Determinants and perception of cardiovascular risk factors among secondary school teachers in Oyo state Nigeria

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Abstract

Background: Cardiovascular diseases (CVD) are common. They constitute an increasing cause of morbidity and mortality. Knowledge of the risk factors may lead to attitudinal change with consequent reduction in prevalence. Secondary school teachers constitute a large literate workforce that has direct influence on students and indirectly on their parents and guardians.

Objective: The ai of thios study is to investigate the knowledge of cardiovascular risk factors among secondary school teachers in Oyo State, Nigeria and also the determinants of such knowledge.

Methods: Three hundred and fifty eight secondary school teachers from the Akinyele local government of Oyo State Nigeria completed a questionnaire seeking such information as which diseases constitute CVD and also identify risk factors for CVD. The determinants of such knowledge were investigated by the log likehood ratio using logistic regression. Two hundred and fifteen civil servants matched for age, sex and qualifications were enrolled as controls.

Results: Of the 358 teachers, 12.3% were current smokers, 32.1% drank alcohol. More of the civil servant controls patronized fast food joints. Over 80% of the teachers performed exercise regularly, majority being 'walking' (66.2%). Hypertension (84.5%) and heart attack (87.6%) were the most correctly identified CVD. The least correctly identified was peripheral vascular disease (18.6%). The longer the years of teaching, specialization in pure science and being male the more likely the knowledge of sedentary living as a risk factor. Other variables that reached statistical significance include knowledge of stress, smoking and advanced age.

Conclusion: Generally the knowledge of the teachers is inadequate about CVD and the risk factors. Qualification in pure science and years of teaching did not radically affect this knowledge. The knowledge base of the teachers needs to be improved

Keywords: *Cardiovascular disease, risk factors, teachers, knowledge*

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Résumé

Les maladies cardiovasculaires sont communes, et constituent une cause grandissante de la souffrance et de la mortalité. La connaissance sur les facteurs a risque peut conduire a un changement d'attitude avec pour conséquence une réduction de la prévalence. Les maitres des établissements secondaires constituent une force de travail importante qui a une influence direct sur les apprenants et indirectement sur les parents et tuteurs. Trois cent cinquante huit maitres des établissements secondaires dans le district d'Akinyele dans l'état d'Oyo au Nigeria complétaient un questionnaire recherchant des information sur les maladies cardiovasculaires et aussi à identifier les facteurs à risque. Les déterminants de telle connaissance étaient investigués en utilisant une proportion de probabilité et d'une régression logistique. Deux cent quinze fonctionnaires croisés par âge, sexe et qualifications étaient recrutés comme le groupe de contrôle. Des 358 maitres, 12.3% étaient des fumeurs réguliers, 32.1% étaient des alcooliques. Plus des fonctionnaires patronnaient les restaurants. Plus de 80% des maitres faisaient des exercices régulièrement, majoritairement étant la marche (66.2%). L'hypertension (84.5%) et la défaillance cardiaque (87.6%) étaient les plus correctement identifiés maladies cardiaques. Le moins correctement identifié était la maladie vasculaire périphérique (18.6%). Le plus d'années d'enseignement, la spécialisation en science pure étant male, de plus des connaissances de la vie sédentaire comme un facteur a risque. D'autres variables qui avaient une value statistique significative étaient le stress, la cigarette et l'âge avancée. Généralement la connaissance des maitres est inadéquate en maladies cardiovasculaires et les facteurs à risque. La qualification en science pure et les années d'enseignements n'affectaient pas radicalement cette connaissance. La connaissance de base des maitres nécessite des améliorations

Introduction

Cardiovascular diseases (CVD) are very common. They constitute an increasing cause of mortality and morbidity both in the developed and developing economies of the world. In 2005, WHO stated that CVD are the leading cause of death and disability

worldwide accounting for about 17.5 million deaths, making 30% of global mortality; 80% of these deaths occur in the developing countries[1]. The same report stated that over a quarter of the world population, approximately 972millon are hypertensive and this figure is projected to rise to about 29%, that is 1.56 billion people by 2025. Study of elderly Nigerians showed that CVD are the most common ailment in this age group, hypertension accounting for 27.8% of all diseases [2]. It was the second commonest cause of death in the elderly in a Nigerian autopsy study [3].

