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Professor Umaru Musa

Head of Department,

Department of Human Kinetics and Health Education,

Editor-in-Chief, Global Journal of Health-Related Researches,

Ahmadu Bello University, Zaria, Zaria, Nigeria.

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INVESTIGATING THE PERVASIVENESS OF OBESITY AMONG ADOLESCENTS IN PRIVATE AND PUBLIC SECONDARY SCHOOLS IN CALABAR METROPOLIS, CROSS RIVER STATE – NIGERIA

JOSEPH O. OGABOR (Ph.D)[1], MARTINA A. APIE (Ph.D)[1], USMAN OMEIZA SULEIMAN[2] , EMMANUEL E. OGAR[1], PETER A. OWOGOGA[1],

[1]Department of Human Kinetics and Health Education, University of Calabar, Calabar, Nigeria.

[2]Department of Human Kinetics and Health Education, Amadu Bello University, Zaria, Kaduna State, Nigeria.

ogaborjosephodey@yahoo.com; martinaapie@gmail.com; usomeiza@yahoo.co princeemmy77@yahoo.com; adumapeter@gmail.com

Abstract

This study was to investigate the pervasiveness of obesity among adolescents in private and public secondary schools in Calabar Metropolis of Cross River State, Nigeria. Survey research design was adopted for the study. Stratified random sampling technique was adopted to select 400 students (200 from private and 200 from public secondary schools) in Calabar Metropolis of Cross River State, Nigeria. Structured questionnaire titled "Pervasiveness of Obesity Among Adolescents (POAD)" was used to obtain data. The data obtained were analyzed using independent t-test statistic. All hypotheses were tested at 0.05 level of significance. The results indicated that significant differences existed between the students of private and public secondary schools as regards the pervasiveness of obesity in the study area. It was recommended among other things that Private school students most especially the adolescents should be involved in proper fitness programmes to help in improving their health thereby reducing the risk factors of having obesity related disorders.

Key words: Adolescents, Obesity, Pervasiveness, Private and Public.

Introduction

The pervasiveness or prevalence of overweight and obesity is confined not only to adults but also being reported among the children and adolescents of developed as well as developing countries (WHO, 2015). Since, adolescence is a period of transition from childhood to adulthood, it assumed critical position in the life cycle of human beings, characterized by an exceptionally rapid rate of growth (Jain, Bharadwaj & Joglekar, 2017). The pervasiveness or prevalence of overweight and obesity among children and adolescents has increased significantly in the developed countries during the past two decades and similar trends are being observed even in the developing world (Must, 2017).

The pervasiveness of overweight and obesity are risk factors for many health problems, regardless of a person's age. Children and adolescents who are overweight and obese, however, tend to face a greater risk of health problems including type 2 diabetes mellitus, high blood pressure, high blood lipids, asthma, sleep apnoea, orthopaedic and psychosocial problems than their normal weight peers (Goossens, Braet & Decaluwe, 2017). There is an urgent need to investigate the magnitude of this pervasiveness in developing countries such as Nigeria and most especially the study area, which is Calabar Metropolis, and to implement prevention strategies as early as childhood by involving families, schools and the whole community (Ugbong, 2015).

A study by Eme (2015) on prevalence of overweight and obesity among adolescents in secondary schools in Abia state, Nigeria, revealed that more females (51.7%) than males (48.3%) participated in the study. A greater percentage of them were within the ages of 10-14 years and more than half of the respondents (57.5%) were from private schools. The reason for more females than males in the population might be because of more enrolment of the females in education in recent times than males. Most males tend to go into business and apprenticeship than the female folks. The background characteristics in this study were comparable to those used in previous studies (Akinpelu, Oyewole & Oritogun, 2018). The mean age of the respondents in this study (14.56±1.84 years) was similar to the findings of (Adesina, Peterside, Anochie & Akani, 2019) where the mean age of their respondents was 14.25±1.25 years. The prevalence of overweight and obesity in this study was 9.7% and 3.5% respectively. This was lower when compared with the prevalence of overweight (15%) and obesity (5%) in Iranian adolescents (Dorosty, Siassi & Reilly, 2016) and Indian adolescents (11.1% for overweight and 14.2% obese). The possible reasons of higher pervasiveness or prevalence of overweight and obesity may be linked to their food habit, westernization and government policies in these countries which may be counterproductive to a healthy lifestyle.

However, in Eme (2015) study, there was a significant ($P<0.05$) higher prevalence of overweight (6.7% and 3.0%) and obesity (2.5% and 1.0%) in females than in males respectively. It can be explained by the fact that the male adolescents might be involved in more exercise than their female counterpart. This was however lower than the findings of a similar study done at Sagamu by Akinpelu, Oyewole and Oritogun (2018), where it was revealed that, the prevalence of overweight and obesity in males were (8.1% and 1.9% respectively) and females (8.1% and 2.7% respectively) but it was higher than the findings of similar studies by (Alabi, 2018) and Izuora, (2017). This however, might be explained due to the time these studies were carried out because both studies were carried in different study areas. The Waist-Hip Ratio (WHR) of the females (12.8%) had more significantly ($P<0.001$) high health risk than males (3.0%). The implication of this result is that the females might be more predisposed to non-communicable diseases such as diabetes, hypertension and other health related diseases later in life. According to Manyanga, (2018), the fitness experts, waist-hip ratio (WHR) helps us track our weight loss progress and also serve as a warning about our estimated health risk for problems related to being overweight such as diabetes, stroke and heart disease which are life threatening.

Obesity is a common disease with an increasing pervasiveness or prevalence and usually with late onset consequences. If acquired during childhood, it tracks into adult life to some extent, since the relationship between obesity and hypertension is well established in adults, obese children appear to be at particularly high risk of becoming hypertensive adult, (Faloia Giacchetti & Mantero, 2020). Alpert (2020) in his study opined that, obese girls seemed to have significantly higher casual and ambulatory blood pressure than non-obese boys, except for night time diastolic pressure. The health effects of obesity may depend on the anatomic distribution of body fat, which in turn may be a better indicator of endocrinologic imbalance, environmental stress, or genetic factors than in fatter peers. Obesity develops when energy intake increases more than the amount of energy expended, this in turns promotes an increase in energy stores and

weight gain (Flatt, 2015). When energy consumed is more than energy spent, and then the extra energy is preserved in the adipose tissue, the fatty cells increase rapidly in large amount during late childhood and adolescence period even after one stop growing, fat cell still continues to multiply in numbers anytime there is positive energy balance (Whitney, Pinna & Rolfes, 2016). Obesity develops in boys and girls as a result of positive energy balance and this leads to weight gain. Conversely a negative energy balance may show that, intake of energy is less than expenditure of energy and this promotes a decrease in energy stores and decrease in energy weight (Flatt, 2015). Flatt, (2015) concluded that an energy store is influence by intake of energy and is influenced by the consumption of macro nutrient.

The researchers observed that, boys and girls who are obese have more and larger fat cells than normal weight individuals. When the energy intake is more than the energy expenditure, it causes the fat cells to accumulate triglycerides and enlarge. As the cell enlarges, it stimulates rapid increase in the number of cells so that their numbers increase again thereby leading to obesity. Obesity occurs when an individual's fat cell increases in size or number or both and whenever expenditure of energy is more than intake, the fat cell shrinks in size but it does not affect the numbers. The researchers again observed that, boys and girls with more fat cells tend to regain their weight lost faster, as they regain back their weight; their many fat cells get filled up, but people with small number of enlarged fat cells, successfully mountain weight loss when their cells shrink. Excess fat stored in fat cells may not really cause much harm to the body, but accumulation of fat in organs like the heart and liver can lead to the occurrence of diseases like heart failure, hypertension and other dangerous terminal diseases.

However, in normal circumstances, the energy balance fluctuates depending on the meal and the day-to-day activities without any lasting change in energy stores or weight (Labib, 2014). Different macro nutrient has different properties in calories density of energy, capacity for storage and capacity to subdue hunger. Obesity occurs when there is a positive energy balance for a considerable period of time. Physiological processes therefore have the capacity to regulate body weight and maintain it all at relatively short range. It is therefore assumed that the body has a more powerful effect on nutrition and loss of weight compared with over consumption and increase in weight (Blundell & Cooling, 2020). Energy intake has also been referred to as all the energy consumed into the body as food and drink that can be metabolized in the body (Cumming & Schwartz, 2020).

Energy expenditure has three components that contribute to the expenditure: they include basal metabolic rates (BMR), density thermos genesis and physical activity (Labib, 2014). The proportion that each component contributes to the entire energy expenditure defers base on the frequency and intensity of physical activity. It has been shown that in adults that have sedentary lifestyle, basal metabolic rates accounts for almost 60 percent of their total energy output, the dietary thermos genesis accounts for both 10 percent and physical activity for the remaining 30 percent. In those engaged in heavy manual work, the total energy expenditure increases and the proportion of energy expenditure accounted for by physical activity may rise to about 50 percent. Dietary thermos genesis appears to remain constant at 10 percent leaving

basal metabolic rate at 40 percent of the energy expended, although the BMR may vary intrinsically between individuals of similar ages by + or – 25, within each individual, it is tightly controlled (WHO, 2013)

The pervasiveness or prevalence of obesity is on the rise in developing countries, especially in urban areas such as Calabar Metropolis of Cross River State. The pervasiveness of obesity has continued to rise at an alarming rate world-wide to such an extent that it has been described as a global epidemic. Calabar metropolis has experienced rapid and unplanned urbanization in recent years and there have been changes from local diet to western style of diet as well as change in eating habits which is driven by the explosion of fast-food canteens and restaurants or eateries. Consequently, over consumption of refined fast foods such as meat pie, fried/jollof rice, snacks, ice cream, indomie, energy drinks etc., is becoming noticeable among individuals, children/adolescents, groups and families in Calabar Metropolis. Based on this, one can then ask, what is the pervasiveness of obesity in adolescents in private and public secondary schools in Calabar Metropolis of Cross River State?

