Research Article

Knowledge and Risk Factors of Cardiovascular Diseases among Residents of Ifelodun Local Government Area, Osun State

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Abstract

Background: Cardio Vascular Diseases (CVD) are the leading causes of illness and death globally. The rapid changes in lifestyle have led to an increase in the magnitude of CVD, which are emerging as a predominant health problem especially in developing countries; where non-communicable diseases are replacing the traditional enemies of infectious diseases and malnutrition.

Objective: This study is done to assess the community knowledge and risk factors of Cardio Vascular Diseases (CVD) in Ifelodun local government area, Osun state.

Materials and method: It was a cross-sectional descriptive study using multi-stage sampling technique to select 239 respondents. Data were collected using pre-tested self-administered semi structured questionnaire, analyzed using statistical package for social sciences version 23.0.

Results: Using body mass index, 6 (9.7%), 86 (36%), 64 (26.8%) are malnourished, overweight and obese respectively. 30 (12.7%) are diabetics and 35 (14.6%) are hypertensive. 79 (33.1%) had poor knowledge on CVD risk factors while 160 (66.9%) had good knowledge. Also 142 (59.4%) had high CVD risk while 97 (40.6%) had low CVD risk factors. Predictors of respondents having a high CVD risk include being 40 years and above, being a male, having lower monthly income and being hypertensive.

Conclusion: The study revealed a high prevalence of modifiable and non-modifiable risk factors of cardiovascular disease among respondents. The alarming prevalence of risk factors in such population demonstrates the need for organized efforts for the implementation of local and national level programs to prevent cardiovascular diseases.

Keywords: Antimicrobial efficacy; Body mass index; Hypertension; Knowledge

Introduction

Cardio Vascular Diseases (CVDs) are known to be a constellation of disorders relating to heart and its blood vessels. They are the leading causes of illness and death globally, and the effect can have devastating consequences at the individual, family and community levels. Recently an estimated 17.7 million people died from CVDs, representing 31% of all global deaths. In 2006, CVD accounted for 1 out of every 2.9 deaths in United States. The Burden of NCDs is also increasing in epidemic proportions in Africa. The Hospital mortality on CVD was 21.9% in Tanzania and 9.2% in Cameroon [1].

However, the burden of Cardio Vascular Diseases (CVDs) is increasing rapidly in Africa and it is now a public health problem throughout the African region. Cardiovascular disease has a major socioeconomic impact on individuals, families and societies in terms of health-care costs, absenteeism from work and national productivity. The most important CVDs in the African Region are those related to atherosclerosis, cardiomyopathies and rheumatic heart disease; and as the trend of complications commences at younger ages into adulthood, stroke, cardiac failure and renal failure further fuel the vicious cycle of ill-health and poverty [2].

Cardiovascular diseases are increasingly becoming the leading causes of morbidity and mortality worldwide. They are now seen to affect the poor of the poorest countries in the world. The little health resources remained focused on reducing the already overwhelmed burden of communicable diseases and preventable causes of infant and maternal mortality. Thus, it is no exaggeration to describe the situation in developing countries as an impending disaster [3].

Disparity exists in the burden of CVD between developed and developing countries, the rising concept of risk factors is gradually shifting the health trend from communicable to non-communicable diseases. To provide evidences for primordial

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prevention of risk factors, this study was carried out to assess the knowledge and risk factors of CVD among community members of Ifelodun local government area, Osun State.

Materials and Methods

Study area

Ifelodun local government area is in Osun state with a population of X, going by a recent projection of the 2006 National population census. The prevalence of hypertension, diabetes among other NCDs has not been estimated by previous research known to the authors. There are few health facilities including primary health centers and private hospitals that are accessible for the care of diagnosis related to CVDs within the study area [4].

Study design: It was a descriptive cross sectional study.

Study population: This includes individuals more than 25 years old residing in the LGA, who are not chronically ill and who could give consent to participating in the study [5].

Sample size calculation: was carried out using Leslie Fischer's formula for calculating sample size in a proportion at P=11.1%. A sample size of 180 was increased to 240 to account for non-response and to ensure representativeness.

