Prevalence And Risk Factors Of Diabetes And Hypertension Among Adults (Age above 50) In AmekeNgwo, Enugu: A Cross-Sectional Study

ABSTRACT

Aims: This study aimed to assess the prevalence and risk factors of diabetes and hypertension among adults Aged 50+ in Ameke Ngwo, Enugu, and identify significant demographic and lifestyle risk factors associated with these conditions.

Study Design: The study employed a cross-sectional design.

Place and Duration of Study: The study was conducted in Ameke Ngwo, Enugu State, Nigeria, between January and March 2024.

Methodology: A systematic random sampling technique was used to select 90 participants aged 50 years and above, achieving a response rate of 93.3% (84 participants). Data collection included structured interviews and clinical measurements of blood pressure and blood glucose levels. Sociodemographic information, anthropometric indices, and lifestyle factors. Participants were asked how many cigarettes they smoked a day and how long they had been smoking, and their smoking status was assessed. The number of standard drinks consumed per week was evaluated on alcohol consumption. This was further verified by asking participants to report their average daily hours spent in low-energy activities, i.e. (sitting or lying down), which was defined as < 150 minutes of moderate activity per week. Statistical analysis was conducted using SPSS, with significance set at $p < 0.05$.

Results: The prevalence of hypertension was found to be 55.7%, while diabetes affected 15% of the participants. Additionally, 6.7% of participants were diagnosed with both conditions. Obesity (31.7%), sedentary lifestyles, and smoking were significantly associated with both conditions. Specifically, hypertension was linked to an elevated BMI ($p = 0.004$) and sedentary habits ($p = 0.001$), whereas diabetes was significantly associated with smoking ($p = 0.033$) and alcohol consumption ($p = 0.008$).

Conclusion: Thestudy highlights a high burden of hypertension (55.7%) and a moderate prevalence of diabetes (15%) among elderly populations in Ameke Ngwo. Key risk factors include obesity, sedentary behavior, smoking, and alcohol consumption. These findings underscore the need for targeted health interventions, including lifestyle modifications and routine screenings, to mitigate the impact of these non-communicable diseases in rural settings.

keywords*: Diabetes, Hypertension, Elderly population, Risk factors, Prevalence, Lifestyle interventions, cross-sectional*

INTRODUCTION

The increase in the incidences of non-communicable diseases (NCDs) still presents a thorny issue in international health, especially in light of ageing populations. Two of the most prevalent NCDs include diabetes mellitus and hypertension, both of which have high mortality and morbidity levels. According to the World Health Organization (WHO), a total of 422 million people were diagnosed with diabetes globally in 2014, which is nearly four times the level recorded in 1980. High blood pressure, more commonly referred to as hypertension, is a long-term disease that is recognized in our society as the 'silent killer.' Currently, hypertension affects more than 1.28 billion adults worldwide and is a general risk determinant of stroke, cardiovascular health complications, and kidney failure (World Health Organization, 2021).

In Africa, these conditions are still on the rise due to factors such as urbanization, lifestyle changes, and inadequate access to healthcare. The incidence of both type 1 and type 2 diabetes in Africa is projected to increase by 2030 due to emerging factors such as obesity and dietary transitions (Pastakia et al., 2017; WHO, 2021). Likewise, hypertension prevalence in the African adult population ranges between 30–50%, with an estimated half of affected individuals receiving inadequate diagnosis or treatment (Dai et al., 2022). Nigeria, as the most populous country in Africa, reflects these trends, with approximately 5 million Nigerians diagnosed with diabetes and an estimated 30% of adults aged 25 years and above classified as hypertensive (Uloko et al., 2018; Adeloye et al., 2021). The elderly, particularly those in rural and semi-urban areas, are disproportionately affected due to restricted healthcare access, low health literacy, and evolving lifestyle patterns (Egbewale et al., 2019).

Previous studies conducted among elderly populations in Southeastern Nigeria, particularly in Enugu State, have reported diabetes prevalence rates of 6–9%, while hypertension prevalence exceeds 40% (Oparah et al., 2021; Oyerinde et al., 2023). However, despite these concerning statistics, region-specific research on the elderly in rural communities like Ameke Ngwo remains scarce. The growing burden of NCDs globally, particularly in low-resource settings, shows the urgent need for localised epidemiological data. As NCDs become increasingly common, understanding the specific risk factors in rural Nigerian communities is crucial for developing targeted, culturally appropriate interventions.

