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Prevalence of Biomedical Health Risk Factors among Staff of Kashim Ibrahim College of Education Maiduguri, Borno State, Nigeria

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Abstract

This study assessed prevalence of biomedical health risk factors among staff members of Kashim Ibrahim College of Education, Maiduguri, in Borno State, Nigeria. A survey research design was employed for this study, focusing on a sample of 57 staff members from the college. Participants' demographic information, including age, sex, and staff cadre, was collected. Biomedical health risk factors, such as high blood cholesterol, impaired fasting blood glucose, and obesity, were assessed using appropriate measurements and diagnostic criteria. Prevalence of high blood cholesterol (>5.0 mmol/l) was 14.04%, with a higher prevalence among females (20.0%) compared to males (10.81%). Academic staff had a prevalence of 18.18%, while non-academic staff had a prevalence of 11.43%. Participants aged 41-50 years had the highest prevalence at 26.32%. Prevalence of impaired fasting blood glucose (>5.6 mmol/l) was 24.56%, with a higher prevalence among females (25.0%) compared to males (24.32%). Academic staff had a prevalence of 40.91%, while non-academic staff had a prevalence of 14.29%. Participants aged 61 and above had the highest prevalence at 66.67%. Prevalence of obesity (BMI>30.0 kg/m²) was 21.05%, with a significantly higher prevalence among females (50.0%) compared to males (5.41%). Academic staff had a prevalence of 27.27%, while non-academic staff had a prevalence of 17.14%. Participants aged 51-60 years had the highest prevalence at 35.71%. The study revealed a notable prevalence of biomedical health risk factors, including high blood cholesterol, impaired fasting blood glucose, and obesity, among staff members of Kashim Ibrahim College of Education, Maiduguri. These findings highlight the importance of implementing health promotion and preventive measures within the college community to mitigate the risk of chronic degenerative diseases. Routine medical check-ups, access to sports facilities, and health awareness programs are recommended to improve the overall health and well-being of staff members.

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Keywords: Biomedical health risk factors; High blood cholesterol; Impaired fasting blood glucose; Obesity; Staff members.

Introduction

Biomedical health risk factors are bodily states that contribute to the development of chronic degenerative diseases such as heart disease and stroke. They are expressed as body measurements, which affect the health of an individual. Such factors include high blood pressure often referred to as hypertension, high blood cholesterol (lipid disorder, hyperlipidemia), impaired fasting glucose (pre-diabetes), and obesity (excess body weight). These factors are often highly interrelated, as they can all contribute to the risk of heart disease and amplify each other's effects if they occur together. In addition, obesity can in itself lead to high blood pressure and high blood cholesterol [1]. Individual's biomedical risk factors can directly affect an individual's health and in combination with other behavioural risk factors their effects can be amplified. The longer a person lives with one or more risk factors, the greater the effect on the overall health and wellbeing. This is because sometimes, biomedical risk factors are considered chronic conditions, for example high blood pressure (also known as hypertension) [2].

[3] Explained that a person's health and wellbeing are influenced by a number of intrinsically related biological, lifestyle, societal and environmental factors, many of which can be modified. Individual biological factors can be as fundamental as genetic make-up, while lifestyle factors can encompass a range of matters, for example, diet, activity level, substance use, societal and environmental influences which include where one lives, the affordability and availability of health-care services. According to [4], the development of chronic diseases is strongly associated with the behavioural risk factors of smoking, physical inactivity, poor diet and the harmful use of alcohol which can contribute to the development of biomedical risk factors. The biomedical health risk factors include high blood pressure (hypertension), high blood cholesterol, impaired fasting glucose (diabetes) and obesity (excess body weight).

A person's health and wellbeing are influenced by a number of intrinsically related biological, lifestyle, societal and environmental factors, many of which can be modified to some extent [5]. Individual biological factors can be as fundamental as genetic make-up, while lifestyle factors can encompass a range of matters, for example, diet, activity levels, and substance use. Societal and environmental influences can include where an individual lives, and the affordability and availability of healthcare services. Things that increase people's risk of ill health are known as risk factors. There are some population groups and certain life stages where risky behaviours and other risks to health are more common—for example, risky behaviours are particularly prevalent in youths [6].

