

PREVALENCE OF CORONARY HEART DISEASES' RISK FACTOR AMONG LAGOS STATE UNIVERSITY STUDENTS, OJO LAGOS, NIGERIA

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Abstract

This study investigated the prevalence of Coronary Heart Diseases [CHD] risk factors among Lagos State University [LASU] students. Contributory risk factors were described as those that increase the risk of CHD and they include; obesity, smoking, diabetes and sedentariness. 528 undergraduate students of the university served as subjects of the study. The resting blood pressures of the subjects were taken and they were also subjected to urinalysis. A structured questionnaire developed by the researchers, with reliability level of 0.81 was administered to subjects to seek information on history of CHD, smoking habits, exercise behaviours and emotional control.

Analysis of data were carried out using frequency, simple percentage, mean, standard deviation, range and chi-square statistical tools. Findings showed that Coronary Heart Disease risk factors were prevalent among the students.

Introduction

Nigeria, like many other countries in the world, is populated with people who go around daily with their activities and means of livelihood; sources of survival and ways of making themselves acceptable to the society and attaining optimum level of resourceful living. In the process of doing these, they engage in various activities some of which place them at the risk of so many health hazards and diseases. Coronary Heart Disease [CHD] is a very common one among such diseases.

According to Powers and Howley [1999], Coronary Heart Disease, which is associated with a gradual narrowing of the arteries serving the heart, due to thickening of the inner lining of the artery, has been identified as a leading cause of sudden death in the world today. In agreement with Powers and Howley, Microsoft Encarta Online Encyclopedia [2002] described Coronary Heart Disease as the most common type of heart disease in most industrialized countries which is caused by arteriosclerosis; the build up of fatty materials called plaque on the inside of the coronary arteries. This has been figured out to occur as a result of the diet we take in, mode of living [i.e. sedentary or active lives], unwholesome development either by drinking alcohol excessively, or smoking, which is harmful to the human health.

Boroffice, Idowu and Umeana [2004] noted that there is overwhelming evidence to indicate that hypertension remains a silent killer and the most significant risk factor of Coronary Heart Disease. Citing the National Expert Committee on Communicable Diseases [1998], Boroffice et al [2004] stated that the disease is responsible for a good number of morbidity and mortality in a wide spectrum of age groups; not less than 4.33 million people above fifteen years of age have hypertension and of these figures ranges, about two-third [2.84 million] was in the mild range and 1.85 million in the severe hypertensive range.

Musa, Uzonicha and Dikko [2003] reported that the prevalence of hypertension in most western industrialized countries is 15% to 20% with the prevalence rate in the black population substantially higher [25% to 30%]. Citing American Heart Association - AHA [2001], Musa et al [2003] also asserted that the prevalence of hypertension among adults in the United States is 25%; between 10% and 7% for east Mediterranean adults; 4% to 12% for adults in India; and 5% to 12% for adults living in rural and urban areas in Africa.

However, Okuneye and Adewale [2004] were of the opinion that the claim that hypertension, which is one of the primary risk factors of Coronary Heart Disease is prevalent only in developed nations is fading out fast as it is becoming more common than expected in developing nations like Nigeria. And the implication of this is that more people in Nigeria now experience conditions such as heart attack, heart failure and stroke all of which are coronary heart related diseases.

The prevalence of Coronary Heart Disease is not limited to the old adults, but include people of all age groups; young adults, adolescents and children.

Citing AHA [1998], Okuneye and Adewale [2004] mentioned that about 50 million

Americans age six years and older were estimated to be at the risk of Coronary Heart Disease due to

Femi Adeogun (Ph.D) and Tony Dansu high blood pressure. Blood pressure in children, adolescents and young adults, of course, is dependent on many factors which include body size, genetics, dietary intake and life style among others.

This study was therefore conceived to investigate Coronary Heart Disease risk factor among selected students of Lagos State University [LASU] Ojo, Lagos - Nigeria. The focus was on variables like blood pressures, urinalysis, history of CHD, smoking habits, exercise behaviours and emotional control of the students. In the study however, answers were sorted to the following research questions.

- ❖ Is high blood pressure prevalent among LASU students?
- ❖ Does urinalysis of LASU students indicate risk of CHD among the students?
 - ❖ Is history of CHD prevalent among LASU students?
- ❖ Are LASU students habitual smokers?
- ❖ Do LASU students have positive exercise behaviour?
- ❖ Do LASU students have good control over their emotions?

