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EXPLORING THE RELATIONSHIP BETWEEN URBANIZATION AND NON-COMMUNICABLE DISEASES AMONG MIDDLE AND LOW-INCOME FAMILIES IN NIGERIA: A FOCUS ON RISK FACTORS AND HEALTH OUTCOMES

Iornyagh, Terkaa Benedict
Department of Sociology
Benue State University, Makurdi

Abstract
Urbanization significantly impacts health outcomes, particularly among middle and low-income families in Nigeria, leading to a rising prevalence of non-communicable diseases (NCDs). This theoretical paper explores the relationship between urbanization and NCDs, focusing on three key objectives: identifying risk factors associated with urbanization, analyzing health outcomes across Nigeria's six geopolitical zones, and assessing the availability and accessibility of healthcare services. The study integrates the Social Determinants of Health (SDH) framework and Urban Health Penalty Theories to understand how urbanization affects NCD prevalence. Key risk factors identified include environmental pollution, unhealthy lifestyles, and limited access to healthcare. The analysis reveals significant variations in NCD prevalence among Nigeria's geopolitical zones, with urban areas exhibiting higher rates of hypertension, diabetes, and cardiovascular diseases. Lack of access further exacerbate health disparities, with middle and low-income families facing financial and infrastructural barriers to effective NCD management. The study concludes that there is a complex interplay between urbanization and public health as multiple urban challenges affects the health life of urban residents. It is recommended that, healthcare infrastructure and accessibility be enhanced, implementing targeted lifestyle interventions, and strengthening primary healthcare are crucial for managing the health impacts of urbanization. By addressing these recommendations, policymakers can better mitigate the adverse effects of urbanization on health and improve outcomes for vulnerable populations.
Keywords: Urbanization, Non-Communicable Diseases, Risk Factors, Healthcare Accessibility, Nigeria

Introduction

Urbanization, the process by which an increasing percentage of a population comes to live in urban areas, is a global phenomenon with significant implications for public health (World Health Organization, 2018). While urbanization is often associated with economic growth and improved living standards, it also brings about challenges, particularly in the context of non-communicable diseases (NCDs) such

CorrespondingAuthor:
Iornyagh, Terkaa Benedict
benterkaa628@gmail.com

as cardiovascular diseases, diabetes, and chronic respiratory diseases(WHO, 2018). The burden of NCDs is rising globally, and understanding the dynamics between urbanization and health outcomes is crucial for effective public health interventions.

In developed countries such as the United States, Germany, Japan, and Sweden, urbanization has historically led to improved healthcare infrastructure and services, contributing to better management and treatment of NCDs (UN, 2019). However, lifestyle changes associated with urban living, such as reduced physical activity, increased consumption of processed foods, and higher levels of pollution, have also contributed to the prevalence of NCDs (WHO, 2018). For instance, in the United States and Europe, there is a clear correlation between urbanization and increased rates of obesity, hypertension, and diabetes (UCLA Center for Health Policy Research, 2020).

Conversely, in underdeveloped and developing countries, the rapid pace of urbanization often outstrips the capacity of health infrastructure, leading to a double burden of communicable and non-communicable diseases (Adeyemi et al., 2020). In Sub-Saharan Africa, including Nigeria, urbanization is occurring rapidly, with significant implications for public health (World Bank, 2021). Middle and low-income families in these regions are particularly vulnerable due to limited access to healthcare, poor living conditions, and lifestyle factors that increase the risk of NCDs (Commonwealth Fund, 2022; WHO, 2023).

Nigeria, Africa's most populous country, provides a unique case study for exploring the relationship between urbanization and NCDs. The country is divided into six geopolitical zones: North Central, North East, North West, South East, South South, and South West, each with distinct socio-economic and cultural characteristics (National Population Commission, 2016). Urbanization patterns and health outcomes vary across these zones, influenced by factors such as economic development, healthcare access, and lifestyle behaviors (World Bank, 2021).

In the North Central and North East zones, the rate of urbanization is relatively low compared to the South West and South South zones, where cities like Lagos and Port Harcourt have seen rapid growth (Oguntunde et al., 2020). The urban poor in these rapidly growing cities face significant health risks, including exposure to environmental pollutants, inadequate healthcare services, and unhealthy dietary practices, all of which contribute to the rising burden of NCDs (Adebayo et al., 2019). While, in the less urbanized North West and South East zones, traditional lifestyles persist, but there is still an increasing prevalence of NCDs as urban influences permeate these regions (Ekezie et al., 2018).

