International Journal of Nursing, Midwife and Health Related Cases 10 (2), 36-56, 2024
Print ISSN: 2397-0758 (Print),
Online ISSN: 2397-0766 (Online)
Website: https://www.eajournals.org/
Publication of the European Centre for Research Training and Development -UK

Assessment of the Knowledge of Risk Factors Associated with Heart Diseases among Women of Reproductive Age in Nigeria

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doi: https://doi.org/10.37745/ijnmh.15/vol10n23656 Published April 13, 2024

Citation: Okorie-Ufere KI., Regidor III PD., and Adeniyi SD. (2024) Assessment of the Knowledge of Risk Factors Associated with Heart Diseases among Women of Reproductive Age in Nigeria, *International Journal of Nursing, Midwife and Health Related Cases* 10 (2), 36-56

ABSTRACT: *Many women are unaware that coronary heart disease is one of the leading causes of mortality. Instead, breast cancer is their greatest dread. Worryingly, healthcare practitioners seem to lack fundamental understanding regarding cardiovascular disease among women. Women are normally 10 years older than males when heart disease is found, and they are 20 years older when they suffer their first myocardial infarction. Because coronary heart disease is more frequent in elderly women, many believe that postponing the process of decreasing their risk will be postponed. The aim of this study is to assess knowledge of risk factors associated with heart diseases among women of reproductive age in Nigeria. The study was cross sectional study design. Data were collected using self-administered structured questionnaire, and analyzed using Statistical Package for Social Sciences version 25 and presented using appropriate tables. Level of significance set at P<0.05. The findings from this study shows a significant association with overall knowledge of the respondents on health related issues at (χ^2=23.173, p=0.000) and (χ^2=18.260, p=0.000) respectively as p<0.05 in each case and non-significant association with age and religion, economic status and occupation at (χ^2=1.158, p=0.561) , (χ^2=2.689, p=0.101) (χ^2=1.417, p=0.841) and (χ^2=7.276, p=0.064) respectively of the respondents as p<0.05. Overall, the respondents participated in this study have a good knowledge and awareness of the risk factors associated with cardiovascular disease and warning features of CVD events. Community education on CVDs, targeting especially populations with low socio-economic status, may be beneficial in the combined efforts to achieve the reductions in heart attacks.*

KEYWORDS: awareness, risk factors, heart disease

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INTRODUCTION

Heart diseases, primarily caused by cardiovascular risk factors such as smoking, unhealthy eating habits, obesity, lack of physical activity, high blood pressure, diabetes, and dyslipidemia, are the main cause of death globally. It is crucial to address and treat these risk factors to prevent heart disease (Akintunde et al., 2015). In recent years, heart disease and stroke have emerged as the primary causes of mortality. Cardiovascular disease deaths are most prevalent in low- and middle-income nations, including Nigeria. Furthermore, the mortality rate among women is higher than that among males, as reported by Okunola et al. in 2012. The World Health Organisation (WHO) reports that high blood pressure, often associated with heart disease, causes 9.4 million deaths annually, accounting for 16.5% of all fatalities. Conditions such as heart attacks and strokes are expected to cause an increase in the number of deaths from cardiovascular diseases, such as heart disease and strokes, to 23.3 million by 2030 (Mathers & Loncar, 2006). These diseases will continue to be the primary cause of death globally (Lim et al., 2012).

The incidence of cardiovascular disease (CVD) is rising in developing nations. The condition is more common among those who are of working age and causes twice as many fatalities as HIV, malaria, and tuberculosis combined. This imposes a significant social and economic burden on the affected countries (Gaziano, 2007). The incidence of cardiovascular disease (CVD) risk factors has escalated, mostly contributing to the surge in CVD cases in developing nations. Both developed and developing countries are shouldering increased burdens, albeit through distinct approaches (Gaziano, 2007). The primary cause of the rise in the burden of cardiovascular disease (CVD) in developing nations is attributed to an escalation in risk factors and a deficiency in access to the aforementioned therapies (Omoronyia et al., 2020). Consequently, there is a growing prevalence of cardiovascular disease among younger individuals, leading to an increase in fatalities caused by ischemic heart disease and stroke in certain developing nations. Consequently, there has been a rise in the number of deaths among individuals of working age (Dele-Ojo et al., 2021).

A significant number of women are uninformed about the fact that coronary heart disease is the primary cause of mortality among women. However, their main focus is on breast cancer. What is even more alarming is that medical practitioners seem to lack knowledge about cardiovascular disease in women (Woodward, 2019). On average, women are diagnosed with heart disease 10 years earlier than males, and experience their first myocardial infarction 20 years earlier. Due to the higher likelihood of coronary heart disease in older women, a significant number of them hold the belief that risk reduction can be delayed (Gao et al., 2019).