Method and Procedure Subjects

528 undergraduate students of Lagos State University [LASU] Ojo Campus served as subjects of this study. They were selected using purposeful sampling technique. 237 [44.9%] of the subjects were male students, while 291 [55.1%] of them were female students. Their mean-age was 27.42 + 12.89 within the range of 17 to 46 years. The subjects' mean-weight was 67.37 + 15.91 within the range of 51 to 88kg, and their mean height was 168.26 + 13.32 within the range of 150 to 177cm.

Instruments and Measurements

Stadiometre and Davidson lightweight weighing scale was used to measure height and weight of subjects [respectively] according to the standard of International Society for the Advancement of Kinanthropometry - ISAK [2001], Systolic and Diastolic blood pressures were determined using Alcoson's product mercurial sphygmomanometer and stethoscope following the procedure of Zadik, Sthoeger and Blachar [Okuneye. and Adewale, 2004]. Urinalysis was also carried out.

The researchers constructed a structured questionnaire to seek information on history of CHD among the students; their smoking habits, exercise behaviour and emotional control. Three colleagues in the Department of Physical and Health Education LASU ascertained face validity of the questionnaire. The test-retest reliability test of the instrument gave a value of $r = 0.81$.

Administration of Instruments

The researchers and their trained assistants visited selected subjects in their various departments to seek their consent to take part in the study. The questionnaire was administered to them; however, all measurements were carried out in the Department of Physical and Health Education LASU within the hours of 8:00am and 10:00am each day. Data were collected within the period of seven weeks.

Data Analysis

The data collected in this study were coded and analysed using frequency, simple percentage, mean, standard deviation, range and chi square non-parametric statistical tools. Inferences were made at 0.05 level of probability.

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Results

Table 1: Percentage and Chi square Analysis on Systolic Blood Pressure of Subjects

Systolic BP [mm Hg]	f	%	Df	X ² -tab	X ² -cal
<100-109	187	35.4	4	9.49	* 106.42
110-119	75	14.2			
120-129	54	10.2			
130-139	93	17.6			
>140	199	22.6			
Total	528	100			

* Significant at 0.05.

Result in Table 1 shows that 187 [35.4%] of the 528 subjects had less than 100-109mm Hg resting systolic blood pressure, while 75 [14.2%] of them had 110-119mm Hg. 54 [10.2%] subjects had resting systolic blood pressure of 120-129mm Hg, and 93 [17.6%] and 199 [22.6%] subjects had 130-139mm Hg and 140mm Hg and above.

Chi square analysis of the data shows that the calculated value of 106.42 was greater than 9.49 table value at 0.05 level of probability. This result indicates high systolic blood pressure levels among the subjects.

Table 2: Percentage and Chi-Square Analysis of Data on Diastolic Blood Pressure of Subjects

Diastolic BP [mm Hg]	f	%	df	X ² -tab	X ² -cal
< 80	167	31.6	3	7.82	*86.57
81-89	84	15.9			
90-99	201	38.1			
>-100	76	14.4			
Total	528	100			

* Significant at 0.05.

Result in Table 2 shows that 167 [31.6%] of the 528 subjects of this study had 80mm Hg diastolic blood pressure and below. 84 [15.9%] subjects had 81-89mm Hg diastolic blood pressure and 201 [38.1%] of them had 90-99mm Hg. 76 [14.4%] of the subjects had 100mm Hg diastolic blood pressure and above.

Chi-square analysis of the data shows that the calculated value of 86.57 was greater than 7.82 at 0.05 level of probability. This result indicates high levels of diastolic blood pressure among the subjects.

Table 3: Percentage and Chi-Square Analysis of Data on Urinalysis of Subjects

Urinalysis	f	%	Df	X ² -tab	X ² -cal
Light	83	15.7	3	7.82	*558.94
Medium	49	9.3			
High	31	5.9			
Negative	365	69.1			
Total	528	100			

* Significant at 0.05.

Result in Table 3 shows that 83 [15.7%] of 528 subjects of this study had light traces of diabetes, 49 [9.3%] of them had medium traces, while the traces were very high in 31 [5.9%]. 365 [69.1%] of the subjects had no traces of diabetes mellitus. Chi-square analysis of the data shows that calculated value of 558.94 was greater than 7.82 table value at 0.05 level of probability. The result indicates that students were at the risk of diabetes, which is a risk factor of CHD.

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Table 4: Percentage and Chi-Square Analysis on History of CHD, Smoking Habits, Exercise Behaviour and Emotional control of Subject

Variables	Yes [%]	No [%]	Total	X ² -cai	X ² -tab	df
History of CHD	166.8 [31.6]	361.2 [68.4]	528	*71.58	3.84	1
Smoking Habits	197.6 [37.4]	330.4 [62.6]	528	*33.40		
Exercise Behaviours	233.6 [44.2]	294.4 [55.8]	528	**3.50		
Emotional Control	256.4 [48.5]	271.7 [51.5]	528	**0.45		

* Significant at 0.05.

