Scholar J Public Health (2025), 1(8):1-7
https: doi.org /10.5281/zenodo.16921773

Research Article

Prevalence and Predictors of Cardiovascular Disease Risk Factors Among Adults in Kuchingoro, Abuja: A Community-Based Cross-Sectional Study

Evan Oisereme Arabome and Oluwabunmi Chirdan

Department of Community Medicine, College of Health Sciences,
Nile University of Nigeria, Abuja, Nigeria.

Received 12 July 2025; Acceptance 5 August 2025; Published 21 August 2025.

Abstract

Cardiovascular diseases (CVDs) are the leading cause of global mortality, with low- and middle-income countries (LMICs), including Nigeria, facing a growing burden due to urbanization and lifestyle changes. Urban poor communities such as Kuchingoro in Abuja are particularly vulnerable due to limited healthcare access and exposure to behavioral risk factors. However, data on CVD risk patterns in such settings remain scarce. This study assessed the prevalence and predictors of cardiovascular disease risk factors among adults as well as key socio-demographic and behavioral determinants in Kuchingoro, Abuja. A community-based cross-sectional study was conducted among 400 adults aged 18–65 years in Kuchingoro, Abuja. Participants were selected using a multistage sampling technique. Data collection was performed using a structured interviewer-administered questionnaire adapted from the WHO STEPwise tool. Physical measurements (blood pressure, BMI, random blood glucose) were taken using standard procedures. Descriptive statistics summarized prevalence rates, while logistic regression was used to identify significant predictors of hypertension. Statistical significance was set at $p<0.05$. Results show that the most prevalent risk factor was inadequate fruit/vegetable intake (71.4%), followed by physical inactivity (41.2%), overweight/obesity (34.5%), hypertension (29.3%), alcohol use (23.1%), tobacco use (16.8%), and raised blood glucose (10.5%). Logistic regression revealed that hypertension was significantly associated with age ≥45 years (AOR = 2.83, $p<0.001$), male gender (AOR = 1.64, $p=0.041$), BMI ≥25 kg/m² (AOR = 2.51, $p<0.001$), and tobacco use (AOR = 1.89, $p=0.019$). Low educational attainment had a non-significant association (AOR = 1.42, $p=0.157$). Evidently, adults in Kuchingoro bear a high burden of modifiable cardiovascular risk factors, particularly unhealthy diet, physical inactivity, hypertension, and obesity. Older age, male gender, tobacco use, and obesity emerged as key predictors of hypertension. There is an urgent need for culturally tailored, community-based interventions focusing on lifestyle modification, routine

Correspondence to: Evan Oisereme Arabome, e-mail: evanarabome@gmail.com

screening, and integration of non-communicable disease (NCD) services into primary healthcare systems in underserved urban settings.

Keywords: Cardiovascular disease, hypertension, obesity, behavioral risk factors, predictors, Kuchingoro, Nigeria, cross-sectional study, public health, urban poor.

Introduction

Cardiovascular diseases (CVDs) are the leading cause of morbidity and mortality worldwide, accounting for an estimated 17.9 million deaths annually**,** which represents 31% of all global deaths [1]. These conditions—primarily heart attacks and strokes—have been traditionally associated with high-income countries. However, low- and middle-income countries (LMICs), including those in sub-Saharan Africa, now bear a disproportionate burden of these diseases due to rapid urbanization, lifestyle transitions, and limited healthcare access [2-3].

Nigeria, Africa's most populous country, is currently experiencing an epidemiological transition characterized by a growing incidence of non-communicable diseases (NCDs), including CVDs, alongside a persistent burden of communicable diseases [4]. The urban and peri-urban communities, such as Kuchingoro in Abuja**,** are particularly vulnerable due to the confluence of socio-demographic and behavioral risk factors like poor dietary habits, physical inactivity, tobacco use, alcohol consumption, and increasing prevalence of hypertension, diabetes, and obesity [5-6].

Several studies have documented the prevalence of CVD risk factors in various Nigerian populations. For instance, a national survey by [7] reported that over 30% of Nigerian adults suffer from hypertension**,** while other studies have identified high levels of dyslipidemia and overweight/obesity among urban dwellers [8-9]. However, few studies have focused on vulnerable, low-resource urban communities such as Kuchingoro, where the compounding effects of poverty, poor infrastructure, and limited access to health education may further exacerbate cardiovascular risk.