The increasing incidence of cardiovascular disease in low- and middle-income countries (LMICs) can be attributed to the rapid urbanisation and the subsequent adoption of westernised lifestyles. These lifestyles involve the consumption of higher amounts of saturated fats, sugars, and salt, as well as a decrease in physical activity. Additionally, habits such as smoking and excessive alcohol use contribute to this trend (Yusuf et al., 2001). Engaging in these hazardous behaviours raises the probability of developing metabolic cardiovascular disease risk factors, such as obesity, hypertension, diabetes, and high cholesterol (Steyn et al., 2005). Nigeria exhibits a multitude of risk factors for cardiovascular disease

(Amadi et al., 2018). In Africa, heart disease was responsible for 38% of all fatalities caused by noncommunicable diseases (Odunaiya et al., 2021). The rise in prevalence can be ascribed to the growing urbanisation, shifts in lifestyle, and a multitude of modifiable risk factors, including obesity, sedentary behaviour, smoking, unhealthy food, high cholesterol, and excessive alcohol intake (Odunaiya et al., 2015).

In underdeveloped nations, there is a distressingly high mortality rate among young individuals due to cardiovascular disease (CVD) and its associated risk factors. The inverse is true in industrialised nations. The reason for this is the high prevalence of poverty in these nations, coupled with a lack of awareness and efficient strategies to address the issue (Odunaiya et al., 2015). Cardiovascular disease (CVD) was responsible for 38% of all deaths caused by noncommunicable diseases in Africa. Since 1990, this number has increased by over 100%. The rise in cardiovascular disease can be ascribed to causes such as greater urbanisation, changes in lifestyle, and a wide range of modifiable risk factors including obesity, physical inactivity, smoking, unhealthy food, high cholesterol, and excessive alcohol intake (Gaziano, 2007).

In underdeveloped nations, there is a distressingly high mortality rate among young individuals due to cardiovascular disease (CVD) and its associated risk factors. The inverse is true in industrialised nations. The reason for this is the high prevalence of poverty in these nations, coupled with a lack of knowledge and efficient strategies to address the issue (Thom et al., 2006).

Women continue to be underrepresented in heart disease research. In the majority of cardiology studies and trials, women make up less than 30% of participants. As a result, making firm decisions about how to treat cardiovascular disease in women is difficult. Despite the fact that men and women have different risk factors, symptoms, and responses to treatment, women continue to receive the same treatments as men. Due to the limited studies that focus on understanding the natural history, handling and prevention of CVD in women better, this study assess knowledge of risk factors associated with reported heart disease among women in Nigeria.

Methods

Study setting and instrument Between February to May 2021, an online self-administered survey was conducted in Nigeria. The survey was hosted by Survey Monkey and to recruit the participants, the invitations to participate in the survey were distributed on three social media and instant messaging platforms: Facebook, Twitter and WhatsApp. The survey consisted of several sections. The first introductory section consisted of information about the study and an informed consent page. Only those who agreed to participate could open the next sections. The following sections comprised questions collecting information on demographic characteristics, Participants' knowledge and toward risk factors associated with heart diseases among women of reproductive age

After collection of data, the instruments were checked for completeness and clarity. Data were analyzed for the quantitatively based on the study objectives. Data were processed using IBM Statistical Packages for Social Sciences (SPSS) Version 25. Frequency distributions, percentages, mean score, standard

deviation and charts were computed and tabulated. Chi square were employed for bivarate and regression analysis of data collected. Level of significance was set at P<0.05.

Result

The socio demographic characteristic of the respondents, in the table socio demographic variable based on age of the respondents shows that 92 (20.0%) were ≥18-25 years, 280 (60.7%) were 26-35 year, 89 (19.3%) were 35-49 years, the religion of the respondents shows that 333(72.2%) were Christianity, 128 (27.8%) were Islam, the tribe of the respondents shows that 318 (69.0%) were Yoruba, 107 (23.2%) were Igbo, 36 (7.8%) indicate Hausa, and majority were artisans and civil servants (Table 1) 205 (44.5%) had one or more previous medical related history which vary from 50 (10.8%) indicate diabetes, 57 (12.4) indicate hypertension, 36 (7.8%) indicate low back pain, 46 (10.0%) indicate malaria and 16 (3.5%) indicate pynonepphritis (figure 1 and 2).

More than two third of the participants had good knowledge on health related issues among women (table 2). in the figure 3 28 (6.1%) indicate blur vision, stress and headache, 213 (46.2%) chest pain and weakness, 56 (12.1%) indicate headache, 22 (4.8%) indicate hypertension and obesity and 28 (%) indicate stress as sign associated with heart disease. Figure 5 shows overall knowledge of the respondents on health related issues, in the figure 331 (71.8%) have good knowledge on health related disease and 130 (28.2 %) have poor knowledge on heart disease (figure 3).

Knowledge of the respondents on health related issues, in the figure 331 (71.8%) have good knowledge on health related disease and 130 (28.2 %) have poor knowledge on heart disease (Figure 5). Socio demographic characteristics of the respondents based on tribe and marital status of the respondents shows a significant association with Overall knowledge of the respondents on health related issues at (χ^2=23.173, p=0.000) and (χ^2=18.260, p=0.000) respectively as p<0.05 in each case and non-significant association with age and religion, economic status and occupation at (χ^2=1.158, p=0.561) , (χ^2=2.689, p=0.101) (χ^2=1.417, p=0.841) and (χ^2=7.276, p=0.064) respectively of the respondents as p<0.05 in each (Table 3); nearly half of the respondents indicate never experienced chest pain or discomfort in the arm or shoulder and majority often check blood glucose level (Table 5) 290 (62.9%) ha good attitude on health related issues (Table 4).