** Not Significant at 0.05.

Results presented in Table 4 show that 166.8 [31.6%] average responses of the 528 subjects of this study indicates that they had history of CHD, while 361.2 [68.4%] average responses indicates no history of CHD among the subjects. Chi-square result shows that the calculated value of 71.58 was greater than 3.84 table value at 0.05 level of probability. This result indicates significant history of CHD among subjects. On smoking habits of the students, result shows that 197.6 [37.4%] average responses of subjects agreed that they were habitual smokers, while 330.4 [62.6%] disagreed with the opinion. Chi-square result shows that the calculated value of 33.40 was greater than 3.84 table value at 0.05 level of probability. This indicates that the subjects were habitual smokers.

The result on exercise behaviour of the subjects shows that the average responses of 233.6 [44.2%] indicate that the subjects had positive exercise behaviours and 294.4 [55.8%] shows negative exercise behaviours. Chi square result shows that the calculated value of 3.50 was less than 3.84 table value at 0.05 level of probability. This shows that the subjects do not have positive exercise behaviour. On subjects' control over their emotions, 256.3 [48.5%] average response indicate that subjects had control of their emotions, while 271.7 [51.5%] disagreed with this opinion. Chi-square result shows that the calculated value of 0.45 was less than 3.84 table value at 0.05 level of probability. This result indicates that subjects have no significant control over their emotions.

Discussion

Results in this study indicated prevalence of High Blood Pressure among Lagos State University students [See Tables 1 and 2). Tables showed that 119 [22.6%] had 140mm Hg and above resting systolic blood pressure and 76 [14.4%] had 100mm Hg and above resting diastolic blood pressure. This finding agrees with the report of Akinkugbe [1992] that Nigeria has significant cases of hypertension; precisely, the prevalence rate of hypertension in adults was between 8% to 10% in the rural areas and 10% to 12% in the urban areas. Musa [2002] also stated that in Nigeria, there are evidences that hypertension can be identified at an early stage of life as elevated blood pressure was found among 9.1% of 112 secondary school boys aged 12 to 17years. However, 140/90mm Hg systolic and diastolic blood pressures have been identified as being hypertensive [Musa, Uzonicha & Dikko, 2003].

The result on urinalysis of the subjects indicates risk of Coronary Heart Disease [CHD] among Lagos State University students [See Table 3].

History of Coronary Heart Disease was also found among the students. According to Hademenos [2002], people who have the history of Coronary Heart Disease are at greater risk of having attack. Hademenos explained further that if one of the parents has Coronary Heart Disease, one's risk of developing it is twice that of a person whose parents do not have heart disease; and if both parents have the diseases, the risk is five times. Bonfligo [1994] also asserted that high blood pressure can run in families as parents can predispose children to automatic inheritance.

Smoking habit was found to be significant among Lagos State University students [See Table 4]. This habit was reported as Coronary Heart Disease risk factor [Boroffice, Adeogun & klowu, 2002; Musa, Uzonicha & Dikko, 2003; Boroffice & Idowu, 2004 and Okuneye & Adewale, 2004],

According to American Heart Association - AHA [2002], cigarette smokers have a higher risk of developing a number of chronic disorders among which CHD is a notable one. AHA [2002] further stated that cigarette smoking accounts for more than 440, 000 of the estimated 2.4million annual death, yet, it is avoidable.

On the exercise behaviour of the students, result in Table 4 showed that the students have no positive exercise behaviour [3.50; $P > 0.05$], Studies have shown that regular exercise helps to prevent Coronary Heart Disease [Calison & Britton, 1993, Gorden & Scott, 1991 and Bonfligo, 1994], Okuneye [2002] asserted that antihypertensive effect of regular exercise manifest from improved cardiac functioning which results in a reduced resting heart rate, increased maximal oxygen consumption, decreased cardiac work and improved serum lipid profile; all which guide against occurrence of CHD.

Result in Table 4 also showed that the students did not have good control of their emotions [0.45 ; $P > 0.05$]. Emotional factors of which stress is an important one are risk factors of CHD. Selye [2000] identified stress as one of the major emotional factors and opined that the stress response of the body is somewhat like and airplane readying for take off; virtually all systems are modified by it. In line with tins opinion, Akeredolu and Adeogun [2001] states that if stress last for long, the individual may move into exhaustion stage where the body's defences against stress are used up and are unable to fight, flee or resist the threat in anyway. The body and mind get tired; the individual may become ill and die suddenly. Akeredolu and Adeogun mentioned that chronic stress, which could be physical or psychological, could result from long-standing problem, unstable marriage and poor interpersonal relationship. It means that people of such problems are predisposed to CHD.

