# Knowledge of Common Cardiovascular Diseases and its Risk Factors Among Members of a Community in South-South Nigeria

**Pauline Etuajie Eromon[1,2], Tijani Idris Ahmad Oseni[2,3], Neba Francis Fuh[2,4], Christopher Chidozie Affusim[2,4], Osagie Edwin Lawani[4], Bolanle T. Adewuyi[5], Abel Ibharokhonre[4], Augustine Ikwu[4], Peter Ahmed Imomoh[4]**

[1]Department of Family Medicine, Travel Medicine Unit, Irrua Specialist Teaching Hospital, [3]Department of Family Medicine, Lifestyle and Behavioural Medicine Unit, Irrua Specialist Teaching Hospital, [4]Department of Family Medicine, Irrua Specialist Teaching Hospital, [5]Department of Family Medicine, Irrua Specialist Teaching Hospital, Irrua, [2]Department of Family Medicine, Ambrose Alli University, Ekpoma, Nigeria

## Abstract

**Background:** Cardiovascular diseases (CVD) are a major cause of morbidity and mortality. Reducing the burden of CVD particularly among rural dwellers will require a wholistic approach involving health education, and strengthening of primary health care to provide affordable primary care to the people. **Aim:** To access the knowledge of CVD and its risk factors among the people. **Materials and Methods:** This was a descriptive cross-sectional study of 360 adult residents of Igueben, a rural community in Edo State South-South Nigeria, selected through a multistage sampling technique. An interviewer-administered semi-structured questionnaire was used to collect data which were analysed using SPSS version 20.0. **Results:** Respondents were mostly female (67.78%) with a mean age of 45 ± 08 years. Over half of the respondents were farmers (58.33%), and 57.78% of respondents did not have secondary education. Over 50% had knowledge of stroke, and more than two-third of them were able to recognise common stroke symptoms such as difficulty speaking, facial weakness, and sudden limb weakness. Most respondents had knowledge of common risk factors for CVD, especially smoking, alcohol use, and hypertension. Respondents demonstrated a good knowledge of the preventive and control measures of CVD like healthy diet (60.56%), regular exercise (60.56%), alcohol and smoking cessation (60.56%), good sleep (55.56%), good health-seeking behaviour (55.55%), and avoidance of stress (54.44%). Furthermore, 78.89% of the participants recognised the need for hospital care in the event of a CVD. However, one-third of them had a poor health-seeking behaviour. **Conclusion:** We have found that this rural population had knowledge of stroke as a CVD as well as other common ones such as heart attack and heart failure. They also had a good health-seeking behaviour. However, while CVD awareness alone is no guarantee for positive cardiovascular outcomes, a good knowledge is clearly necessary for individuals to make informed decisions about their health by potentially adopting risk-free behaviours.

**Keywords:** Behaviour, cardiovascular disease, knowledge, risk factors

## Introduction

Cardiovascular disease (CVD) is the number one cause of death worldwide.[1-5] By 2001, CVD had become the leading cause of death in the developing world, as it has been in the developed world since the mid-1900s.[6] The burden of CVD in developing countries is enormous as they account for over 80% of deaths from CVD.[7] In Nigeria, CVD accounts for 11% of all deaths[8] and has overtaken infectious diseases as the leading cause of death in the country.[9]

CVD covers a wide array of disorders, including diseases of the cardiac muscle and of the vascular system supplying the heart, brain, and other vital organs.[10] Ischemic heart diseases (IHD), congestive cardiac failure, and stroke account for at least 80% of the burden of CVD in all income regions, which share many of the same common risk factors; accordingly, similar interventions are appropriate.[10] A study conducted in

**Address for correspondence:** Dr. Pauline Etuajie Eromon, Department of Family Medicine, Irrua Specialist Teaching Hospital, Irrua, Nigeria.
E-mail: eromonp@yahoo.com

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South-western Nigeria revealed that those with heart failure had the highest occurrence of CVD.[7,11] The global variations in CVD rates are related to the temporal and regional variations in these known risk factors.[10] In a study done in North-western Nigeria, hypertension was the most prevalent.[12]