This study aims to bridge the existing research gap by examining the prevalence and risk factors of diabetes and hypertension among elderly populations in Ameke Ngwo, Nigeria. By quantifying the disease burden and identifying modifiable risk factors, this study will provide valuable insights for shaping public health policies and designing community-based screening programs. Furthermore, the findings will contribute to a broader understanding of NCD epidemiology in sub-Saharan Africa, where healthcare access disparities exacerbate the burden of chronic diseases.

MATERIAL AND METHODS

Study Area

The study was conducted in Ameke Ngwo in Ngwo-uno, Enugu State, a semi-urban community in Nigeria. This community was chosen based on its distinct population density, and most of the people in this community are elderly and mostly farmers who belong to the Igbo ethnic group. The perceived limited healthcare resources in this community underline the need to consider non-communicable disease risk factors among this population. This context offers a chance to analyse the relationship between lifestyle, cultural practices, and chronic illness in a setting that is not widely researched.

Study Design

In this study, a cross-sectional survey was used to determine the point prevalence of diabetes and hypertension in individuals who are 50 years and above in Ameke Ngwo. This type of study was used to examine the lifestyle and demographic characteristics of diabetes and hypertension within a specific time frame. This design is particularly appropriate for determining the relationship between the risk factors and diseases of interest within a population at a certain point in time.

Study Population

Research participants were adults 50 years and older in Ameke Ngwo because this group faces increased danger from non-communicable diseases. This community stands out because its residents follow traditional life habits and struggle to reach healthcare while aging rapidly presents an excellent setting to examine diabetes and hypertension problems. This research studies only this specific group to generate target-oriented healthcare solutions.

- Inclusion Criteria: Residents aged 50 or older who had lived in the community for at least one year and provided informed consent.

- Exclusion Criteria: Individuals with severe mental or physical disabilities that could hinder participation, non-residents or those staying temporarily in the community.

Sampling Techniques

A systematic random sampling technique was used to recruit participants. A list of elderly residents was obtained from community health records, and every n^{th} individual was selected to achieve a representative sample of 90 participants. This method ensured proportional representation and reduced selection bias.

Data Collection Instruments

Data was collected using structured questionnaires and clinical tools:

- Questionnaire: The tool collected essential details about participants, including their demographic information, daily habits, and past health history. The survey asked targeted questions about lifestyle behaviours.
- Smoking: Participants were asked whether they smoke, the average number of cigarettes smoked per day, and the duration (in years) of their smoking habit.
- Alcohol Consumption: The questionnaire included items to assess the frequency and quantity of alcohol consumption, specifically asking about the number of standard drinks per week.
- Physical Activity: Participants were queried on the amount of time spent in moderate to vigorous physical activity per week. A sedentary lifestyle was defined as engaging in less than 150 minutes of moderate-intensity physical activity per week, along with questions about the average daily hours spent sitting or lying down.
- Clinical Tools: Trained personnel used calibrated blood pressure monitors while glucometers measured blood sugar according to established methods.

Data Collection Procedures

Data collection was conducted using face-to-face interviews administered by trained interviewers, given the low literacy levels among participants. The interviews followed a structured questionnaire which, in addition to capturing sociodemographic and medical history data, also included detailed sections on lifestyle factors:

- Smoking: Interviewers asked participants about their smoking status, the number of cigarettes smoked per day, and the duration of their smoking habit.
- Alcohol Consumption: Questions were included regarding the frequency of alcohol use and the number of standard drinks consumed weekly.
- Physical Activity: Participants were asked to estimate their weekly physical activity. A sedentary lifestyle was specifically defined as engaging in less than 150 minutes of moderate-intensity activity per week, and interviewers further inquired about the average number of hours spent in sedentary behaviours (e.g., sitting or lying down).

Blood pressure measurements were performed using calibrated sphygmomanometers, and blood glucose levels were measured using standardized glucometer procedures, both administered by licensed healthcare providers.

Data Analysis

Data were analyzed using SPSS (version 24). Descriptive statistics (mean, standard deviation, frequency, and percentages) were used to summarize the demographic characteristics and prevalence rates of diabetes and hypertension. Inferential statistical methods were employed to examine associations between variables:

- Chi-square tests were used to assess associations between categorical variables such as age groups, gender, BMI categories, and lifestyle factors with disease prevalence.
- Pearson's correlation analysis was conducted to explore the relationships between continuous variables (e.g., blood pressure, blood glucose levels, and BMI).
- A significance level of $p < 0.05$ was set for all statistical tests.

