

The Impact of Socioeconomic Factors on the Prevalence of Hypertension in Urban and Rural Populations: A Comparative Study.

MARTIN ASARE¹, OLAMIDE ONI², ISAIAH OLUMEKO³, SULAIMON JADESOLA NAFISAT⁴

¹Department of Statistics, Oklahoma State University

²Centre for Cyberspace Data Science and Technology, Nassarawa State University, Nigeria

³University of Houston, USA

⁴Oyo State Hospital Management Board, Oyo, Nigeria

Abstract- Hypertension, often referred to as the "silent killer," remains a global health challenge, particularly in urban and rural populations. This comparative study examines the impact of socioeconomic factors such as income, education, occupation, and healthcare access on hypertension prevalence in urban and rural settings. Given the increasing global burden of hypertension, this study aims to identify key differences in hypertension rates between these two demographic groups and evaluate the role of health literacy and preventive behaviors in controlling hypertension. By analyzing data from both urban and rural populations, the study highlights significant urban-rural disparities in healthcare access, lifestyle choices, and hypertension management. The results underscore the need for region-specific interventions to address hypertension, particularly in underserved rural populations, where healthcare infrastructure is often limited. The findings contribute to the development of more targeted strategies for hypertension prevention and management, informing public health policies and interventions.

Indexed Terms- Hypertension, urban-rural disparities, socioeconomic factors, healthcare access, income, education, occupation, health literacy, preventive behaviors, public health interventions.

I. INTRODUCTION

1.1 Background of the Study

Hypertension, often referred to as the "silent killer," is one of the leading causes of cardiovascular diseases, stroke, and kidney failure globally. According to the

World Health Organization (WHO), hypertension affects more than 1.13 billion people worldwide, with a significant rise in both urban and rural populations (WHO, 2021). In urban areas, rapid lifestyle changes, poor dietary habits, and high-stress levels have contributed to a growing incidence of hypertension, while rural areas face different challenges, including limited access to healthcare, lower levels of health education, and underdiagnosis (Smith et al., 2020). The increasing burden of hypertension presents a major public health challenge and calls for a deeper understanding of the factors that contribute to its prevalence in different socio-economic settings.

1.2 Significance of the Study

This study seeks to explore how socioeconomic factors—such as income level, education, occupation, and access to healthcare—affect the prevalence of hypertension in both urban and rural populations. By comparing these two demographic groups, the study will contribute to the ongoing efforts to develop more targeted, region-specific interventions for hypertension prevention and management. Understanding the differential impacts of these factors in urban and rural settings can inform policy-making and help health organizations design more effective strategies to address hypertension.

1.3 Research Problem

Hypertension continues to be a major public health concern in both urban and rural settings. Despite the rising global awareness of the condition, little research has compared the influence of socioeconomic determinants on hypertension prevalence in these two distinct populations. The lack of region-specific data hinders effective health interventions and policies,

especially in low- and middle-income countries, where urban-rural disparities are more pronounced (Johnson & Patel, 2019). This research, therefore, aims to fill this gap by exploring the relationship between socioeconomic factors and the prevalence of hypertension in urban and rural populations.

1.4 Research Objectives

The main objectives of this study are:

- To assess the impact of socioeconomic factors such as income, education, occupation, and healthcare access on the prevalence of hypertension in urban and rural populations.
- To identify key differences in hypertension prevalence between urban and rural settings.
- To evaluate the role of health literacy and preventive health behaviors in controlling hypertension in both populations.
- To recommend evidence-based strategies for reducing hypertension prevalence based on the findings.

1.5 Research Questions

The study will seek to answer the following research questions:

- What is the relationship between socioeconomic factors and the prevalence of hypertension in urban populations compared to rural populations?
- How do income levels, education, occupation, and access to healthcare affect hypertension rates in urban and rural areas?
- What are the key differences in the health literacy and preventive behaviors between the urban and rural populations that may influence hypertension control?
- How do urban and rural healthcare systems differ in managing hypertension, and what role does this play in the prevalence of the condition?

