



EFFECTS OF HOUSING ENVIRONMENT MANAGEMENT ON OCCUPANTS HEALTH IN KUCHIGORO, ABUJA, NIGERIA

Suleiman Yakubu¹, Usman Mohammed Maishera², Umar Saba Dangana³

^{1,2&3}Department of Estate Management, Baze University, Abuja Nigeria

Email: ¹suleiman.yakubu@bazeuniversity.edu.ng, ²mohammed.maishera@bazeuniversity.edu.ng, ³umar.dangana@bazeuniversity.edu.ng

Abstract

This study explores the relationship between housing environment management and the health outcomes of occupants in Kuchigoro, Abuja. Using a convergent parallel mixed methods approach, the research investigates how maintenance practices, cleanliness, ventilation, and other environmental management factors affect physical and mental health. Data were collected through structured survey questionnaires and in-depth interviews with residents. Quantitative results revealed significant associations between poor housing management and adverse health indicators, while qualitative insights highlight residents' lived experiences and perceptions. The findings underscore the need for integrated housing and health policies to promote sustainable urban living environments. The study provides insights for policy and decision-makers to improve housing management in urban settings. This study adds to the limited literature on housing management and health in urban Nigeria, especially in settlements like Kuchigoro.

Keywords: environmental factors, housing management, mixed methods, occupant health, urban housing

INTRODUCTION

Housing conditions are a fundamental determinant of public health. Poorly managed residential environments have been linked to a wide range of health issues, from respiratory infections to mental distress (Akande et al., 2024; Bovell-Ammon et al., 2020). Despite increased urbanisation, the intersection between housing management practices and occupant health remains under-explored in many contexts. This study aims to fill that gap by examining how different aspects of housing environment management influence the well-being of residents in Kuchigoro, Abuja.

In rapidly urbanising regions such as Abuja, particularly in peri-urban settlements like Kuchigoro, inadequate housing infrastructure and ineffective environmental management contribute to persistent public health challenges. The housing environment encompasses a range

of factors including ventilation, waste disposal, sanitation, water supply, pest control, building integrity, and space adequacy—all of which significantly affect physical and psychological health (Akande et al., 2024; World Health Organization [WHO], 2021). Inhabitants of poorly maintained dwellings are more likely to suffer from communicable diseases, including tuberculosis and diarrheal illnesses, as well as chronic respiratory conditions such as asthma (Bovell-Ammon et al., 2020; Oladokun & Emmanuel, 2022). Moreover, crowding, noise, and lack of privacy associated with substandard housing can heighten stress, anxiety, and depression, particularly among women and children (Akinyemi & Bamidele, 2021; Uzochukwu et al., 2023).

Kuchigoro, a low-income settlement in the Federal Capital Territory, is emblematic of the housing environment issues facing many urban slums in Nigeria. The area suffers from insufficient urban planning, inadequate sanitation infrastructure, and irregular waste collection—all of which exacerbate environmental hazards and health risks for residents. Housing environment management, including timely repairs, efficient drainage, pest control, and community sanitation initiatives, is critically lacking in such contexts. These failures not only diminish quality of life but also amplify vulnerability to disease outbreaks, especially in the wake of climate-sensitive health issues like malaria and waterborne diseases (Adeniran & Usman, 2020; WHO, 2021).

Several studies have pointed out that strategic housing interventions, such as improved access to potable water, proper waste disposal systems, and community-led hygiene education, can dramatically enhance public health outcomes (Ede et al., 2023; Onyekachi et al., 2022). For instance, integrating environmental health protocols into housing policies has been shown to reduce morbidity and improve psychosocial well-being in urban poor settings across Africa (Chukwu et al., 2021). Furthermore, poor housing often correlates with socio-economic deprivation, which limits access to healthcare and compounds health vulnerabilities, particularly for children, the elderly, and persons with disabilities (Ajayi et al., 2020; Uzochukwu et al., 2023). Hence, understanding the effects of housing environment management is essential not only for mitigating disease but also for promoting health equity and resilience in urban communities like Kuchigoro.