The association between socio demographic characteristics and attitude of the respondents on health related issues shows age, religion, tribe, marital status and monthly income show a significant association with attitude of the respondents on health related issues at (χ^2=18.720, p=0.000), (χ^2=5.130, p=0.024), (χ^2=39.644, p=0.000), (χ^2=33.049, p=0.000) and (χ^2=15.570, p=0.004) respectively as p<0.05 in each case (Table 5), table 6 and 7 present the Perception of the respondents on health related issues and Quality of life of the respondents; majority of the participant had good perception on risk factors associated with causes of heart disease among the respondents, and most indicate heart disease can be prevented through healthy eating and life style (Table 9) and 24.5% had previous history of hypertension.

Table 1: Socio demographic characteristic of the respondents (n=461)

Variable	Categories	Frequency	Percent
Age (years)	≥18-25	92	20.0
	26-35	280	60.7
	35-49	89	19.3
Religion	Christianity	333	72.2
	Islam	128	27.8
tribe	Yoruba	318	69.0
	Igbo	107	23.2
	Hausa	36	7.8
marital status	Married	239	51.8
	Single	167	36.2
	Widow	19	4.1
	Separated	36	7.8
Monthly income	<20,000 naira	44	9.5
	21,000-40,000 naira	259	56.2
	41,000-60,000 naira	91	19.7
	61,000-80,000 naira	43	9.3
	100,000 naira and above	24	5.2
occupation	Unemployed	79	17.1
	Student	20	4.3
	Artisans	210	45.6
	Civil servant	152	33.0

