

Prevalence and Selected Risk Factors Associated with Hypertension among Adults in Ogbia Town, Bayelsa State, Nigeria: A Community Based Cross-Sectional Study

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ABSTRACT

Background: This study determines the prevalence and some factors associated with hypertension among adults residing for the past three years and above in Ogbia town, Bayelsa State. **Methods:** The method adopted for this study was a cross-sectional design to select all 234 consented participants within the ages of 30-60 years and above using simple random technique. Digital blood pressure instrument (Omron) was used to take the blood pressure from the left arm in a sitting position; bathroom weight scale, structured questionnaire etc were among the instrument used to obtain all required data for this study. **Results:** The outcome from this study shows that adult within the ages of 30-39yrs (36.8%) and 50-59yrs (17.5%) make-up the highest and least population among the considered adults male and female in this study. Trading (22.2%) and civil service work (22.2%) was their main occupation followed by farming (17.1%) and artisan (4.7%) as the least. The respondent's monthly income was mostly between 30,000-50,000 (32.0%) naira. The blood pressure of the participants statistically shows significant p -value ≤ 0.00 pre-hypertension of 134/84mmHg with a percentage difference of 21.84% among the male adults compared with the females of 127/66mmHg systolic and diastolic blood pressures respectively. The BMI among the males (26.08kg/m^2) was also significantly (≤ 0.00) higher than their female (21.79kg/m^2) counterparts. The percentage prevalence of overall hypertension among the adults was 29.1% and 76.5% pre-hypertension. The associated factors identified with the participant's elevated blood pressure were regular excessive salt (78.2%) and alcoholic (63.2%) consumption intake followed by stress (76.9%), overweight (26.08 kg/m^2), smoking (28.6%) and lack of regular exercise while some major identifiable symptoms associated with hypertension among participants with high blood pressure during measurement was frequent headache (82.5%), blurred vision (76.5%), dizziness (76.1%) and fatigue (74.0%) respectively. **Conclusion:** Health workers in the community in collaboration with the state ministry of health should address the knowledge gap on excessive consumption of alcohol and salt intake by creating awareness campaign measures and seminar presentations to the adult residents of Ogbia town on the importance of moderation in dietary and sedentary life style habits.

Keywords: Adults, blood pressure, communities, hypertension



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INTRODUCTION

Community surveys frequently indicate that many individuals with hypertension are undiagnosed or inadequately treated. Low levels of awareness, screening, affordable treatment and long-term follow-up drive poor control of hypertension. Health-system deficiencies limited primary care access, drug supply problems, and out-of-pocket costs contribute to sustained high prevalence of uncontrolled blood pressure among adults in most communities (Adeloye, 2025). Hypertension is a leading modifiable risk factor for cardiovascular disease and premature death worldwide. Chemical pollutants and occupational stressors are increasingly recognized as contributors to cardiovascular risk and may influence blood pressure via systemic inflammation, oxidative stress, and autonomic imbalance. In oil-producing or industrial regions, concerns about pollutant exposure, gas flaring and contaminated water sources motivate local investigations of possible links between environment and hypertension. An estimated 1.4billion adults aged 30-79yrs were diagnose of hypertension in 2024 globally with emphasis on age, high salt intake, obesity, physical inactivities, alcohol etc as major contributing factor (Ezzati *et al.*, 2021;WHO,2023; 2025). Overweight and obesity are among the strongest biomedical drivers of hypertension: many observational studies and reviews attribute a large fraction of population hypertension to increased adiposity. Mechanisms include insulin resistance, activation of the renin angiotensin system, sympathetic excitation and increased blood volume (Chobanian *et al.*, 2003; James. 2022).

Harmful alcohol use and tobacco smoking are also associated with higher blood pressure and cardiovascular risk, excessive sodium intake have a well-established population-level effect on blood pressure. However, individual responses vary and salt acts together with other dietary intake influences. Fruits and vegetable consumption dietary patterns and total caloric intake also shape hypertension risk (Justyna *et al.*, 2021; *et al.*, 2022; Tao *et al.*, 2024). Pheochromocytoma may cause abrupt episodes of hypertension accompanied by headache, palpitations, pale appearance, and excessive sweating. (Jesse *et al.*, 2023). Severely elevated blood pressure greater than 180/120 mmHg is referred to as a hypertensive crisis.(Center for Drug Evaluation and Research, 2021) Hypertensive crisis is categorized as either hypertensive urgency or hypertensive emergency, according to the absence or presence of end-organ damage, respectively.(Rodriguez, 2022 & heart, 2025). It is the most common heart disease among black Africans and a major cause of death and illness among Nigerians (Falk *et al.*, 2023).