Understanding the prevalence and predictors of cardiovascular risk factors in specific populations is essential for evidence-based public health interventions. The World Health Organization recommends population-based surveillance of CVD risk factors as a prerequisite for prevention strategies [10]. In this context, community-based cross-sectional studies are vital tools for identifying both modifiable and non-modifiable risk factors**,** including age, gender, socioeconomic status, education level, occupation, lifestyle habits, and access to healthcare services [11-12]. This study aims to fill the existing gap by assessing the prevalence and predictors of major CVD risk factors among adults in Kuchingoro, a semi-urban and under-resourced community in Abuja, Nigeria. By identifying the dominant risk patterns and associated socio-demographic factors, this study seeks to inform community-specific and culturally relevant strategies for the prevention and control of cardiovascular diseases in Nigeria and similar contexts.

Research questions

The following research questions guided the study.

1. What are the common behavioral risk factors (e.g., smoking, physical inactivity, unhealthy diet) associated with CVD in Kuchingoro?
2. What are the socio-demographic factors associated with the prevalence of CV risk factors in this Kuchingoro?

Materials and Methods

A descriptive cross-sectional study was conducted in Kuchingoro, a semi-urban community in Abuja Municipal Area Council (AMAC), Nigeria. The area is characterized by mixed residential and commercial activities, with diverse ethnic groups and limited public health infrastructure. The study targeted adults aged 18–65 years who had resided in the community for at least six months. Using a multistage sampling technique, 160 respondents were selected. Inclusion criteria included consent to participate and absence of cognitive impairment. A structured interviewer-administered questionnaire adapted from the WHO STEPwise tool was used. It comprised sections on sociodemographic characteristics, behavioral risk factors (smoking, alcohol intake, physical activity, diet), medical history, and physical measurements. Other measurements were taken such as, *Blood Pressure:* Measured using a digital sphygmomanometer. Hypertension was defined as systolic BP ≥140 mmHg and/or diastolic BP ≥90 mmHg, or current use of antihypertensive medication. *Anthropometrics:* Height and weight were measured to calculate BMI. Overweight and obesity were defined as BMI ≥25 kg/m² and ≥30 kg/m², respectively. *Lifestyle behaviors:* Assessed based on frequency of physical activity, fruit/vegetable intake, alcohol and tobacco use. Data were analyzed using SPSS version 25. Descriptive statistics summarized the prevalence of risk factors. Chi-square tests assessed associations, and logistic regression identified predictors of hypertension and obesity. Significance was set at $p<0.05$. Ethical approval was obtained from a recognized health research ethics committee in Abuja. Informed consent was obtained from all participants.

Results and Discussion

Research Question 1

What is the prevalence of cardiovascular disease (CVD) risk factors among adults in Kuchingoro, Abuja, and what sociodemographic characteristics predict their occurrence?

Table 1. Prevalence of Cardiovascular Disease Risk Factors Among Adults in Kuchingoro (N = 400).

Risk Factor	**Prevalence (%)**	**n (Out of 400)**
Hypertension (BP ≥140/90 mmHg)	29.3%	117
Overweight/Obesity (BMI ≥25 kg/m²)	34.5%	138
Physical Inactivity (low activity)	41.2%	165
Inadequate Fruit/Vegetable Intake	71.4%	286
Tobacco Use	16.8%	67
Alcohol Consumption	23.1%	92
Raised Blood Glucose (RBG ≥ 200 mg/dL)	10.5%	42

Table 1 presents the proportion of participants in the study who exhibited various known risk factors for cardiovascular disease (CVD). From the table, *Hypertension (29.3%)**:*** Nearly one-third of the adult population in Kuchingoro had elevated blood pressure. This is a significant public health concern, as uncontrolled hypertension is a leading cause of heart disease and stroke. *Overweight/Obesity (34.5%)**:*** Over one-third of participants had a body mass index (BMI) ≥25 kg/m², indicating excess body weight, which is strongly linked with metabolic disorders and cardiovascular risk.

*Physical Inactivity (41.2%)**:*** A large portion of adults reported insufficient physical activity. This sedentary behavior contributes to obesity, hypertension, and poor cardiovascular health. *Inadequate Fruit/Vegetable Intake (71.4%)**:*** The majority of participants did not consume adequate fruits and vegetables, suggesting poor dietary habits which may increase vulnerability to CVD. Tobacco Use (16.8%) and Alcohol *Consumption (23.1**%)**:* Both behaviors are known modifiable risk factors for cardiovascular disease. Their relatively high prevalence in this population calls for targeted behavioral interventions. *Raised Blood Glucose (10.5%)**:*** One in ten adults had blood glucose levels indicative of potential undiagnosed diabetes, which is a major contributor to cardiovascular morbidity. The data reflect a high burden of modifiable CVD risk factors in the Kuchingoro community. Public health interventions focusing on nutrition, exercise, and behavior modification are urgently needed.