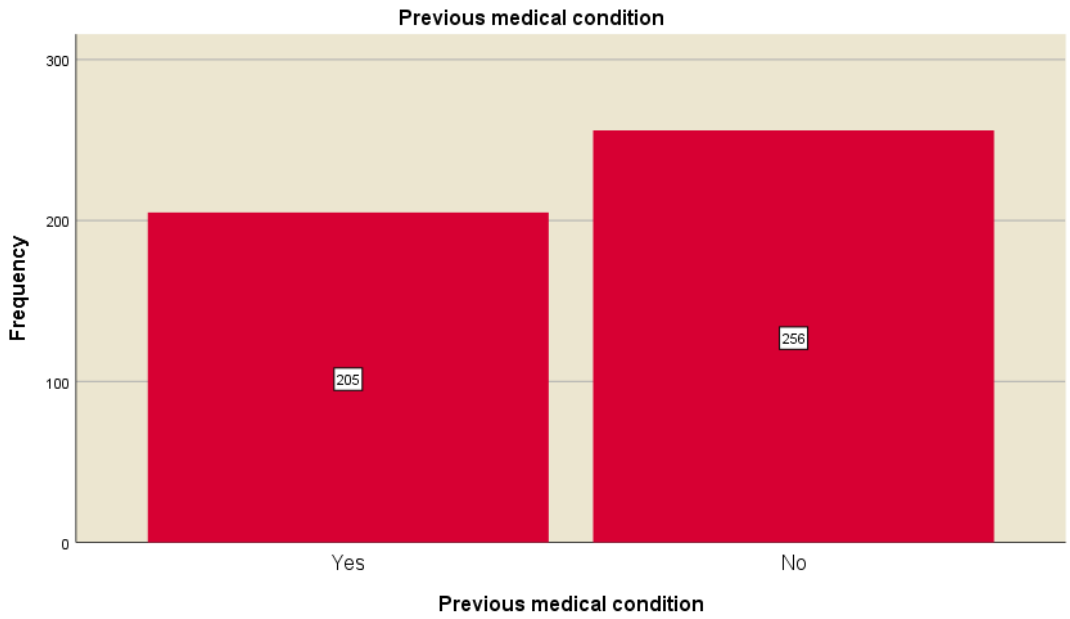

Figure 1 Previous history of any medical condition

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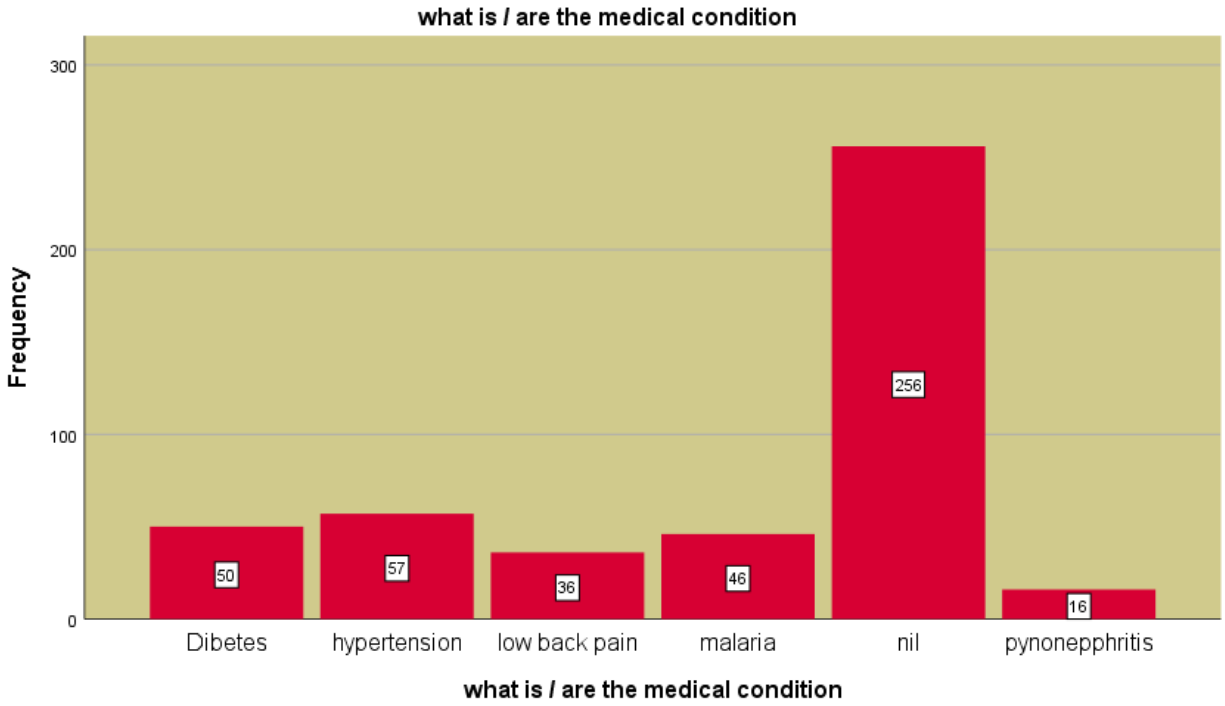

Figure 2: Previous history of health complications

Table 2: knowledge of the respondents on health related issues (n=461)

Variable	Categories	Frequency	Percent
What did you understand by heart disease among women	abnormal function of the heart	21	4.6
	chest pain	19	4.1
	disease that affect heart	81	17.6
	heart related problem	210	45.6
	hypertension	110	23.9
	I don't know	20	4.3
Causes of heart disease among women	anxiety and sleeplessness	41	8.9
	depression and mental stress	16	3.5
	hereditary and lifestyle	208	45.1
	stress	65	14.1

	oral contraception	52	11.3
	stress and hypertension	22	4.8
	stress and oily food	36	7.8
	stress and pregnancy	21	4.6
Knowledge on Heart attack	abnormal breathe	23	5.0
	heart failure	76	16.5
	shock	22	4.8
	sudden fall of healthy person	46	10.0
	sudden stop of the heart	294	63.8
Did diet influence progress of coronary heart disease	Yes	210	45.6
	No	251	54.4
Which of the following medical condition can prevent you from exercising	Stress	234	50.8
	Age	69	15.0
	High blood pressure	22	4.8
	Hypertension	136	29.5
What are the means or ways by which heart disease can be prevented	check up	55	11.9
	diet and exercise	21	4.6
	maintaining healthy lifestyle	323	70.1
	take balance diet	38	8.2
	taking adequate diet	24	5.2