Recent reports across Nigeria suggest an increasing prevalence amongst rural populations while The 2017 global burden of disease estimated that the annual deaths will increase to 1.56 billion in 2025 (Yahya *et al.*, 2023 ;Ogah *et al.*, 2023; Fisher & Williams,2025). Other

non-communicable diseases which often cluster with hypertension such as obesity and diabetes have also been on the rise among adults (Popkin, 2024). Hypertension is accountable for about 30.6% of all cardiovascular mortality in Nigeria, with the bulk of this mortality happening among older persons (Abdullah *et al*, 2021). In Nigeria, the prevalence of hypertension has continued to rise due to rapid urbanization, lifestyle changes, poor dietary habits, physical inactivity, stress, and limited access to quality healthcare services. Despite being largely preventable and manageable, hypertension often remains undiagnosed or poorly controlled, particularly in rural and semi-urban communities (Okoro *et al.*, 2020).

MATERIALS AND METHODS

This study adopted a descriptive cross-sectional survey design. This design is appropriate because it enables the researcher to collect data from a sample of the population at a single point in time to assess the determinants of hypertension among residents

Study Area

The study was conducted in Ogbia Community sharing boundary with Oloibiri were Nigeria first oil was discovered in 1956, located in Ogbia Local Government Area of Bayelsa State, Nigeria. Ogbia main town is a rural riverine settlement characterized by limited healthcare facilities, low socio-economic activities, and strong cultural practices. The community relies mainly on fishing, farming, petty trading, and artisanal activities. Access to healthcare services is often limited by distance, transportation challenges, and economic constraints, making the study area suitable for assessing factors influencing health-seeking behavior.

Population of the Study

The study population of all consented adults between 30 years and above living in Ogbia Community. This group forms 41.36% of the entire population of Ogbia main town community giving approximately 3,069 adults. (Ibama, 2021) This approximate population forms the sampling frame from which the sample size was drawn. This population is appropriate because adults are more involved in making health decisions for themselves and often for their households. The sampling frame included both males and females who have lived in the community for at least two years prior to the study.

Sample Size calculation and technique

The Jaykaran and Tamoghna formula was used to calculate the minimum sample size using an 18.7% estimated proportion of systolic hypertension among

adults in some rural communities in Bayelsa State (Ibama *et al.*, 2021).

$$n = pq(e/1.96)^2$$

Where:

P = working prevalence of hypertension among adults (18.7)

q = 100 - p (81.3%)

e = margin of sampling error tolerated at 95% confidence interval (5%)

$$N = 18.7 \times 81.3 \div (5/1.96)^2$$

$$N = 1520.31 \div 5.50 = 233.88 \sim 234$$

A simple random sampling technique will be used to select respondents from households within the community.

Instrument for Data Collection

Self-structured questionnaire, digital blood pressure apparatus, bathroom weight weighing scale were the primary instrument used for data collection. The questionnaire consist of three sections: A. Socio-demographic characteristics, B. Blood pressure/ signs and symptoms associated with high blood pressure among the residents, and C. associated causes of high blood pressure and some preventive measures taking among residents in Ogbia main town. Items in the questionnaire were based on a 4-point Likert scale and were designed to obtain information relevant to the study objectives.

Inclusion criteria: Only respondents within age 30->70yrs and have resided concurrently for at least 3 yrs and above in Ogbia metropolis.

Exclusion criteria: Any adult below 30yrs and those residing outside the community metropolis were excluded from the study

Ethical Considerations

Ethical approval was obtained from the appropriate community authorities and research committee. Participation in the study was voluntary. Respondents were informed about the purpose of the study and verbal consent was obtained before administering the questionnaire.

RESULTS

The results obtained from this study were analyzed using **spss** version 25.0 and are presented in tabular format using frequencies, percentages, standard deviation and p-

value of ≤ 0.05 to determine significant differences. Findings are discussed in relation to existing literature.