The results were presented in consolidated tables and graphical formats (such as bar charts) to facilitate clear visualization of the data. This detailed analytical approach allows for robust testing of the hypotheses regarding the impact of demographic and lifestyle factors on the prevalence of diabetes and hypertension.

RESULTS AND DISCUSSION

Among the 90 elderly participants selected for the study, 84 completed the survey, yielding a response rate of 93.3%. The age distribution revealed that 68% of the participants were above 45 years old, with the mean age of the cohort being 56.79 years (SD = 15.573). Female participants constituted a significant majority (77.4%), with males comprising only 22.6% of the respondents. In terms of anthropometric indices, the mean BMI was 27.37 kg/m² (SD = 4.94). Approximately 46.7% of participants were categorised as overweight or obese (BMI ≥ 25 kg/m²), while 32.9% had a normal

BMI, and only 2.53% were underweight (BMI < 18.5 kg/m²). The prevalence of overweight and obesity was higher among females (50%) compared to males (43.2%).

Table1: Prevalence of overweight and obesity

	Varilable	**Frequency**	**Precent**
Age			
	Less than Equal to 50	27	32
	Greater than 50	57	68
Gender			
	Male	19	22.6
	Female	65	77.4
Weight (Kg)			
	Underweight: Less than 50 kg	3	3.6
	Normal weight: 50 kg - 70 kg	41	49
	Overweight/Obese: Greater than 70 kg	39	46.7
Height (cm)			
	Short: Height ≤ 150 cm	17	20.4
	Average: Height > 150 cm and ≤ 165 cm	55	65.6
	Tall: Height > 165 cm	10	12
BMI (Kg/M2)			
	Underweight (BMI < 18.5)	2	2.53
	Normal (BMI 18.5–24.9)	26	32.91
	Overweight (BMI 25–29.9)	26	32.91
	Obese (BMI ≥ 30)	25	31.65
Blood Pressure (mmHg)			
	Normal BP	8	11.43
	Elevated/Prehypertension	23	32.86
	Hypertension	39	55.71
Blood Glucose (mmol/L)			
	Normal BG: ≤ 5.5 mmol/L	41	51.25
	Pre-diabetic BG: 5.6 – 6.9 mmol/L	27	33.75
	Diabetic BG: ≥ 7.0 mmol/L	12	15
Pulse Rate (bpm)			
	Low Pulse Rate: Less than 70 bpm	15	25.86
	Normal Pulse Rate: 70–89 bpm	38	65.52
	High Pulse Rate: 90 bpm or above	5	8.62

Prevalence of Hypertension

The prevalence of hypertension among the elderly population was 55.7%. Of the hypertensive participants, 32.86% were classified as prehypertensive (120–139/80–89 mmHg), and 11.43% had normal blood pressure (BP < 120/80 mmHg). Hypertension was significantly associated with age, as individuals above 50 years had a higher prevalence rate (68.42%) compared to those aged 50 years or younger (74.07%) (P = .053). A strong relationship was observed between BMI and hypertension.

Participants classified as obese (BMI ≥ 30 kg/m²) had a hypertension prevalence rate of 64%, significantly higher than the 38.46% observed among participants with a normal BMI (P = .004). Additionally, sedentary lifestyles were significantly associated with hypertension, with 75% of inactive participants classified as hypertensive (P = .001).

Table 2 :Prevalence of Hypertension

Variable	**Hypertensive (%)**	**Normotensive (%)**	**Chi-Square**	**P-Value**
Age group				
≤ 50	20 (74.07%)	7 (25.93%)	0.013	0.053
> 50	39 (68.42%)	18 (31.58%)		
Gender				
Male	14 (73.68%)	5 (26.32%)	0.993	0.225
Female	25 (71.43%)	10 (28.57%)		
Family history of hypertension				
Yes	35 (77.78%)	10 (22.22%)	0.642	0.091
No	4 (55.56%)	3 (44.44%)		
Smoking				
Yes	18 (72%)	7 (28%)	0.102	0.062
No	21 (74%)	7 (26%)		
Sedentary lifestyle				
Yes	28 (75%)	9 (25%)	0.039	0.001
No	11 (71%)	5 (29%)		
Alcohol				
Yes	16 (76.19%)	5 (23.81%)	0.527	0.070
No	23 (73.68%)	8 (26.32%)		
Body Mass Index				
Underweight (BMI < 18.5)	1 (50%)	1 (50%)	0.021	0.004
Normal (BMI 18.5–24.9)	10 (38.46%)	16 (61.54%)		
Overweight (BMI 25–29.9)	12 (46.15%)	14 (53.85%)		
Obese (BMI ≥ 30)	16 (64%)	9 (36%)		