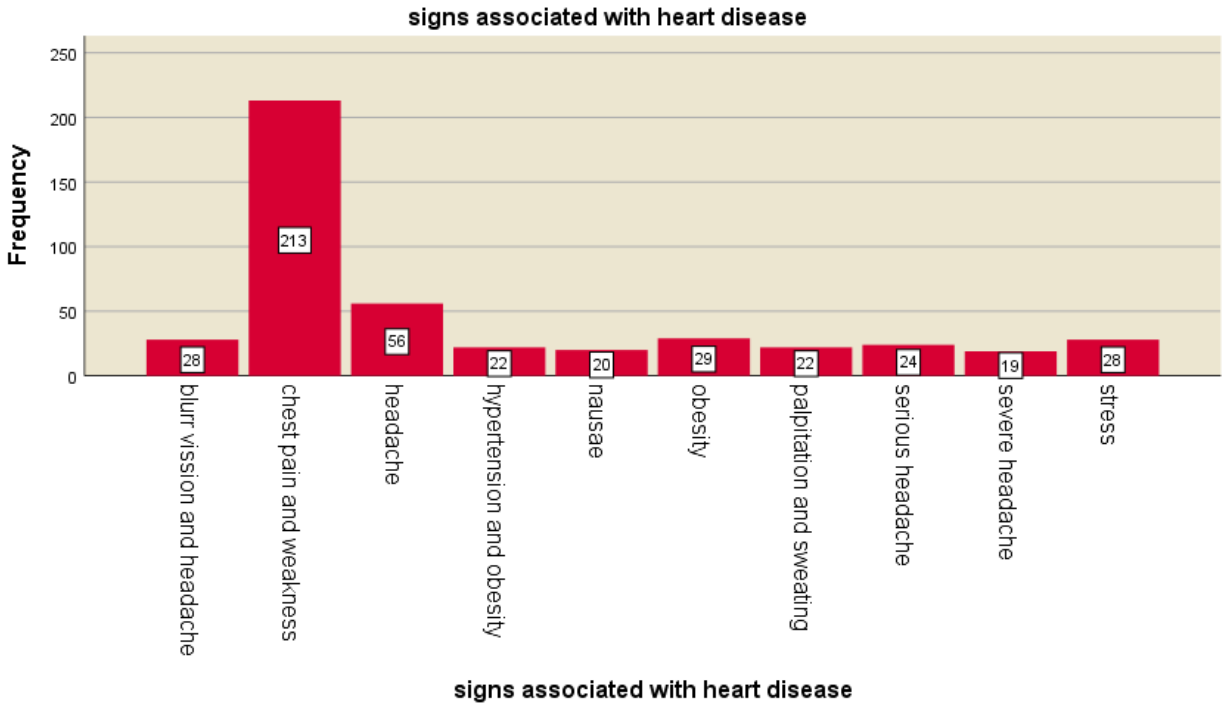

Figure 3: Signs associated with heart disease

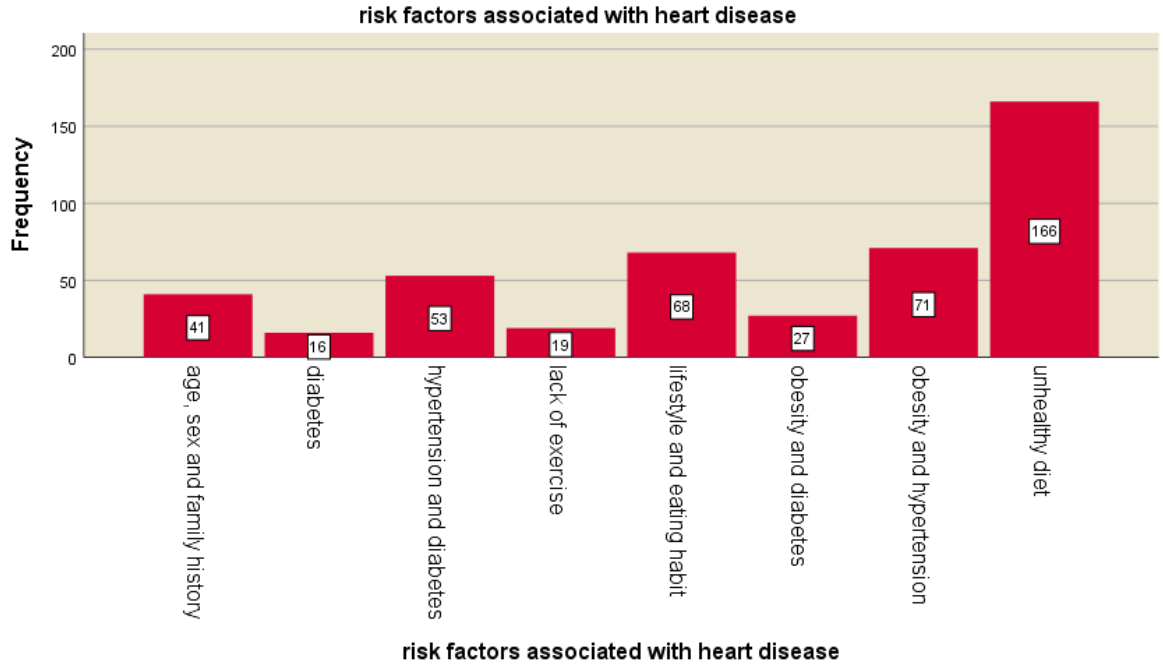

Figure 4: Risk factors associated with heart disease

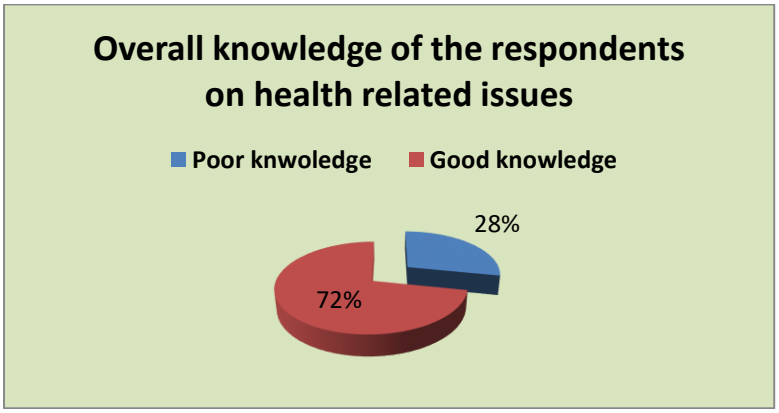

Figure 5: Overall knowledge of the respondents on health related issues

Table 3: Association between socio demographic characteristics and Overall knowledge of the respondents on health related issues (n=461)

Variable	Categories	Poor knowledge	Good knowledge	Total	Pearson Chi-Square	Likelihood Ratio	P-value