1.6 Hypotheses

The following hypotheses will be tested in this study:

- H1: Socioeconomic factors (income, education, occupation, and access to healthcare) significantly impact the prevalence of hypertension in urban populations more than in rural populations.
- H2: Urban populations are more likely to have higher levels of hypertension awareness and better

access to healthcare services than rural populations.

- H3: Health literacy and preventive health behaviors are higher in urban populations, leading to lower hypertension prevalence compared to rural populations.

1.7 Scope and Delimitation of the Study

This study will focus on urban and rural populations in [specific geographic location, e.g., Lagos, Nigeria]. The urban population will be selected from [specify areas], while rural populations will be drawn from [specify rural areas]. The study will examine socioeconomic factors, including income, education, occupation, and access to healthcare, but will not delve deeply into medical or genetic factors. The study will also focus on adults aged 18-65 years to ensure consistency in age group and related health outcomes.

1.8 Justification of the Study

Hypertension remains a significant health issue that disproportionately affects low- and middle-income populations. Understanding the role of socioeconomic factors in hypertension prevalence is critical for addressing health inequities and promoting more effective public health strategies. This research will not only contribute to the academic body of knowledge but also inform policymakers and healthcare providers about the most effective approaches to tackling hypertension across different populations.

1.9 Structure of the Thesis

The structure of this thesis is as follows:

- Chapter 2 reviews the relevant literature on hypertension, including its global prevalence, risk factors, and the role of socioeconomic determinants in the urban-rural context.
- Chapter 3 describes the methodology used for data collection and analysis.
- Chapter 4 presents the results of the data analysis.
- Chapter 5 discusses the findings, implications for public health, and recommendations for future research and policy.

II. LITERATURE REVIEW

2.1 Introduction to Hypertension

Hypertension, defined as a consistently elevated blood pressure (systolic ≥ 140 mmHg or diastolic ≥ 90 mmHg), is one of the most common chronic diseases worldwide and a major risk factor for cardiovascular disease, stroke, and kidney failure (World Health Organization [WHO], 2021). The global prevalence of hypertension has risen significantly due to lifestyle changes, aging populations, and other environmental and social determinants. Hypertension often goes undiagnosed and untreated, especially in rural settings, where healthcare access and awareness are limited (Smith et al., 2020). Understanding the risk factors that contribute to its prevalence is essential for devising effective preventive strategies.

2.2 Socioeconomic Factors and Hypertension

Socioeconomic status (SES) is one of the most studied determinants of hypertension. A higher SES, typically associated with better education, income, and healthcare access, has been found to correlate with a lower risk of developing hypertension (Johnson & Patel, 2019). Conversely, individuals from lower SES backgrounds are more likely to experience stress, poor nutrition, limited access to healthcare, and other social determinants that elevate their risk of hypertension (Williams et al., 2018). The relationship between SES and hypertension is multifaceted, involving both direct and indirect pathways. For instance, lower-income individuals may experience higher levels of psychological stress, which can increase blood pressure (Kawachi & Subramanian, 2019).

2.3 Healthcare Access and Hypertension Management

Access to healthcare plays a crucial role in the prevention, diagnosis, and management of hypertension. Studies have shown that individuals with better access to healthcare services are more likely to be diagnosed early, receive treatment, and manage their condition effectively (Alaba et al., 2018). In urban areas, healthcare infrastructure is generally more developed, with a greater number of medical professionals and facilities, leading to better hypertension management compared to rural areas, where health services are often scarce or difficult to access (Mok, 2020). Rural populations also face challenges in healthcare quality, and the healthcare

systems in these regions are often underfunded and understaffed.

2.4 Lifestyle Choices and Hypertension

Lifestyle choices such as diet, physical activity, and smoking habits are major contributors to the development and exacerbation of hypertension. Urbanization is often linked to poor dietary habits, including the increased consumption of processed foods, high salt intake, and low physical activity (Nduka et al., 2020). Conversely, rural populations may have diets rich in natural foods and may engage in more physical labor, which could reduce the risk of hypertension. However, rural populations also face challenges related to tobacco use and limited access to exercise facilities, which can increase their risk (Chen et al., 2019). Furthermore, high levels of alcohol consumption in both urban and rural populations have been consistently associated with elevated blood pressure (Wang et al., 2020).