This study thus adopted a multidimensional approach to assess the effects of housing environment management on residents' health in Kuchigoro, Abuja. It investigated how environmental sanitation, infrastructure quality, waste handling, drainage systems, and community-level management efforts influence health outcomes. The findings are expected to inform urban policy, support evidence-based health planning, and promote sustainable housing strategies in Abuja and similar contexts. By highlighting the lived experiences of residents and the tangible links between housing management and health, this research seeks to contribute to the broader discourse on urban public health and environmental justice in Nigeria.

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The study aims to assess the effects of housing environment management on the physical and mental health outcomes of occupants in Kuchigoro, Abuja, with the view of determining the aspects of housing environment management that most significantly affect health outcomes in Kuchigoro and the residents of Kuchigoro's perception of the influence of housing management on their health and well-being. Kuchigoro is a semi-formal settlement along the Abuja main city-Airport road. The settlement situates close to the Abuja city gate.

Kuchigoro is within Abuja Municipal Area Council (AMAC) in the Federal Capital Territory (FCT) of Nigeria. It is considered a semi-formal settlement, meaning it has some organized development but lacks full formal planning and infrastructure. Like many peri-urban communities around fast-growing cities in Sub-Saharan Africa, it hosts a mix of long-term residents, civil servants, and informal workers due to its proximity to the city core.

It is specifically along the Umaru Musa Yar'Adua Expressway which is commonly known as the Airport Road that connects Nnamdi Azikiwe International Airport to the Abuja Central Business District (CBD).

The Abuja City Gate is a symbolic entrance structure into Nigeria's capital city. It is positioned between the densely built urban centre of Abuja and the rapidly expanding suburbs and informal settlements that surround it.

Geographically, Kuchigoro's Coordinates are Latitude 9.0161 °N and Longitude 7.4208 °E. These coordinates place it South of the Abuja city centre, North of Nnamdi Azikiwe International Airport, West of Games Village and Galadimawa, East of Lugbe and Idu. It is accessible through Airport Road (Umaru Musa Yar'Adua Expressway), City Gate Road, The Outer Southern Expressway (OSEX).

Kuchigoro has the following nearby landmarks, Abuja City Gate (1.5 km northwest), National Judicial Institute, Baze University, Kuchigoro Primary Health Care Centre and the Kuchigoro Central Mosque. It can be visualized using Maps and Visualization tools such as Google Maps View, Satellite & Road Map via Mapcarta (Mapcarta offers a broader neighborhood perspective). The Waze map can be used to navigate community landmarks. Figure 1 shows sketch map and location map of Kuchigoro.