Age (years)	≥18-25	23(5.0%)	69(15.0%)	92(20.0%)	1.158	1.168	0.561
	26-35	84(18.2%)	196(42.5%)	280(60.7%)			
	35-49	23(5.0%)	66(14.3%)	89(19.3%)			
religion	Christianity	101(21.9%)	232(50.3%)	333(72.2%)	2.689	2.324	0.101
	Islam	29(6.3%)	99(21.5%)	128(27.8%)			
tribe	Yoruba	86(18.7%)	232(50.3%)	318(69.0%)	23.173	32.259	0.000
	Igbo	44(9.5%)	63(13.7%)	107(23.2%)			
	Hausa	0(0.0%)	36(7.8%)	36(7.8%)			
marital status	Married	73(15.8%)	166(36.0%)	239(51.8%)	18.260	27.639	0.000
	Single	48(10.4%)	119(25.8%)	167(36.2%)			
	widow	9(2.0%)	10(2.2%)	19(4.1%)			
	Separated	0(0.0%)	36(7.8%)	36(7.8%)			
Monthly income	<20,000 naira	11(2.4%)	33(7.2%)	44(9.5%)	1.417	1.368	0.841
	21,000-40,000 naira	74(16.1%)	185(40.1%)	259(56.2%)			
	41,000-60,000 naira	24(5.2%)	67(14.5%)	91(19.7%)			
	61,000-80,000 naira	12(2.6%)	31(6.7%)	43(9.3%)			
	100,000 naira and above	9(2.0%)	15(3.3%)	24(5.2%)			
occupation	Unemployed	27(5.9%)	52(11.3%)	79(17.1%)	7.276	6.771	0.064
	Student	10(2.2%)	10(2.2%)	20(4.3%)			
	Artisans	55(11.9%)	155(33.6%)	210(45.6%)			
	Civil servant	38(8.2%)	114(24.7%)	152(33.0%)			

Table 4: Attitude of the respondents on health related issues (n=461)

Variable	Categories	Frequency	Percent
	3 months ago	16	3.5

When last did you experienced chest pain or discomfort in the arm or shoulder	6 months ago	40	8.7
	a month ago	99	21.5
	a year ago	84	18.2
	last year	22	4.8
	never	200	43.4
How often did you check your blood glucose level	Every week	55	11.9
	once in a month	203	44.0
	once in six month	145	31.5
	Never	58	12.6
warning signs associated with heart disease	Every week	19	4.1
	once in a month	29	6.3
	once in six month	114	24.7
	Never	299	64.9

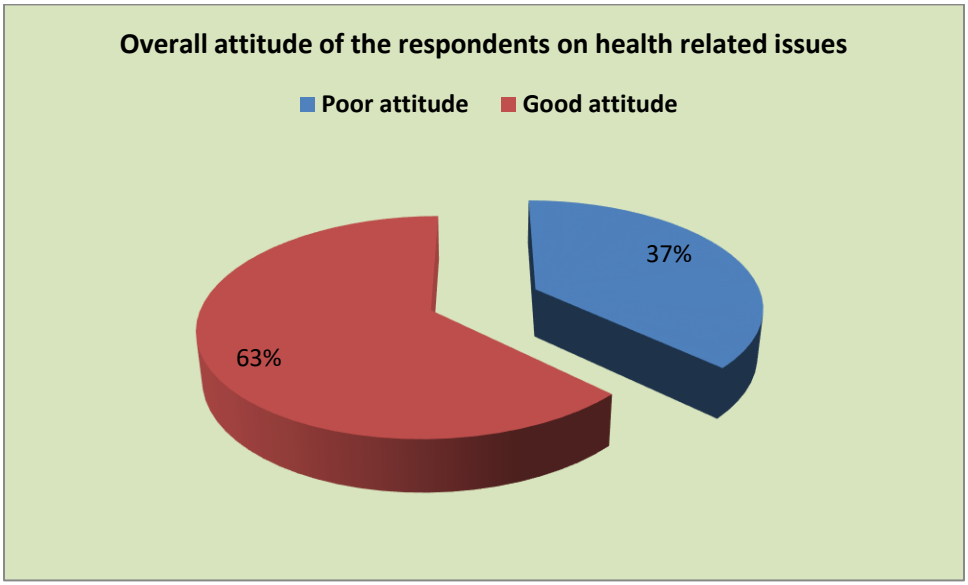

Figure 6: Overall attitude of the respondents on health related issues

Table 5: Association between socio demographic characteristics and Overall attitude of the respondents on health related issues (n=461)

Variable	Categories	Poor attitude	Good attitude	Total	Pearson Chi-Square	Likelihood Ratio	P-value
Age (years)	≥18-25	25(5.4%)	67(14.5%)	92(20.0%)	18.720	18.328	0.000
	26-35	96(20.8%)	184(39.9%)	280(60.7%)			
	35-49	50(10.8%)	39(8.5%)	89(19.3%)			
religion	Christianity	113(24.5%)	220(47.7%)	333(72.2%)	5.130	4.654	0.024
	Islam	58(12.6%)	70(15.2%)	128(27.8%)			
tribe	Yoruba	94(20.4%)	224(48.6%)	318(69.0%)	39.644	39.237	0.000
	Igbo	48(10.4%)	59(12.8%)	107(23.2%)			
	Hausa	29(6.3%)	7(1.5%)	36(7.8%)			
marital status	Married	83(18.0%)	156(33.8%)	239(51.8%)	33.049	32.662	0.000
	Single	55(11.9%)	112(24.3%)	167(36.2%)			
	widow	4(0.9%)	15(3.3%)	19(4.1%)			
	Separated	29(6.3%)	7(1.5%)	36(7.8%)			
Monthly income	<20,000 naira	9(2.0%)	35(7.6%)	44(9.5%)	15.570	17.150	0.004
	21,000-40,000 naira	109(23.6%)	150(32.5%)	259(56.2%)			
	41,000-60,000 naira	37(8.0%)	54(11.7%)	91(19.7%)			
	61,000-80,000 naira	13(2.8%)	30(6.5%)	43(9.3%)			
	100,000 naira and above	3(0.7%)	21(4.6%)	24(5.2%)			
occupation	Unemployed	23(5.0%)	56(12.1%)	79(17.1%)	6.743	6.739	0.081
	Student	8(1.7%)	12(2.6%)	20(4.3%)			