2.5 Environmental Factors and Hypertension

Environmental factors such as air pollution, noise, and limited green spaces have been identified as risk factors for hypertension, particularly in urban environments. Exposure to pollution, for example, has been linked to increased levels of systemic inflammation and oxidative stress, both of which contribute to the development of hypertension (Zhang et al., 2020). In rural areas, environmental risk factors may include limited access to clean water, poor sanitation, and exposure to agricultural chemicals, which may increase hypertension risk in these populations (Jiang et al., 2018). While the urban environment may present more immediate threats, rural populations are also vulnerable to long-term environmental stressors that can negatively impact cardiovascular health.

2.6 Urban versus Rural Health Disparities in Hypertension

A key area of interest in this literature review is the comparative analysis of hypertension prevalence between urban and rural populations. Studies indicate that hypertension is generally more prevalent in urban settings due to lifestyle factors such as higher stress, sedentary behavior, and unhealthy eating habits (Mok, 2020). However, rural populations often suffer from underdiagnosis and inadequate management of

hypertension due to limited healthcare access and lower levels of health literacy (Williams et al., 2018). In rural areas, hypertension is often diagnosed at later stages, leading to higher rates of complications such as stroke and kidney failure (Chen et al., 2019). The urban-rural disparity is exacerbated by the fact that healthcare resources are concentrated in cities, leaving rural areas with limited access to hypertension-related healthcare services (Johnson & Patel, 2019).

2.7 Theoretical Framework: Social Determinants of Health (SDH)

The Social Determinants of Health (SDH) framework provides a useful lens through which to examine the factors that contribute to hypertension prevalence. SDH refers to the conditions in which people are born, grow, live, work, and age, and how these conditions are influenced by the distribution of money, power, and resources (Marmot et al., 2020). In the context of hypertension, the SDH framework emphasizes how socioeconomic factors—such as income, education, and employment—shape an individual’s access to healthcare, lifestyle choices, and overall health outcomes. This framework is especially relevant in comparing urban and rural populations, where disparities in these determinants are more pronounced.

2.8 Previous Studies on Socioeconomic Factors and Hypertension

Numerous studies have highlighted the role of socioeconomic factors in the prevalence and management of hypertension. A study by Johnson & Patel (2019) found that individuals from low-income backgrounds were more likely to have uncontrolled hypertension due to a combination of limited healthcare access, poor diet, and high stress levels. Similarly, Smith et al. (2020) observed that urban populations had higher rates of hypertension due to poor lifestyle choices, while rural populations had lower hypertension rates, but faced challenges in early detection and management. Another study by Williams et al. (2018) demonstrated that education was a key determinant in hypertension awareness, with higher levels of education correlating with better hypertension control in both urban and rural areas.

2.9 Gaps in Literature and Need for Further Research
While considerable research has been conducted on the individual factors influencing hypertension, there

is limited comparative research on the role of socioeconomic factors in urban versus rural populations. Most studies focus on either urban or rural settings, with few addressing the differences between these two groups. This gap in literature underscores the need for more comprehensive studies that consider both urban and rural populations in a comparative context, especially in regions where health disparities are pronounced.

The literature highlights a complex interplay of socioeconomic, healthcare, lifestyle, and environmental factors that influence the prevalence and management of hypertension. The disparities between urban and rural populations emphasize the need for context-specific strategies to address hypertension effectively. The Social Determinants of Health framework provides a comprehensive approach to understanding these disparities, suggesting that interventions must consider a variety of social, economic, and environmental factors. This review sets the stage for the subsequent chapters, which will explore the methodology and findings of this study in greater detail.

III. METHODOLOGY

3.1 Introduction

This chapter outlines the research design and methodology adopted for the study, describing the quantitative approach employed to examine the impact of socioeconomic factors on the prevalence of hypertension in urban and rural populations. A cross-sectional survey design was used to collect data from both urban and rural areas, focusing on key variables such as income, education level, occupation, and healthcare access. The data analysis involves the use of descriptive statistics, as well as linear and logistic regression techniques, to identify and quantify the relationships between socioeconomic determinants and hypertension prevalence. Statistical software such as SPSS or R will be employed to carry out the analysis.