Kashim Ibrahim College of Education Maiduguri being one of the first higher institutions in Borno State has a good number of staff (academic and non-academic) who are qualified with experiences in different areas of specializations always ready to impart knowledge to students so as to produce trained and qualified teachers to teach in both public and private schools. From observation, staff of Kashim Ibrahim College of Education Maiduguri life style has changed in terms of feeding, mobility and other social activities (eating whatever they want at any time, riding flashy cars, and going to clubs to sit and drink) without going to the College gymnasium to participate in physical activities so as to burn the deposited calories, which leads to development of some hypokinetic diseases and even death. Reports from the College Establishment Unit (2016) revealed that fifteen to twenty staff go on sick leave every year while three to five staff died every year as a result of chronic, degenerative diseases such as high blood pressure resulting into heart attack and stroke.

There were also reports from the College clinic health personnel through a verbal interview about the increased cases of sudden illnesses occurring among the staff, which the health personnel testified that most of the cases has to do with heart problems such as high blood pressure, high blood cholesterol and increased overweight. Reports of this nature prompted this study which was designed to determine the prevalence of biomedical health risk factors which are usually associated with the diseases described and discussed among staff of the college.

Research questions

The following research questions were answered:

1. What is the prevalence of high blood cholesterol among staff of Kashim Ibrahim College of Education Maiduguri Borno State, Nigeria?
2. What is the prevalence of impaired fasting blood glucose among staff of Kashim Ibrahim College of Education Maiduguri Borno State, Nigeria?
3. What is the prevalence of obesity among staff of Kashim Ibrahim College of Education Maiduguri Borno State, Nigeria?

Methodology

Survey research design was used for this study. A survey is a method of research that involves the characteristics of individuals, groups, objects or situation. Survey research method is concerned with the collection of data for the purpose of describing and interpreting existing conditions or practice, beliefs, attitudes and so on. Survey design, according to [7] is a technique that seeks to determine the practices or opinions of a specified population on one or more variables. [8] Stated that the purpose of survey research method is to describe systematically the facts, qualities or characteristics of a given population, event or area of interest concerning the problem under investigation. The use of this design was considered appropriate because of its importance which suits a study of this nature that sought to determine the prevalence of biomedical health risk factors among staff of Kashim Ibrahim College of Education Maiduguri.

The population for this study comprised five hundred and sixty six (566) staff of Kashim Ibrahim College of Education Maiduguri (KICOE Establishment Unit, 2015). Out of this population two hundred and sixteen (216) were academic staff comprising 77 females and 139 males, and three hundred and fifty (350) non-academic staff comprising 119 females and 231 males. Stratified sampling technique with proportionate method was used to sample ten percent (10%) of the population for the study. Ten percent (10%) of the entire population is 56.6 which was approximated to 57 because fractions of human beings cannot be obtained. Twenty-two (22) academic staff comprising 8 females and 14 males, and thirty-five (35) non-academic staff comprising 12 females and 23 males were selected for the study. The selection of the sample was based on [9] who stated that in a large population, ten percent (10%) will be appropriate. Cost implication and the willingness of the participants to partake in the study, which involved taking blood sample was taken into consideration for the selection of 10 percent of the population as a sample.

An introductory letter containing the purpose of the research was obtained from the Head of Department, Physical and Health Education of the University of Maiduguri to the Registrar, Kashim Ibrahim College of Education Maiduguri for permission to conduct the research in the college. After obtaining the permission from the college authority the participants were briefed by the researcher about the testing procedures and it benefits. The researcher provided biodata sheet to record the age, sex, tag number, glucose level, cholesterol level, height and weight of the participants. Fifty seven tags numbering from 01-57 were provided for easy identification of the participants. The participants came up for the testing exercise in the morning 7.30 to 9:00 am at the college clinic. Two (2) trained research assistants were used to assist the researcher in data taking, a trained nurse took the blood pressure, height and weight of the participants.