Artisans	72(15.6%)	138(29.9 %)	210(45.6 %)
Civil servant	68(14.8%)	84(18.2%)	152(33.0 %)

Table 6: Perception of the respondents on health related issues (n=461)

Variable	Categories	Frequency	Percent
What will you do first when someone have a heart attack	apply first aid	81	17.6
	call for help	97	21.0
	no ideal	95	20.6
	rush to hospital	97	21.0
	shout	22	4.8
	stop and rest	19	4.1
	visit hospital	50	10.8
how can diet influence progress of coronary heart disease	eating balance diet	38	8.2
	eating too much	48	10.4
	excess cholesterol intake	48	10.4
	inactivity	36	7.8
	nil	251	54.4
	unhealthy diet	40	8.7
What will you do if you have pain or discomfort while walking	relax	259	56.2
	rest	106	23.0
	resting	23	5.0
	slow down and rest	24	5.2
	stand and wait	28	6.1
	take drug	21	4.6
What are the means or ways by which heart disease can be prevented	check up	55	11.9
	diet and exercise	21	4.6
	maintaining healthy lifestyle	323	70.1
	take balance diet	38	8.2
	taking adequate diet	24	5.2
How dose diet high in cholesterol influence the progress of heart disease in women	eating well	19	4.1
	hypertension	19	4.1
	it block heart	140	30.4

	it increase it	106	23.0
	no ideal	156	33.8
	too much intake	21	4.6

Table 7: Quality of life of the respondents (n=461)

Variable	Categories	Frequency	Percent
How would you describe your mobility	I have problem in walking about	68	14.8
	I am confined to bed	331	71.8
	I am confined to bed	62	13.4
problem relating to your self-care	Yes	46	10.0
	No	415	90.0
problem relating to usual activities	Yes	41	8.9
	No	420	91.1
previous history of health related condition	Yes	209	45.3
	No	252	54.7
If yes state the health condition	body pain	42	9.1
	diabetes	29	6.3
	hypertension	57	12.4
	malaria	19	4.1
	nausea	18	3.9
	nil	280	60.7
	stomach ulcer	16	3.5
How often do you feel anxious or depress	Often	256	55.5
	Never	205	44.5

Table 8: Risk factors associated with heart disease among the respondents (n=461)

Variable	Categories	Frequency	Percent
Does diet influences the progress of coronary heart disease	Yes	413	89.6
	No	48	10.4
If yes, what are those diet that can cause coronary heart disease	diet high in sugar	61	13.2
	fat and oil	21	4.6
	fatty food	171	37.1
	fried food	46	10.0
	high cholesterol diet	16	3.5

	nil	48	10.4
	salty food	56	12.1
	sugar and butter	42	9.1
causes of high blood glucose levels/diabetes	diabetes and hypertension	19	4.1
	eating junks	28	6.1
	food high in carbohydrate	181	39.3
	hypertension and obesity	22	4.8
	insufficient insulin	16	3.5
	obesity	48	10.4
	smoking	28	6.1
	stress	44	9.5
	sugar	75	16.3
causes of heart diseases	age hereditary and hypertension	127	27.5
	hypertension and obesity	90	19.5
	hypertension and diabetes	49	10.6
	lack of exercise	22	4.8
	stress	150	32.5
	stress and depression	23	5.0
means/ways heart disease can be prevented	healthy eating and style	211	45.8
	lifestyle	28	6.1
	reduce stress and depression	23	5.0
	regular checkup	64	13.9
	regular exercise	84	18.2
	regular medical checkup	24	5.2
	routine check up	27	5.9