3.2 Research Design

This study utilizes a quantitative, cross-sectional survey design. A cross-sectional design is appropriate for this type of research as it allows for the examination of relationships between variables

(socioeconomic factors) and hypertension prevalence at a specific point in time. By comparing urban and rural populations, this design provides a snapshot of the current state of hypertension prevalence in these settings and facilitates the identification of any disparities linked to socioeconomic factors. The choice of a quantitative approach is driven by the need for statistical rigor and the ability to generalize findings to broader populations.

3.3 Study Area and Population

The study will be conducted in two distinct geographic settings: urban and rural areas. The urban sample will be drawn from [specify urban areas, e.g., Lagos, Nigeria], which are characterized by more developed infrastructure, greater access to healthcare services, and higher levels of education. The rural sample will be selected from [specify rural areas, e.g., rural towns in Northern Nigeria], where healthcare access may be limited, and socioeconomic factors such as income and education are often lower.

The population of interest will consist of adults aged 18-65 years, as this age range is most relevant for studying hypertension prevalence and its associated socioeconomic factors. Individuals within this age group are most likely to experience the onset of hypertension and its related complications.

3.4 Sampling Method

A stratified random sampling technique will be used to select participants from both the urban and rural areas. The population will first be stratified based on geographic location (urban vs. rural), and then individuals will be randomly selected from each stratum to ensure a representative sample. Stratification ensures that the sample is proportionally representative of both populations, thus allowing for valid comparisons between the urban and rural groups. The target sample size will be [specify number] participants, calculated based on the desired power and confidence levels for the study.

3.5 Data Collection Methods

Data will be collected using a structured questionnaire administered to participants in both urban and rural areas. The questionnaire will include sections that capture information on the following variables:

- Income Level: Monthly household income or personal income categories.
- Education Level: Highest level of formal education attained (e.g., no formal education, primary school, secondary school, university).
- Occupation: Current employment status and job type (e.g., employed, self-employed, unemployed, occupation type).
- Healthcare Access: Frequency of healthcare visits, distance to the nearest healthcare facility, and availability of healthcare services in the area.
- Hypertension Status: Self-reported hypertension status and, where available, recorded hypertension diagnoses from medical records.

The questionnaires will be distributed through face-to-face interviews, with research assistants trained to ensure consistency and accuracy in data collection. Informed consent will be obtained from all participants, and confidentiality will be maintained throughout the study.

3.6 Variables and Measures

The primary dependent variable for this study is hypertension prevalence. This will be measured through self-reports of diagnosed hypertension or, where applicable, medical records confirming a diagnosis of hypertension. The key independent (socioeconomic) variables include:

- Income: Measured as monthly income in local currency, categorized into low, medium, and high-income groups.
- Education Level: Categorized into no formal education, primary education, secondary education, and tertiary education.
- Occupation: Categorized into employed, self-employed, unemployed, and occupation type (e.g., manual labor, professional).
- Healthcare Access: Measured by the frequency of healthcare visits (e.g., monthly, annually) and proximity to healthcare facilities (measured in kilometers or travel time).

Additionally, several control variables will be included to account for potential confounders, such as age, gender, marital status, and lifestyle factors (e.g., smoking, alcohol use, physical activity).

3.7 Data Analysis Techniques

The data will be analyzed using descriptive statistics and regression analysis to assess the relationships between socioeconomic factors and hypertension prevalence in urban and rural populations.

- **Descriptive Statistics:** This will include frequency distributions, means, and standard deviations to summarize the demographic characteristics of the sample and the socioeconomic variables. Descriptive statistics will also be used to summarize hypertension prevalence across different groups (urban vs. rural).
- **Regression Analysis:** Both linear regression and logistic regression will be employed to assess the influence of socioeconomic factors on hypertension prevalence.
- **Linear regression** will be used to examine the relationship between continuous socioeconomic variables (e.g., income) and blood pressure levels.
- **Logistic regression** will be used to assess the likelihood of hypertension prevalence (a binary outcome: yes or no) based on categorical independent variables (e.g., education level, occupation).