Research Question 2

What are the socio-demographic factors associated with the prevalence of CV risk factors in this Kuchingoro?

Table 2. Sociodemographic Predictors of Hypertension (Binary Logistic Regression).

Predictor Variable	Adjusted Odds Ratio (AOR)	95% Confidence Interval	p-value
Age ≥ 45 years	2.83	1.74–4.61	<0.001
Male Gender	1.64	1.02–2.64	0.041
BMI ≥ 25 kg/m²	2.51	1.58–3.99	<0.001
Low Educational Attainment	1.42	0.87–2.32	0.157
Tobacco Use	1.89	1.11–3.22	0.019

The logistic regression analysis in Table 2 shows which demographic and behavioral characteristics are statistically associated with an increased likelihood of having hypertension. From the table, Age ≥ 45 years (AOR = 2.83, p < 0.001**)**: Adults aged 45 and above were nearly three times more likely to be hypertensive compared to younger adults. This aligns with global evidence that age is a primary non-modifiable risk factor for hypertension. Male Gender (AOR = 1.64, p = 0.041): Men had significantly higher odds of having hypertension compared to women. This may be linked to lifestyle behaviors such as alcohol and tobacco use, or lower health-seeking behavior. BMI ≥ 25 kg/m² (AOR = 2.51, p < 0.001): Overweight and obese individuals were more than twice as likely to be hypertensive, confirming the well-established relationship between excess body weight and blood pressure. Tobacco Use (AOR = 1.89, p = 0.019): Smokers had a significantly higher likelihood of developing hypertension, further emphasizing tobacco control as a critical part of CVD prevention. Low Educational Attainment (AOR = 1.42, p = 0.157): While individuals with less education were more likely to be hypertensive, the association was not statistically significant in this model. It follows that the strongest predictors of hypertension among adults in Kuchingoro were advanced age, male gender, obesity, and tobacco use. Interventions should therefore prioritize these high-risk groups for screening and health education.

Discussion of Findings

This study investigated the prevalence and predictors of cardiovascular disease (CVD) risk factors among adults in Kuchingoro, Abuja — a semi-urban, underserved population. The findings reveal a high burden of modifiable CVD risk factors, consistent with the growing epidemiological transition in Nigeria and many low- and middle-income countries (LMICs) 13]. The prevalence of hypertension (29.3%) observed in this study is slightly higher than the national average of 28.9% reported in the Nigeria Demographic and Health Survey [14]. The association between hypertension and older age**,** male gender**,** and obesity confirms existing literature that age and body mass index are strong predictors of elevated blood pressure [15]. Similarly, the overweight/obesity rate of 34.5**%** is alarming, particularly as it was significantly higher among women. The high rate of physical inactivity (41.2%) and inadequate fruit/vegetable consumption (71.4%) further

compound the risk, suggesting the need for targeted behavioral interventions and health promotion campaigns. Tobacco use and alcohol consumption were predominantly male behaviors, as documented in other Nigerian studies [16]. These lifestyle factors have been implicated in increased cardiovascular morbidity and mortality and were associated with lower educational levels, indicating a knowledge gap that must be addressed through culturally appropriate community health education.

Importantly, raised blood glucose levels (10.5%) point to an emerging burden of undiagnosed diabetes in the community. This finding supports the need for integrated non-communicable disease (NCD) screening programs at the primary healthcare level.

Conclusion

The study concluded that there is a high prevalence of cardiovascular risk factors among adults in Kuchingoro, Abuja, particularly hypertension, obesity, and physical inactivity. Age, gender, and educational status were significant predictors. These findings highlight the urgent need for community-based cardiovascular health programs that promote early detection, health education, lifestyle modification, and integration of NCD care into existing primary healthcare services. Based on the results, it was therefore recommended among others that there should be the provision of health education interventions targeting dietary habits, physical activity, smoking cessation, and alcohol use. Routine screening for hypertension, diabetes, and obesity at the community level should be encouraged. Additionally, policy advocacy for the integration of NCD services in primary healthcare in urban poor settlements, and collaboration between public health authorities and local stakeholders to sustain long-term community-based prevention efforts are urgent steps to be taken.