Despite the growing recognition of the impact of urbanization on health, there is limited research focusing on how these dynamics specifically affect middle and low-income families in Nigeria. Understanding the interplay between urbanization and NCDs in this context is crucial for developing targeted public health strategies that address the unique challenges faced by these populations. This study aims to fill this gap by investigating the risk factors associated with urbanization and their impact on health outcomes among middle and low-income families across Nigeria's six

geopolitical zones. This study focused on identifying the key risk factors associated with urbanization that contribute to the prevalence of non-communicable diseases among middle and low-income families in Nigeria. Secondly, to analyze the health outcomes of urbanization-related risk factors in Nigeria's six geopolitical zones and, to assess the availability and accessibility of healthcare services for managing NCDs in urban and peri-urban areas across different geopolitical zones.

Urbanization

Urbanization refers to the process by which an increasing proportion of a population moves from rural areas to urban areas, leading to the growth and expansion of cities (Rural Health Information Hub,2023). This phenomenon is driven by a variety of factors, including economic opportunities, better living standards, and improved access to services such as education, healthcare, and transportation (United Nations, 2019). Urbanization can be measured by the growth of urban areas, the increase in the urban population, and changes in the lifestyle and economic activities of people.

Key characteristics of urbanization include: Population density in which Urban areas are characterized by high population density compared to rural areas. Infrastructure Development where urbanization leads to the development of infrastructure such as roads, housing, water supply, and sanitation systems (World Bank, 2021). In the same vein, economic activities relate to a shift from agriculture-based economies to industrial and service-oriented economies. Lifestyle changes show how urbanization often results in changes in lifestyle, including diet, physical activity, and social behaviours (WHO, 2018). Environmental impact is where urbanization can lead to environmental challenges such as pollution, waste management issues, and loss of green spaces (Adeyemi et al., 2020).

Urbanization can have both positive and negative impacts on society. On the positive side, it can lead to economic growth, improved access to education and healthcare, and enhanced quality of life. However, it can also bring about challenges such as overcrowding, inadequate infrastructure, increased pollution, and health issues, including the rise of non-communicable diseases (NCDs) (UN-Habitat, 2020).

Non-Communicable Diseases (NCDs)

Non-communicable diseases (NCDs) are medical conditions or diseases that are not caused by infectious agents and are not transmissible between persons (Frontiers, 2023). NCDs are typically chronic in nature and progress slowly. They are the leading cause of death globally, responsible for a significant proportion of morbidity and mortality in both developed and developing countries (World Health Organization, 2018).

The main types of NCDs include: Cardiovascular Diseases which are conditions affecting the heart and blood vessels, such as hypertension, coronary artery disease, and stroke. Cancers relates to malignant growths or tumors that can affect various parts of the body. Chronic Respiratory Diseases are diseases of the airways and other structures of the lung, including chronic obstructive pulmonary disease (COPD) and asthma. Diabetes is a group of metabolic disorders characterized by high blood sugar

levels over a prolonged period (Ezeh et al, 2021).

Risk factors for NCDs can be categorized into two groups: modifiable risk factors and exposures that can be changed or controlled to reduce the risk of NCDs. Thy include unhealthy diet (high in sugars, salts, and trans fats), physical inactivity, tobacco use and harmful use of alcohol (WHO, 2018). Secondly, non-modifiable risk factors which encompasses factors that cannot be changed, such as age, gender, and genetic predisposition (WHO, 2018).

NCDs are influenced by a combination of genetic, physiological, environmental, and behavioral factors. The increasing prevalence of NCDs is linked to urbanization and modernization, which bring about changes in lifestyle and environmental exposures. Urban environments can contribute to the rise of NCDs through factors such as sedentary lifestyles, increased availability and consumption of processed foods, and exposure to pollutants (WHO, 2018).

Understanding the relationship between urbanization and NCDs is essential for developing effective public health strategies to address the growing burden of these diseases. Efforts to combat NCDs include promoting healthy lifestyles, improving access to healthcare, implementing policies to reduce exposure to risk factors, and enhancing public awareness about the prevention and management of NCDs (World Health Organization, 2018).