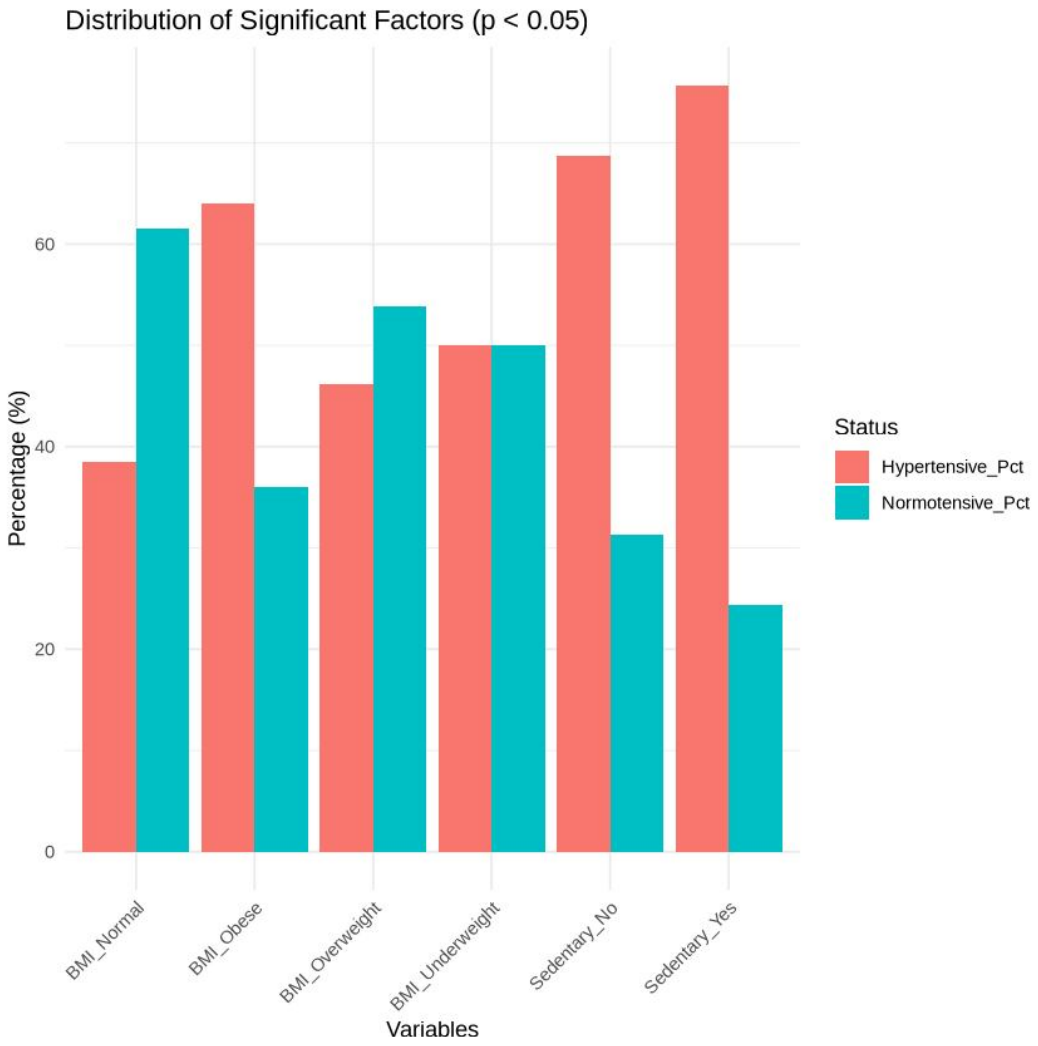

Figure 1: Distribution of significant factors (p < 0.05) for BMI

The plot shows the significant factors (p < 0.05) associated with hypertension, showing the percentage distribution of hypertensive and normotensive individuals across these variables. It visually emphasizes the impact of a sedentary lifestyle and BMI categories on hypertension prevalence.