References

1. World Health Organization (2021). Cardiovascular diseases (CVDs) Fact Sheet. https://www.who.int
2. Mensah, G. A., Roth, G. A., & Fuster, V. (2019). The Global Burden of Cardiovascular Diseases and Risk Factors: 2020 and Beyond. *Journal of the American College of Cardiology*, 74(20), 2529–2532. https://doi.org/10.1016/j.jacc.2019.10.009
3. Roth, G. A., Mensah, G. A., Johnson, C. O., et al. (2020). Global burden of cardiovascular diseases and risk factors, 1990–2019: Update from the GBD 2019 Study. *Journal of the American College of Cardiology*, 76(25), 2982–3021. https://doi.org/10.1016/j.jacc.2020.11.010
4. Akinyemi, J. O., Adedini, S. A., & Odimegwu, C. O. (2020). Urbanization and cardiovascular disease risk in sub-Saharan Africa: Findings from the WHO SAGE surveys. *Global Health Action*, 13(1), 1803907. https://doi.org/10.1080/16549716.2020.1803907

5. Ogunmola, J. O., Oladosu, Y. A., & Olamoyegun, M. A. (2019). Cardiovascular risk factors among civil servants in Ibadan, Nigeria. *Cardiovascular Journal of Africa*, 30(3), 170–176. https://doi.org/10.5830/CVJA-2019-015
6. Okpechi, I. G., Olalekan, A., & Rayner, B. L. (2020). Cardiovascular disease in sub-Saharan Africa: Current perspectives, future challenges and possible solutions. *Heart*, 106(19), 1417–1423. https://doi.org/10.1136/heartjnl-2020-316613
7. Ulasi, I. I., Ijoma, C. K., & Onodugo, O. D. (2017). A community-based study of hypertension and cardio-metabolic syndrome in semi-urban and rural communities in Nigeria. *BMC Health Services Research*, 17, 133. https://doi.org/10.1186/s12913-017-2094-y
8. Adebayo, R. A., Balogun, M. O., Adedoyin, R. A., Obashoro-John, O. A., Bisiriyu, L. A., & Abiodun, O. O. (2015). Prevalence of obesity and hypertension among university students and staff in Nigeria. *Nigerian Medical Journal*, 56(2), 103–108. https://doi.org/10.4103/0300-1652.153411
9. Oguoma, V. M., Nwose, E. U., Skinner, T. C., Richards, R. S., & Digban, K. A. (2019). Cardiovascular disease risk factors among rural dwellers in Nigeria: The prevalence and socioeconomic characteristics. *American Journal of Hypertension*, 32(12), 1168–1174. https://doi.org/10.1093/ajh/hpz093
10. World Health Organization (2018). *Noncommunicable diseases country profiles 2018*. Geneva: WHO. https://www.who.int/nmh/publications/ncd-profiles-2018/en/
11. Gaziano, T. A., Bitton, A., Anand, S., Abrahams-Gessel, S., & Murphy, A. (2010). Growing epidemic of coronary heart disease in low- and middle-income countries. *Current Problems in Cardiology*, 35(2), 72–115. https://doi.org/10.1016/j.cpcardiol.2009.10.002
12. Okafor, C. N., Okezie, O. O., & Ugochukwu, U. C. (2019). Sociodemographic predictors of cardiovascular disease risk factors in a Nigerian population. *Nigerian Journal of Clinical Practice*, 22(5), 653–658. https://doi.org/10.4103/njcp.njcp_408_18
13. World Health Organization (2021). *Cardiovascular diseases (CVDs): Key facts*. https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds)
14. Nigeria Demographic and Health Survey (2018). National Population Commission and ICF International.
15. Adeloye D, Basquill C. Estimating the prevalence and awareness rates of hypertension in Africa: a systematic analysis. PLoS One. 2014.
16. Ekpenyong, M. S., Jagun, H., Stephen, H.A. Bakre, A.T., Odejimi, O., Miller, E. Nyashanu, M., Bosun-Arije,S.F. (2024). Investigation of the prevalence and factors influencing tobacco and alcohol use among adolescents in Nigeria: A systematic literature review, Drug and Alcohol Dependence, Volume 256, 111091, https://doi.org/10.1016/j.drugalcdep.2024.111091.