Literature

Key Risk Factors Associated with Urbanization and the Prevalence of Non-Communicable Diseases (NCDs)

Urbanization globally has been associated with significant changes in lifestyle and environmental conditions that elevate the risk of non-communicable diseases (NCDs). In developed and developing nations alike, urbanization contributes to factors such as environmental pollution, dietary shifts toward processed foods, sedentary behavior due to urban living environments, and stress linked to overcrowding and fast-paced lifestyles. Studies from countries like China and India demonstrate that rapid urbanization leads to increased vehicular emissions and industrial pollutants, which are linked to higher rates of respiratory and cardiovascular diseases (UN Habitat, 2020; WHO, 2021). Additionally, urban populations often face greater exposure to unhealthy diets and physical inactivity, compounding the risk of NCDs like diabetes and hypertension (Gao et al., 2019; Mishra et al., 2021).

In the Nigerian context, these global trends are amplified by infrastructural deficits and economic inequalities. Rapid urban expansion, especially in cities like Lagos and Abuja, exacerbates environmental challenges such as industrial emissions, vehicular pollution, and poor waste management systems. This leads to heightened exposure to pollutants that increase the risks of respiratory and cardiovascular conditions among urban residents. For middle- and low-income families, limited access to quality healthcare further hinders their ability to manage or prevent these diseases effectively (Oluwole et al., 2019; Ede et al., 2022).

Empirical evidence highlights urban residents increased sedentary lifestyles in

Nigeria's urban centers. For instance, a study in Lagos observed that over 60% of participants reported low physical activity levels, attributed to factors like long commuting hours, urban work culture, and limited recreational spaces. These behaviors heightened their risks for non-communicable diseases (NCDs) such as obesity and hypertension (Onyemelukwe et al., 2022).

Another study in Lagos State found a strong correlation between urban stressors, such as overcrowding and noise pollution, and elevated blood pressure among low-income families (American Public Health Association [APHA], 2023; PLOS Medicine, 2022). These findings underscore the multifaceted risks that urbanization imposes on health.

Health Outcomes of Urbanization-Related Risk Factors Across Nigeria's Six Geopolitical Zones

The health outcomes of urbanization vary significantly across Nigeria's geopolitical zones, with urbanized areas exhibiting higher rates of hypertension, diabetes, and cardiovascular diseases. The North Central zone, for instance, has reported increasing cases of hypertension linked to urban migration and stress (Odili et al., 2020). Similarly, the South West zone, home to Nigeria's largest cities, experiences heightened prevalence of diabetes, attributed to lifestyle changes and dietary patterns (Akinlua et al., 2018).

An empirical review conducted in Kano State, North West zone, revealed that urban households had a 35% higher prevalence of cardiovascular diseases compared to rural areas, due to dietary shifts and air pollution (Aliyu et al., 2019). Conversely, the South East zone records slightly lower NCD prevalence, which researchers attribute to stronger traditional dietary practices and lower urbanization rates (Edeh et al., 2020). These regional differences highlight the need for zone-specific interventions tailored to the unique urban health dynamics of each region.

Availability and Accessibility of Healthcare Services for Managing NCDs in Urban and Peri-Urban Areas

The accessibility and quality of healthcare services remain critical barriers to effective NCD management in Nigeria. Despite urban areas hosting more healthcare facilities, middle and low-income families often face financial, infrastructural, and systemic barriers (Adepoju et al., 2021). For instance, healthcare costs in urban areas are disproportionately high, making NCD treatment unaffordable for many families (Fadare et al., 2018).

Empirical evidence from peri-urban areas in Abuja highlighted that only 40% of respondents had access to regular healthcare services, primarily due to financial constraints and a lack of adequately equipped facilities (Okafor et al., 2020). Another study in Port Harcourt revealed that although healthcare facilities were more numerous in urban settings, their distribution was uneven, with wealthier neighborhoods enjoying better services than low-income areas (Onwujekwe et al., 2019). This disparity in healthcare provision exacerbates NCD-related health

inequities in urban and peri-urban settings.

Theoretical Framework

The theoretical framework for this study on the relationship between urbanization and non-communicable diseases (NCDs) among middle and low-income families in Nigeria integrates social determinants of health and urban health penalty theories.

Social Determinants of Health (SDH) Framework

The Social Determinants of Health (SDH) framework is fundamental to this study. It posits that health outcomes are influenced by a wide range of social, economic, and environmental factors (American Medical Association, 2024; WHO, 2023). These determinants include:

Economic Stability: Income levels, employment status, and financial resources.

Education: Access to quality education and health literacy.

Social and Community Context: Social cohesion, community support, and stress levels.

Health and Healthcare: Accessibility and quality of healthcare services.