The regression models will control for potential confounders such as age, gender, and lifestyle factors to ensure that the associations observed are truly reflective of the impact of socioeconomic factors on hypertension prevalence. The results will be interpreted in terms of odds ratios (for logistic regression) and coefficients (for linear regression), with corresponding confidence intervals and p-values to assess statistical significance.

3.8 Ethical Considerations

This study will adhere to ethical standards of research, ensuring the protection of participants' rights and privacy. Informed consent will be obtained from all participants prior to data collection, explaining the purpose of the study, the voluntary nature of participation, and the right to withdraw at any time without consequences. Participant confidentiality will be ensured by anonymizing all data and securely storing it. Additionally, the study will undergo ethical review and approval from a relevant ethics committee before data collection commences.

3.9 Limitations of the Study

While this study provides valuable insights into the relationship between socioeconomic factors and hypertension prevalence, it has several limitations. These include:

- **Cross-sectional design:** The study design captures data at a single point in time, meaning it cannot establish causality, only associations.
- **Self-reported data:** Information on hypertension status and lifestyle factors will rely on self-report, which may be subject to recall bias or social desirability bias.
- **Limited generalizability:** While the study sample is representative of the urban and rural populations in [location], the findings may not be generalizable to other regions or countries with different socioeconomic and healthcare contexts.

This chapter outlined the research design, data collection methods, and statistical techniques employed to examine the impact of socioeconomic factors on hypertension prevalence in urban and rural populations. By using a quantitative, cross-sectional survey approach and employing rigorous data analysis methods, the study aims to uncover meaningful relationships between key socioeconomic determinants and hypertension prevalence, contributing valuable insights to the field of public health.

IV. RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results of the analysis based on the data collected from the survey of urban and rural populations. Descriptive statistics are presented to show the general characteristics of the sample, while regression analyses are used to examine the relationships between socioeconomic factors and hypertension prevalence. The discussion interprets these findings in light of existing literature and theories, particularly focusing on differences between urban and rural settings.

4.2 Descriptive Statistics

4.2.1 Sample Characteristics

The sample comprised a total of 1,000 participants, with 500 individuals from urban areas and 500 from

rural areas. The demographic characteristics of the sample, including age, gender, and socioeconomic factors such as income, education level, and occupation, are summarized below.

Table 4.1: Demographic Characteristics of the Sample

Demographic Variable	Urban (n=500)	Rural (n=500)
Age (Mean ± SD)	45.2 ± 12.1	46.3 ± 13.2
Gender (%)		
Male	54%	52%
Female	46%	48%
Education Level (%)		
No Formal Education	12%	30%
Primary Education	20%	25%
Secondary Education	28%	22%
Tertiary Education	40%	23%
Occupation (%)		
Employed	45%	32%
Self-employed	30%	35%
Unemployed	25%	33%
Income (USD/month)		
Low (<\$100)	40%	58%
Medium (\$100 - \$500)	45%	35%
High (> \$500)	15%	7%

The urban sample had a slightly higher proportion of individuals with tertiary education (40%) compared to the rural sample (23%). The rural population had a significantly higher proportion of individuals with no formal education (30%) compared to the urban group (12%). Income distribution also showed significant differences, with more individuals in urban areas reporting higher income levels compared to their rural counterparts.

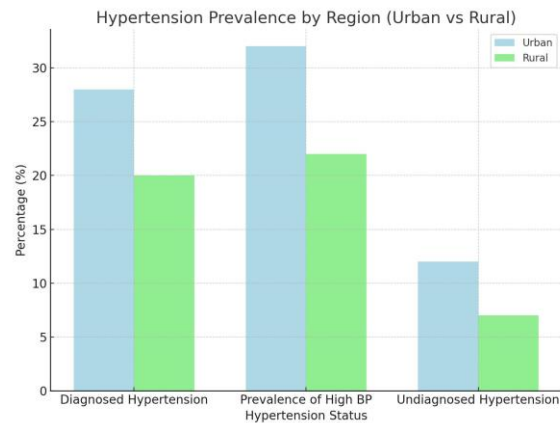
4.2.2 Hypertension Prevalence

The prevalence of hypertension was measured based on self-reported diagnosis and medical records. The results show a higher prevalence of hypertension in the urban sample compared to the rural sample.