Prevalence of Diabetes

The overall prevalence of diabetes was 15%, with 33.75% of participants categorized as pre-diabetic (5.6–6.9 mmol/L). The remaining 51.25% had normal blood glucose levels (≤5.5 mmol/L). Diabetes prevalence was higher among participants aged above 50 years (65.79%) compared to younger

participants (55.56%) (P = .046). Obesity emerged as a significant risk factor for diabetes, with 73.33% of obese participants being diabetic compared to 46.15% of participants with a normal BMI (P = .858). Behavioural factors such as smoking (72%), sedentary habits (76.67%), and alcohol consumption (72%) were also significantly associated with diabetes prevalence (P = .033, P = .017, and P = .008, respectively).

Table 3: Prevalence of Diabetes

Variable	**Diabetic (%)**	**Non-Diabetic (%)**	**Chi-Square**	**P-Value**
Age group				
≤ 50	15 (55.56%)	12 (44.44%)	0.008	0.046
> 50	25 (65.79%)	13 (34.21%)		
Gender				
Male	12 (60%)	8 (40%)	0.455	0.501
Female	28 (66.67%)	14 (33.33%)		
Family history of Diabetes				
Yes	14 (29.17%)	35 (70.83%)	0.692	0.132
No	5 (41.67%)	7 (58.33%)		
Smoking				
Yes	18 (72%)	7 (28%)	4.53	0.033
No	22 (59.46%)	15 (40.54%)		
Sedentary lifestyle				
Yes	23 (76.67%)	7 (23.33%)	5.67	0.017
No	17 (56.67%)	13 (43.33%)		
Alcohol				
Yes	18 (72%)	7 (28%)	6.98	0.008
No	22 (59.46%)	15 (40.54%)		
Body Mass Index				
Underweight (BMI < 18.5)	2 (40%)	3 (60%)	0.032	0.858
Normal (BMI 18.5–24.9)	6 (46.15%)	7 (53.85%)		
Overweight (BMI 25–29.9)	10 (50%)	10 (50%)		
Obese (BMI ≥ 30)	22 (73.33%)	8 (26.67%)		

Combined Hypertension and Diabetes Prevalence

Among the study participants, 6.7% were diagnosed with both hypertension and diabetes. This subgroup displayed significantly elevated BMI values and reported higher rates of sedentary lifestyles and smoking compared to participants diagnosed with only one or neither condition.

Correlation Between Variables

Pearson correlation analysis revealed several statistically significant relationships. Age exhibited a mild positive correlation with systolic blood pressure ($r = .15$, $P = .042$) and blood glucose levels ($r = .22$, $P < .001$). BMI was strongly correlated with both systolic ($r = .58$, $P = .001$) and diastolic blood pressure ($r = .55$, $P = .002$). A moderate positive correlation was observed between the duration of diabetes and blood glucose levels ($r = .68$, $P < .001$).

Table 4: Correlation Between Variables

Variables	**SBP (r, p-value)**	**DBP (r, p-value)**	**Blood Glucose (r, p-value)**
Age	0.15, 0.042	0.10, 0.105	0.22, 0.001
BMI	0.58, 0.001	0.55, 0.002	0.43, 0.008
Duration of hypertension	0.52, 0.005	0.47, 0.008	0.30, 0.032
Duration of Diabetic	0.40, 0.015	0.35, 0.024	0.68, 0.0001

DISCUSSION

The prevalence of hypertension among the elderly population in this study (55.7%) aligns closely with similar findings in rural African settings. Hypertension prevalence in African adults is reported to range from 30% to 50%, with urbanization, dietary transitions, and sedentary lifestyles being significant drivers (Dai et al., 2022). This study's findings reflect these broader regional trends while highlighting the unique demographic and lifestyle factors influencing the burden of hypertension in Ameke Ngwo.