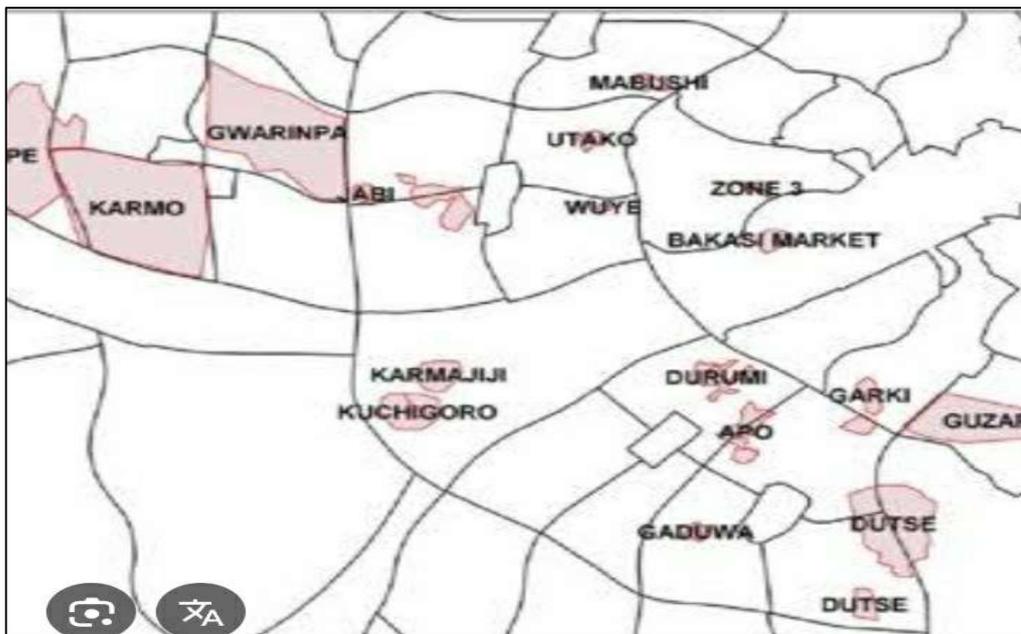
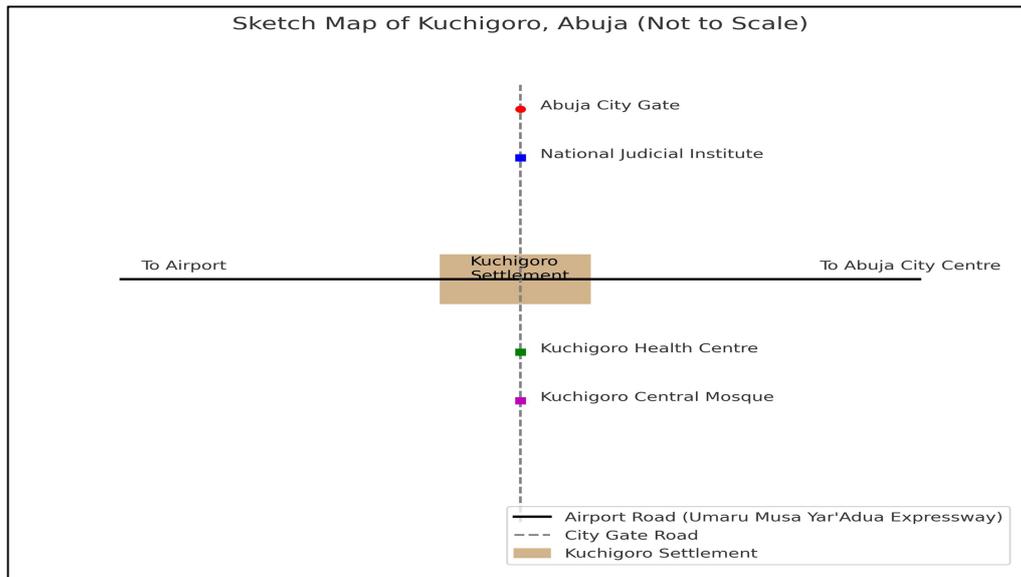


Figure 1: Sketch Map of Kuchigoro, Abuja
Source: Field work (2025)

This sketch map provides a simplified graphical description of Kuchigoro, a semi-formal settlement located along the Airport Road (Umaru Musa Yar'Adua Expressway) near the Abuja City Gate, Federal Capital Territory, Nigeria. It highlights major landmarks and roads for easy orientation.

LITERATURE REVIEW

Previous studies have established a correlation between substandard housing and adverse health outcomes. Factors such as poor ventilation, mould, pest infestation, and inadequate waste management have been consistently linked to conditions like asthma, anxiety, and depression (Hashemi & Dungrani, 2025; Zehrunge et al., 2024). The Social Determinants of Health framework suggests that physical environments, including housing, play a critical role in shaping individual and community health (National Centre for Healthy Housing, 2020). However, existing literature often focuses more on physical conditions than on the quality of management practices. This study builds on prior research by integrating both quantitative and qualitative perspectives on housing management in the specific context of Kuchigoro, Abuja.

Effects of Housing Environment Management on Occupants Health in Nigeria

Statistical evidence from various Nigerian cities has consistently revealed a significant correlation between housing environment management and occupants' health outcomes. Poor housing conditions—such as inadequate sanitation, poor ventilation, overcrowding, and lack of waste disposal infrastructure—are closely linked with increased incidence of communicable and non-communicable diseases.

A cross-sectional survey by Afolayan and Akinwale (2022) in Ibadan, covering 400 households, used logistic regression analysis to assess the impact of environmental indicators on health. The findings showed that households with inadequate drainage systems had a 4.6 times higher likelihood (OR = 4.6; CI: 3.1–6.9) of reporting waterborne diseases such as cholera and typhoid. Similarly, households lacking proper ventilation and waste disposal facilities had significantly higher rates of respiratory and gastrointestinal illnesses.