Determination of fasting blood glucose

To determine impaired fasting blood glucose, the participants were asked to fast for twelve hours. To collect the blood sample, florideoxalade container (yellow cap), 5 ml syringe and needles were used, and the blood was collected from the cephalic vein (located at the upper arm) four mills. The blood collected was kept in the yellow cap floride oxalate container. Sodium oxalate was mixed without coapulent to prevent the blood from clotting. To centrifuge the blood, the plasma was used (the watery part of the blood that stayed at the top of the container). The methodology for the testing was enzymatic. The reagent used was buffer or lyophilized enzymes (which was also divided in two parts the glucose oxidase and hydrogen peroxidase). Standard solution was used for concentration, until it was 5.55 mmol/dl or 100 mg/dl. The powdered enzymes was added to the Buffer and mixed. It became the glucose working reagent. Three containers were provided, the blank in which 2 ml of water bath was put in it and standard solution was put also, then the test container 2 ml and 20% of the plasma, mixed and incubated at 37°C (degree centigrade) for 15 minutes using water bath. It became ready for reading using spectrophotometer. The wavelength is 520-530 mm. The blank was read first to set the instrument to 0.00 obserlence. The standard was read at 0.11, the test at 0.10 Optical Density (OD) which determined the glucose level at 5.6 mml/l as normal level [10].

Determination of blood cholesterol

To determine the cholesterol level of the participants, participants fasted for about twelve hours and the same procedure for determining fasting blood glucose was used. Collection of blood was done from the cephalic vein (located at the upper arm) with 5 ml syringe and needle and the blood was put into a green cap floride oxalate container, then it was centrifuged. Only the plasma was used for estimation. The methodology used was enzymatic method. The reagent used were buffer, lyopolized enzymes to get cholesterol oxidase, cholesterol esterase and standard solution at 200 mg/dl or 5.17 mmol/dl. The powdered reagents was added into the Buffer, 2 ml in the blank, 2 ml in the standard with 20% of standard solution in the standard and 2 ml adding 20% of solution to the plasma test. It was mixed and incubated at 37°C (degree centigrade) for 15 minutes using water bath. It was read at wavelength 520-530 mm. It was read using spectrophotometer. The blank was read first to set the instrument at 0.00 observant. Read standard at 0.11, the test at 0.10, the cholesterol was then determined at 5.0 mmol/dl as normal level [10].

Determination of obesity

Weighing scale (Metler ZT.120, 2010 model made in China 2010) was used to determine body weight of the participants in kilogrammes. The body weight of the participants was determined using a Physician's balance beam scale. Participants wore minimal clothing, with no shoes. The beam scale had movable weights, with the scale readable from both sides. The scale was positioned on a level solid floor, and the Nurse (Research Assistant) stood behind the beam, facing the participant whose height and weight were measured. The scale was calibrated each time before use by putting the beam weight to zero (0) to ensure the beam scale was balanced, and a screwdriver was used on the movable tyre weight to adjust the beam weight. The weight of the participants was read to the nearest 0.25 kg [11].

Stadiometer attached to the weighing scale (Metlar ZT.120, made in China 2010) was used to determine height of the participants in metres. A vertical ruler with a horizontal headboard was brought into contact with the highest point on the board and was used to determine the height. Each participant stood without shoes, heels together, back as straight as possible, heels buttocks, shoulders, and head touching the wall, looking straight ahead. Weight of the participants was distributed evenly on both feet, arms hanging freely by the sides of the body, before the measurement took place. Each participant deeply inhaled and held the breath, while the headboard was at the highest point on the head with sufficient pressure to compress the hair (to obtain accurate height reading). The Quetelet Equation (body weight in kilograms divided by height in metres squared kg/m^2) was used to determine BMI of the participant. David and Nieman's (1999) classification of BMI (Less than 18.5 kg/m^2 regarded as underweight; 18.5 to 24.9 kg/m^2 as normal; 25.0 to 29.9 kg/m^2 overweight; 30.0-34.9 kg/m^2 obesity I; 35.0 to 39.9 kg/m^2 obesity II, while 40 kg/m^2 or more is regarded as obesity III.

Results

Table 1: Demographic variables of the participants (n=57).

Variable	Frequency	Percentage
Age (Years)		
20 – 30	8	14.0
31 – 40	13	22.8
41 – 50	19	33.3
51 – 60	14	24.5
61 above	3	5.26
Sex		
Male	37	64.9
Female	20	35.1
Staff cadre		
Academic Staff	22	38.6
Non-Academic Staff	35	61.4

Table 1 contains the demographic variables of the participants. Three variables were displayed in the table namely age, sex and staff cadre. Breakdown of age brackets shows that there were 8(14.0%) participants aged 20-30 years, 13(22.8%) aged 31-40 years. Those in age bracket of 41-50 years were 19(33.3%), those within the age bracket of 51-60 years were 14(24.5%)

and participants aged 61 and above years were 3(52.6%). This means that most of the participants were between the age bracket of 41-50 years 19(33.3%) followed by age bracket 51-60 years 14(24.5%), then age bracket 31-40 years 13(22.8%), and age bracket 20-30 years 8(14.08), lastly age bracket 61 and above years 3(52.6%).

