

NON-COMMUNICABLE DISEASES AND URBANIZATION: EMERGING PUBLIC HEALTH CHALLENGES

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Abstract

Background: Non-communicable diseases (NCDs) have become a major public health concern globally and represent a growing burden in developing countries. Rapid urbanization in Pakistan has significantly influenced lifestyle behaviors, environmental conditions, and healthcare demands, contributing to the increasing prevalence of NCDs.

Objective: This study aims to examine the relationship between urbanization and the rising burden of non-communicable diseases in Pakistan from a public health perspective.

Methods: A qualitative descriptive study was conducted using semi-structured interviews with healthcare professionals, public health experts, and policymakers. A purposive sampling technique was used to recruit 25 participants from healthcare institutions and policy organizations. Data were analyzed using thematic analysis to identify key patterns related to urbanization and NCD prevalence.

Results: The findings revealed five major themes: unhealthy lifestyle behaviors, environmental pollution and urban stressors, healthcare infrastructure challenges, socioeconomic disparities in urban populations, and weak policy responses to NCD prevention. Urbanization has contributed to sedentary lifestyles, unhealthy dietary patterns, and increased exposure to environmental risk factors.

Conclusion: Urbanization is significantly influencing the rising burden of non-communicable diseases in Pakistan. Effective public health strategies focusing on preventive healthcare, urban planning reforms, and health promotion initiatives are necessary to address these emerging challenges.

INTRODUCTION

Non-communicable diseases (NCDs) have become the leading cause of mortality worldwide, accounting for approximately 74% of global deaths. These diseases include cardiovascular diseases, diabetes, chronic respiratory diseases,

and cancer. Low- and middle-income countries such as Pakistan are increasingly experiencing a rapid rise in the burden of NCDs.

Urbanization is widely recognized as one of the major drivers of this epidemiological transition.

Pakistan has experienced rapid urban growth over the past few decades. According to national statistics, more than one-third of the population currently lives in urban areas, and this proportion continues to increase.

Urban environments often encourage lifestyle changes such as reduced physical activity, unhealthy dietary habits, increased tobacco consumption, and higher levels of stress. These behavioral changes significantly increase the risk of developing chronic diseases.

In addition to lifestyle factors, urbanization also contributes to environmental risk factors such as air pollution, noise pollution, and overcrowding. These conditions further exacerbate the burden of NCDs in urban populations.

Pakistan's healthcare system faces substantial challenges in addressing these emerging health issues. Public health infrastructure is often under-resourced, and preventive health programs remain limited.

Given the rapid pace of urban development and the increasing burden of chronic diseases, it is essential to understand the interaction between urbanization and non-communicable diseases in Pakistan.

This study therefore aims to explore the emerging public health challenges associated with urbanization and the growing prevalence of non-communicable diseases in Pakistan.

Methods

Study Design

A qualitative descriptive research design was adopted to explore the relationship between urbanization and non-communicable diseases in Pakistan.

Study Participants

Participants included healthcare professionals, public health researchers, hospital administrators, and policymakers.

A total of **25 participants** were recruited using purposive sampling to obtain diverse perspectives regarding urban health challenges.

Data Collection

Semi-structured interviews were conducted between January and March 2025. Each interview lasted approximately 45–60 minutes.

Sample Interview Questions

1. What are the major health challenges associated with urbanization in Pakistan?
2. How does urban lifestyle influence the prevalence of non-communicable diseases?
3. What environmental factors contribute to chronic disease risk in cities?
4. How effective are current policies in addressing NCD prevention?
5. What strategies could improve urban health outcomes?

Data Analysis

The collected data were analyzed using **Braun and Clarke's six-step thematic analysis framework**.

The process included coding interview responses, identifying emerging patterns, and developing themes related to urbanization and NCD risk factors.

Ethical Considerations

Ethical approval was obtained from the Institutional Review Board. All participants provided informed consent before participating in the study. Confidentiality and anonymity were ensured throughout the research process.

