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Page | 1

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# Socioeconomic Determinants of Diabetes-Related Infectious Morbidity in Nigeria: Urbanization, Poverty, and Healthcare Access

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## ABSTRACT

Diabetes-related infectious morbidity in Nigeria is a significant public health concern influenced by several socioeconomic factors, including urbanization, poverty, inadequate healthcare access, poor sanitation, and dietary transitions. This review explores the impact of these determinants on the vulnerability of diabetic individuals to infections, particularly in resource-limited settings like Nigeria. Urbanization, while associated with improved healthcare facilities in some areas, also brings challenges such as overcrowded living conditions, poor sanitation, and unhealthy dietary changes, which exacerbate infection risks for diabetics. Poverty further compounds these issues by limiting access to essential diabetes management resources, while poor sanitation contributes to the spread of infectious diseases that disproportionately affect diabetic individuals. Rural areas face even more severe disparities in healthcare access and sanitation, leading to higher rates of infection and worse outcomes. The review calls for comprehensive public health strategies, including improved healthcare infrastructure, public education on diabetes management and infection prevention, and targeted interventions to address the socioeconomic challenges faced by diabetic individuals in Nigeria.

**Keywords:** Diabetes mellitus, infectious morbidity, Nigeria, urbanization, poverty, healthcare access.

## INTRODUCTION

Diabetes mellitus, a chronic metabolic disorder characterized by hyperglycemia, has emerged as a significant public health challenge worldwide, with particularly alarming trends in sub-Saharan Africa. In Nigeria, diabetes is one of the leading causes of morbidity and mortality, reflecting both the increasing prevalence of the disease and its complications [1]. According to the International Diabetes Federation (IDF), approximately 3 million Nigerians were living with diabetes in 2021, and this number is projected to rise significantly in the coming decades due to factors such as urbanization, changes in diet, and sedentary lifestyles [2].

While diabetes itself is a serious health condition, it also serves as a risk factor for a wide range of comorbidities, including infectious diseases. The link between diabetes and infectious morbidity is well-documented, as hyperglycemia impairs immune function, making individuals with diabetes more susceptible to infections, particularly those related to the skin, urinary tract, respiratory system, and soft tissues. However, the role of socioeconomic factors in exacerbating this risk remains poorly understood in the Nigerian context [3]. Socioeconomic determinants such as poverty, urbanization, healthcare access, and lifestyle changes have a profound influence on the risk of infectious diseases in diabetic individuals, particularly in resource-limited settings like Nigeria.

Urbanization, which has been rapidly progressing across many parts of sub-Saharan Africa, is often accompanied by lifestyle transitions, including dietary changes, increased exposure to environmental pollutants, and shifts in physical activity patterns [4]. These changes are compounded by inadequate healthcare infrastructure, particularly in rural areas, where access to medical care, diagnostic services, and essential medications remains limited. Poor

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sanitation, overcrowded living conditions, and lack of access to clean water further exacerbate the vulnerability of diabetic patients to infections. Additionally, in Nigeria, the economic burden of diabetes often forces individuals to prioritize immediate survival needs over long-term healthcare, leading to a vicious cycle where poverty and poor health outcomes reinforce each other [5]. The interplay between these socioeconomic factors creates a unique set of challenges for individuals with diabetes in Nigeria, especially as they navigate the dual burdens of managing their chronic condition and preventing infectious diseases. This study seeks to explore these complex dynamics, focusing on how urbanization, poverty, healthcare access, and lifestyle changes influence the increased risk of infectious morbidity among diabetic individuals in Nigeria [6].

Diabetes-related infectious morbidity poses a growing threat to public health in Nigeria, with socioeconomic factors playing a pivotal role in amplifying this risk. The rise in the prevalence of diabetes in the country is not occurring in isolation but is intertwined with broader social determinants such as urbanization, poverty, and healthcare access. As the urbanization process accelerates, Nigerian communities face rapid shifts in dietary habits, environmental conditions, and lifestyle choices, all of which contribute to the vulnerability of individuals with diabetes to infectious diseases [7].

Furthermore, significant disparities exist between urban and rural areas in terms of healthcare access, sanitation, and disease prevention measures, creating stark contrasts in health outcomes for diabetic individuals. While urban areas may have better access to healthcare facilities, they are also plagued by environmental factors such as air pollution and poor sanitation, which can further compromise the health of diabetic patients [8]. On the other hand, rural communities often suffer from inadequate healthcare infrastructure, making it difficult for diabetic patients to receive timely medical attention or manage their condition effectively.

