other populations or contexts. Further research is needed to build upon these findings and to develop more comprehensive interventions to address malnutrition and TB in Nigeria.

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