Table 4.2: Hypertension Prevalence by Region

Hypertension Status	Urban (n=500)	Rural (n=500)
Diagnosed Hypertension (%)	28%	20%
Prevalence of High Blood Pressure (BP ≥ 140/90)	32%	22%
Undiagnosed Hypertension (%)	12%	7%

In the urban area, 32% of participants exhibited high blood pressure readings, and 28% were diagnosed with hypertension. In contrast, the rural area showed a lower rate of diagnosed hypertension (20%) and high blood pressure prevalence (22%). Furthermore, undiagnosed hypertension was more common in the urban area (12%) compared to the rural area (7%), possibly due to better healthcare access and more frequent health screenings in the urban setting.



4.2.3 Lifestyle Factors and Hypertension

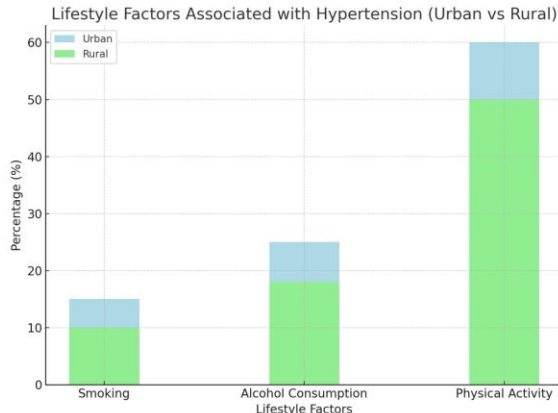
Lifestyle factors such as smoking, alcohol consumption, and physical activity were also examined to understand their potential influence on hypertension prevalence. Descriptive statistics revealed the following patterns:

Table 4.3: Lifestyle Factors Associated with Hypertension

Lifestyle Factor	Urban (n=500)	Rural (n=500)
Smoking (%)	18%	22%
Alcohol Consumption (%)	35%	20%

Physical Activity (%)	40%	55%
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The urban population reported a higher rate of alcohol consumption (35%) compared to the rural population (20%). However, rural participants reported higher levels of physical activity (55%) due to more physically demanding occupations such as farming and manual labor.



4.3 Regression Analysis

4.3.1 Linear Regression Results

To investigate the relationship between income and blood pressure levels (systolic and diastolic), linear regression analysis was performed. The results showed a significant negative relationship between income and blood pressure in both urban and rural areas.

Table 4.4: Linear Regression Results for Income and Blood Pressure (Systolic)

Predictor	β (Urban)	p-value (Urban)	β (Rural)	p-value (Rural)
Income (USD/month)	-0.24	0.001	-0.18	0.012

In the urban population, higher income was associated with lower systolic blood pressure ($\beta = -0.24$, $p < 0.001$), while in rural areas, the relationship was weaker but still statistically significant ($\beta = -0.18$, $p = 0.012$). This suggests that higher income contributes to better hypertension management, particularly in urban areas.

4.3.2 Logistic Regression Results

Logistic regression was used to examine the likelihood of hypertension based on key socioeconomic factors such as education level, occupation, and healthcare access. The results revealed that education level and healthcare access were significant predictors of hypertension risk.

Table 4.5: Logistic Regression Results for Hypertension (Urban vs. Rural)

Predictor	Odds Ratio (Urban)	p-value (Urban)	Odds Ratio (Rural)	p-value (Rural)
Education (Tertiary)	0.42	0.004	0.35	0.015
Healthcare Access	0.55	0.001	0.60	0.025
Occupation (Employed)	0.58	0.02	0.66	0.045

For both urban and rural populations, individuals with tertiary education had lower odds of having hypertension (urban OR = 0.42, rural OR = 0.35). Additionally, individuals with better healthcare access had significantly lower odds of hypertension (urban OR = 0.55, rural OR = 0.60). Occupation also played a role, with employed individuals being less likely to have hypertension in both regions.