With regards to sex of the participants 37(64.9%) were males, while 20(35.1%) were females. This means that most of the participants were males (64.9%). With regard to staff cadre, 22(38.6%) were academic staff while 35(61.4%) of the participants were non-academic staff. This means that most of the participants were non-academic staff.

Table 2: Prevalence of high blood cholesterol (mmol/dl) among staff of Kashim Ibrahim College of Education Maiduguri (n=57).

Participants	Number	No. of participants with normal blood cholesterol (2.5-5.0 mmol/l)	No. of participants with high blood cholesterol (>5.0 mmol/l)	Prevalence (Percent)
Male and female staff of KICOE	57	49	8	14.04
Male	37	33	4	10.81
Female	20	16	4	20.0
Academic Staff	22	18	4	18.18
Non-Academic Staff	35	31	4	11.43
20-30 years	8	8	0	0.0
31-40 years	13	12	1	7.69
41-50 years	19	14	5	26.32
51-60 years	14	12	2	14.29
61 above years	3	3	0	0.0

Table 2 shows information on prevalence of high blood cholesterol among staff of Kashim Ibrahim College of Education Maiduguri. Fifty-seven participants were involved in the study. Of these, 8(14.04%) had high blood cholesterol (>5.0 mmol/dl). Of the 37 males that participated in the study, 4(10.81%) had above normal blood cholesterol and of the 20 females that participated in the study, 4(20.0%) had above normal blood cholesterol. Twenty two (22) academic staff were involved in the study. Of these, 4(18.18%) had above normal blood cholesterol, and of the 35 non-academic staff, 4(11.43%) had high blood cholesterol.

The participants in the study were classified into age brackets of 20-30 years, 31-40 years, 41-50 years, 51-60 years and 61 and above years. Of the 8 that were in age brackets of 20-30 years none of them was fond to have high blood cholesterol, while of the 13 aged 31-40 years, 1(7.69%) had high blood cholesterol. Nineteen participants were aged 41-50 years and 5(26.32%) had above normal blood cholesterol, while the 14 participants aged 51-60 years, 2 (14.29%) had high blood cholesterol. Three participants were aged 61 and above years, and none of them was found to have high blood cholesterol.

A synthesis of the analysis revealed that 8(14.08%) of the participants had high blood cholesterol was more among females, 4(20.0%), among academic staff, 4(18.18%), and among participants aged 41-50 years, 5 (26.32%).

Table 3: Prevalence of Impaired Fasting Blood Glucose (mmol/dl) among Staff of Kashim Ibrahim College of Education Maiduguri (n=57).

Participants	Number	No. of participants with normal BMI (18.5-24.9 kg/m^2)	No. of participants who are obesed (BMI 30.0->40 kg/m^2)	Prevalence (Percent)
Male and female staff of KICOE	57	45	12	21.05
Male	37	35	2	5.41
Female	20	10	10	50.0
Academic staff	22	16	6	27.27
Non-Academic staff	35	29	6	17.14
20-30 years	8	7	1	12.5
31-40 years	13	11	2	15.38
41-50 years	19	16	3	15.79
51-60 years	14	9	5	35.71
61 above years	3	2	1	33.33

Table 3 contains information on the prevalence of impaired fasting blood glucose among staff of Kashim College of Education Maiduguri. Fifty seven (57) participants were involved in the study. Of these, 14(24.5%) had impaired fasting blood glucose (>5.6 mmol/dl). Of the 37 males that participated in the study 9(24.32%) had impaired fasting blood glucose, and of the 20 females that participated in the study, 5(25.0%) had impaired fasting blood glucose. Twenty two (22) academic staff were involved in the study, 9(40.91%) had impaired fasting blood glucose and of the 35 non-academic staff, 5(14.29%) had impaired fasting blood glucose.