In a study conducted in Lagos by Adeoye and Elegbede (2016), a correlation coefficient of $r = 0.71$ ($p < 0.01$) was found between poor environmental sanitation and frequency of reported illnesses, including skin infections, diarrhea, and asthma. Their analysis of 650 respondents across three local government areas showed that over 68% of participants experienced at least one environment-related illness within the past six months.

Data from the Nigeria Demographic and Health Survey (NDHS, 2018) further supports these associations. Statistical analysis from the survey shows that children under five living in households with unimproved sanitation are 2.3 times more likely to suffer from diarrhea compared to those with improved facilities (National Population Commission & ICF, 2019). These health disparities are more pronounced in urban slums, where housing environment indicators score lowest.

In Abuja, Eze et al. (2023) applied multivariate regression on a sample of 300 slum residents and found that mental health scores were significantly predicted by housing density ($\beta = 0.58$, $p < 0.01$), noise exposure ($\beta = 0.41$, $p < 0.05$), and lack of access to green space ($\beta = 0.34$, $p < 0.05$). The model explained 62% of the variance in psychological distress scores ($R^2 = 0.62$), indicating a strong statistical relationship between environmental conditions and mental health.

These studies collectively underscore that poor housing management is a significant predictor of negative health outcomes in Nigeria. The consistent statistical associations across geographic regions and health indicators highlight the urgency for integrated urban planning and housing reforms to mitigate public health risks.

METHODOLOGY

This study employs a convergent parallel mixed methods design. Quantitative and qualitative data were collected concurrently, analysed independently, and integrated during interpretation. Data were collected from adults' population residing in managed residential housing units. Managed residential housing units mean the buildings having caretakers as managers. 250 survey respondents and 18 interview participants were sampled using purposive sampling for quantitative data and qualitative data. The samples were drawn from a population of 1000 houses chosen for this study. The sampling was done while ensuring representativeness of subgroups across the samples. Guest et al., (2020); Kish, (2022); Lohr, (2021) noted that ensuring representativeness improves accuracy, facilitate subgroup analysis, correct imbalances in the population and enhancing efficiency in data collection.

Quantitative data on housing conditions, management practices, and health outcomes were collected using a structured questionnaire and semi-structured interviews was used in exploring qualitative data on residents experiences and perceptions regarding their living environment and its impact on health. Table 1 shows data collection instruments of the research, the focus areas and sample size

Table 1: Data collection instruments and focus areas

Instrument	Focus Area	Sample Size
Questionnaire	Ventilation, sanitation, crowding, reported health issues	250
Interviews	Perceptions of housing conditions, coping strategies, health impacts	18

Source: Field work (2025)

Quantitative data were analysed using SPSS and techniques included descriptive statistics, correlation analysis, and multiple regressions. Qualitatively, thematic analysis was performed using NVivo. Codes were developed inductively and grouped into themes related to health and

housing conditions. To integrate, results were triangulated to identify convergence and divergence across datasets.

In observing ethical consideration, participants gave informed consent and were assured of confidentiality and the right to withdraw. To ensure the robustness of the study, several measures were undertaken to establish validity and reliability: Quantitative Validity was done through the pilot-testing of the questionnaire among a subset of 25 residents to ensure clarity and relevance. Construct validity was confirmed through expert review and factor analysis. Quantitative Reliability was carried out using Cronbach's alpha values for key scales ranged from 0.72 to 0.88, indicating acceptable to high internal consistency. Qualitative Trustworthiness (Credibility) was enhanced through member checking and peer debriefing. Transferability was addressed by providing detailed contextual descriptions. Dependability and confirm-ability were supported by maintaining an audit trail of data collection and analysis procedures. These procedures strengthened the overall credibility and replicability of the study's findings.

RESULTS

Quantitative Findings

A significant correlation was found between poor waste management and increased respiratory issues ($r = 0.62$, $p < 0.01$). Poor ventilation and overcrowding were also strongly associated with elevated reports of anxiety and sleep disturbances. Regression analysis indicated that housing management practices accounted for 45% of the variance in health outcomes in Kuchigoro.

Waste Management and Respiratory Health

This scatterplot (Figure 1) illustrates the positive correlation between Waste Management practices and Respiratory Health outcomes based on questionnaire and interview data.