Research instrument

Data was collected using pretested semi-structured questionnaire developed through review of previous literature. It has 4 sections:

Section A: Socio-Demographic Characteristics

Section B: Knowledge of CVDs and its risk factors

Section C: Behavioral and lifestyle characteristics

Section D: Physical measurement: Weight and Height

Section E: Biochemical tests-FBS

Public health measurements

To measure weight to the nearest 0.5 kg, subjects were asked to stand motionless on the calibrated weighing scale in such a way that the body weight was equally distributed on each leg and with minimal or no wears. Height was measured using a calibrated tape [6]. BMI=weight/square of the height in metres. I individuals were classified into four groups: Thin or malnourished (BMI<18.5 kg/m^2), normal (BMI=18.5 kg/m^2-24.9 kg/m^2), overweight (BMI=25.0 kg/m^2-29.9 kg/m^2) and obese (BMI>30.0 kg/m^2); all according to WHO BMI classification (Figure 1).

After a five minutes rest, the subject's Blood Pressure (BP) was measured to the nearest mmHg on two occasions at an interval of one to two minutes [7,8]. Measurement was carried out in the sitting position with an appropriate-sized cuff encircling the arm. BP was classified as normal, hypertensive or isolated systolic or diastolic hypertension. A subject was considered to have diabetes mellitus if the fasting venous blood glucose >7.0 mmol/L (126 mg/dL), while normal fasting blood glucose was taken as 3.3 mmol/L-5.5 mmol/L [9].

Data management

Data obtained was entered and analyzed using SPSS version 23 after errors were corrected. Uni-variate analysis done-frequency distribution tables while bivariate analysis using Pearson's chi square for testing association between two categorical variables, t-test for comparing means. P-values was generated and the significant level set at 0.05 [10]. Questions related to knowledge on risk factors of CVD having options of Yes, No and not sure were scored accordingly with score 2 awarded to right answer, 1 for not sure and 0 awarded to wrong answer. Total score and mean score computed [11]. Those who had mean score and above are classified as having good knowledge while those below the mean score were classified as having poor knowledge section D related to non-modifiable risk factors of CVD are having options of Yes to those having risk while No for those not having risk. Score 1 awarded to those with risk and score 0 awarded without risk. Total score and mean score were computed too. Section E: Physical and biochemical measurements. Respondents with B/P of 140/90 mmHg and above are categorized as hypertensive and those below normotensive. BMI categorized accordingly using<18 kg/m^2, 18 kg/m^2 -24.9 kg/m^2, 25 kg/m^2-29.9kg/m^2, >30 kg/m^2 into malnourished, normal, overweight and obesity respectively. FBS of >126 mg/dl is said to be diabetic.

Results

More than half of respondents could correctly identify or knew the individual risk factors for CVD means scores of CVD risk and knowledge. Using the mean score, 79 (33.1%) had poor knowledge on CVD risk factors while 160 (66.9%) had good knowledge. While 142 (59.4%) had high CVD risk, 97 (40.6%) had low CVD risk factors (Table 1) [12].

Going by BMI, 6 (2.5%) were malnourished, 86 (36.0%) were overweight while 64 (26.8%) were obese. 30 (12.6%) are diabetics, while 35 (14.6%) were hypertensive [13]. A statistically significant association was found between risk categories and hypertension status (p 0.001) (Table 2).

Binary logistic regression showing association between high risk category and some variables of interest. Respondents with age 25-39 years were 4.5 (1/0.22) times less likely to have high risk to CVD compared to those who are 40 years and above, and this observation was found not to be statistically significant (OR 0.22; 95% CI 0.0228-2.1687; p 0.1051). Male respondents were 1.7 times more likely to have a high CVDE risk compared to females, and this observation was found to be statistically significant (OR 1.73; 95% CI 1.0290-2.9356; p 0.0196). There is no significant odds of having a high CVD risk among those who are currently married and those who are not (single, widowed or divorced (OR 0.98; 95% CI 0.4072-2.3760; p 0.4905) (Table 3) [14].

Respondents with monthly income less than 18,000 were 1.36 times more likely to have a high CVD risk compared to those with monthly salary above N18,000; and this observation was found not to be statistically significant (OR 1.36; 95% CI 0.6934-2.6519; p 0.1893) (Table 4).