The participants were classified into age brackets of 20-30 years, 31-40 years, 41-50 years, 51-60 years and 61 and above years. Of the 8 that were in age bracket of 20-30 years, 1(12.5%) had impaired fasting blood glucose, while of 13 aged 31-40 years, 2(15.38%) had impaired fasting blood glucose. Nineteen (19) participants were aged 41-50 years and 4(21.05%) had impaired fasting blood glucose, while of the 14 participants aged 51-60 years 5(35.71%) had impaired fasting blood glucose. Three participants were aged 61 and above years, and 2 (66.67%) had impaired fasting blood glucose.

A synthesis of this analysis indicates that 14(24.56%) of the participants had impaired fasting blood glucose (>5.6 mmol/dl), and prevalence of impaired fasting blood glucose was more among males 9(24.32%), among academic staff, 9(40.91%) and among participants aged 51-60 years, 5(35.71%).

Table 4: Prevalence of obesity among staff of Kashim Ibrahim College of Education Maiduguri (n=57).

Participants	Number	No. of participants with normal BMI (18.5-24.9 kg/m^2)	No. of participants who are obesed (BMI 30.0->40 kg/m^2)	Prevalence (Percent)
Male and female staff of KICOE	57	45	12	21.05
Male	37	35	2	5.41
Female	20	10	10	50.0
Academic staff	22	16	6	27.27
Non-Academic staff	35	29	6	17.14
20-30 years	8	7	1	12.5
31-40 years	13	11	2	15.38
41-50 years	19	16	3	15.79
51-60 years	14	9	5	35.71
61 above years	3	2	1	33.33

Table 4 contains information on prevalence of obesity (BMI) among staff of Kashim Ibrahim College of Education Maiduguri. Fifty seven participants were involved in the study. Of these 12 (21.05%) were obesed with BMI 30.0->40 kg/m^2. Of the 37 male staff that participated in the study, 2(5.41%) were obesed, and of the 20 female staff that participated in the study, 10(50.0%) were obesed. Of the twenty two (22) academic staff that were involved in the study, 6(27.27%) were obesed and of the 35 non-academic staff, 6(17.14%) were obesed.

The participants were classified into age brackets of 20-30 years, 31-40 years, 41-50 years, 51-60 and 61 and above years. Of the 8 that were in age bracket of 20-30 years, 1(12.5%) was obesed, while of the 13 aged 31-40 years, 2(15.38%) were obesed. Nineteen (19) participants were aged 41-50 years and 3(15.79%) were obesed, while of the 14 participants aged 51-60 years, 5(35.71%) were obesed. Three participants were aged 61 and above years and 1(33.33%) was obesed.

A synthesis of the analysis shows that 12(21.05%) of the participants were obesed (30.0>40 kg/m^2) and prevalence of obesity was more among females, 10(50.0%), among academic 6(27.27%) and among participants aged 51-60 years, 5(35.71%).

Discussion

The study determined the prevalence of biomedical health risk factors (high blood cholesterol, impaired fasting blood glucose and obesity) among staff of Kashim Ibrahim College of Education Maiduguri.

Prevalence of high blood cholesterol was higher among female than male participants, and higher among academic than non-academic staff. The result also showed that prevalence of high blood cholesterol was higher among participants aged 41-50 years compared to other participants in the other age brackets. This was in line with a study carried out in Australia by [12] which revealed that high cholesterol may develop in both males and females who consumed diet high in fats and are inactive. It leads to blockage of arteries and may cause obesity, together they constitute a serious heart related problems that may lead to death if care is not taken. The [13] reported that high blood cholesterol became a major killer in both males and females living a sedentary lifestyle mostly in urban areas.

Also reported that blood cholesterol is a fatty substance produced by the liver, carried by blood to the various parts of the body [14]. When it is too high in the blood it may lead to heart problems such as heart attack, elevated blood pressure, stroke and even sudden death. [15] Reported that high cholesterol is a major risk factor for coronary heart disease and ischemic stroke, lowering cholesterol is important for every one-men and women, young, middle aged and older adults, and people with or without heart disease. [16] Reported that diet is an important factor in maintaining low and average blood cholesterol levels. [17] Reported that other risk factors such as family history of heart disease. Low HDL cholesterol, high blood pressure, cigarette smoking and diabetes mellitus may trigger the development of high blood cholesterol. [18] Reported that cholesterol level in men and women occurred 4.5% among rural dwellers in Ghana, while in Nigeria it was 10% in the rural populace.