Table 1 shows that 36.8% of respondents were aged 30-39 years, while 20.5% were 60 years and above. Males constituted 53.0% of the study population. Most respondents were married 41.5% and Christians 65.4%. Regarding education, 41.9% had tertiary education. Trading and civil service each accounted for 22.2% of occupations. From Table 2 about 32.0% earned ₦30,000-₦50,000 monthly, and 38.0% had resided in Ogbia for over 10 years.

Table 1: Demographic Characteristics of the Population

Variables	Frequency(n=234)	Percentage
Age (yrs)		
30-39	86	36.8
40-49	59	25.2
50-59	41	17.5
60 and above	48	20.5
Total	234	100
Sex		
Male	124	53.0
Female	110	47.0
Total	234	100
Marital Status		
Single	76	32.5
Married	97	41.5
Divorced	39	16.6
Widows	22	9.4
Total	234	100
Religion		
Christianity	153	65.4
Islam	24	10.3
Traditional	50	21.4
Others	7	3.0
Total	234	100
Educational Status		
Non	16	6.8
Primary	49	20.9
Secondary	71	30.3
Tertiary	98	41.9
Total	234	100
Occupation		
Farming	40	17.1
Fishing	32	13.7
Trading	52	22.2
Civil servant	52	22.2
Artisan	11	4.7
Student	22	9.4
Unemployed	17	7.3
Others	8	3.4
Total	234	100

Table2: Monthly Income and Duration of Stay

Variables	Frequency (n=234)	Percentage (%)
Income (₦)		
≤ 30,000	55	23.5
30,000-50,000	75	32.0
51,000-100,000	70	30.0
≥100,000	34	14.5
Total	234	100
Duration of Stay (years)		
3-4	77	33.0
5-10	68	29.0
≥ 10	89	38.0
Total	234	100

Table 3: Blood Pressure Profile of Participants According to Sex

Variables	Females	Males	%Diff.	P-value
DBP (mmHg)	66.08±13.38	84.54±7.04	21.84	0.00
SBP (mmHg)	127.56±12.22	134.77±12.16	5.35	0.00
Pulse (bpm)	69.56±4.65	70.52± 3.62	1.36	0.67
Weight (kg)	56.47±12.11	67.58±11.16	16.44	0.01
Height (m)	1.61±0.42	1.61±0.25	0	0.06
BMI(kg/m ²)	21.79±5.77	26.08±7.86	16.45	0.03

Source: Field survey 2026

N/B: DBP=Diastolic blood pressure, SBP= Systolic blood pressure

Table 4: Percentage Blood Pressure Outcome of the Respondents

Vairable	Frequency (n = 234)	Percentage (%)
SBP (mmHg)		
80–99	34	14.5
100–119	44	18.8
120–139	106	45.3
≥140	50	21.4
Total	234	100
DBP (mmHg)		
40–59	32	13.7
60–79	111	47.4
80–89	73	31.2
≥90	18	7.7
Total	234	100

Table 5: Respondents' reported signs and symptoms n=234

Variables	Agreed (n)	Agreed (%)	Disagreed (n)	Disagreed (%)
Frequent headache	193	82.5	41	17.5
Dizziness	178	76.1	56	23.9
Blurred vision	179	76.5	55	23.5
Chest pain	157	64.5	77	31.7
Shortness of breath	159	67.9	75	32.1
Fatigue and weakness	173	74.0	61	26.0
Nose bleeding	141	60.3	93	39.7

Table 6: Respondents Intake and Response to Factors associated with Hypertension n=234

Variables	Yes (n)	Yes (%)	No (n)	No (%)
Excessive consumption of salt	183	78.2	51	21.8
Stress and emotional tension	180	76.9	54	23.1
Obesity or overweight	157	67.1	77	32.9
Excessive alcohol intake	148	63.2	86	36.8
Smoking cigarette	67	28.6	167	71.4
Lack of physical exercise	157	67.1	77	32.9
Family history	143	61.1	91	38.9
Increasing age	149	63.7	85	36.3
Regular BP check-ups	17	7.3	217	92.7

A positive percentage difference in the cardiovascular indices and the BMI was observed among the males and females (Table 3).