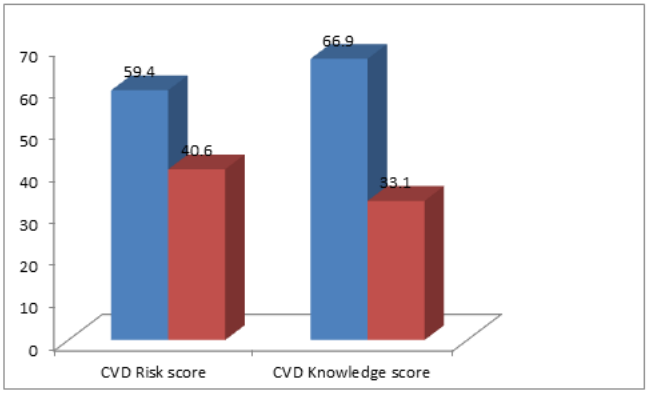

Figure 1: Bar chart showing CVD knowledge scores and risk categories. **Note:** (■) High/good; (■) Low/poor.

Table 1: Knowledge on CVD and risk factors.

Variable	Yes	No	I don't know
If you have a family history of heart you are at risk for developing heart disease	125 (52.3%)	107 (44.8%)	7 (2.9%)
The older a person is, the greater their risk of having heart disease	141 (59%)	81 (33%)	17 (7.1%)
Smoking is a risk factor for heart disease	157 (65.7%)	63 (26.4%)	19 (7.9%)
High blood pressure is a risk factor for heart disease	136 (56.9%)	72 (30.1%)	31 (13.0%)
High cholesterol is a risk factor for developing heart disease	133 (55.6%)	84 (35.1%)	22 (9.2%)
Eating fatty foods does not affect blood cholesterol levels	139 (58.2%)	67 (28.0%)	33 (13.8%)
Being overweight increase a person's risk for heart disease	146 (61.1%)	60 (25.1%)	33 (13.8%)
Regular physical activity will lower a person's chance of getting heart disease	140 (58.6%)	85 (35.6%)	14 (5.9%)
Diabetes is a risk factor for developing heart disease	156 (65.3%)	51 (21.3%)	32 (13.4%)
A person who has diabetes can reduce their risk of developing heart disease if they keep their blood sugar levels under control	173 (72.4%)	33 (13.8%)	33 (13.8%)

Table 2: Association between CVD risk and selected variables.

Variable		Total risk categorized: High risk	Low risk	DF	X2	P
Age in categories (years)	25-39	1 (25.0%)	3 (75.0%)	1	4.13	0.127
	40-54	63 (65.6%)	33 (34.4%)			
	Above 55	78 (56.1%)	61 (43.9%)			
Gender	Male	75 (66.4%)	38 (33.6%)	1	4.3	0.04
	Female	67 (53.2%)	59 (46.8%)			
Religion	Christianity	67 (60.9%)	43 (39.1%)	2	6	0.05
	Islam	75 (60.0%)	50 (40.0%)			
	Traditional	0 (0.0%)	4 (100.0%			

Tribe	Yoruba	124 (59.9%)	83 (40.1%)	2	3.25	0.197
	Hausa/Fulani	12 (70.6%)	5 (29.4%)			
	Igbo	6 (40.0%)	9 (60.0%)			
Marital status	Single	2 (100.0%)	0 (0.0%)	4	10.79	0.03
	Married	127 (60.55)	83 (39.5%)			
	Widow	12 (66.7%)	6 (33.3%)			
	Divorced	0 (0.0%)	3 (100.0%)			
Marital setting	Monogamy	82 (61.7%)	51 (38.3%)	1	0.62	0.43
	Polygamy	60 (56.6%)	46 (43.4%)			
Highest level of education	No formal education	5 (100.0%)	0 (0.0%)	4	9.71	0.05
	Primary	10 (38.5%)	16 (61.5%)			
	Secondary	39 (66.1%)	20 (33.9%)			
	Tertiary	77 (60.2%)	51 (39.8%)			
	Post graduate	11 (52.4%)	10 (47.6%)			
Monthly income in naira	Less than 18,000	30 (65.2%)	16 (34.8%)	1	0.8	0.37
	Greater than 18,000	112 (58.0%)	81 (42.0%)			
		Association between risk and hypertension				
		Hypertensive	**Normal**	**DF**	**X2**	**P**
Total risk categorized	High risk	30 (21.1%)	112 (78.9%)	1	12	0.001

Table 3: Categorization based on BMI, FBS and blood pressure measures.