Method and Materials

In this study, the researchers adopted the survey method of research design to conduct the study. This method was best adopted because surveys are mostly conducted to establish the nature and position of prevailing issues. It is important in this study because it deals with group of different individuals for analysis. It also made it possible for the researchers to reach out to a larger population (private and public secondary school students) and at the same time takes care of those areas under consideration in the study.

The sample for the study was made up of four hundred (400) students randomly selected from both the private and public secondary schools in the study area. Twenty (20) schools were selected from the two Local Government Areas of Calabar Metropolis made up of, ten (10) public and ten (10) private schools. And a total number of 100 males and 100 females in public secondary schools and same number in the private secondary schools. This amounts to a sample size of four hundred (400) students selected from the population.

The sampling procedure used in this study was stratified random sampling technique. Isangedighi (2015), opined that, stratified sampling identifies and addresses heterogeneity in the population and which in turn reduces sampling error. The author further stated that, the technique is used when the population contains definite subsets, each of which is distinctly different, though within each stratum and the units are homogeneous. In the first stage the secondary schools in Calabar metropolis in the study area were stratified by school type base on their ownership (private and public schools).

Stage two, forty schools were randomly picked from the two Local Government Areas with twenty schools from each Local Government Area (ten private and ten public schools) out of the 64 schools in the Metropolis. In the third stage, each school was stratified base on their classes from each level of SS2 and SS3 classes because of their age bracket and two arms were selected from each of the class of SS2 and SS3 using simple random sampling. In the fourth stage, five students were randomly selected from each arm making ten

students from each of the forty schools to make a total of four hundred [400] students which form the sample size used for the study.

The instruments used to collect data were:

Questionnaire, which was titled Pervasiveness of Obesity Among Adolescents Questionnaire (POADQ). Information was gotten from the students using structured questionnaire. Section "A" of the questionnaire covered demographic data and anthropometric data while in Section "B" information about their diet, eating habit, and lifestyle etc. were obtained. The researchers and four trained assistants visited the selected schools to administer the questionnaire which contains close and open-ended questions.

Weight measuring scale(kg) a bathroom scale calibrated from Zero to 120 kg was used to measure the weight of the students. The scale was checked and corrected for zero error before every measurement and each subject was allowed to wear only the school uniform during measurement, their shoes and other extra wears like sweaters were also removed in other to reduce error margin while the weight was read to the nearest 0.5 kg.

Height measurement (m) a mobile height measurement instrument called stadiometer was used to take the students measurement. The students were asked to remove their shoes and stand upright by the instrument and reading was taken to the nearest 0.5m. The body Mass Index was calculated by using the height and the weight measurement to assess for normal weight, overweight and obesity and was calculated by dividing the weight in kg by the square of the height in meters. Body Mass Index=Weight (kg)/Height (m^2).

Reliability estimate was conducted to determine the consistency of the instrument. The instrument was trial tested on 50 students selected in the area that were not part of the ones sampled for the study. The data collected were analyzed using Cronbach alpha reliability method which gave coefficients that ranged from .73 to .79

The procedure for data analysis depended on stated hypothesis. The hypothesis of the study was analyzed using appropriate statistical technique. The researchers compared two groups of students, that is public and private secondary school students and the statistical analysis technique for testing all hypotheses was independent t-test. The hypothesis was tested at .05 level of significance.

Results and Discussion

This study investigated the pervasiveness of obesity in adolescents in private and public secondary schools in Calabar Metropolis of Cross River State, Nigeria. The variable involved in this study is school type, as a result of obesity. The results of the descriptive data analyses are presented in Table 1.

Generaly as presented in Table 1 below, the mean score obtained by the 400 subjects as regards to pervasiveness of obesity was 15.72 with a standard deviation of 3.38 while the 177 males had a mean score of 14.18 with a standard deviation of 3.37 and the 223 females had a mean score of 16.95 with a standard deviation of 2.84.

Table 1 Mean scores and standard deviations of subjects in the study variables

SN	Sub variables	Groups		Mean	SD
1.	Prevalence of obesity	Male	177	14.18	3.37
		Female	223	16.95	2.84
		Total	400	15.72	3.38

(N=400)

In this section the null hypothesis of the study was re-stated, the independent and dependent variables identified as well as describing the statistical analysis technique used to test the hypothesis.

Hypothesis

The hypothesis stated that there is no significance difference between pervasiveness of obesity among adolescents in private and public secondary schools. The independent variable is school type which was categorized into private and public while the dependent variable is pervasiveness of obesity among adolescents.

The data was analyzed using independent t-test analysis tested at .05 levels of significance. The result of the analysis is presented in Table 2.

Table 2 Independent t-test analysis of school type and pervasiveness of obesity

School type	N	X	SD	t-value	p-level
Private school	200	17.34	2.98		
				10.924*	.000
Public school	200	14.10	2.95		

*Significant at .05 level; p<.05; df=398.

The result in Table 2 revealed that the mean score obtained by the 200 subjects from private school as regards to pervasiveness or prevalence of obesity was 17.34 with a standard deviation of 2.98 which is greater than the mean score of 14.10 with a standard deviation of 2.95 obtained by the 200 subjects from public school. The mean difference was statistically significant since the obtained t-value of 10.924 with a p-value of .000 at 398 degrees of freedom met the criteria for significant at .05 level. Implying that adolescents in private schools in Calabar Metropolis differ significantly from their counterparts in public schools as regards to pervasiveness of obesity with those from private school having more prevalence of obesity.

Discussion

The study investigated the pervasiveness of obesity among adolescents in private and public secondary schools. At the end of the study, the result of the hypothesis revealed that there was a statistically significant difference between

adolescents in private schools in Calabar Metropolis and their counterparts in public schools as regards to pervasiveness of obesity with those in private schools having more pervasiveness of obesity than those in public secondary schools. The result further consolidates the findings of Eme (2015) on prevalence of overweight and obesity among adolescents in secondary schools in Abia state, Nigeria.

The study revealed that more females than males participated in the study, and a greater percentage of them were within the ages of 10-14 years and more than half of the respondents were from private schools. The reason for more females than males in the population might be because of more enrolment of the females in education in recent times than males. Most males tend to go into business and apprenticeship than the female folks. The outcome of this study was in agreement with the study of Manyanga, (2018), in his study, a cross-sectional study was conducted in two divisions in Nairobi province to determine the prevalence of and some risk factors associated with overweight and obesity among school children in Nairobi, Kenya. It involved 344 school children aged 9-14 years drawn from four randomly selected public and private primary schools. Weight and height were measured and body mass index was calculated. Nutrition status was determined using the World Health Organization age and gender specific BMI-for-age Z-scores. The chi-square test was used to determine the relationship between overweight/obesity and selected socio-demographic characteristics. Complete anthropometric measurements were available for 321 children. Prevalence of combined overweight and obesity was 19.0%, with prevalence being higher among girls (21.0%) than boys (16.9%). The prevalence among adolescents in private schools was significantly higher than among those in public schools.

Also, the result was in agreement with the study conducted by Akinpelu, Oyewole and Oritogun (2018) among public and private school participants in which about 60.8% of them were between (15-19) years. This clearly illustrated that participants in this study might have established certain food habits in their food consumption and physical activity practice that may influence their weight status. Furthermore, about 61.7% of participants walked to school, this is in line with findings of Jain, Bharadwaj & Joglekar, (2017), where majority of participants walked to school. Walking to school may influence physical activity level of participants and since this study was conducted in rural and semi-urban areas. It indicates that the environment encouraged free movement of participants unlike in many private schools where neighborhood environment does not encourage human movement.

Conclusion

Based on the result of the findings, it was concluded that:

There were significant differences between adolescents in private secondary schools and public secondary schools in Calabar Metropolis, Cross River State-Nigeria regarding pervasiveness of obesity.

Recommendations

Based on the conclusion of the stud, the researchers recommend among others as follows:

Private school students most especially the adolescents should be involved in proper fitness exercise and programmes to help in improving their health thereby reducing the risk factors of having obesity related disorders.

The school should organize physical fitness activities and programmes for students in private schools on a regular basis at both senior and junior classes so as to develop good respiratory endurance, body composition and flexibility among others.

Parents should encourage their children to make good use of their leisure hours by reducing time-taking in sedentary activities like computer games, watching cartoons and movies but encourage participation in domestic work. This will help in minimizing sedentary life style of the children.

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EFFECT OF HEALTH EDUCATION ON VOLUNTARY TESTING AS A STRATEGY FOR PREVENTION OF HEPATITIS B VIRUS SPREAD AMONG PREGNANT WOMEN IN YOLA, ADAMAWA STATE - NIGERIA.

BY

ABDULLAHI LAWAN,[1], UMARU MUSA, AND BALA ALIYUDEEN

[1]Department of Human Kinetics and Health Education, Faculty of Education, Ahmadu Bello University, Zaria.

Department of Physical and Health Education Federal College of Education, Zaria

Corresponding Author: **abdlawan63@gmail.com**07032656203**.**

Abstract

The purpose of this study was to examine the effect of Health Education on voluntary testing as a strategy for prevention of hepatitis B virus spread among pregnant women in Yola, Adamawa State - Nigeria. The population for this study comprise of one hundred and forty-three thousand six hundred and eighty-nine (143,689) pregnant women registered in hospitals, Adamawa State, Nigeria. Out of which one thousand one hundred and ninety-four (1,194) pregnant women were used as target population from the three (3) selected health facilities. The sample size for this study consists of sixty (60) pregnant women who were drawn from the target population of pregnant women, thirty (30) experimental group and thirty (30) control group for the purpose of generalization. A multi-stage sampling technique was used for this study. The instrument used for data collection was researcher developed questionnaire through an intervention programme. Pilot study was conducted to ascertain the reliability of the instrument, a reliability index of 0.919 was obtained which means that the instrument was reliable. Data were collected as pre-test scores, after the intervention, the same set of questionnaire was re-administered. Data were again collected from the two groups (experimental and control), and analyzed with the help of Statistical Package for the Social Sciences (SPSS), IBM version 26. Frequencies and percentages, means and standard deviation was used in answering the research question. Inferential statistics of analysis of covariance (ANCOVA) was used in the test of the hypothesis at the fixed probability level of 0.05. Finding revealed that six weeks health education programme has significant effect on voluntary testing among pregnant women in Yola p-value of 0.000 ($p < 0.05$), Based on the finding, it was recommended the use of Posters, billboards, awareness campaigns and other communication channels to increase the knowledge of the public on measures against hepatitis B virus spread.