The lack of comprehensive research on the socioeconomic determinants of diabetes-related infectious morbidity in Nigeria, especially considering the urban-rural divide, is a major gap in the current literature. Understanding the role of urbanization, poverty, and healthcare access in exacerbating the risk of infectious morbidity in diabetic individuals is crucial for developing targeted public health interventions that can reduce the burden of diabetes-related infections in the country [9]. The study aims to explore various factors contributing to the increased risk of infectious morbidity in diabetic patients in Nigeria, focusing on urbanization, poverty, healthcare access, and lifestyle and environmental factors. First, the research will examine how urbanization elevates the risk of infections in diabetic patients by addressing lifestyle shifts, such as dietary changes, reduced physical activity, and exposure to environmental pollutants commonly associated with urban living. Additionally, overcrowding, inadequate sanitation, and limited healthcare access in urban areas will be analyzed. Second, the study will assess the impact of poverty, a significant determinant of health in Nigeria, on the susceptibility of diabetic individuals to infections. It will investigate how economic hardship impedes access to quality healthcare, medications, and preventive measures, ultimately exacerbating the risk of infections. The third objective focuses on exploring the role of healthcare access in managing diabetes-related infections, particularly in relation to disparities between urban and rural healthcare systems, and the barriers diabetic patients face in accessing medical care. Finally, the research will examine how specific lifestyle choices and environmental factors, such as diet, physical activity levels, sanitation, and water quality, contribute to the vulnerability of diabetic individuals to infections. By addressing these objectives, the study will provide critical insights into the socioeconomic factors influencing the health outcomes of diabetic individuals in Nigeria.

### **Urbanization and Its Impact on Diabetic Morbidity**

Urbanization in Nigeria is progressing rapidly, especially in large cities like Lagos, Abuja, and Port Harcourt, bringing with it significant changes in living conditions and lifestyle. While urban areas are often seen as hubs for better healthcare services and infrastructure, the reality for many Nigerians living in urban slums is starkly different. These areas are often characterized by overcrowded housing, poor sanitation, and limited access to quality and affordable healthcare. Diabetic individuals residing in these urban settings face heightened risks of morbidity due to these poor living conditions [10]. Urban slums are particularly vulnerable to the spread of infectious diseases, as they often lack proper waste management, clean water, and effective pest control, leading to increased exposure to disease vectors like mosquitoes. Furthermore, urbanization is closely linked to dietary changes, with more people adopting high-calorie, processed foods over traditional, nutrient-dense meals. This dietary shift not only exacerbates the prevalence of diabetes but also weakens the immune system, making diabetic individuals more susceptible to infections [11]. Studies have shown that individuals with diabetes who consume high-sugar and processed foods are more prone to bacterial infections, including urinary tract and skin infections, which tend to be more severe and harder to treat due to their compromised immune response.

### **The Role of Poverty in Diabetes-Related Infectious Morbidity**

Poverty is a key socioeconomic determinant of diabetes-related infectious morbidity in Nigeria. The country's high poverty rate estimated at over 40% further exacerbates health disparities. People living in poverty often face significant barriers to accessing adequate healthcare, including diabetes management and infection prevention

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services [12]. The lack of financial resources limits their ability to afford diabetes medications, supplies, and regular medical check-ups, leading to poorly managed diabetes and subsequent complications. Poor nutrition, a hallmark of poverty, significantly contributes to the worsening of diabetes and increases the risk of infection. Malnourished individuals, particularly those living with diabetes, have weakened immune systems, making them more susceptible to infections like pneumonia, tuberculosis, and fungal infections. Furthermore, the crowded conditions in informal settlements, where the poor often reside, increase the risk of communicable diseases, particularly among diabetic individuals whose immune systems are compromised [13].

#### **Poor Sanitation and Infections in Diabetic Patients**

Sanitation continues to be a critical challenge across both urban and rural areas of Nigeria, significantly impacting public health. Poor waste disposal practices, inadequate access to clean water, and the prevalence of open defecation contribute to the spread of various infectious diseases, including cholera, dysentery, and typhoid fever [14]. These conditions pose a heightened threat to individuals with diabetes, as their compromised immune systems render them more susceptible to infections. In particular, diabetic individuals face an increased risk of complications, such as diabetic foot infections, which can lead to severe outcomes like amputations or even death if not properly managed. Rural areas in Nigeria are particularly vulnerable to these sanitation issues due to the lack of sufficient healthcare facilities and sanitation infrastructure. Many rural communities have limited access to clean water and proper waste disposal systems, increasing the likelihood of exposure to harmful pathogens. Additionally, the limited availability of healthcare services in these regions means that diabetic individuals may not receive timely interventions or education on proper diabetes management, further exacerbating their susceptibility to infections [15]. The combination of poor sanitation, limited healthcare access, and insufficient knowledge of diabetes care creates a dangerous environment for individuals with diabetes, leaving them at high risk for infections and their associated complications.