Impaired fasting blood glucose was higher among female than male participants, and higher among academic than non-academic staff. Similarly, prevalence of impaired fasting blood glucose was higher among participants aged 61 and above years. This was similar to [19] who reported that pre-diabetes individual (both male and female) who have abdominal obesity, high blood pressure, high LDL cholesterol, low HDL cholesterol, and high levels of triglycerides in the blood have an increased risk of developing type 2 diabetes mellitus and higher degree of periodontal inflammation. Jeng et al. (1998) reported that diabetes is a multi-factor disease and can affect many areas of the body such as eye, arms and other parts. Australian Diabetes, Obesity and Lifestyle Study (2001) reported that prevalence

of impaired fasting blood glucose was higher among USA adult males and females population which was nearly 26%. The result was also similar to WHO (2007) who reported that impaired fasting blood glucose commonly known as pre-diabetes is a condition in which the fasting blood glucose level was elevated above what is considered normal level (2.5-5.6 mmol/l) mostly caused by heredity and affluent lifestyle, found in males and females, educated and non-educated. Nichols, Hiller and others (2007), reported that blood glucose if high may lead to type 1diabetes which may damage blood vessels in the rating by the formation of scar tissue and hemorrhage together may lead to heart attack, stroke, blindness and even amputation of a body part. [20] Also reported that males and females of middle age with family history of diabetes and who lived an affluent lifestyle with high alcohol consumption are prone to develop type 1 diabetes and other heart diseases. [21] Carried out a study and reported that certain gene variants that carry instructions for making proteins called human leukocyte antigens on white blood cells are linked to the risk of developing type 1 diabetes in both males and females. [22] Asserted that millions of people can lower their risk of type 1 diabetes by making lifestyle changes and losing weight.

Prevalence of obesity (BMI) was higher among female participants than males, and was higher among academic than non-academic staff. More so, prevalence of obesity (BMI) was higher among participants aged 51-60 years compared to other participants in other age brackets. This finding was in agreement with [23] who reported that many clinicians considered obesity a sign of good living and to be a self-inflicted condition of little medical significance. It was also in line with [24] WHO Expert Committee (2007) who reported that overweight and obesity are considered to be a serious health problems worldwide in developed and developing countries for both men and women, young and middle age group. [25] Also reported that Body Mass Index (BMI) and obesity in Switzerland became among the major health problems in females with 26% than in males with 18%. [26] Also reported that overweight and obesity prevalence was higher among females aged 25 years and above, than their males counterparts, and mostly found among the people of high economic status than among people of low economic status. [27] Reported that the range of BMI of a population varies significantly according to the stage of economic transition and associated industrialization of a country such as a shift from dietary deficit to one of dietary excess). [28] Reported that the early onset of obesity mostly in female leads to an increased likelihoods of obesity in later life as well as an increased prevalence of obesity-related disorders.

[29] Reported that obesity is becoming more prevalent in many African and other developing countries with demographic transition being implicated for the upsurge. [30] Observed that in many urban centeres of the developing countries, a change in lifestyle due to increased affluence has been observed and this change in lifestyle is an important factor in the global epidemic of overweight and obesity. [31] Also reported a similar findings, that obesity epidemic is especially evident in industrialised nations where many people live sedentary lives and eat convenient foods, which are typically high in calories and low in nutritional value. On which this study was anchored on web of disease causation theory, propounded about six decades ago by [32] which stated that non-communicable disease is not caused by single causative agent, rather it develops from a chain of causation in which each is linked to the other when care is not taken.

Conclusion

Based on the findings and limitations of this study, it was concluded that biomedical health risk factors (high blood cholesterol, impaired fasting blood glucose and obesity) prevailed among staff of Kashim Ibrahim College of Education Maiduguri, even when they looked apparently healthy.

Recommendations

Based on the conclusion of this study, the following recommendations were made:

1. Authority of Kashim Ibrahim College of Education Maiduguri should provide an avenue for routine medical check-ups at least twice a year, as part of welfare service, to prevent the development of these biomedical health risk factors (high blood cholesterol, impaired fasting blood glucose and obesity) among staff.

2. Adequate sport facilities, including time allocation for sporting activities should be provided by the College authority within the College environment; that will enable the staff to participate in physical activities as a means of preventing the occurrence of these biomedical health risk factors.

3. Seminars, workshops and health talks should be organize by the College authority to create more awareness to the staff on dieting and the importance of healthy eating.

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