Cardiovascular risk factor is a condition that is associated with an increasing tendency of developing CVD . Generally the factor should at least double the risk of developing CVD; should be consistent in producing CVD regardless of age, sex or race. It must make an independent contribution to increasing the individual's risk of developing CVD and interventions that favourably change the risk factor should reduce the incidence of CVD [4]. Factors that have been shown to definitely increase CVD risk include age, male sex, family history, hyperchlestrolaemia, smoking and diabetes mellitus. Others include sedentary lifestyle and left ventricular hypertrophy [5].

Generally it has been shown that awareness and perception of CVD and the risk factors is poor in our environment, irrespective of gender or social class [6, 7]. Even patients who are hypertensive have been shown to have a poor knowledge of the determinants of their disease and the risk factors [8, 9]. This kind of lack of knowledge has been identified as one of the factors contributing to increased morbidity and mortality for various diseases including CVD in Afro-American men [10]. On the other hand risk comprehension has been shown to be an important antecedent to healthy behavioural changes for CVD [11].

In Nigeria, secondary school teachers form a significant bulk of educated and literate work force. They also have direct influence on and impart knowledge to the students they teach and indirectly on the parents and guardians. The level of knowledge of CVD and the risk factors in this cohort may therefore affect what they teach, influence the students and even modify their own lifestyles. The bottom line may be significant attitudinal change in the formative years of the students which could possibly translate to reduction in CVD in later life. In other climes, barbers have been used in the 'Black Barbershop Health Outreach Programme' (BBHOP) as recruiters and health educators to deliver health promotion messages [12]. This has been shown to be an effective method of community level health promotion for cardio- metabolic diseases [13]. This could be replicated even to more effective level with secondary school teachers.

Thus, this study sought to investigate the perception and knowledge of secondary school teachers about CVD and the risk factors in a Local Government area of Oyo State, Nigeria. It also sought to find out the determinants of such knowledge.

Materials and method

Akinyele Local Government Area is a sub-urban local government area of Oyo state adjacent to the state capital, Ibadan. It has a heterogenous population of Yoruba, Hausa and Ibo ethnic tribes. There are a total of five hundred and eighty five (585) secondary school teachers in 49 secondary schools in the Local government area [14].

The local government was chosen because of its nearness to the state capital and likelihood of the teachers being reasonably well informed about general current issues including health. A purposive sampling of all the 585 teachers in the 49 schools was intended. Only the teachers who gave an informed consent and completed the questionnaire were analysed. There were three hundred and fifty eight (358) of them. Two hundred and fifteen (215) civil servants in the local government and state secretariats who consented to participate were used as controls having been matched for sex, age and qualification.

The two groups completed a structured questionnaire previously pre-tested using 15 teachers in a secondary school in Ibadan North Local Government area. The questionnaires were administered by the researcher, trained assistants with the aid of the school principals. The questions included information on such variables as diet, smoking, sedentary living as risk factors for CVD. They were also asked to identify a variety of conditions such as hypertension, malaria, stroke as CVD.

Approval was sought and received from the State Ministry of Education, the Local Inspector of Education (LIE) and the various school principals. Ethical approval was sought and received in accordance with the Helsinki convention from our institution.

The data were analysed using SPSS version 14.0 editor. Continuous variables were expressed as mean$\pm$SD while categorical variables were expressed as percentages. Log likelihood ratio test using logistic regression was used to test the univariate significance of the association between the knowledge of the determinants and variables such as qualification, years of teaching and specialization. Odds ratio was calculated and its 95% CI determined. Level of significance was put at $p < 0.05$.