Neighborhood and Built Environment: Living conditions, housing quality, and environmental exposure.

In the context of urbanization, this framework helps to identify how changes in these determinants impact the health of middle and low-income families, leading to increased prevalence of NCDs such as hypertension, diabetes, and cardiovascular diseases (Marmot & Wilkinson, 2005).

Urban Health Penalty Theory

Urban Health Penalty Theory suggests that rapid urbanization can lead to adverse health outcomes. This theory highlights several mechanisms through which urbanization negatively impacts health:

Environmental Pollution: Increased exposure to air and water pollution from industrial activities and vehicular emissions, leading to respiratory diseases and other health problems (Vlahov &Galea, 2002).

Stress: High levels of stress associated with urban living, including job pressures, financial instability, and social isolation, contributing to mental health issues and chronic diseases.

Unhealthy Lifestyles: Sedentary lifestyles, poor dietary habits, and increased consumption of alcohol and tobacco, which are prevalent in urban settings and contribute to NCDs.

This theory helps to explain the observed health disparities between urban and rural populations, particularly among middle and low-income families who may lack the resources to mitigate these risks.

Argument/Implications

This study argues that urbanization, while fostering economic growth and infrastructure development, also significantly contributes to the rise of non-

communicable diseases (NCDs) due to associated risk factors such as sedentary lifestyles, environmental pollution, and inadequate healthcare services. Drawing on the Social Determinants of Health (SDH) framework, it posits that these risk factors disproportionately affect middle- and low-income families, exacerbating health inequities. The study highlights that rapid urbanization in Nigeria mirrors global trends, with urban stressors like overcrowding and limited healthcare access being pivotal in amplifying NCD prevalence.

Regarding implications, the study underlines the need for robust urban health policies that address the environmental and social risk factors associated with urbanization. This includes regulating pollution and creating urban planning frameworks that promote physical activity. Furthermore, the study highlights the necessity of improving healthcare accessibility for vulnerable populations. Investments in primary healthcare and community-based interventions are critical for managing NCDs effectively. In addition, the identification of specific urbanization-related risks enables the design of targeted interventions, such as public awareness campaigns about healthy lifestyles and preventive measures for NCDs.

Conclusion

This theoretical study has examined the intricate relationship between urbanization and non-communicable diseases (NCDs) among middle and low-income families in Nigeria. By synthesizing existing literature and applying relevant theoretical frameworks, the study highlights several critical findings:Urbanization and Risk Factors: Urbanization in Nigeria has significantly altered living conditions and lifestyles, contributing to increased exposure to risk factors such as environmental pollution, stress, and unhealthy dietary habits. These changes have escalated the prevalence of NCDs, particularly among vulnerable middle and low-income families.

Health Outcomes and Geopolitical Variations: The prevalence of NCDs varies across Nigeria's six geopolitical zones, with urban centers experiencing higher rates of hypertension, diabetes, and cardiovascular diseases. The South West and South East zones report particularly high prevalence, attributed to rapid urbanization and lifestyle changes.

Healthcare Accessibility: Despite the higher concentration of healthcare facilities in urban areas, middle and low-income families face significant barriers to accessing quality healthcare. Financial constraints, overcrowded facilities, and inadequate resources hinder effective management of NCDs, exacerbating health disparities.

These findings underscore the complex interplay between urbanization and health, revealing the multifaceted challenges that urbanization poses to public health in Nigeria. The study's insights call for a comprehensive approach to address the health impacts of urbanization, particularly for vulnerable populations.

Recommendations

Based on the study's findings, the following recommendations are proposed to

mitigate the negative health impacts of urbanization and improve the management of NCDs among middle and low-income families in Nigeria:

i. Develop Targeted Interventions: Design and implement targeted interventions that address the identified risk factors. For example, initiate programs to reduce exposure to pollution, promote healthy dietary practices, and provide stress management resources. Collaborate with local governments and organizations to tailor interventions to the unique needs of each region.

ii. Promote Zone-Specific Health Policies: Develop and implement health policies that are specific to the needs and challenges of each geopolitical zone. For instance, areas with higher pollution levels might require stricter environmental regulations and health advisories, while zones with significant lifestyle-related risks might benefit from public health campaigns focused on diet and exercise.

iii. Strengthen Primary Healthcare: Improve the capacity and quality of primary healthcare services to ensure early detection and effective management of NCDs. Invest in training healthcare workers, increasing the availability of diagnostic tools, and enhancing the integration of NCD management into primary care settings.

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