Keywords: Health Education, Hepatitis B Virus, Pregnant Women

Introduction

The increase rate of Hepatitis B virus spreads through mother to child is of great concern. Approximately 370,000 newborns are prenatally infected with HBV in sub-Saharan Africa annually, and over 20 million people estimated to be infected with Hepatitis B virus around the world. Nigeria has the largest number of people living with HBV infection in sub-Saharan Africa and ranks third after China and India, globally (Olakunde, Adeyinka, Olakunde, Uthman, Bada, Nartey, & Ezeanolue 2021). Hepatitis B virus (HBV) is a deoxyribonucleic acid (DNA) virus that causes hepatitis B infection (Gebrecherkos, Girmay, Lemma, & Negash, 2020). Hepatitis B virus infects liver cells (hepatocytes) and cause both acute and chronic disease. When a person is first infected with the hepatitis B virus, is called an "acute infection" (or a new infection). Mostly, healthy adults that are infected do not have any symptoms and are able to get rid of the virus without any problems. Some are not able to get rid of the virus after six months it became chronic. It is believed that host factors, in particular immune responses, are responsible for determining whether the infection is cleared or becomes chronic (Ciupe, Ribeiro, Nelson, & Perelson, 2007).

Nigeria is still considered one of the highly endemic countries for Hepatitis B, mainly due to perinatal transmission of Hepatitis B virus. The detection Hepatitis B surface antigen (HBsAg) in pregnant women is a marker million for the risk of mother-to-child HBV transmission. This is hospital-based cross-sectional study where two hundred and forty-seven (247) pregnant women attending antenatal facility of University of Maiduguri Teaching Hospital between March 2016 and February 2017 were screened for HBsAg using one step HBsAg test strip out of the 247 pregnant women tested, 12 (4.9%) were seropositive for HBV. The HBsAg prevalence obtained in pregnant women in the previous study reflects high risk of HBV perinatal transmission and call for a widespread immunization with HBV vaccine birth dose and subsequent treatment of mothers (Akinola, Talle, Gimba, Nwunuji, Oderinde, Bukbuk, & Adamu 2020).

Opara, Lardier, Herrera, Garcia-Reid, and Reid (2020), stated that health educational intervention on hepatitis B consisted of a 30 – 60minute interactive discussion on the epidemiology of Viral Hepatitis (VH) strains, modes of transmission, care, treatment options, and preventive strategies, followed by a question/answer session. While the community-based intervention consisted of providing education to diverse, ethnic minority youth about Viral Hepatitis (VH) transmission, risk reduction, with a focus on drug injecting practices, sexual risk behaviour, and access to hepatitis B virus (HBV) and hepatitis C virus (HCV) testing and treatment. (Opara et al., 2020). Rabiu, Akinola, Adewunmi, Omololu, and Ojo (2010) stated that, HBV infection is a major global health problem, approximately 2 billion people who have been infected worldwide, more than 350 million are chronic carriers. According to Gebrecherkos et al. (2020), HBV infection is the 10th leading cause of global death resulting 500,000 to 1.2 million deaths per year, with 2 billion people infected worldwide and 257 million suffering from chronic HBV infection, of which 10% of these are in sub-Saharan Africa and East Asia.

Several efforts have been made by different agencies and organizations in order to reduce the rate of HBV transmission. In 2016 the World Health Assembly adopted the first global health targets for elimination of viral hepatitis as a public health threat and viral hepatitis was incorporated in the sustainable development goals 2, (Nayagam, Shimakawa, &

Lemoine, 2020). The World Health Organization (WHO) Global Health Sector Strategy HBV impact targets, included a 90% reduction in new infections and a 65% reduction in mortality by 2030, with an aim to reduce the prevalence of hepatitis B surface antigen (HBsAg) in children to 1% by 2020 and 60 <0.1% by 2030, (Nayagam et al., 2020). But unfortunately, in spite of all these efforts, the rate of HBV spread appears to be expanding. Yakasai., Ayyuba, Abubakar, and Ibrahim (2012) also, stated that when a pregnant woman is infected with HBV, there is a chance she may infect her fetus, as about 10 - 20% of women seropositive for HBsAg transmit the virus to their neonates. Women who are seropositive for both HBsAg and HBeAg, mother-to-child transmission is approximately 90%. Infected neonates have an almost 90% risk of Chronic Liver Disease (CLD) and also the chance of spreading the disease to siblings and to the community (Yakasai., et al., 2012). Similarly, when pregnant women are infected, they constitute a serious health risk not only to their unborn child as stated above, but also the society at large.

The researcher being the main author and a Certified Community Health Extension Worker, consulted patients while working in his home town of Ngurore, a suburb of Yola-South Local Government Area of Adamawa State during covid 19 pandemic lockdown in March, 2020. Among patients consulted at home between March and May, 2020, eighteen (18) patients were sent for laboratory investigation of which 6 (33.3%) tested positive of hepatitis B Virus. 3 (16.7%) of the patients tested positive were pregnant women, 1 (5.5%) was not pregnant mother and 2 (11.1%) were young men between the ages of 18 and 35 years. For the fact that HBV is among the communicable disease affecting the area under study, it is eminent that HBV is transferable during birth which make the babies at risk of contracting the virus. This position of the main author, researcher was supported by Olakunde, Adeyinka, Olakunde, Uthman, Bada, Nartey, and Ezeanolue, (2021) that, stated approximately 370,000 newborns are pre-natally infected with HBV in sub-Saharan Africa annually. Yakasai et al. (2012) also affirmed that, when pregnant women are infected with HBV, they constitute a serious health risk not only to their unborn child along, but also the society at large. Gebrecherkos et al. (2020) also asserting that, HBV affects all age groups globally including pregnant woman and the newly born infant through vertical transmission (mother-to-child transmission).

In order to tame the tides of infection and to identify possible way of conveying the preventive strategies to the community in general and women in particularly, this study therefore, assessed the effect of health education on voluntary testing as a strategy for prevention of hepatitis B virus spread among pregnant women in Adamawa State, Nigeria. In so doing, the researchers assumed that six weeks health education programme may have effect on voluntary testing among pregnant women attending antenatal clinic in Yola, Adamawa State, Nigeria, hypothesizing that, there is no significant effect of six weeks health education intervention programme on enhancing voluntary testing among pregnant women attending antenatal clinic in Yola, Adamawa State, Nigeria.

Method and Material

Pre-test post-test experimental research design was used for this study. This is because same assessment measures were given to participants both before and after they have received a treatment or been exposed to a condition, with such measures used to determine if there are any changes that could be attributed to the treatment or condition given. The population for this study comprised of one hundred and forty-three thousand six hundred and eighty-nine (143,689) pregnant women registered in Adamawa State, Nigeria. Out of which twenty-one thousand one hundred and sixty-nine (21,169) pregnant women are from Yola the study area out of which, one thousand one hundred and ninety-four (1,194) pregnant women was used as a target population from the three (3) selected health facilities. The sample size for this study consists of sixty (60) pregnant women who were drawn from the target population of pregnant women in Yola, Adamawa State. A multi-stage sampling technique was used in data collection. The instrument used for data collection was a researcher's developed questionnaire with intervention programme. The questionnaire comprised of six (6) sections (**A – G**). Letter of introduction was collected from Head, Department of Human Kinetics and Health Education, Faculty of Education, Ahmadu Bello University, Zaria and issued to the Head of selected health facilities in Yola, Adamawa State. Four (4) research assistants who, comprised of health workers, who were experienced in data collection and have prior knowledge of health care services at the primary health care center were used to assist the researchers during the study. Ethical approval was obtained with the following number (MAUTHY/SUB/S.128/251) from the area of study before commencement of data collection. Data collected were analyze with the help of Statistical Package for the Social Sciences (SPSS), IBM version 26. The Analysis of Covariance (ANCOVA) procedure was used to evaluate whether there is a significant difference between experimental and Control group after the health education intervention session.

Results and Discussion

To determine the effect of six weeks health education intervention on voluntary testing as a preventive measure against the spread of hepatitis B virus, the two groups' rated responses were taken before (pre) and after (post) the intervention was computed and compared using mean scores and standard deviation. The benchmark mean was fixed at 2.50 as the midpoint average of the 4 point modified likert scale used for the measurement. The summary is presented in Table 1.0

Table 1.0: Comparison of responses between the two groups on voluntary testing as a preventive measure against the spread of hepatitis B virus.