The major behavioural risk factors for CVD are unhealthy diet, physical inactivity, tobacco use, and harmful alcohol consumption.[13] These would lead to high blood pressure, high blood glucose, lipid abnormalities, and obesity, which would, in turn, lead to CVD.[13] Although some risk factors, such as age, ethnicity, and gender, obviously cannot be modified, most of the risks are attributable to the lifestyle and behavioural patterns and can be changed.[10]

Findings from a study done in South-South Nigeria revealed a poor public knowledge of heart disease among adults.[14] The levels of knowledge and awareness of CVD and risk factors were also generally low in a sub-Saharan African study.[15] Reducing the burden of CVD, particularly among rural dwellers, will require a wholistic approach involving health education, and strengthening of primary health care to provide affordable primary care to the people.[16] To do this, it is important to access the knowledge of CVD and its risk factors among the people to know their level of knowledge and fill the knowledge gap. This will also help address misconceptions on CVD and the risk factors as well as help policymakers develop measures to address the burden of CVD.

## MATERIALS AND METHODS

### Location of the study
The study was conducted in Igueben, a rural community in Edo Central Senatorial District of Edo State. Igueben has an area of 380 km$^2$ and has a population of 69,639 according to the 2006 population census.

### Study design
The study was a descriptive cross-sectional study.

### Study population
Adults aged 18 years and above, who are residents in the community, were recruited for the study.

### Sample size determination
The sample size was calculated using Fisher's formula, and a prevalence of 34.9% knowledge of CVD in a study conducted in two communities in Delta State Nigeria.[14]

$n = Z^2 PQ/d^2$

Z is standard normal deviation at 95% confidence interval, which is 1.96.

$P = 34.9\%$

$Q = 1 - P$

$d$ = Degree of the desired accuracy usually set at 0.01

$$n = \frac{1.96 \times 1.96 \times 0.349 \times 0.651}{0.05 \times 0.05}$$

$n = 349$

A total of 360 participants were recruited and participated in the study.

### Selection criteria
#### Inclusion criteria
1. Adults aged 18 years and above
2. Currently residing in the community
3. Have resided in the community in the past 12 months.

#### Exclusion criteria
1. Critically ill patients who could not be able to participate
2. Those with cognitive impairment.

### Sampling technique
A rural community was randomly selected for the study through multistage sampling. Igueben Local Government was chosen from the 18 Local Governments in Edo State by balloting. The Igueben community was then chosen through balloting from the three communities in the local government Igueben, Ekpon, and Amahor. The study participants were then selected by purposive sampling. A medical outreach was conducted for the community, and members of the community were invited through town criers and the palace. All participants in the outreach who consented were selected.

### Data collection
The knowledge of cardiovascular risk assessment was done through an interviewer-administered structured questionnaire using the validated cardiovascular disease risk factors knowledge level.[17,18] This tool is a 28-item instrument which measures the knowledge of the features of CVD (four items), risk factors of CVD (15 items), and the result of adopting a risk-free attitude (nine items). It has a high reliability and validity.[18] Respondents were required to answer a "Yes," "No," or "I don't know" to each of the questions in the instrument.

This questionnaire was pretested in Ewu, a neighboring community with individuals of similar characteristics. The pretested questionnaire was thereafter used to collect the data for the study. After the collection of the data, the risk of CVD was scored in percentage.

### Data analysis
All data collected with the questionnaires were entered into a computer and analysed using the Excel worksheet (2007) and statistical package for the social sciences (SPSS) version 20.0 (IBM Corp. Released 2014. IBM SPSS Statistics for Windows, version 20.0. Armonk, New York: IBM Corp). A biostatistician was employed to help analyse the data further. The categorical variables were summarised using counts, proportions, and frequency tables.

### Ethical clearance
Approval for this study was sought and obtained from the Ethical and Research Committee of ISTH, and informed written consent was obtained from the participants before

the commencement of the study and recruitment of the participants, respectively. Details of this research (including the procedure, benefits, etc.) were explained to the participants in a language they could understand, and interpreters were engaged where necessary.