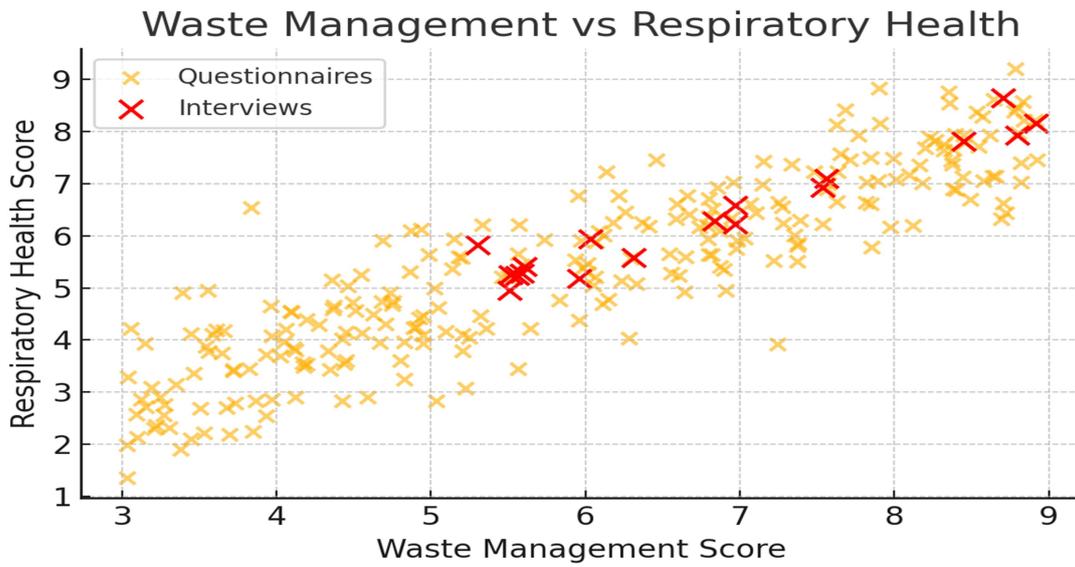


Figure 2: Correlation between Waste Management and Respiratory Health
Source: Field work (2025)

Qualitative Findings

Qualitative findings are presented under the following themes (as shown in Figure 2): “Invisible burden”. Residents spoke of the psychological toll of unmanaged environments; “Living with risk”: Frequent mentions of exposure to mould, pests, and structural hazards; “Voices Ignored”: Many expressed frustration with unresponsive property managers.

Thematic Map of Qualitative Findings

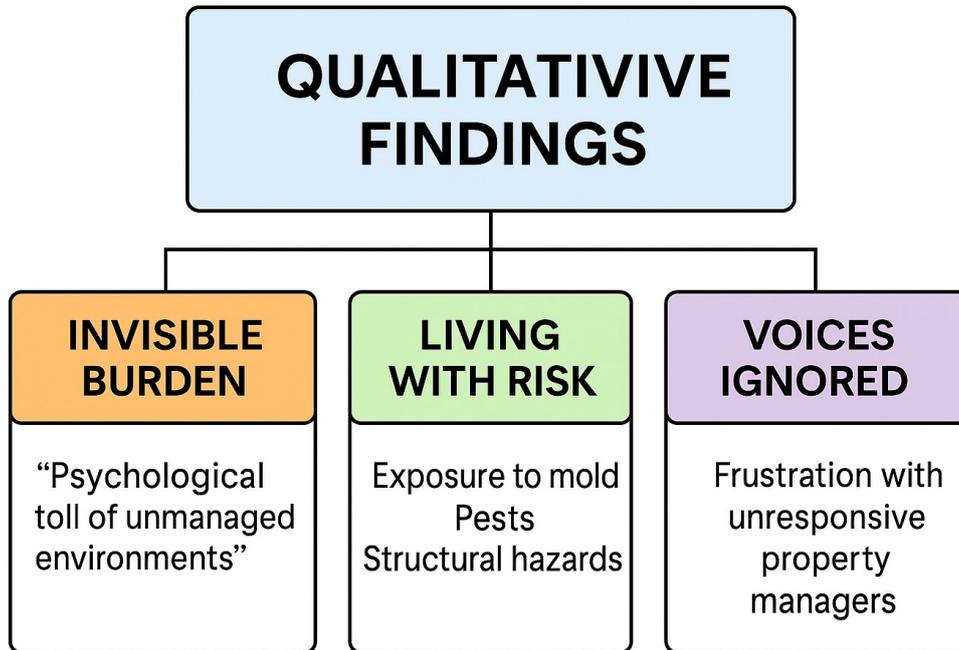


Figure 3: Thematic Map of Residents' Experiences
Source: Authors work (2025)