S/N	Voluntary testing as preventive measure against HBV	Status	Experimental Mean	Experimental Std. Dev.	Control Mean	Control Std. Dev.	Mean Diff
1	Voluntary testing is an important component of prevention and control of HBV spread among pregnant women	Pre-test	3.83	0.384	4.00	0.000	-0.17
		Post-test	3.77	0.430	3.34	0.484	0.42
2	Voluntary testing enables pregnant women know their HBV status and identify those who need care	Pre-test	3.79	0.412	4.00	0.000	-0.21
		Post-test	3.53	0.507	2.69	1.391	0.84
3	Voluntary testing helps in early treatment among infected pregnant women	Pre-test	3.62	0.820	4.00	0.000	-0.38
		Post-test	3.67	0.479	3.24	0.435	0.43
4	Voluntary testing can reduce chances of getting rid of HBV among pregnant women	Pre-test	3.34	0.857	3.31	0.471	0.04
		Post-test	3.60	0.563	3.34	0.484	0.26
5	Voluntary testing is an important link to HBV care and support.	Pre-test	3.59	0.682	3.96	0.196	-0.38
		Post-test	3.70	0.466	3.17	0.602	0.53
	Aggregate	Pre-test	3.63	0.389	3.85	0.107	-0.22
		Post-test	3.65	0.292	3.16	0.394	0.49

(Decision mean = 2.50)

Mean score of subjects in the control and experimental group in Table 1.0 showed that both groups responded that voluntary testing as a preventive measure against the spread of hepatitis B virus is important in mitigating the spread of the disease. The group were unanimous on this position in their expression before (Pre) and after (Post) health education intervention. This consensus of position on voluntary testing as a preventive measure against the spread of hepatitis B virus was maintained throughout the expressed responses in the table. Subjects in both groups agreed that such testing helps in the prevention and control of the virus as well as enables pregnant women know their HBV status and identify those who need care. They agreed that voluntary testing helps in early treatment for infected pregnant women and can improve chances of getting rid of HBV as well as provide important link for HBV care and support. The mean aggregate for the two groups before and after were 3.63 and 3.65 with standard deviations of 0.389 and 0.292 for subjects in the experimental group, while subjects in the control group, the aggregate mean score before and after the health education intervention were 3.85 and 3.16 with standard deviations of 0.107 and 0.394 respectively. The observed mean differences were relatively low as indicated in the table. On a relative comparison with the benchmark, it could be concluded that, subjects in the experimental and control group all agreed that voluntary testing is a major preventive measure against the spread of hepatitis B virus among pregnant women in the study location. The higher mean score could be attributed to the

exposure of the subjects to the health education used in the experiment. While the lower mean score showed that control group have knowledge on voluntary testing.

The hypothesis formulated for this research study read that, there is no significant effect of six weeks health education intervention programme on enhancing voluntary testing among pregnant women attending antenatal clinic in Yola, Adamawa State, Nigeria.

This hypothesis was tested with the scores of the experimental and control scores at the pre-test and post-test levels of the experiment. The covariance procedure was used for the test because of the need to determine the effect of pre-test on the outcome of the experiment. The pre-test score for the groups was therefore used as a covariate factor. While the post-test scores were used as the dependent variable. The groups served as the independent variable. The result of the covariance analysis model is summarized in Table 2.0

Table 2.0: Analysis of covariance on effect of six weeks health education on voluntary testing by experimental and control group

Source	Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	3.229[a]	2	1.614	12.547	0.000
Intercept	3.475	1	3.475	27.005	0.000
Pre-test	0.007	1	0.007	0.053	0.818
Groups	2.900	1	2.900	22.541	0.000
Error	7.205	56	0.129		
Total	696.560	59			
Corrected Total	10.434	58			

(F-critical = 4.00, $p < 0.05$)

The result in the table revealed that the variability obtained between the experimental and control in the aggregate mean score shown in table 1.0 and Table 2.0 was significant. The observed F-value for the test was 22.541 obtained at degree of freedom, (df) = 1, 56 with a p-value of 0.000 ($p < 0.05$). These observations implied that the effect of the six weeks health educational intervention programme had significant effect in enhancing voluntary testing as a preventive measure against the spread of hepatitis B virus among the pregnant women attending antenatal clinic in the State. The result indicated that the significant impact was not influenced by the groups' participation in the pre-test administration of the test. The F-value for the pre-test as the covariate factor was 0.053 with a p-value of 0.818 ($p > 0.05$). These observations implied that the observed significant difference obtained was directly attributable to effect of the health education intervention administered in the experimental group. The null hypothesis that, there is no significant effect of six weeks health education intervention programme on enhancing voluntary testing among pregnant women attending antenatal clinic in Yola, Adamawa State, Nigeria is therefore rejected.

Discussion

This study assessed the effect of Health Education on voluntary testing as a strategy for prevention of hepatitis B virus spread among pregnant women In Yola, Adamawa State – Nigeria, through an experimental procedure. From analysis of

the data, the study found that use of health education intervention significantly enhance voluntary testing for hepatitis B virus among pregnant women. The six weeks health education enlighten them that voluntary testing helps in early treatment for infected pregnant women and can improves chances of getting rid of HBV as well as provide important link for HBV care and support. In this study, subjects whom were exposed to six weeks health education were found to be significantly responsive to voluntary test than subjects in the control and were not exposed to the health education programme. The finding of this study on voluntary testing supported that of Mustapha, Ibrahim, Balogun, Umeokonkwo and Mamman (2020). Who found that improved surveillance of HBV infection and screening of women attending ANC in Gamawa Local Government Area of Bauchi State, Nigeria, helped in reducing the incidence of HBV spread.

The finding is also consistent with Mulakoli (2021) who conducted a research on prevalence of occult hepatitis B infection in HBsAg negative blood donors in Nairobi, Kenya: reported that, Infections linked to blood transfusion or tissue transplants are a major challenge because of the serological window period (WP) and a latent phase exhibited by most viral infections. Hepatitis B virus (HBV) is one of the transfusion transmissible infections that is commonly screened for in donated blood across the world. In line with the above finding, voluntary testing can be used as a strategy for prevention of hepatitis B virus spread among pregnant women in Yola, Adamawa State - Nigeria.

Conclusion

Six weeks health education intervention programme enhanced voluntary testing for hepatitis B virus among pregnant women attending antenatal clinic in Yola, Adamawa State.

Recommendations

Antenatal and Postnatal services for childbearing mothers should be all time inclusive of health education on preventive measures against hepatitis B virus spread and there is a need to encourage the use of traditional and religious leaders in enlightenment on the need for adoption of preventive measures against HBV spread in the study area.

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ASSESSMENT OF MOTIVATIONAL FACTORS FOR SPORT PARTICIPATION AMONG ELITE ATHLETES IN STATES SPORT COUNCILS/COMMISSIONS IN NIGERIA

BONIFACE U ADIE[1], E.J CHOM (PhD)[2], S.M. BICHI(PhD)[2] AND M.U. SANI(PhD)[2]

Department of Human Kinetics and Health Education UNICAL, Nigeria

Department of Human Kinetics and Health Education, Ahmadu Bello University, Zaria, Nigeria

bonnyadie82ɑgmail.com, 08086336205)

Abstract

The study assessed motivational factors for sport participation among elite athletes in States Sport Councils/Commissions in Nigeria. In order to actualize this purpose, researcher developed two (2) purpose of the study, two (2) research questions and two (2) research hypotheses. The ex-post facto research design was used by the researcher. The population of the study was one thousand one hundred and sixty-one (1,161) consisted of all elite athletes of States Sport Councils/Commissions in the six (6) Geo-Political Zones of Nigeria including FCT, Abuja. To obtain adequate data, a sample of four hundred and sixty-eight (468) respondents comprising of males and females was drawn from the population. Simple random sampling and proportionate sampling techniques were used to select the numbers of respondents for the study. The researcher used validated questionnaire of 5 point Likert scale. A total of four hundred and sixty-eight (468) copies of the questionnaire were administered to the respondents and four hundred and fifty (450) representing 96% were duly filled, returned while eighteen (18) representing 4% were found to be invalid for the study. The Cronbach Alpha reliability was used, co-efficient of alpha level of 0.95 was obtained. Descriptive statistics of frequencies and percentages (%) were used to describe data collected on demographic variables of the respondents. Descriptive statistics of mean, standard deviation and one sample t – test were used to discuss the questionnaire and analyse the six hypotheses at alpha level of 0.05. The findings revealed that the provision of motivational allowances such as match bonuses, wage incentives, extra allowances, gift of cars, cash gifts, and profits shares have great impact in motivating sports participation among elite athletes in States Sport Councils/Commissions in Nigeria, the provision of overseas scholarship award, scholarship award, scholarships for hobbies and extracurricular, employer scholarships for athletes, and scholarships for athletes serves as motivating sports participation among elite athletes in States Sport Councils/Commissions in Nigeria and promoting athletes to a new rank. Based on the findings, the study concluded that States Sport Councils/Commissions in Nigeria do not give motivational allowances to enhance sports participation such as match bonuses, wage incentives, extra allowances, gift of cars, cash gifts, and profits sharing, there is inadequate or no provision of well-equipped medical centers, with qualified medical team, or items such as ambulances. Based on conclusion it was recommended that monetary award should be used to motivate sports participation among elite athletes in States Sport Councils/Commissions in Nigeria, scholarship award should be used as a motivation for sports participation among elite athletes in States Sport Councils/Commissions in Nigeria and Promotion should be used as a motivation for sports participation among elite athletes in States Sport Councils/Commissions in Nigeria.

Introduction

Sports are, by nature structured activities with certain rules of engagement. These do vary by sport, which can be individual or team requiring different skills and competencies to perform effectively. Participants follow directions and are expected to execute the skills acquired for competition. There is a commitment by participants which involves higher remuneration as a motivation (Theokas, 2009).

Milkovich, (2011); Chapman and Kelliher, (2011); Gupta, Conroy and Delery, (2012) argue that remuneration arouse the behaviour of an individual and that remuneration of all types may influence behaviour and attitude of a person to work. According to Ogunjimi (2007), an athlete may have the abilities and that, these abilities may be employed as tool to fulfill his ambition, but it is the remuneration that actually determines the extent to which the individuals achieves their ambition. According to McQuerrey (2016), remunerations are pathways towards recognition and reward of employees for meeting pre-established goals or objectives. McQuerrey further stated that remuneration may include cash bonuses, profit sharing, additional paid, vacation time or range of prizes for an athletes. To be effective, remuneration must be clearly defined and considered as viable, valuable reward by the athlete. However, sports participation and involvement has been altered because of the financial incentives placed on athletes. The passion and drive behind playing the game is not the same as it was over fifty years ago. According to Ogunjimi (2007), remuneration have pervaded the minds of players and has caused a shift in the perception of athletes.

The use of remuneration as a motivation in sports dates back to the origin of sports in Greek in the early Greek history, the most coveted award by athletes was the crown of olive branches placed upon the head of an Olympic medalist that signified vitality. Competing was for the glory of human achievement; the winners were honoured and respected in ancient Greece. The noblemen and royalty sought honours at Olympia competing side-by-side with the commoners hoping to be awarded the coveted olive wreath, (Ongalo, 2014). In addition, Theokas (2010) stated that the fourth and fifth century's saw professionalism emerging, as the winners of the Olympia were no longer interested in the olive wreath. These saw the advent of other tangible rewards as recruitment in the military, allocation of pieces of land and naming villages after the winner's as an incentive (Ongalo, 2014).