## RESULTS

The results from the study of the 360 participants who were resident in the Igueben community and have been resident in the community for the 12 preceding months showed that respondents were mainly in their fifth decade of life 152 (42.22%) with a mean age of 45 ± 08 years. They were mostly female 244 (67.78%), married 320 (88.89%), with less than secondary education 208 (57.78%), and mostly farmers 210 (58.33%) [Table 1].

The assessment of knowledge and risk factors of CVD among the study participants showed that respondents were mostly aware of stroke 198 (55.00%), heart attack 146 (40.56%), and heart failure 134 (37.22%). Less than half of the respondents knew that a family history of CVD 144 (40.00%), diabetes 144 (40.00%), obesity 114 (31.67%), and raised blood lipid 74 (20.56) was a risk factor for CVD [Table 2].

Concerning knowledge of common symptoms of CVD among respondents, knowledge of common symptoms of heart attack was low as a very few respondents knew that chest pain 116 (32.22%), shortness of breath 80 (22.22%), pain and discomfort in the arm, jaw, or back 68 (18.89%), and fainting/profuse sweating 64 (17.78%) were symptoms of heart attack. Most respondents, however, knew the common symptoms of stroke such as sudden weakness of one half of the body 240 (66.67%), sudden difficulty speaking 224 (62.22%), and sudden facial deviation 216 (60.00%). In the event of the presence of symptoms among close ones or relatives, most respondents 284 (78.89%) would opt for hospital treatment. Knowledge of symptoms of CVD is shown in Table 3.

Respondents demonstrated a good knowledge of the preventive and control measures of CVD as tabulated in Table 4. They acknowledged the importance of healthy diet 218 (60.56%), regular exercise 218 (60.56%), alcohol and smoking cessation 218 (60.56%), good sleep 200 (55.56%), good health-seeking behaviour 198 (55.55%), and avoidance of stress 196 (54.44%) in the prevention and control of CVDs.

## DISCUSSION

There are limited data on knowledge among the general population in sub-Saharan Africa regarding CVD and risk factors. Adequate awareness of its risk factors may help reduce the population exposure to modifiable risk factors and thereby contribute to the prevention and control strategies.

Igueben, the study location is an agrarian, rural community in South-South Nigeria. Majority of the respondents were female farmers with low level of education. This reflected a rural demography in many parts of Nigeria.

### Table 1: Sociodemographic characteristics of respondents (*n*=360)

| Variable | Frequency (%) |
| --- | --- |
| Age (years), mean | 45±08 |
| ≤40 | 88 (24.45) |
| 41-50 | 152 (42.22) |
| ≥50 | 120 (33.33) |
| Sex | |
| Male | 116 (32.22) |
| Female | 244 (67.78) |
| Marital status | |
| Married | 320 (88.89) |
| Unmarried | 40 (11.11) |
| Level of education | |
| Primary and below | 208 (57.78) |
| Secondary and above | 152 (42.22) |
| Occupation | |
| Farmer | 210 (58.33) |
| Others* | 150 (41.67) |

*Artisans, civil servants, students, unemployed

### Table 2: Knowledge of cardiovascular disease and its risk factors among respondents (*n*=360)

| Variable | Frequency (%) |
| --- | --- |
| Knowledge of CVD | |
| Heart attack (myocardial infarction) | 146 (40.56) |
| Heart failure (congestive cardiac failure) | 134 (37.22) |
| Abnormal heart rates (cardiac arrhythmias) | 54 (15.00) |
| Stroke (cerebrovascular disease) | 198 (55.00) |
| Peripheral artery disease | 40 (11.11) |
| Coronary artery disease (angina/ischemic heart disease) | 30 (8.33) |
| Knowledge of risk factors of CVD | |
| Unhealthy diet | 166 (46.11) |
| Physical inactivity | 174 (48.33) |
| Tobacco use | 192 (53.33) |
| Alcohol use | 192 (53.33) |
| Family history of CVD | 144 (40.00) |
| Hypertension | 198 (55.00) |
| Diabetes | 144 (40.00) |
| Obesity | 114 (31.67) |
| Raised blood lipid | 74 (20.56) |