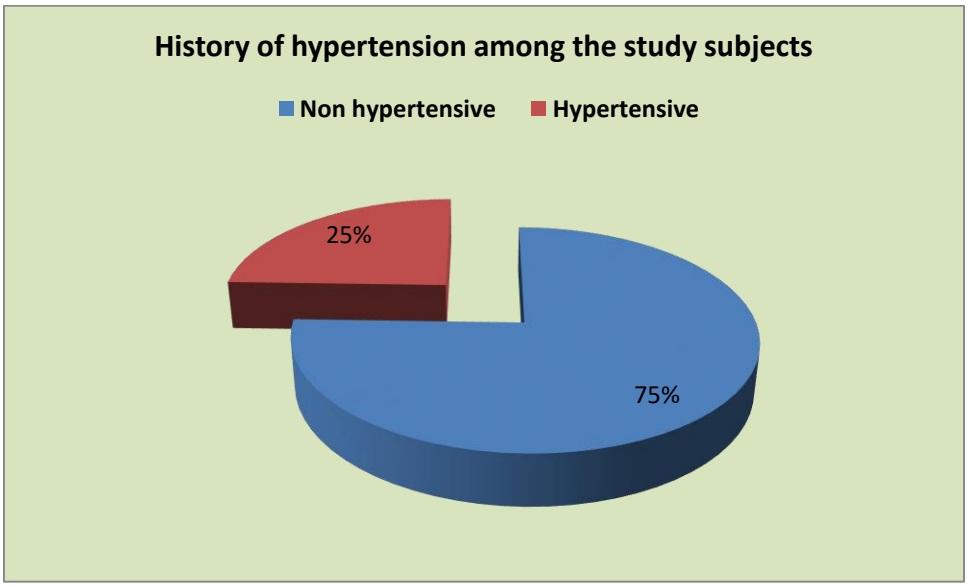

Figure 7: History of hypertension among the study subjects

Discussion

More than two-thirds of those surveyed stated that " they knew enough about age as a risk factor for cardiovascular disease. This demonstrates that people lack knowledge about age as a continual risk factor for heart disease. Furthermore, while the vast majority of participants were aware that being overweight increased their risk of developing heart disease, fewer were aware that abdominal obesity posed the most dangerous. Trends in Obesity and Abdominal Obesity Among Adults (Lakka et al., 2002) found that abdominal obesity increased the risk of coronary heart disease at the same time. This could imply that people are avoiding addressing coronary heart disease risk factors due to personal circumstances. According to Amadi et al. (2018), only about one-fifth of the study participants were well-versed in the risk factors for heart disease despite working in the university community, the majority of study participants were unaware of the risk factors for heart disease,. Socio demographic of the respondents based on religion, tribe, marital status and monthly income were associated with increased likelihood of good attitude and knowledge of respondents on health related issues. Jafar et al. (2005) reported participants had a moderate-to-good knowledge on risk factors, this paradoxically occurred in the context of reported unhealthy diets, and/or lifestyles, potentially increasing populations' risk for CVDs.

With respect to CVD risk factors, participants had an overall good knowledge score. About two-thirds of the population could identify smoking, unhealthy diet (low in fruits, vegetables and high in salt and saturated fats), stress, high blood pressure, obesity and lack of exercise as potential risk factors for CVD,

this study is in line with the submission of Mukhtar et al. (2021) who identified stress and hypertension as common risk factors for CVD.

According to this study, having more education does not reduce risk of developing cardiovascular disease. Those with a basic or secondary education were less likely to have cardiovascular disease risk factors than those with a less education. Greater education may aid people in making better decisions about their diet and level of physical activity, according to studies from other regions that showed a reduced frequency of CVD risk factors in those with a higher education level (Cai et al., 2013). Findings by Braveman et al. (2005) reported College education may not have been able to protect against risk factors for cardiovascular disease in certain circumstances. For instance, there could not have been adequate measures at all levels to promote public health education and awareness. To raise people's health awareness and encourage them to seek treatment when necessary, groups, businesses, educational institutions, the government, and non-governmental organizations must be persuaded to arrange regular health education programs.

The majority of participants had a positive opinion on the risk factors linked with the causes of heart disease among the respondents, and the majority of respondents said that heart disease may be avoided by healthy diet and a healthy lifestyle. Findings by Nnate et al. (2021) reported heart disease risk factors include poor diet, insufficient exercise, smoking, excessive alcohol intake, and inactivity, people who reside in cities and come from affluent socioeconomic backgrounds are more likely to have underlying disorders such as obesity, hypertension, and high cholesterol levels.

In this study, the primary risk factors for cardiovascular disease were shown to be smoking, high blood pressure, and high cholesterol. This supports what Mosca et al. (2013) stated: these risk factors are spreading, more people are aware of them, they may be treated and managed in developing countries, and their prevalence is increasing. According to the findings, the Kuwaiti group had a good grasp of the dangers connected with smoking, being overweight, eating badly, and not exercising (Awad & Al-Nafisi, 2014). This might be because specific risk factors, such as high cholesterol, high blood pressure, diabetes mellitus, stress, and a family history of cardiovascular disease, are addressed in the media so often and thoroughly (Petrie et al., 2018). This might be because news from various sources varies. People need health education and assistance in order to get accurate information from credible sources.

Conclusion

The results of this study show that more than two third of the respondents have good knowledge and awareness of the risk factors associated with cardiovascular disease risk. This could be as a result of decrease increase in sensitization of the attributable risk or knowledge associated with risk of cardiovascular disease. Thus a substantial effort should be made towards improving knowledge and awareness of attributable factors that are associated with the cardiovascular disease to those that were less aware. There is an urgent need for creative, targeted preventative initiatives in at-risk populations. Raising awareness initiatives may urge the general public and high-risk individuals to live a healthy lifestyle, engage in regular activities, and actively avoid heart disease. Sedentary behavior, dietary adjustments, and frequent tests to identify at-risk individuals are just a few of the risk factors for heart disease that must be addressed on a national scale via the creation and implementation of effective health interventions and

education programs. It is critical to increase public awareness of self-care techniques for managing heart disease and preventing complications.

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