An incentive which does not or cannot be transformed to satisfy the unsatisfied needs is not motivating. Mshelia (1990) posited that athlete require financial, non-financial incentives for their participation in sports. According to Clark and Jenkins, (2003):

> "Reward to different people varies greatly depending on their background, expectations, values, and needs. The value of money, response to public recognition, the desire for peer and professional respect, and the need for challenging assignments all vary according to lifestyle and culture. The importance of these rewards to individuals affects their motivation, productivity, and satisfaction (p-127)."

This background highlights the need to understand the perception as well as the value of remuneration as a motivator for athletes. The cause of these differences is related to one's needs, values and expectations which vary among different

athletes. Athletic ability of an individual today is inextricably tied to the economic success and financial power of the individual and the standard of the athletes (Onifade & Fasan, 2017).

According to Onifade and Fasan (2017), athletes provided with gifts and presents as rewards for a certain performance will strive hard to perform better in subsequent competitions. Gifts and presents given to athletes for qualitative performance motivate other upcoming athletes to emulate or even supersede them. Accordingly, in 2003, Enyimba international Football club of Aba, Nigeria, won the CAF Champions league, and the players and coaches were given a car each. This motivated the players and coaches even better that they won the competition in the following year. Other gifts and presents used for motivation include phones, electronic items (T.V. D.V.D and others) beverages, sporting equipment and others. These gifts and presents sometimes come from sponsors or philanthropists. Athletes can also be motivated by match bonus and goal bonus after winning or drawing a match, and it is sometimes given even when they are defeated depending on the circumstances or after the performance of the team has been evaluated. On the other hand, the bonus given for goal scored either goes to the team or the player that scored the goal. Bonuses are financial incentives because they are usually paid in cash. Media recognition via print and electronic media plays a significant role in sports. Journalist tends to report and telecast athlete or athletes that are performing well in competitions and this goes a long way in motivating athletes to put up a high performance in any competition. Athletes that are on top of their game usually appear on the pages of newspapers and attend live sport programmes on radio and T.V stations, locally and internationally. Media assessment propagates the athletes to concentrate on the sport in which they partake in, knowing fully well that poor performance will be criticized by the media and quality performance will be praised which will in turn increase the value of such athlete locally and internationally.

The ultimate goal of athletes preparing for competition is to attain peak performance for excellence. It has been observed that one of the factors which may serve as a barrier to prevent Nigerian elite athletes from getting to this zone of optimal performance is remunerations. Remuneration is as a result of obligations that are not meted out to sports athletes and their personnel's resulting from several complaints that remuneration were not appropriately given such as money, promotion, scholarship, opportunities, to travel abroad, allowances and others for outstanding performance. In addition, it is on record that the performance of Nigeria elite athletes at the under nineteen (19) world cup football is not befitting for a sports-loving country as it is evident that the nation has never placed among the first three overall in the medals table since the inception.

Remuneration as one of the incentives that motivates sport participation determines the extent to which the individual gets motivated. Remuneration changes the drive and the capacity of a person to work. The level and amount of effort in a person will either increase or decrease on the basis of the quality of remuneration offered to the person (Kundu & Tutoo, 2002). Numerous and diverse remuneration continue to be used in Nigeria as sports performance reinforcers. Their integrity leaves much to be desire. There are different types of remuneration commonly used in sports in Nigeria and are

categorized as materials and monetary rewards, scholarship awards, free medical care, employment opportunities, public recognition, and insurance coverage.

Many secondary school students do not have interest in sports because they feel there is no remuneration such as scholarship award from secondary school to university level, admission and others. Even where sports facilities and materials are available one discovers that only few students patronize them. This is why some intramural sports programme organized in schools, sometimes ends in failure. This study therefore is to assess motivational factors for sport participation among elite athletes in States Sport Councils in Nigeria.

Behavioral management in sports is primarily concerned with behavioral change through the consequences of positive reinforcement. In particular, reinforcer represents a desired consequence by an athlete that, if added to the situation, it increases the frequency of an athlete's task-related behavior. A positive reinforcement (frequently used technique in behavioral management) is an application of an incentive upon desired athletic behavior. Thus, in behavioral management, the unit of analysis is athletic behavior, where direct measurement of the frequency of behavior is needed, and behavior is functionally analyzed in terms of its antecedents and at work consequences (Luthans & Kreitner, 2021).

There are relatively few research studies in sports with regard to incentive value rating of monetary rewards. The majority of empirical evidence using sports data supports the positive impact of monetary incentives on sporting performance. Studies on sports data where performance can relatively be measured are from disciplines like golfing (Ehrenberg & Bognnano, 2019; Melton & Zorn, 2013), horse racing (Lynch & Zax, 2013), tennis (Sunde, 2003), car racing (Becker & Huselid, 2012), running (Maloney & McCormick, 2014) in order to test the incentive value rating of material and monetary rewards. Ehrenberg (2018) studied golf data from the US senior players golf tour (PGA) in 1984 and found that the amount of prize money had a positive influence on the players‟ performance. The observed effect occurs primarily in the later rounds of a tournament due to the marginal returns on efforts. Players with larger marginal returns achieve better scores. Ehrenberg (2018) was able to confirm most of these results, using European PGA Tour data from the year 1987.

Orszag (2014) found no significant link between the amount of total prize money and golfers‟ performance using data from the United States senior golf tour of 1992. Further studies confirmed Ehrenberg's (2014) initial findings. For instance, using 1994 and 1995 data, and trying to eliminate any possible survival biases, Melton and Zorn (2010) found support for their theory that the amount of prize money in senior PGA tournaments affected players‟ performance. Sunde (2013) used data from the final two rounds of the most important tennis tournament for professionals from the men's ATP tour. The results indicated that the amount of prize money positively affects a player's performance if you count the number of games won and the total number of games played. Lynch and Zax (2018) examined the role that prizes played in Arabian horse races in the United States and Canada from 1991 to 1995 and found support for a positive relationship between the prize spread and the absolute level of performance.

Methods and Materials

Ex-post facto research design was adopted for this study. It is suitable for this research since the study is a non-experimental research. The population of the study consists of all elite athletes of States Sport Councils/Commissions in the six (6) Geo-Political Zones of Nigeria including FCT, Abuja. The total population of elite athletes of States Sport Councils/Commissions in the six (6) Geo-Political Zones of Nigeria including FCT, Abuja are one thousand one hundred and sixty-one (1,161) (National Sport Commission, 2020).

In order to ensure equal chances for the respondents to be part of the study, a stratified random sampling technique was used in selecting already existing (6) geo-political zones in Nigeria. They are North Central, North East, North West, South East, South West, and South South. Dip pick recoded and return method was used to select two states each from the six (6) geo-political zones. Athletes for each sport were selected. The sports are. (1) Football, Basketball, Volleyball and Athletics. All the athletic events presented at the National Sport Festival, which performed well creditably at all Events. Purposive sampling technique was applied for athletes. This includes all athletes in the States Sport Councils/Commissions were selected according to their status in the two required states for each zone.

The Instrument that was used for data collection is a self-developed questionnaire and it was divided into seven (7) sections. Section A consists five (5) items on demographic characteristics of the respondents. Section B, consists ten (10) items on monetary award. Section C, contains ten (10) items on scholarship awards. Section D, contains ten (10) items on promotion awards. Section E contains ten (10) items on medical care. Section F contains ten (10) items on insurance cover. Section G contains ten (10) items on employment opportunities. The data collected was analyzed using the following statistical tools.

1. Descriptive statistics of frequency and percentage was used to describe the demographic characteristics of the respondents.
2. Mean and standard deviation was used to answer the research questions.
3. One – sample t-test was used to analyze the formulated hypotheses at 0.05 level of significance.

Results and Discussions

A total of four hundred and sixty-eight (468) copies of the questionnaire were administered to the respondents and four hundred and fifty (450) representing 96% were duly filled, returned while eighteen (18) representing 4% were found to be invalid for the study. The high response rate was achieved by the combined efforts of the researcher and his research assistants who administered the questionnaire to the various athletes and as well sought for the cooperation of the athletes in States Sport Councils/Commissions in Nigeria for distribution and retrieval of the questionnaire. The exercise took a period of three weeks to be completed.

Table 1: Below shows details of the Status of the Respondents

Number of Questionnaire Distributed	Number of Questionnaire Returned	Percentage of Questionnaire Returned
468	450	96%

Analysis of Demographic Information

Table 2: Bio-Data of Respondents

S/No	Characteristics	Categories	Frequency	Percentage (%)
1.	**Age**	18-22 years	210	47
		23-27 years	76	17
		28-32 years	73	16
		33-36 years	54	12
		37 years & above	37	8
		Total	**450**	**100%**
2.	**Educational Status**	NCE/ND	102	23
		First Degree	222	49
		Master's Degree	81	18
		Ph.D.	45	10
		Total	**450**	**100%**
3.	**Marital Status**	Single	328	73
		Married	93	21
		Divorce	-	-
		Separated	29	6
		Total	**450**	**100%**
4.	**Gender**	Male	242	54
		Female	208	46
		Total	**450**	**100%**
5.	**Working Experience**	5-10 years	369	82
		11-16 years	40	9
		17-21 years	22	5
		22 years & above	19	4
		Total	**450**	**100%**

Table 2 shows that out of the 450 respondents, 242 (54%) were male while 208 (46%) were female. By implication, there were more male respondents than female respondents in the sample. Furthermore, out of the 450 respondents, 210 (47%) were aged between 18 – 22 years, 76 (17%) were aged between 23 – 27 years, 73 (16%) were aged 28 – 32 years, 54 (12%) were aged between 33 – 36 years while, 37 (8%) were aged from 37 years and above. Also, 102 (23%) were ND/NCE holders, 222 (49%) First Degree holders, 81 (18%) Master's Degree holders while the remaining 45 (10%) were PhD Degree holders out of the 450 respondents. By implication, majority of the respondents had high educational qualification. Out of the 450 respondents, 328 (73%) majority were single against 93 (21%) that are married while the remaining 29 (6%) were once married but were separated. On the aspect of work experience as athletes, out of the 450 respondents, 369 (82%) had 5 – 10 year, 40 (9%) had between 11 and 16 years, 22 (5%) had between 17 and 21 years while 19 (4%) had between 22 years as an athlete for the state/commission. By implication, there were more experienced athletes employees as respondents in the sample.