Results

The study group consisted of 358 teachers drawn from the junior and senior secondary schools in the local government. They were made up of 162 (45.3%) males. Their mean age at 38.7±6.8 years was no significantly different from the controls at 40.2±3.8 years. They were stratified to those above and below 30years (Table 1). Over 60% of the subjects and controls had university degrees. Of the subjects more than half specialized in Arts subjects and over 60% have been teaching for over 10 years. Smoking, alcohol intake and visiting fast food joints more than once a week was more prevalent in the controls though only the latter reached statistical significance. Over 80% of the teachers performed on a regular basis one form of exercise or the other, significantly more than the controls at 74.9%. In both cases the prevalent exercise was walking to school or workplace.

Table 1: Demographic data of the respondents

Variable (n%)	Subjects (n = 358)	Controls (n = 215)	P value
Sex (male)	162(45.3)	91(42.5)	NS
Age(years)	38.7±6.8	40.2±3.8	NS
< 30 years	141(39.4)	92(42.7)	NS
>30 years	217(60.6)	123(57.3)	NS
Qualification			
NCE	92(25.7)	48(22.4)	NS
HND	42(11.7)	32(14.8)	NS
Bachelor	151(42.2)	96(44.6)	NS
Masters	73(20.4)	39(18.2)	NS
Specialization			
Pure Science	148(41.5)	82(38.2)	NS
Arts	191(53.5)	124(57.7)	NS
Social Science	18 (5.0)	9 (4.1)	NS
Years of teaching			
1 – 10	151(42.2)	-	NA
11 – 20	141 (39.4)	-	NA
>20	66 (18.4)	-	NA
Smoking	44(12.3)	30 (14.1)	NS
Alcohol	115(32.1)	77(35.6)	NS
Fast food >1/week	54(15.1)	54(25.2)	P < 0.05
Exercise	298(83.2)	161(74.9)	P < 0.05
Jogging	53(14.8)	33(15.2)	NS
Walking	237(66.2)	110(51.2)	P < 0.05
Swimming	8 (2.2)	18(8.5)	P < 0.05
None	60(16.8)	54(25.1)	P < 0.05

Hypertension and heart attack were the conditions most correctly identified as CVD by both the subjects and controls. Peripheral vascular disease was the most poorly recognized condition. Over half of the subjects believed that headache was a CVD

and about 5% of the subjects believed malaria was a CVD (Table 2).

Hypertension (72.3 vs 75.4, p >0.05) was the commonest correctly identified CVD risk factor both by the subjects and controls followed by family history (65.4 vs 70.8, p > 0. 05). Only about half of the

Table 2: Table showing correct knowledge of cardiovascular diseases

Variable (n%)	Subjects (n = 358)	Controls (n = 215)	P value
Hypertension	303(84.5%)	188(87.6)	NS
Headache	195(54.6)	157(73.2)	P < 0.05
Peripheral vascular disease	67(18.6)	28(12.8)	P < 0.05
Heart failure	73(20.4)	48(22.1)	NS
Heart attack	314(87.6)	174(80.7)	NS
Diabetes mellitus	116(32.3)	66(30.6)	NS
HIV/AIDS	16(4.6)	16(7.3)	NS
Malaria	20(5.7)	18 (8.4)	NS

respondents recognized alcohol (51.1 vs 40.4, p < 0.05) and smoking (50.8 vs 52.6, p > 0.05) as CV risk factors. About 1/3 of the teachers recognized advancing age (34.9%) and high cholesterol (33.8%) as CV risk factors. Advancing age was the only risk factor more significantly recognized by civil servant controls when compared with the teachers (Table 3)

Table 3: Table showing correct knowledge of CV risk factors

Variable (n%)	Subjects (n = 358)	Controls (n = 215)	p value
Male sex	76(21.2)	22(10.4)	p<0.05
Hypertension	259(72.3)	162(75.4)	NS
High cholesterol diet	121(33.8)	79(36.8)	NS
Advanced age	125(34.9)	117(50.9)	p<0.05
Alcohol	183(51.1)	87(40.4)	p<0.05
Smoking	182(50.8)	113(52.6)	NS
Sedentary living	98(27.4)	39(18.2)	NS
Obesity	212(59.2)	109(50.9)	NS
Stress	214(59.8)	132(61.6)	NS
Family history	234(65.4)	152(70.8)	NS