Using ESC and ESH, 2024 classification, hypertension is defined as SBP ≥140 mmHg or DBP ≥90 mmHg. From table 4, 21.4% of respondents had systolic BP ≥140 mmHg, while 38.9% had diastolic BP ≥80 mmHg. The overall prevalence of hypertension in this study was 29.1%, derived from respondents with either SBP ≥140 mmHg or DBP ≥90 mmHg. This is consistent with the 28.9–38.8% range reported in the Niger Delta studies.

Table 5 reveals that frequent headache 82.5% was the most reported symptom, followed by blurred vision 76.5%

and dizziness 76.1%. This indicates high symptom awareness among respondents, though hypertension is often asymptomatic.

From table 6, shows 78.2% of respondents agreed to apply addition salt intake regularly to their food, consumption of alcohol 63.2% and smoking 28.6%. However 76.9%, 61.1% and 63.7% had knowledge that stress, family history and age can contribute to the development of high blood pressure.

DISCUSSION

The hypertension prevalence of 21.4% (SBP) and 7.7%

(DBP) observed among adults in Ogbia Town is high and aligns with previous studies conducted by Egbi *et al.* (2018) of 27.9% and 38.8% in Bayelsa state and the Niger Delta region. This prevalence put together exceeds the 28.9% national average reported by Adeloye *et al.* (2025); suggesting Ogbia may have localized risk factors. The high proportion with prehypertension: SBP 120-139 mmHg at 45.3% indicates a large at-risk population. Though knowledge gaps exist among those consuming excess alcohol 63.2% and salt 78.2%. However the strong awareness of BP check-ups 92.7% as preventive measures is encouraging for early detection programs in Ogbia Primary Health Centres. There was a significant difference of 0.00 in the DBP and SBP among the males and females with a positive percentage difference of 21.84 and 5.35%. A significant difference was also observed in weight and BMI (26.08kg/m²) when the both sex were compared. Overweight has been previously reported by Uvoh *et al.*, (2025) among elderly adults between the ages of 65-79years in yengoa, Bayelsa state. However, this study is not in congruent with a recently conducted study among adult elderly women of 60-79years with normal weight of 21-23kg/m² in Sagbama, Bayelsa state (Uvoh & Onokpite, 2026).

The age distribution shows 63.2% were 40 years and above, a known risk period for hypertension onset. This supports respondents' perception that increasing age (63.7%) causes hypertension. The slight male preponderance 53.0% is consistent with Nigerian studies showing higher male prevalence before age 60. Occupational patterns reflect Ogbia's semi-urban nature: 30.8% in farming/fishing and 22.2% in civil service. The percentage number of adults in the civil service sector is low compare to previous study of 28.89% conducted in nearby river state, Nigeria (Uvoh *et al.*, 2025). Low income levels (55.5%) earning ≤N30,000- N50,000 may limit access to healthy diets and healthcare (Hermadorena *et al.*, 2022). Hence the risk of developing hypertension is among low income earners (Tao *et al.*, 2024) The respondents who have lived for over ten years (38.0%) were more common among the study adults subjects compare to those earning income of N100,000 (14.5%) above make up the least population in the study area. Excessive regular consumption of salt in diet causes the body to retain much water resulting in nocturnal blunted blood pressure pattern characterize by decrease blood pressure during night time. However, the exact mechanism by which excess salt consumption increase blood pressure dipping pattern have not been fully understood though it may be related to excitation of the sympathetic nerve stimulation (Alkhalaf *et al.*, 2023; Jesse *et al.*, 2023; Wang *et al.*, 2025; WHO, 2025). Some major symptoms identified with elevated blood pressure among the participants during check-up includes frequent headache (82.5%), dizziness (76.1%), blurred vision (76.5%), fatigue (74.0%), shortness of breath (67.9%) and nose bleeding (60.3%). Though it is mostly asymptomatic but is discovered frequently through screening (James,

L. (2022).

Conclusion

The high prevalence of hypertension combined with high prehypertension rates observed among the study adults calls for an urgent community-based screening in Ogbia town. Health workers in collaboration with the ministry of health should address the knowledge gaps on alcohol, salt usage and genetics to leverage existing awareness of salt reduction and stress management.

Conflict of Interest: None declared

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