CVD: Cardiovascular disease

Although we did not assess their knowledge of what CVD was, Table 2 depicts their knowledge concerning different types of CVD. More than half of them had knowledge of stroke, and more than two-third of them were able to recognise common stroke symptoms such as difficulty speaking, facial weakness, and sudden limb weakness. Not up to half of the participants had knowledge of heart attack and heart failure representing 40.56% and 37.22%, meanwhile <32% had knowledge of common symptoms of heart attack. A few of the participants had knowledge of other CVD such as arrhythmia, peripheral artery disease, and IHD. Stroke was thus the most common CVD participants had knowledge of. Our findings corroborated

## Table 3: Knowledge of common symptoms of cardiovascular disease among respondents (*n*=360)

| Symptom | Frequency (%) |
|---|---|
| Common symptoms of heart attack | |
|     Chest pain | 116 (32.22) |
|     Pain or discomfort in the arm, jaw, or back | 68 (18.89) |
|     Shortness of breath | 80 (22.22) |
|     Fainting/profuse sweating | 64 (17.78) |
|     Common symptoms of stroke | |
| Sudden difficulty speaking | 224 (62.22) |
|     Sudden weakness of one half of the body | 240 (66.67) |
|     Sudden facial deviation | 216 (60.00) |
|     Convulsion | 120 (33.33) |
|     Severe headache | 160 (44.44) |
|     Abnormal sensation over one half of the body | 152 (42.22) |
| If relative has any of the symptoms above, what will you do? | |
|     Home treatment | 42 (11.67) |
|     Hospital treatment | 284 (78.89) |
|     Pharmacy | 60 (16.67) |
|     Native doctor | 18 (5.00) |
|     Chemist | 40 (11.11) |

## Table 4: Knowledge of control/preventive measures of cardiovascular disease (*n*=360)

| Measures | Frequency (%) |
|---|---|
| Healthy diet | 218 (60.56) |
| Regular exercise | 218 (60.56) |
| Stoppage of alcohol and smoking | 218 (60.56) |
| Good rest and sleep | 200 (55.56) |
| Avoidance of stress | 196 (54.44) |
| Good health-seeking behaviours such as good BP control, DM control, and control of fat | 198 (55.55) |

BP: Blood pressure, DM: Diabetes mellitus

findings of other studies[19,20] in which participants had knowledge of common CVD like stroke, heart attack and heart failure. That our study population was more aware of stroke is consistent with the fear of its attendant disabilities as well as its rising occurrence in our setting. Particularly in this region too, stroke is regarded as a spiritual attack.

In spite of their poor knowledge of other CVDs, more than half of the participants had knowledge of common risk factors for CVD, especially smoking, alcohol use, and hypertension. Encouragingly, more than a quarter of them had knowledge of other risk factors such as diabetes mellitus, family history, obesity, raised blood lipids, unhealthy diet, and physical inactivity.

Despite the reports of low levels of knowledge and awareness of CVD and risk factors in sub-Saharan Africa, more than half of the participants in this study had knowledge of control/preventive measures for CVD with as high as two-third having knowledge of control/preventive measures particularly relating to unhealthy diet, regular exercise, and stoppage of alcohol and smoking [Table 4]. While the participants had knowledge of risk factors and particularly knowledge of control/preventive measures, this paradoxically occurred in the context of reports of unhealthy diet or lifestyles, potentially increasing population risk for CVDs.[20]

Therefore, based on their knowledge of common risk factors as well as knowledge of control/preventive measures, targeted strategies and programmes to improve community knowledge in the recognition of common CVDs will further improve their health-seeking behaviours. Fortunate enough, as high as 78.89% [Table 3] of the participants recognised the need for hospital care in the event of a CVD compared to only one third with a poor health seeking behaviour, thus improving the value of time in the management of these hypoxia ischemic conditions.

## CONCLUSION

We have found that this rural population had knowledge of stroke as a CVD as well as other common ones such as heart attack and heart failure. Most of them had knowledge of control/preventive measures with as many as 78% of them having a good health-seeking behaviour in the event of a CVD.

However, while CVD awareness alone is no guarantee for positive cardiovascular outcomes, a good knowledge is clearly necessary for individuals to make informed decisions about their health by potentially adopting risk-free behaviours.

### Conflicts of interest

There are no conflicts of interest.

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