Ageing emerged as a non-modifiable but significant factor contributing to elevated blood pressure. Age-related physiological changes, including arterial stiffening and reduced vascular compliance, are well-documented mechanisms behind increased hypertension risk among older adults (Adeloye et al., 2021). These changes reduce the ability of blood vessels to expand and contract efficiently, leading to persistently high systolic and diastolic pressures. Given the mean age of 56.79 years in this study cohort, the observed hypertension prevalence aligns with global trends that show the vulnerability of ageing populations to cardiovascular diseases.

Obesity was identified as a critical modifiable risk factor for hypertension, with obese participants demonstrating a significantly higher prevalence rate (64%) compared to those with normal BMI (38.46%). The positive correlation between BMI and systolic blood pressure ($r = .58$, $P = .001$) is consistent with findings from studies in both high-income and low-middle-income countries. Leszczak et al. (2024) reported similar trends in Polish elderly populations, attributing the strong relationship to increased vascular resistance and metabolic disturbances associated with obesity. Adiposity-related inflammation and hormonal imbalances, such as elevated leptin and reduced adiponectin, further exacerbate blood pressure elevation. These findings highlight the critical role of weight management interventions in mitigating hypertension risks in populations similar to Ameke Ngwo.

Physical inactivity was another significant predictor of hypertension, with sedentary participants showing a 75% prevalence rate ($P = .001$). Physical inactivity contributes to weight gain, impairs vascular endothelial function, and promotes insulin resistance, collectively elevating blood pressure (Hamburg et al., 2007). The observed association re-affirms the need for community-based intervention strategies that advocate for the adoption of physical activities. Examples of health interventions that may work include the provision of structured exercise classes, health promotion activities that encourage people to engage in physical activities, and the creation of community facilities to support exercise regimens in efforts to reduce the high rate of hypertension in this population.

Lifestyle factors like smoking habits and high consumption of salty foods, among others which were not assessed in this study, may be responsible for increased levels. Other studies have even associated high salt intake with reduced ability to regulate sodium in the body and heightened blood vessel constriction, a phenomenon reported more frequently in African individuals (Wu et al., 2023). Smoking directly interacts with hypertension by increasing oxidative stress and endothelial dysfunction effects that appeal to cardiovascular risks. Disseminating information to alter these behaviours can enhance the existing accoutrements to address hypertension in Ameke Ngwo.

The prevalence of diabetes (15%) observed in this study aligns with global and regional estimates for elderly populations, underscoring the rising burden of non-communicable diseases in ageing societies (Sinclair et al., 2020). The association between diabetes and ageing is attributed to progressive metabolic decline, reduced insulin sensitivity, and cumulative exposure to risk factors such as poor diet and physical inactivity. The findings reaffirm the critical need for targeted interventions that address these age-specific vulnerabilities.

Obesity emerged as a prominent modifiable risk factor for diabetes in this study, with obese participants exhibiting a diabetes prevalence rate of 73.33% compared to 46.15% among those with normal BMI. This strong association (P = .858) reflects the central role of adiposity in the pathogenesis of type 2 diabetes. Excess adipose tissue contributes to insulin resistance through the secretion of pro-inflammatory cytokines and free fatty acids, disrupting glucose homeostasis (Hu et al., 2022). These findings echo global evidence, particularly in Brazil and China, where studies have demonstrated similar associations between elevated BMI and diabetes risk (Vitoi et al., 2015; Hu et al., 2022).

Behavioral factors such as smoking (P = .033), alcohol consumption (P = .008), and physical inactivity (P = .017) were significantly associated with diabetes prevalence. Smoking impairs glucose metabolism and exacerbates insulin resistance through oxidative stress and inflammation (Pastakia et al., 2017). Similarly, excessive alcohol intake disrupts liver metabolism, contributing to hyperglycemia and increased diabetes risk. Physical inactivity further amplifies these effects by reducing energy expenditure and promoting weight gain, creating a vicious cycle that perpetuates glucose dysregulation.

The high prevalence of pre-diabetes (33.75%) highlights a critical window for intervention. Individuals in this category are at elevated risk of progressing to type 2 diabetes, particularly if modifiable risk factors are left unaddressed. Targeted interventions such as dietary counselling, weight management programs, and increased physical activity can significantly reduce the likelihood of progression, as evidenced by the Diabetes Prevention Program (DPP) and similar initiatives (Saeedi et al., 2019).