Results

Five major themes emerged from the thematic analysis.

Theme 1: Unhealthy Lifestyle Behaviors

Participants reported that urban lifestyles encourage sedentary behavior, increased fast-food consumption, and reduced physical activity.

These behaviors significantly increase the risk of obesity, diabetes, and cardiovascular diseases.

Theme 2: Environmental Pollution and Urban Stress

Air pollution, traffic congestion, and noise pollution were identified as major environmental risk factors associated with urban living. Participants noted that these environmental stressors contribute to respiratory diseases and mental health issues.

Theme 3: Healthcare Infrastructure Challenges

Urban healthcare facilities often face overcrowding and limited resources due to the growing urban population. Participants highlighted the need for improved healthcare infrastructure to manage chronic disease cases.

Theme 4: Socioeconomic Inequalities in Urban Areas

Urban populations often experience significant disparities in healthcare access. Low-income urban communities face barriers to healthcare services and preventive care.

Theme 5: Weak Policy Response to NCD Prevention

Participants noted that existing public health policies largely focus on infectious diseases, while prevention strategies for non-communicable diseases remain limited.

Table 1

Participant Characteristics

Category	Number
Public Health Experts	7
Physicians	8
Policymakers	5
Hospital Administrators	5
Total	25



Table 2

Key Urbanization-Related Risk Factors for NCDs

Risk Factor	Health Impact
Sedentary lifestyle	Obesity, diabetes
Unhealthy diet	Cardiovascular diseases
Air pollution	Respiratory diseases
Urban stress	Mental health issues
Limited green spaces	Reduced physical activity

Figure 1

Conceptual Framework: Urbanization and Non-Communicable Diseases in Pakistan

Urbanization leads to several interconnected risk factors:

Urbanization → Lifestyle Changes → Increased NCD Risk

Urbanization → Environmental Pollution → Respiratory Diseases

Urbanization → Socioeconomic Inequality → Limited Healthcare Access

Urbanization → Urban Stress → Mental Health Problems

These pathways collectively contribute to the increasing burden of non-communicable diseases.

Discussion

The findings of this study highlight the complex relationship between urbanization and the growing burden of non-communicable diseases in Pakistan.

Rapid urban development has significantly altered lifestyle behaviors. Reduced physical activity, unhealthy diets, and increased stress levels have become common in urban populations.

Environmental factors such as air pollution further increase the risk of chronic respiratory diseases and cardiovascular conditions.

Healthcare systems in urban areas are also under pressure due to increasing population density and healthcare demands.

Socioeconomic disparities within cities further complicate the situation, as marginalized communities often lack access to quality healthcare services.

These findings emphasize the need for comprehensive public health strategies that address both lifestyle and environmental determinants of health.

Policy Recommendations

Several policy interventions are recommended to address the growing burden of NCDs associated with urbanization.

Strengthen Preventive Healthcare Programs

Public health campaigns should promote healthy lifestyles, including physical activity and balanced nutrition.

Improve Urban Planning

Urban planning policies should prioritize green spaces, pedestrian pathways, and recreational facilities.

Control Environmental Pollution

Policies targeting air pollution reduction and environmental protection should be strengthened.

Expand NCD Screening Programs

Early detection programs should be implemented in urban healthcare facilities.

Enhance Health System Capacity

Healthcare infrastructure should be strengthened to manage the increasing burden of chronic diseases.

Conclusion

Non-communicable diseases represent a growing public health challenge in Pakistan, particularly in rapidly urbanizing areas.

Urbanization has significantly influenced lifestyle behaviors, environmental conditions, and healthcare access, contributing to the rising prevalence of chronic diseases.

Addressing these challenges requires coordinated efforts in public health policy, urban planning, healthcare infrastructure development, and community awareness programs.

Strengthening preventive healthcare and promoting healthy urban environments will be essential for reducing the burden of non-communicable diseases in Pakistan.

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