Variable	Frequency	Percent
	BMI	
Malnutrition	6	2.5
Normal	83	34.7
Overweight	86	36
Obesity	64	26.8
Total	239	100
	Categorized blood sugar	
Diabetics	30	12.6
Non diabetics	209	87.4
Total		
	Categorized blood pressure	
Hypertensive	35	14.6
Normal	204	85.4
Total	239	

Table 4: Binary logistic regression showing association between high risk category and some variables of interest.

Variables	Odds ratio	95% CI		P values
		Lower	Upper	
Age	0.22	0.0228	2.1687	0.1051
Gender	1.73	1.029	2.9356	0.0196
Marital status	0.98	0.4072	2.376	0.4905
Monthly income (Naira)	1.36	0.6934	2.6519	0.1893
Hypertension status	4.92	1.8385	13.2126	0.0001

Hypertensive respondents were about five times more likely to have a high CVD risk compared to those with normal blood pressure and this observation was found to be statistically significant (OR 4.92; 95% CI 1.8385-13.2126; p 0.0001). Thus predictors of respondents having a high CVD risk include being 40 years and above, being a male, having lower monthly income and being hypertensive.

Discussion

The study presented data on knowledge and risks for cardiovascular diseases in a community in Southwestern Nigeria. In our study, about two thirds had good knowledge of CVD risk factors. This is higher and better when compared with another study in which only about one fifth of study population had good knowledge of CVD risk factors [15]. In contrast, a higher knowledge was reported by some studies. Failure to know about hypertension or symptoms of heart attack may increase the delay in regular blood pressure checks and seeking early medical care that could lead to a worse therapeutic outcomes. It is therefore important for stakeholders to sensitize the communities in order to improve public awareness about the growing threat of cardiovascular r diseases and their common complications.

A similar pattern of prevalence level of various CVD risk factors found in our study was reported by other local studies [16]. Similarly a significant proportion of hypertension and DM was reported. The prevalence of hypertension and diabetes of 14.6% and 12.6% respectively was much higher than that found in a study done in Saudi Arabia. The higher figures may not be unconnected with a significant high risk for hypertension found among as many as one fifth of respondents. Many other factors that could be responsible include genetic, environmental and dietary pattern.

This pattern may further suggest continued westernization of lifestyles, and a probable increase in exposures to risk factors to cardiovascular diseases. It is estimated that by 2020, CVD will become the leading cause of the global health burden, accounting for 73% of total global mortality and 56% of total morbidity, and this makes this study an important one [17].

The association found between CVD risk factors and some socio-demographic factors even hypertension supports findings from another study. The arthesclerotic changes in hypertension for example, leading to CVD is expected to be high at older age when plagues would have significantly formed within the blood vessels. As high blood pressure overload the heart and speed up the artery-clogging process, preventable complications such as heart attack and stroke could result. It is thus important to create awareness of the ongoing scenarios in order to encourage screening, early treatment, prompt diagnosis and treatment of cases.

Conclusion

However, this is a cross sectional descriptive study design with limitation of difficulty to establish a cause- effect relationship. There is need to do prospective study in linking risk factors with occurrences of CVD. This study thus concluded inadequate knowledge as a response to a problem of high public health significance such as CVD. At the community level, there is need for continuous awareness creation on risk and dangers of sedentary lifestyles such as smoking, alcohol that predisposed to CVDs and organization of behavioral change communication programs at local levels to prevent cardiovascular diseases.

Conflict of Interest

There is no conflict of interest.

Ethical Clearance

Ethical Approval was obtained from ethical committee of Osun state ministry of health. Consent was also obtained from the respondents after the purpose of the study was explained to them. The respondents were assured of confidentiality and security of data. They were also assured that they can decline participation in the research without any prejudice before questionnaires were administered.

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