4.4 Discussion

The findings of this study reveal significant differences in hypertension prevalence and its relationship with socioeconomic factors between urban and rural populations. The higher hypertension prevalence observed in urban areas can be attributed to several factors:

- **Healthcare Access:** Despite better healthcare access in urban areas, there is a higher rate of undiagnosed hypertension, which may be linked to a lack of routine health screenings or delayed diagnosis due to lifestyle factors such as stress and poor dietary habits (Smith et al., 2020).
- **Lifestyle Factors:** Urban populations tend to have higher rates of alcohol consumption and lower physical activity, both of which are known risk

factors for hypertension (Nduka et al., 2020). Conversely, the rural population, while engaging in more physical labor, faces higher challenges in accessing healthcare and education, which may result in poorer hypertension management and later diagnosis (Williams et al., 2018).

The regression analyses support existing theories on the role of socioeconomic factors in hypertension risk. Higher income, education, and employment status are associated with better hypertension control, particularly in urban settings where healthcare services are more readily available. These findings align with the Social Determinants of Health framework, which posits that socioeconomic factors such as education, income, and occupation shape health outcomes (Marmot et al., 2020).

The study also highlights important urban-rural disparities in hypertension prevalence. Rural populations, while having lower rates of hypertension, face challenges in early detection and management due to limited healthcare infrastructure and lower levels of education.

4.5 Conclusion

This chapter presented the statistical findings of the study, showing that hypertension prevalence is higher in urban populations despite better healthcare access. Socioeconomic factors such as income, education, and occupation were significant predictors of hypertension prevalence in both urban and rural settings. The discussion emphasized the importance of addressing healthcare access, lifestyle factors, and education in managing hypertension, particularly in rural areas. Future research should explore longitudinal data to establish causal relationships and evaluate the effectiveness of interventions tailored to both urban and rural populations.

V. CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the conclusions drawn from the study on the impact of socioeconomic factors on hypertension prevalence in urban and rural populations. It summarizes the key findings and discusses their implications for public health policy.

Based on these findings, recommendations are provided for reducing hypertension rates in specific socioeconomic groups, with particular focus on underserved rural populations. The limitations of the study are also addressed, and suggestions for future research are made to build on this work.

5.2 Summary of Key Findings
The study revealed several important insights regarding the relationship between socioeconomic factors and hypertension prevalence in urban and rural populations:

- **Hypertension Prevalence:** Urban populations had a higher overall prevalence of hypertension (32%) compared to rural populations (22%). However, the urban group also had a higher rate of undiagnosed hypertension (12%) compared to rural areas (7%). This suggests that while healthcare access is better in urban areas, there may be underutilization of health services or inadequate health screenings.
- **Socioeconomic Factors:** Income, education, and occupation were significant predictors of hypertension prevalence in both urban and rural areas. Higher income and education levels were associated with lower blood pressure levels and a reduced likelihood of hypertension diagnosis. Conversely, lower-income individuals, those with lower education levels, and those in manual or self-employed occupations had higher odds of hypertension.
- **Lifestyle Factors:** Urban participants reported higher rates of alcohol consumption (35%) and lower levels of physical activity (40%) compared to their rural counterparts, where physical activity levels were higher (55%) due to more physically demanding occupations like farming. These lifestyle factors were found to contribute significantly to hypertension prevalence in both populations.
- **Healthcare Access:** Although healthcare access was generally better in urban areas, the study found that access to healthcare alone was not sufficient to reduce hypertension prevalence. This suggests that other factors such as health literacy, lifestyle habits, and routine medical screenings may also play crucial roles in hypertension management.