Considering the association between the variables, it was found that the longer years of teaching [OR = 1.12 (0.85-2.49) p = 0.043], specialization in pure science [OR = 1.25 (0.72- 2.34) p = 0.016] and being male [OR = 2.50 (1.32-4.12) p = 0.007] the more likely the knowledge that sedentary living is a risk factor for CVD. Being male also made it more likely to recognize male gender as a CV risk factor [OR =

2.43 (1.66 – 3.86) p = 0.008]. In the case of smoking as a risk factor, being older than 30years confers a significant knowledge of its recognition [OR= 1.62 (1.23 – 1.93) p = 0.003]. The higher the qualification of the subjects the more likely they recognize advancing age [OR= 1.21(0.68-3.12) p = 0.036] and stress [OR = 2.56 (1.65 – 4.37) p = 0.045] as CV risk factors. The other variables did not reach statistical significance.

Table 4: Table showing factors affecting knowledge of risk factors

Variable	Odds Ratio	95% CI	p- value
Years of teaching	1.12	0.85-2.49	0.043
Specialization pure science	1.25	0.72 – 2.34	0.016
Male gender	2.50	1.32 – 4.12	0.007
Age > 30 years	1.62	1.23 – 1.93	0.003
Higher qualification	1.21	0.68 – 3.12	0.038

Discussion

Secondary school teachers constitute a significant bulk of literate work force in our society. They influence students at their receptive and formative stages of their lives and in the rural communities constitute a repository of knowledge on diverse issues. To be able to transmit adequate and correct information, they themselves must be well informed. Their own lifestyles can also speak volumes as mentors and role models for their students. The knowledge of the teachers about CVD is generally poor except in 'traditional' diseases like hypertension and heart attack. Whereas many understood the place of heart attack, over 4/5 demonstrated ignorance about heart failure.

The lifestyles of the teachers in relation to smoking, alcohol intake and fast food joint intake seems reasonable as less than 30% of them indulge in these. However economic reality rather than health reasons might limit their preference for these activities. This is more likely as Table 2 showed that only about half of them recognized alcohol and smoking and less than 1/3, high cholesterol diet as CV risk factors. It has been shown that much of the morbidity and mortality associated with smoking is caused by CVD and up to 35% of smoking related deaths are CVD [15]. The risk of CVD in smokers is proportional to the number of cigarettes smoked and how deeply the smoke is inhaled.

Though over four fifths of the teachers claimed to exercise daily with over 60% choosing walking as the mode of exercise, it is doubtful whether this is a conscious effort at exercising or preventing sedentary lifestyle or rather as a consequence of economic problem and/or poor public transportation system. This can be surmised from the fact that only about 1/4 of the teachers recognized sedentary living as a CV risk factor. Exercise acceptable in reducing CV risk should cause a slight but noticeable increase in breathing and heart rate. Brisk walking for 30minutes or more per day for most days of the week will achieve this. Sedentary lifestyle defined as less than regular exercise of less than I hour per week is a major CV risk factor [16].

Most teachers recognized positive family history as a risk factor probably because we live in a society where all diseases are thought to be hereditary including things as epilepsy and even malaria. It is intriguing that only a few recognized ageing as a CV risk factor, CVD being mainly a disease of the elderly.

In this study, university graduates made up more than 60% of the respondents with 1/3 possessing a higher degree, yet this translated only marginally to the knowledge of CVD and its risk factors. It was only in the knowledge of advancing age and stress that higher qualification produced increased knowledge of CVD. Also specialization in the pure sciences did not seriously predict knowledge. It was only in the variable of sedentary living that specialization predicted knowledge.