The researcher used 3.00 as the mean otherwise known as decision mean since the instrument was structured along a modified five-point likert scale measurement to make decision on whether to accept or reject the research question after comparing it with the cumulative mean. A benchmark average of 3.50 was used as the decision mean, Therefore, a mean score of 3.5 and above indicate positive response to the research question and accepted while a mean score below 3.5 indicate negative answer to the research question and rejected. The descriptive analysis was tailored along the research

questions raised. Responses to these questions as presented in the questionnaire were interpreted on the basis of frequencies, percentages and mean scores in the respective tables below.

Research Questions One: If monetary award serves, as a motivation for sports participation among elite athletes in States sport councils/commissions in Nigeria.

The first objective of this study is to find out whether monetary awards motivate sports participation among elite athletes in States sport councils/commissions in Nigeria

In addition, a table consisting of different items on whether monetary awards motivate sports participation among elite athletes in States sport councils/commissions in Nigeria were suggested and the respondents' opinions on each of the items are tabulated in frequencies and percentages using mean and standard deviation in the table. Hence the research question one: "How does monetary award motivate sports participation among elite athletes in States sport councils/commissions in Nigeria?" In Table 2, the opinions of the respondents were rated in a five-point interval scale. The mean score for each of the items are indicated in left hand side of the table.

Table 3: Opinion of respondents on whether monetary award serve as a motivation for sports participation among elite athletes in States sport councils/commissions in Nigeria

S/No	Item Statement	SA	A	UD	D	SD	Mean	St.d
1.	Monetary allowances for athletes in camp or in training serve as a motivation for sports participation among male elite athletes.	150	210	12	42	36	3.88	1.017
2.	Match bonuses for athletes serve as a motivation for sports participation among elite athletes.	248	155	10	15	22	4.31	1.047
3.	Profit shares for athletes serve as a motivation for sports participation among elite athletes.	83	190	55	62	60	3.25	1.176
4.	Wage incentives for athletes serve as a motivation for sports participation among elite athletes.	212	166	13	34	25	4.06	1.039
5.	Extra allowances for athletes serve as a motivation for sports participation among elite athletes.	116	127	61	74	72	3.09	1.017
6.	Commissions for athletes serve as a motivation for sports participation among elite athletes	70	122	63	102	93	2.94	1.017
7.	Co partnerships for athletes serve as motivation for sport participation among elite athletes	65	77	49	150	109	2.64	.9286
8.	Gift of cars to athletes serve as a motivation for sports participation among elite athletes.	201	145	13	44	47	3.90	1.316
9.	Cash gift from non-governmental organization serve as a motivation for sports participation among elite athletes.	199	122	28	81	20	3.90	1.316
10.	Payment of house rent for athletes serve as a motivation for sports participation among elite athletes.	55	78	63	109	145	2.53	1.590
	Grand Mean Score						**3.45**	

(Benchmark = 3.50)

In table 3, items 1-10 reveal the opinion of respondents on how monetary award motivate sports participation among elite athletes in States sport councils/commissions in Nigeria. Item 1, 2, 3, 4, and 5 shows that monetary allowances, match

bonuses, profit shares for athletes, wage incentives and extra allowances were all accepted from the responses of the respondents as motivating factors for sports participation among elite athletes with the mean score of 3.88, 4.31, 3.25, 4.06 and 3.09 respectively. Also in items 8 and 9 indicates that gift of cars to athletes and cash gift from non-governmental organization were accepted from the responses of the respondents as motivation for sports participation among elite athletes in States sport councils/commissions in Nigeria with mean score of 3.90 and 3.90. While in item 6,7 and 10 the respondents rejected the statement that commissions for athletes, co-partnerships with athletes and payment of house rent for athletes serves as motivation for sports participation among elite athletes with mean score of 2.94, 2.64 and 2.53 respectively as they fall below the 3.50 decision mean. However, the overall response shows that there was no adequate monetary award to motivate sports participation among elite athletes in States sport councils/commissions in Nigeria since their cumulative mean response of 3.45 was lower than the benchmark of 3.50.

Research Questions Two: How does scholarship award motivate sports participation among elite athletes in States Sport councils/commissions in Nigeria?

The second objective of the study is to find out whether scholarship awards motivate sports participation among elite athletes in States sport councils/commissions in Nigeria. The solution to this question was addressed in Table 4.

Table 4: Opinion of respondents on whether scholarship award motivate sports participation among elite athletes in States sport councils/commissions in Nigeria

S/No	Item Statement	SA	A	UD	D	SD	Mean	St.d
1.	Overseas scholarship to any tertiary institution of athletes" choice serves as a motivation for sports participation among elite athletes in States Sport Councils/Commissions in Nigeria.	211	96	12	72	59	3.95	1.316
2.	Scholarship award to secondary schools and tertiary institutions within the Country serve as a motivation for sports participation among elite athletes in States Sport Councils/Commissions in Nigeria.	148	150	44	55	53	3.63	.8753
3.	Athletic scholarships for athletes serve as a motivation for sports participation among elite athletes in States Sport Councils/Commissions in Nigeria.	99	87	60	144	60	2.91	1.316
4.	Community service scholarships for athletes serve as a motivation for sports participation among elite athletes in States Sport Councils/Commissions in Nigeria.	74	89	67	158	62	2.90	1.316
5.	Scholarships for hobbies and extracurricular for athletes serve as a motivation for sports participation among elite athletes in States Sport Councils/Commissions in Nigeria.	99	121	52	77	101	3.08	1.017
6.	Scholarships based on applicants identities for athletes serve as a motivation for sports participation among male elite athletes in States Sport Councils/Commissions in Nigeria.	122	111	49	60	108	3.17	1.245
7.	Need base scholarships for athletes serve as a motivation for sports participation among male elite athletes in States Sport Councils/Commissions in Nigeria.	136	128	41	95	50	3.45	1.192
8.	Employer scholarships for athletes serve as a motivation for sports participation among elite athletes in States Sport Councils/Commissions in Nigeria.	149	166	28	78	29	3.72	1.082
9.	Scholarships for minorities athletes serve as a motivation for sports participation among elite athletes in States Sport Councils/Commissions in Nigeria.	111	161	58	66	54	3.46	1.047
10.	Creative scholarships for athletes serve as a motivation for sports participation among elite athletes in States Sport Councils/Commissions in Nigeria.	109	114	67	55	105	3.14	1.075
	Grand Mean Score						**3.34**	

(Benchmark = 3.50)

Table 4, above reveal the opinion of respondents on whether scholarship award motivate sports participation among elite athletes in States sport councils/commissions in Nigeria since the cumulative mean agreement level of 3.34 is below the 3.50 decision mean. Specifically majority of the respondents asserts that overseas scholarship to any tertiary institution, employer scholarships, scholarship award to secondary schools and tertiary institutions within the country, scholarships for minorities athletes, need base scholarships for athletes, scholarships based on applicants identities, creative scholarships

for athletes and scholarships for hobbies and extracurricular as these had the highest mean response of 3.95, 3.72, 3.63, 3.46, 3.45, 3.17, 3.14 and 3.08 respectively were all accepted as serve as a motivation for sports participation among elite athletes in States sport councils/commissions in Nigeria. However, the respondents rejected the statement in item 3 and 4 on the table that athletic scholarships and community service scholarships for athletes with mean scores of 2.91 and 2.90 respectively serve as a motivation for sports participation among elite athletes in States sport councils/commissions in Nigeria. Thus, it could be concluded that there was no adequate scholarship award to motivate sports participation among elite athletes in States sport councils/commissions in Nigeria based on grand mean score of 3.34 which was lower than the benchmark (3.50.).

Hypothesis 1: There is no significant motivation of monetary awards on sports participation among elite athletes in States Sport Councils/Commissions in Nigeria.

Table 5: One sample t-test on monetary awards for motivating sports participation among elite athletes in States sport councils/commissions in Nigeria.

Variables	N	Mean	Std. Dev.	Std. Error	t-value	df	p-value
Monetary award	450	3.45	.635	.201	0.249	449	0.809
Test mean	450	3.50	.000	.000			

(t-critical = 1.96, $p \leq 0.05$)

Respondents did not agree that monetary award was adequately used for motivating sports participation among elite athletes in the selected States Sport Councils/Commissions. The observed mean (3.45) is of the same magnitude as the benchmark (3.50) used in the test. The t-value for the test was 0.0249 obtained at 449, degree of freedom (df) with a p-value of 0.809 ($p > 0.05$). These observations provided sufficient evidence for retaining the null hypothesis. The null hypothesis that, there is no significant motivation of monetary awards on sports participation among elite athletes in States sport councils/commissions in Nigeria is therefore be retained.

Hypothesis 2: There is no significant motivation of scholarship awards on sports participation among elite athletes in States Sport Councils/Commissions in Nigeria.

Table 6: One sample t-test on scholarship awards for motivating sports participation among elite athletes in States sport councils/commissions in Nigeria.

Variables	N	Mean	Std. Dev.	Std. Error	t-value	df	p-value
Scholarship award	450	3.34	0.356	0.113	1.411	449	0.192
Test mean	450	3.50	.000	.000			

(t-critical = 1.96, $p < 0.05$)

The observed mean (3.34) by the respondents in the table did not differ significantly from the benchmark (3.50) which implied that they were of the view that scholarship award was not adequately used as a motivating factor for agreed that scholarship awards could significantly act as motivating factor for ports participation among elite athletes in the selected States Sport Councils/Commissions. The t-value obtained for the test was 1.411 at 449, degree of freedom (df) with a p-value of 0.192 ($p > 0.05$). These observations implied that the null hypothesis that, there is no significant motivation of

scholarship awards on sports participation among elite athletes in States Sport Councils/Commissions in Nigeria is therefore retained.