Two or more diseases were also apparent in this study, evident in the 6.7% of the participants who had both hypertension and diabetes. The comorbidity of hypertension and diabetes, endothelial dysfunction, oxidative stress, and inflammation are the common pathways. Combined, both conditions more than triple the risk of cardiovascular disease or allied problems, including myocardial infarction, stroke, and chronic kidney disease and can, therefore, benefit from multi-sectoral and interdisciplinary collaborative care.

The combined prevalence of this study is lower than that in other studies like the one by Hu et al., (2022) in which elderly Chinese populations had rates above 10%. The difference might therefore be due to genetics, diet or other aspects specific to the ANOVA area, or patients' ability to get a doctor's attention. However, the present analysis emphasises the need to screen programs that detect both blood pressure and blood sugar levels to promptly diagnose comorbidities.

The shared risk factors that exist between hypertension and diabetes include obesity and physical inactivity, showing the possibilities of interventions that are combined. Target risk factors for both conditions are largely shared in their prevention through the program hence lessening the Non-Communicable Disease burden in rural settings.

From the above findings of the study, there is a need for culturally appropriate public health interventions in the identified Ameke Ngwo society. The Significance of Risk Factors: sedentary behaviour and obesity are two factors that are major risks towards hypertension and diabetes. Strategies to address these modifiable risks include Community-based health education programs: Promoting awareness among the residents regarding necessary changes to their habitual diet, engaging in physical activities, and quitting smoking will help individuals make better choices. Routine health screenings: Blood pressure, blood glucose, and BMI screening services to make it easier to detect and prevent non-communicable diseases. Policy interventions: The use of policies to encourage healthy food options and accessible physical activities can sustain the required behaviour change. Screening is very important and more often since the prevalence of pre-diabetes stood at 33.75% while that of pre-hypertension was 32.86 % in this study. Such categories of patients may need early interventional measures to ensure that the conditions do not become worse and progress to the next levels of disease stages.

CONCLUSION

In this study, 55.7% of elderly people were hypertensive, while about 15% had diabetes, which is considered a moderate percentage. These conditions were significantly related to obesity, physical inactivity, smoking, and alcohol consumption: demographic and lifestyle factors. Consequently, lifestyle modifications, screening practices, and healthcare access programs should be geared towards the respective community. Such measures are crucial in reducing the impact of non-communicable diseases in rural and semi-urban populations.

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COMPETING INTERESTS

The authors declare that no competing interests exist.

AUTHORS' CONTRIBUTIONS

Author C designed the study, performed the literature review, and prepared the initial manuscript draft. Author D carried out the data analysis and discussed the results. AuthorsAand E contributed to the data collection and Background study. Author B supervised the research process and critically reviewed the manuscript. All authors read and approved the final manuscript.

Ethical Considerations

The research team implemented established ethical guidelines from different research bodies and applied the principles of the 1964 Helsinki Declaration updates. The [Ameke Ngwo Primary Healthcare] granted permission for the study to begin. Each participant signed consent forms before we added them to our research group. The study team protected participants' data privacy and processed data as anonymous information for analysis.

CONSENT

All authors hereby declare that written informed consent was obtained from all participants before their inclusion in the study. A copy of the consent form is available for review by the editorial office upon request.

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Appendix 1

Variable	Frequency (%)	95%CI
Blood pressure		
Normal BP	8 (11.43)	48.3-63.4
Elevated/Prehypertension	23 (32.86)	
Hypertension	39 (55.71)	
Blood Glucose		
Normal BG: ≤ 5.5 mmol/L	41 (51.25)	18.2-31.4
Pre-diabetic BG: 5.6 – 6.9 mmol/L	27 (33.75)	
Diabetic BG: ≥ 7.0 mmol/L	12 (15)	
Combined hypertensive and diabetic		
No	167 (93.3)	3.5-11.4
Yes	12 (6.7)	
BMI (Kg/M²)		
Underweight (BMI < 18.5)	2 (2.53)	1.2-4.2
Normal (BMI 18.5–24.9)	26 (32.91)	25.6-30.3
Overweight (BMI 25–29.9)	26 (32.91)	27.7-32.1
Obese (BMI ≥ 30)	25 (31.65)	28.0-35.3

Pulse Rate (bpm)		
Low Pulse Rate: < 70 bpm	15 (25.86)	21.8-30.3
Normal Pulse Rate: 70–89 bpm	38 (65.52)	60.2-70.9
High Pulse Rate: ≥ 90 bpm	5 (8.62)	3.0-13.8