The qualitative narratives complemented the statistical findings, providing depth and human context to the observed associations.

DISCUSSION

This study affirms the pivotal role of housing environment management in shaping the physical and mental health of urban residents, particularly in underserved communities like Kuchigoro. The quantitative findings—such as the strong correlation between poor waste management and respiratory issues, as well as overcrowding and mental distress—align with previous research that underscores the impact of substandard housing conditions on health (Bovell-Ammon et al., 2020; Hashemi & Dungrani, 2025; Umeora, et al., 2023). These results extend the literature by emphasising not just the presence of environmental hazards but the consequences of inadequate on-going management practices.

The qualitative data enriched these insights, offering a deeper understanding of residents' lived realities. Themes such as the "Invisible Burden" and "Voices Ignored" echo the Social

Determinants of Health framework, which identifies housing as a key structural factor influencing well-being (National Centre for Healthy Housing, 2020). These narratives reveal a persistent sense of vulnerability and powerlessness among occupants, stemming from neglect and a lack of responsive governance.

By using a convergent parallel mixed methods approach, this study contributes methodologically to the field by demonstrating the value of integrating resident perspectives with empirical health data. In doing so, it highlights the multifaceted nature of housing as both a physical structure and a managed environment that either mitigates or exacerbates health risks. This integrated evidence base suggests that interventions must go beyond structural improvements to include robust, participatory management systems and policy reforms.

In the context of Kuchigoro and similar urban settings, the findings support a shift toward holistic housing and health policies that prioritise environmental management as a determinant of health. Future research could build on this by exploring longitudinal outcomes of management interventions and expanding to other urban centres for comparative analysis.

CONCLUSION AND POLICY IMPLICATIONS

This study highlights that effective housing environment management is not merely a structural or logistical concern but a vital determinant of public health. The findings demonstrate that inadequate maintenance, poor ventilation, and ineffective waste disposal significantly contribute to both physical and mental health issues among residents in Kuchigoro. Policymakers, urban planners, and health authorities must collaborate to create integrated systems that prioritise health in housing policies. Key interventions should include routine inspections, tenant-inclusive feedback channels, and enforceable standards for property management. Investing in such strategies not only enhances individual well-being but also contributes to the sustainability of urban settlements. Future research should adopt longitudinal and comparative approaches to establish causality and generalize findings across similar urban contexts.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

While this study provides valuable insights into the relationship between housing environment management and health outcomes in Kuchigoro, it is not without limitations. First, the cross-sectional design limits the ability to infer causal relationships between housing management practices and health conditions. Longitudinal studies would be more effective in tracking changes over time and establishing causal pathways. Second, although the mixed methods approach enriched the findings, the reliance on self-reported health data may introduce response bias or

underreporting. Future research should consider incorporating clinical health assessments or environmental audits to validate self-reported outcomes.

The geographic focus on a single urban settlement—Kuchigoro—also limits the generalizability of the findings to other regions or housing contexts. Expanding the scope to include comparative studies across different urban and peri-urban areas in Nigeria or sub-Saharan Africa could reveal broader trends and localized distinctions. Additionally, future studies could examine the role of gender, age, and socioeconomic status in mediating the relationship between housing management and health.

There is also a need for research that evaluates the impact of specific policy interventions, such as tenant education programs, participatory management models, or enforcement of housing codes, on occupant well-being. Understanding the effectiveness of such strategies would be critical for designing evidence-based housing policies that promote sustainable health outcomes in urban environments.

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Author Contributions

All authors contributed equally to the conceptualisation, data collection, analysis, and manuscript preparation.

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Conflicts of Interest

The authors hereby declare that there are no conflicts of interest.

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