Discussion

This study was aimed at assessing motivational factors for sport participation among elite athletes in States sport councils/commissions in Nigeria. The following are discussions arising from the hypotheses to find out whether monetary awards motivate sports participation, whether scholarship awards motivate sports participation, whether promotion awards motivate sports participation, whether medical care motivates sports participation, whether insurance cover motivates sports participation, and whether employment opportunity motivates sports participation among elite athletes in States sport councils/commissions in Nigeria.

Findings from hypothesis one indicates that there is no significant difference in the opinion of respondents on motivation of monetary awards on sports participation among elite athletes. This shows that monetary allowances, match bonuses, profit sharing, wage incentives, and gift of cars are good predictors of sports participation for responses of the respondents. The variables scored grand mean of 3.45. This finding corroborates with the study of Rost & Webel, (2013) studies revealed that paying match bonuses, wage incentives, extra allowances are important in motivating sports participation among elite athletes. Supporting this view, Ramlall, Maimani, & Diab, (2006) who says that - gifts of all form, and profits sharing have great impact in motivating sports participation among elite athletes in States sport councils/commissions in Nigeria. In a study by Saba and Agbeko (2009) on factors militating against participation in national sports festival among selected states in Nigeria, they reported that bonuses, wage incentives, extra allowances had significantly influence in motivating sports participation among elite athletes in States sport councils/commissions in Nigeria. Demir (2007) conducted a study named "determination of motivational factors that play role in participation of athletes in the region of Kahramanmaras" and detected that payment of commissions for athletes does not encourages athletes in sport participation.

In hypothesis two, the t-calculated value (.286) is less than the t-critical value (1.96) at 0.05 level of significance meaning there is no significant difference in the motivation of scholarship awards sports participation among elite athletes in States sport councils/commissions in Nigeria The hypothesis on scholarship awards as independent variables on sports participation shows that for elite athletes, all variables tested (provision of overseas scholarship award, scholarship award, scholarships for hobbies and extracurricular, employer scholarships for athletes, and scholarships for minorities) had significant effects on sports participation. Only Athletic scholarships (2.91) and Community service scholarships (2.90) was not significant among elite athletes in states sport councils/commissions in Nigeria.

In the opinion of Osibanjo, *et al.*, (2014), in forms of scholarships for hobbies and extracurricular will motivates sports participation among elite athletes. The lack of empirical evidence in the area of elite athletes' competitive sport motivation may be attributable to the fact that stakeholders may not be as open-minded or holistic as such an approach assumes, and may prefer interventions that directly impact performance, rather than an unobservable variable that precedes performance.

With that said, a recent meta-analysis found that moderate effect on sport performance (Brown & Fletcher, 2016), though there is currently little evidence for scholarship motivation-based interventions. For many, perhaps the time it could take to educate an athlete regarding their motives would be better spent engaging in mental skills training, which has been shown to have a quick and positive influence on elite athletic performance (Thelwell & Greenlees, 2013. Another consideration is that many of the implications above rely on parents and coaches and, therefore, cannot be independently executed by the athlete. Thus, they may require more time and resources than deemed necessary.

Conclusions

On the basis of the findings, the study concluded that:

1. States Sport Councils/Commissions in Nigeria do not have motivational allowances to enhance sports participation such as match bonuses, wage incentives, extra allowances, gift of cars, cash gifts, and profits sharing.
2. Provision of scholarship has been described as effective motivational tool for motivating sports participation among elite athletes. The study identified State Sports Councils/Commissions in Nigeria have shown negatives attitudes on adequate provision of overseas scholarship award, scholarships for hobbies and extracurricular, employer scholarships for athletes, and scholarships for minorities athletes to elite athletes in States Sport Councils/Commissions in Nigeria.

Recommendations

In the light of the conclusions drawn of this study, the following recommendations are made:

1. Monetary award should be used to motivate sports participation among elite athletes in States Sport Councils/Commissions in Nigeria.
2. Scholarship award should be used as a motivation for sports participation among elite athletes in States Sport Councils/Commissions in Nigeria.

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PATTERNS OF CHILD SEXUAL ABUSE AMONG SCHOOL CHILDREN IN EDO SOUTH SENATORIAL DISTRICT OF EDO STATE

ODIGIE, EUNICE AND AIDEYAN, DANIEL OSARENMWANTA (PhD)

Department of Health, Safety and Environmental Education, University of Benin

Email: euniceodige22@gmail.com **daniel.aideyan@uniben.edu**

Abstract

This study investigated the patterns of sexual abuse among secondary school students in Edo South senatorial district of Edo state. Four research questions were raised to guide the research. Literatures related to the studies were reviewed. The study adopted the descriptive survey research design and the population of the study comprised 107,271 students in public and private registered senior secondary school children in Edo South senatorial district of Edo state. The multi-staged sampling technique was used to select 384 respondents for the study. A Self-structured questionnaire was used for the collection of data. The research instrument was content validated and a reliability coefficient of 0.73 was obtained using the test-retest reliability method. Data obtained were analysed using descriptive statistics of frequency count, percentage and charts. Some of the findings revealed that majority of the respondents experienced contact and non-contact child sexual abuse with child sexual abuse incidences commonly occurring at homes, schools, and in the perpetrators' house. With reference to the findings, the researcher recommended among others that schools should collaborate with parents/caregivers to develop and implement comprehensive child protection policies that clearly outline guidelines and procedures for preventing, detecting, and responding to child sexual abuse both at home and in schools.

Keywords: Patterns, sexual abuse, perpetrator, victim, fondling.

Introduction

Children are seen as incredible gifts from God and unfortunately, these same children are subjected to sexual abuse. Sexually abusing children is not only unacceptable, but also deplorable. Nonetheless, these crimes are not as uncommon as we would like to think as countless number of children and adolescents are sexually abused and exploited across the world, to the point that child sexual abuse is rapidly being recognized as a serious health issue globally. The World Health Organization identifies adolescence as the period in human growth and development that occurs after childhood and before adulthood, from ages ten to nineteen and defines a child as any human being below eighteen years of age (World Health Organization, 2011). Similarly, the Child Right's Act 2003 of the Federal Republic of Nigeria also defines a child as a person who has not attained the age of eighteen years (Toyo, 2006).

Sexual abuse refers to any sexual act or an attempt to obtain a sexual act using coercion by any person regardless of their relationship to the victim, in any setting, including but not limited to home, school and work. The inducement or coercion of a child to engage in any sexual activity can occur during any phases of child growth and development. Therefore, Child Sexual Abuse (CSA) is a serious global public health problem with long-lasting negative consequences on the mental, physical and social wellbeing of survivors (Kumar, Singh & Kar, 2017).The World Health Organization

defined child sexual abuse as the involvement of a child in sexual activity that he or she does not fully comprehend, is unable to give consent to, or for which the child is not developmentally prepared or which violates the laws and social taboos of society (World Health Organization, 2010).

Child sexual abuse can occur in various forms that include but are not limited to: asking or pressuring a child to engage in sexual activities (whether making an attempt or it was successfully carried out); indecent exposure of the genitals to a child; and child exposure to or involvement in pornography. Others are sexual behaviour such as touching of the breasts, buttocks and genitals, whether the victim is dressed or undressed, fellatio, cunnilingus and penetration of the vagina or anus with sexual organs or with objects (Ogunfonoka, 2012). Similarly, sexual abuse incidents can occur in a commercial or institutional establishment, a residence or surrounding location, a street or other public place, or in another location. However, the location of the incident varied with the specific offence type. More than half (56%) of sexual abuse occurred in and around a residence; whereas, over half (57%) of incidents of unwanted sexual touching occurred in a commercial establishment (Ogunfonoka, 2012). Furthermore, careful reviews of CSA perpetrators in Nigeria showed that majority of the perpetrators were friends, neighbours and family members and most perpetrators of sexual abuse are usually males (Abdulkadir, Umar & Musa, 2011).

In the United States of America, a national survey of child-victims revealed that most of CSA victims (95%) were assaulted by male perpetrators ((Finkelhor, 2009). The survey also reported that 10% of the victims were sexually abused by a family member whereas one-fourth of them were assaulted by strangers. In addition, 60,400 victims experienced oral, anal, or vaginal penetration whereas 55,900 victims did not experience penetration. Fourteen percent of victims were assaulted at their homes; 38% were assaulted at the perpetrator's homes. The majority of victims (70%) were physically injured and Victims were more likely to be victimized at night and on Fridays or Saturdays than on other days of the week (Finkelhor, 2009). The findings on the time of the abuse is contrary to that of Uchendu and Nwogoh (2015) who stated that day time CSA was significantly higher than nocturnal abuse.

Similarly, there is a wide variation in the patterns of CSA across studies in Asia. Selengia, Thuy and Mushi (2020) reported that the rates of contact CSA in female samples range from 1.9% - 59.2% in China and India respectively and 1.8% - 9.1% for males in China. The prevalence for non-contact abuse ranges between 1.8% - 28.7% for females in China and India and 3.1% - 29.4% for males in China while that of penetrative sexual abuse ranges between 0.3% - 3.6% for males in Cambodia and China respectively and 0.6% - 57.1% for females in India. Selengia, Thuy and Mushi (2020) further stated that that the most severe forms of CSA was been observed in Africa including anal penetration and gang rape. For instance, a study in Tanzania in found 2.2% of females and 4.6% of males to have suffered anal penetration (McCrann, Lalor, & Katabaro, 2006). In the specialized clinics for post-sexual violence care in Zimbabwe, 60% of male victims reported forced anal penetration while in Democratic Republic of Congo 12.3% of girl victims experienced gang rape (Selengia, Thuy & Mushi, 2020).