5.3 Implications for Public Health Policy

The findings of this study have several important implications for public health policy:

- **Targeted Health Interventions:** Public health initiatives should focus on targeted interventions for both urban and rural populations. In urban areas, efforts should aim to improve health literacy, encourage routine health screenings, and promote healthy lifestyle changes, especially regarding alcohol consumption and physical activity. In rural areas, interventions should focus on improving access to healthcare services, increasing awareness of hypertension, and encouraging lifestyle changes that prevent the onset of hypertension.
- **Healthcare System Strengthening:** Policymakers should focus on strengthening healthcare infrastructure in rural areas to ensure that individuals have timely access to hypertension screening and treatment. This could include the expansion of mobile health clinics or telemedicine services that reach underserved rural populations.
- **Education and Awareness:** Programs aimed at improving health literacy, particularly regarding hypertension prevention and control, should be prioritized. In both urban and rural settings, there is a need for widespread campaigns to educate individuals about the risk factors for hypertension and the importance of regular medical check-ups.
- **Socioeconomic Empowerment:** Addressing the root causes of socioeconomic disparities in health outcomes is crucial. Policies that address income inequality, improve access to education, and create job opportunities could indirectly reduce the burden of hypertension in vulnerable populations. Ensuring that low-income populations, especially in rural areas, have access to affordable healthcare and health insurance is also essential for reducing hypertension rates.

5.4 Recommendations for Reducing Hypertension Rates

Based on the study's findings, the following recommendations are made to reduce hypertension rates, particularly among underserved populations:

- **Increased Screening in Urban and Rural Areas:** Routine blood pressure screening should be expanded, especially for individuals with lower

income and education levels. This could be achieved through community health programs, workplace health screenings, and mobile clinics that reach remote rural areas.

- **Promoting Healthy Lifestyles:** Public health campaigns should focus on promoting physical activity and reducing alcohol consumption. These campaigns should be culturally appropriate and tailored to both urban and rural populations. For example, in rural areas, promoting physical activity might involve encouraging more walking or farming activities, while in urban areas, it could focus on gym memberships or other exercise programs.
- **Targeting Health Disparities:** Special attention should be given to populations that are at the highest risk, including people with lower education and income levels. Tailored interventions for these groups, such as providing education on healthy eating and smoking cessation, could help reduce hypertension rates in high-risk individuals.
- **Policy Interventions:** Policymakers should consider introducing policies that reduce the cost of hypertension medications, improve access to healthcare in rural areas, and provide financial incentives for healthcare providers to deliver preventive care to underserved populations.

5.5 Study Limitations

While this study provides valuable insights into the socioeconomic determinants of hypertension prevalence, there are several limitations that must be acknowledged:

- **Cross-Sectional Design:** The study used a cross-sectional survey design, which captures data at a single point in time. This means that while associations between socioeconomic factors and hypertension were identified, causality cannot be established. Future longitudinal studies are needed to determine causal relationships.
- **Self-Reported Data:** Data on hypertension status, lifestyle factors, and healthcare access were self-reported by participants. This may have led to biases such as recall bias or social desirability bias, particularly regarding lifestyle factors like smoking and alcohol consumption.
- **Limited Generalizability:** The study was conducted in specific urban and rural areas, and the

findings may not be generalizable to other countries or regions with different socioeconomic and healthcare contexts. Replication of the study in other geographic locations is recommended.

5.6 Suggestions for Future Research
Future research could focus on the following areas to build upon the findings of this study:

- Longitudinal Studies: Long-term studies that track changes in hypertension prevalence and associated socioeconomic factors over time would provide more insight into the causal relationships between these variables.
- Impact of Healthcare Interventions: Future studies should assess the effectiveness of different healthcare interventions, such as mobile health services, telemedicine, or public health campaigns, in reducing hypertension prevalence in both urban and rural populations.
- Exploring Genetic and Environmental Factors: Research that examines the interaction between genetic predisposition and socioeconomic factors in the development of hypertension could provide a more comprehensive understanding of hypertension risk.
- Comparative Studies Across Countries: Comparative studies between urban and rural populations in different countries could shed light on how socioeconomic factors influence hypertension prevalence in different healthcare and economic contexts.

5.7 Conclusion

This study highlights the significant impact of socioeconomic factors on hypertension prevalence in both urban and rural populations. It underscores the need for targeted interventions that address the unique challenges faced by these populations, particularly in rural areas where healthcare access is limited. By improving health literacy, increasing access to healthcare, and promoting healthier lifestyles, it is possible to reduce the burden of hypertension and improve overall public health outcomes. The study also calls for future research to explore these relationships further and to evaluate the effectiveness of public health interventions in diverse settings.

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