Conclusion and Recommendations

Findings of this study indicate that:

- ❖ High Blood Pressure was prevalent among Lagos State University students;
- ❖ Urinalysis of the students indicates risk of CHD;
- ❖ History of CHD was prevalent among the students;
- ❖ Significant number of LASU students were habitual smokers;
- ❖ The students did not have positive behaviour towards exercise; and
- ❖ They did not have good control over their emotions.

It is therefore concluded in this study that the risk factors of Coronary Heart Disease [CHD] were prevalent among the students of Lagos State University, Ojo, Lagos.

The researchers therefore recommend as follows:

1. Students should be adequately educated on the causes of coronary heart disease, the risk factors, how to control and/or prevent them. The enlightenment should be carried out via organization of seminars, symposia and media programmes.
2. Students should be encouraged to develop positive sports, behaviours by regularly participating in sporting activities especially in the periods set aside by the university for mass sports.
3. The University authorities should make available sports facilities and equipment on campus to enhance students' participation in sports and exercises.
4. A ban should be placed on the sales of tobacco and tobacco products on the university campus. Law should also be enacted to restrict students from smoking on campus.
5. There should be periodical medical screening of the students to detect those at risk of CHD early, and help those who are at the risk through medication and counselling.
6. Further studies should investigate the prevalence of CHD risk factors among Nigerian students in other higher institutions.

References

- Akeredolu, O.A. and Adeogun, F. [2001], Stress: Prognosis, Physiologic and Psychosomatic Affects and Management. In C.O. Udoh [Ed] *Issues in Human Kinetics, Health Promotion and Education*. Ibadan: Chris-Rose - Ventures. 60-71.
- Akinkugbe, O.O. [1992]. *Non-Communicable Diseases in Nigeria*. Lagos: Federal Ministry of Health and Human Services.
- American Heart Association - AHA [2002], *How Does Smoking Affects Coronary Heart Disease*. Dallas: AHA.
- Bonfiglio, R.P. [1994], Exercise for Life: The Role of Sports in Preventing and Treating Medical Illness. In R.M. Buschbacher and R.I. Bradofom [Eds]. *Sports Medicine and Rehabilitation: A Sports Specific Approach*. Philadelphia: Hanley and Beltus.
- Boroffice, O.B.; Idowu, B.B. and Umeana, T.K. [2004]. The Prevalence of High Blood Pressure Among Lagos State University Workers. *Nigeria Journal of Physical, Health Education and Recreation - NIJHER*. 3:8-12.
- Carrisson, A. and Britton, M. [1993]. Blood Pressure After Stroke: a One-Year Follow Up Study. <http://www.google.com> . Retrieved 03/1 1/03.
- Gorden, N.F. and Scott, C.B. [1991], Exercise and Mild Essential Hypertension - Primary Care. [Http://www.google.com](http://www.google.com). Retrieved 03/1 1/03.
- Hademenos, G.J. [2002], Coronary Heart Disease. <http://www.microsoftencartaonlineencyclopedia.com>. Retrieved 03/1 1/03.
- International Society for the Advancement of Kinanthropometry - ISAK [2001], *International Standardfor Anthropometric Assessment*. Potchetstroom. IS A K.
- Microsoft Encarta Online Encyclopedia [2002], Coronary Heart Disease. <http://www.microsoftencartaonlineencyclopedia.com> Retrieved 03/1 1/03.
- Musa, D.I. [2002] Prevalence of Coronary Heart Disease Risk Factors in Preadolescent Female School Children in Kano City: A Preliminary Investigation. *Journal of Nigerian Women in Sports*. 2 [1]: 9-18.
- Musa, D.I.; Uzonicha, J.O. and Dikko, A.U [2003], The Role of Physical Exercise in the Management of Flypertenstion. *Journal of Research in Health and Sports Science*. 5 [1]: 17-26.
- Okuneye, R.O. and Adewale, E.O. [2004], Weight and Age as Determinants of Blood Pressure Among Adolescents in Lagos State. ■ *Nigeria Journal of Physical, Health Education and Recreation - NIJ HER*. 3:17-21.
- Okuneye, R.O. [2002]. Regular Exercise and Individuals Health. *Nigeria Journal of Physical, Health Education and Recreation — NIJ HER*. 2: 5-10.
- Powers, S.K. and Howley, E.T. [1999], *Exercise Physiology*. London: Brown and Benchmark Publishers.
- Selye, H. [2000], *Stress and Stressors*. New York: American Institute of Stress Publication.