This study has shown that efforts are needed to improve the knowledge base of secondary school teachers about this common condition of CVD and its risk factors. This can be achieved through various means. Since the teachers are literate and enlightened, the mass media can be employed. This has been shown to positively influence healthy behaviour [17]. Teachers should be encouraged to positively develop themselves and read the health columns which are common nowadays in dailies and magazines. It is also suggested that health talks be incorporated in meetings and conferences of Nigerian Union of Teachers. Resuscitation and adequate staffing of school clinics by at least a trained Nurse can also positively affect exchange of health information. However some studies have shown that addressing knowledge about guidelines alone may not necessarily cause attitudinal change [18] and that integrated risk counselling need to be added [19]

References

1 Preventing chronic diseases: a vital assessment - WHO annual global report. World Health Organization, Geneva; 2005.

2 Ogunniyi A, Baiyewu O and Gureje O. Morbidity pattern in a sample of elderly Nigerians resident in Idikan community Ibadan. WAJM 2001; 20: 227-231

3 Olubuyide IO and Solanke TF. The causes of death in an elderly African Population. J. Trop. Med. Hyg. 1990; 93: 270-274.

4 Kannel WB. Fifty years of Framingham study: Contributions to understanding hypertension. J. Hum Hypert 2000; 14: 83-90.

5 Padwal R, Strauss SF, and McAlistar FA. Cardiovascular risk factors and their effects on the decision to treat hypertension: evidence based review. BMJ 2001; 322: 977-980.

6 Ogunlesi A, Kadiri S, and Akinkugbe OO. Blood Pressure and educational level among factory workers in Ibadan. J Hum Hypetens 1999; 5: 375-380.

7 Familoni OB, and Olunuga TO. Comparison in the knowledge and awareness of hypertension among hospital and factory workers in Sagamu. Nig Med Pract 2002; 47: 43-45.

8 Familoni OB. Hypertension – How much do our patients know? Afr Health 2002; 24: 13.

9 Familoni OB, Ogun SA, and Aina OA. Knowledge and awareness of hypertension among patients with systemic hypertension. J. Natl Med Assoc 2004; 96: 620-624.

10 Cheatham CT, Barksdale DJ, and Rodgers SG. Barriers to health care and health-seeking behaviours faced by black men. J Am Acad Nurse Practitioner 2008; 20: 555-562.

11 Mosca L, Mochari H, Christian A et al. National study of women's awareness, preventive action and barriers to cardiovascular health. Circulation 2006; 113: 525 – 534.

12 Hess PL, Reingold JS, Jones J et al. Barbershops as Hypertension detection, referral and follow up centre for black men. Hypertension 2007; 49: 1040-1046.

13 Releford BJ, Frencher KS, Yancey AK, and Norris K. Cardiovascular disease control through Barbershop: Design of a Nationwide Outreach Programme. J Natl Med Assoc 2010; 102 : 336-345.

14 TESCOM. Statistics on Teachers' Service Commission. Oyo State Ministry of Education - 2008.

15 Centre for Disease Control and prevention (CDC). Annual smoking attributable mortality, years of potential life lost and productivity losses: United States 1997-2001. MMWR 2005; 54: 625-628.

16 Fletcher GF, Balady G, Blair SN et al. Statement on exercise benefits and recommendation from physical activity programme for all America: a statement for health professionals by the committee on exercise and cardiac rehabilitation of the council on clinical cardiology. American Heart Association. Circulation 1996; 94: 857-862.

17 Olaleye DO and Bankole A. The impact of mass media family planning promotion on contraceptive behaviour of women in Ghana. Population Research and Policy Review 1994; 13 : 161-171.

18 Lynch EB, Liu K, Kiefe CI et al. Cardiovascular disease risk factor knowledge in young adults and 10-year change in risk factors: the Coronary Artery Risk Development in Young Adult (CARDIA) study. Am J Epidemiol 2006; 164 : 1171-1179.

19 Halbert CH, Bellamy S, Bowman M, et al. Effects of integrated risk counselling for cancer and cardiovascular disease in African Americans. J Natl med Assoc 2010; 102 : 396-402.