#### **Diet Transition and Its Impact on Infection Risk**

The dietary transition in Nigeria, particularly in urban areas, has been marked by a significant shift from traditional, nutrient-dense foods to an increased reliance on processed foods, sugary beverages, and fast foods. This change is closely linked to the rising prevalence of diabetes, especially type 2 diabetes, in the country. However, the effects of this dietary transition extend beyond the direct impact on diabetes prevalence. In diabetic individuals, the consumption of high-sugar diets creates an environment conducive to the growth of bacteria, particularly in wounds and skin ulcers, which are common complications in diabetes [16]. These bacterial infections can exacerbate the challenges of managing diabetes and its associated health risks. Moreover, the shift from a traditional, fiber-rich diet to one dominated by refined carbohydrates and high-fat foods not only contributes to insulin resistance but also impairs the body's ability to fight infections. The increasing prevalence of diabetes, particularly in urban settings, coupled with limited access to adequate healthcare, worsens the situation. Diabetic individuals are at a heightened risk of infectious morbidity, which can lead to further complications, extended hospital stays, and a decrease in overall quality of life [17]. Therefore, the dietary transition in Nigeria plays a crucial role in both the onset and progression of diabetes-related infections.

#### **Limited Healthcare Access and Infection Prevention**

Limited healthcare access continues to be a significant challenge for many Nigerians, especially those residing in rural and low-income urban areas. Diabetic patients in these regions often face considerable obstacles in accessing healthcare services, as they may need to travel long distances to reach the nearest medical facilities, which are often under-resourced and ill-equipped to address the complexities of diabetes and its associated infections. The scarcity of trained healthcare professionals, particularly in rural areas, exacerbates this issue, leading to delayed diagnoses and suboptimal management of diabetes-related complications. Furthermore, the lack of adequate education on infection prevention and management further intensifies the problem. Many individuals with diabetes are unaware of the critical role of hygiene and proper wound care in preventing infections, which are common among diabetic patients due to their compromised immune systems [18]. Health literacy, therefore, becomes a crucial factor in the prevention of infections, yet insufficient educational initiatives and limited access to healthcare resources prevent effective self-management of the condition. This knowledge gap, coupled with the physical barriers to healthcare access, significantly hampers the ability of many diabetic patients to manage their health and prevent infections, thereby contributing to increased morbidity and mortality in these vulnerable populations.

#### **Urban-Rural Disparities in Diabetes-Related Infectious Morbidity**

Urban-rural disparities in diabetes-related infectious morbidity are critical concerns in Nigeria, driven by significant differences in healthcare access, socioeconomic factors, and living conditions. In urban areas, despite the presence of relatively better healthcare infrastructure, residents still face challenges such as overcrowding, poor sanitation, and an unhealthy dietary shift toward processed foods. These factors increase the vulnerability of diabetic patients to infections, particularly in densely populated urban centers where the risk of disease transmission is heightened.

Moreover, urban patients may also encounter difficulties in managing their condition due to the high cost of healthcare and medications, despite the availability of services [19].

In contrast, rural areas experience more severe health disparities. Limited access to healthcare facilities, a lack of specialized diabetic care, and poorly equipped local clinics make it harder for rural residents to effectively manage their diabetes. In addition, the absence of sanitation infrastructure and inadequate health education exacerbate the risk of infections in these regions. Rural diabetic patients are particularly susceptible to infectious complications, as they often face long delays in seeking treatment due to geographical and financial barriers [20]. The combination of poverty, limited healthcare resources, and environmental factors in both urban and rural areas creates a cyclical pattern of increased vulnerability to infections for individuals with diabetes, further complicating the management of their condition and overall health outcomes.

### CONCLUSION

Diabetes-related infectious morbidity in Nigeria represents a significant public health challenge, exacerbated by various socioeconomic factors such as urbanization, poverty, inadequate sanitation, dietary changes, and restricted healthcare access. These elements contribute to a higher vulnerability of diabetic individuals to infections, further complicating their management. Urbanization has led to lifestyle changes and poor environmental conditions in both urban and rural areas, while poverty limits access to necessary healthcare services and diabetes care. Addressing these issues requires a multi-faceted approach, involving improvements in healthcare infrastructure, particularly in rural areas, and efforts to enhance sanitation and public health education. Raising awareness about effective diabetes management and the prevention of infections, as well as promoting healthier diets, are vital components of these strategies. Additionally, policy reforms that integrate diabetes care into the broader public health system, supported by community-driven initiatives, are essential for reducing diabetes-related morbidity and enhancing the quality of life for affected individuals across the country.

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