Furthermore, friends were most cited followed by acquaintances or neighbours and relatives as perpetrators of CSA in Africa (Selengia, Thuy & Mushi, 2020). Specifically, friends were reported in Kenya (38.2%), Zimbabwe (42.3%), Nigeria (43%), and South Africa (61.3%) while family members or relatives were reported in Kenya (10.7%), Zimbabwe (18%), Nigeria (10%) and Swaziland (14%) (Selengia, Thuy & Mushi, 2020). In both Asia and Africa, the location of abuse was spread among home, school, perpetrator's home, public/open spaces and at special events although victim's home was the most common place of abuse followed by outdoors or public spaces and in school (Selengia, Thuy & Mushi, 2020). However, Daral, Khokhar, and Pradhan (2016) reported that most of the abuse in India took place when the victim was involved on a travel or journey (80.6%) followed by 31.2% during marriage events or other functions. Further investigation of CSA in Enugu State, a South Eastern part of Nigeria, revealed that 60% of girls below the age of 12 years had experienced various forms of CSA such as genital exposure and stimulation, seduction, and witnessing adults performing the act of sex (Ikechebelu, Udigwe, Ezechukwu, Ndnudi & Joe-Ikechebelu, 2008).

Also, in Oyo State, a South Western part of Nigeria, Balogun and Adenowuro (2020) opined that 13.3% had experienced only non-contact sexual abuse, 5.7% had experienced only contact sexual abuse, while 10% had experienced both. About half of the victims of contact sexual abuse had experienced the abuse in the afternoon between 12:00 pm and 4:00 p.m. Over half of the victims of contact sexual abuse were abused at the house of the perpetrator and most of the victims of both non-contact and contact sexual abuse indicated that their abusers were adolescents. In the same vein, the commonest perpetrators of both contact and non-contact sexual abuse were friends, neighbours, family members of the victims and strangers to the victims (Balogun & Adenowuro, 2020).

Conclusively, in almost all societies, particularly the African society, parents raise their children in consonance with the philosophy that a child is the most cherished asset and the hope of tomorrow. Hence, the United Nations (UN) Convention on the rights of the child provided that children in the care of a parent, guardian, teacher or any other person who has the care of children should protect them from all forms of torture or inhuman treatment and especially physical or mental abuse or neglect. Also, governmental regulations, decrees, enactments and child protective laws to discourage CSA have all been formulated by the government as a way of taming the worrisome increase in the incidences of CSA in Nigeria. Notable among these measures is the adoption of the Nigeria Child's Right Act in 2003 and the enactment of the Edo State child protection policy in 2015 as well as the attribution of jail term to some acts of CSA. Regrettably, while government and non-governmental organizations have continue to do their best to drastically reduce the incidence of CSA, the perpetrators of CSA seems not to relent as no week passes by without the media reporting about children who have been sexually abused across different parts of the country. Hence, the Nigerian society is still plagued with incidences of CSA. Also, while some previous studies (such as Chime, Orji, Aneke & Nwoke, 2021) have looked at some aspects of CSA including its pattern in some parts of Nigeria, it is imperative to bear in mind that studies conducted on the pattern of CSA among school children in other States in Nigeria, cannot be completely transplanted into the Edo State context. This

observable fact points to the need to investigate pattern of CSA school children students in Edo state as none of such studies to the best knowledge of the researcher, seems to have so far been conducted to fill up this gap.

The study was guided by the following research questions:

1. What are the forms of child sexual abuse among school children in Edo South senatorial district?
2. What are the temporal patterns among school children in Edo South senatorial district?
3. What are the spatial patterns of child sexual abuse among school children in Edo South senatorial district?
4. Who are the perpetrators of child sexual abuse among school children in Edo South senatorial district?

Methods and Materials

The study adopted the descriptive survey research design. The descriptive research design accurately and systematically describes, observes or validates aspects of groups collected through quantifiable information without manipulation of the variables (Siedlecki, 2020). Based on Siedlecki (2020) description of the descriptive survey research design, the researcher was able to use this design to effectively provide an in-depth investigation of the pattern of child sexual abuse among school children in Edo South senatorial district of Edo state. Furthermore, The population of the study is one hundred and seven thousand, two hundred and seventy-one (107,271) senior secondary school students in both public and registered private schools in the seven (7) Local Government Area that makes up the Edo South senatorial district of Edo state. The total population of senior secondary school students in public schools in the seven (7) Local Government Area that makes up the Edo South senatorial district of Edo state is thirty-one thousand, seven hundred and twenty-five (31,725) while that of registered private school is seventy-five thousand, five hundred and forty-seven (75,547) (Edo state Ministry of Education, 2022).

A sample size 384 respondents was selected using the Cochran's formulae. The sample was selected using multi-stage sampling technique. In the first stage, three (3) Local Government Areas was selected from the seven (7) Local Government Areas in Edo South senatorial district of Edo using simple random sampling technique of balloting by replacement. In the second stage, stratified random sampling technique was used to group the schools into rural school or urban school based on their location. In the third stage, Two (2) schools (one public urban school and one public rural school) were selected from each of the three Local Government Areas using simple random sampling technique of balloting by replacement. Lastly, simple random sampling technique of balloting by replacement was used to select 18 female respondents and 14 male respondents from each of the selected schools. The same procedure was repeated to select sample from the registered private schools.

Ethical approval was obtained from University of Benin Teaching Hospital Research and Ethics Committee and a formal permission to allow the selected schools to participate in the research was granted through the Commissioner of Education and Principals of each of the selected schools. To maintain confidentiality of the respondents, respondents were asked not to indicate their names on the questionnaire.

Table 1: Sample distribution

School Type	No. of Schools Selected	No. of School Children Selected	
		Male	Female
Public Urban Schools	3	42	54
Public Rural Schools	3	42	54
Private Urban Schools	3	42	54
Private Rural Schools	3	42	54
Total	**12**	**168**	**216**

The research instrument used for data collection was a self-structured questionnaire. The instrument was content validated and a reliability index of 0.73 was obtained using the test-retest reliability method and thereafter subjecting the scores obtained from both administrations of instruments to Pearson's Product Moment Correlation Coefficient. The collected data was coded and analyzed using descriptive statistics of frequency counts, simple percentages and charts.

Results and Discussions

Table 2: Frequency and percentage on the forms of non-contact child sexual abuse among school children in Edo South Senatorial District of Edo State

S/N	Forms of non-contact child sexual abuse	Frequency Male (n=86)	Frequency Female (n=154)	% Male	% Female
1.	Someone intentionally used sexually stimulating words in describing sensitive parts of your body such as your breast, lips, buttocks and vagina/penis	5	11	5.8	7.1
2.	Forced to look at the genitals of someone	3	7	3.5	4.5
3.	Persuaded to look at the genitals of someone	2	0	2.3	0
4.	Forced to show my naked body to someone	4	0	4.7	0
5.	Persuaded to show my naked body to someone	1	2	1.2	1.3
6.	Forced to watch someone masturbate	1	6	1.2	3.9
7.	Persuaded to watch someone masturbate	8	5	9.3	3.2
8.	Forced to watch pornographic video	5	5	5.8	3.2
9.	Persuaded to watch pornographic video	3	10	3.5	6.5
10.	Forced to watch pornographic picture	3	3	3.5	1.9
11.	Persuaded to watch pornographic picture	6	6	7.0	3.9
12.	Pictures of my naked body was taken by someone	1	2	1.2	1.3
13.	Shared pictures of my naked body with someone	2	5	2.3	3.2

Table 2 reveals the forms of non-contact child sexual abuse among school children in Edo South Senatorial District of Edo State. It can be observed that 44 (51.16%) out of the 86 male respondents had experienced different forms of non-contact child sexual abuse with persuaded to watch someone masturbate (9.3%) being the most common form of non-contact Senatorial District of Edo State. It can be observed that 42 (48.84%) out of the 86 male respondents had experienced different forms of contact child sexual abuse with fondling of the penis (15.1%) being the most common form of contact child sexual abuse being experienced by male respondents. Similarly, 68 (44.16%) out of 154 female respondents had experienced different forms of contact child sexual abuse with fondling of the vagina (13.6%)

being the most common form of contact child sexual abuse being experienced by female respondents. Therefore, it can be deduced that majority of the respondents have experienced various forms of contact child sexual abuse.

Frequency and percentage on the forms of contact child sexual abuse among school children in Edo South Senatorial District of Edo State

S/N	Forms of non-contact child sexual abuse	Frequency Male (n=86)	Frequency Female (n=154)	% Male	% Female
1.	Someone fondled with my buttocks	3	6	3.5	3.9
2.	Someone fondled with my breast	1	12	1.2	7.8
3.	Someone fondled with my vagina	0	21	0	13.6
4.	Someone fondled with my penis	13	0	15.1	0
5.	Forced to kiss someone	4	4	4.7	2.6
6.	Persuaded to kiss someone	4	5	4.7	3.2
7.	Forced to have vaginal penetration with finger	0	7	0	4.5
8.	Persuaded to have anal penetration with finger	3	0	3.5	0
9.	Forced to have vaginal intercourse	0	12	0	7.8
10.	Persuaded to have vaginal intercourse	0	5	0	3.2
11.	Forced to have anal intercourse	3	2	3.5	1.3
12.	Forced to have oral intercourse	6	9	7	5.8
13.	Forced to have vaginal penetration with an object	0	2	0	1.3
14.	Forced to have anal penetration with an object	1	1	1.42	0.6
	Someone tried to have sexual intercourse with me but did not succeed	4	6	4.7	3.9

Table 3 reveals the forms of contact child sexual abuse among school children in Edo South Senatorial District of Edo State. It can be observed that 42 (48.84%) out of the 86 male respondents had experienced different forms of contact child sexual abuse with fondling of the penis (15.1%) being the most common form of contact child sexual abuse being experienced by male respondents. Similarly, 68 (44.16%) out of 154 female respondents had experienced different forms of contact child sexual abuse with fondling of the vagina (13.6%) being the most common form of contact child sexual abuse being experienced by female respondents. Therefore, it can be deduced that majority of the respondents have experienced various forms of contact child sexual abuse.

Figure 1: Spatial patterns of child sexual abuse among school children in Edo South senatorial district of Edo state.

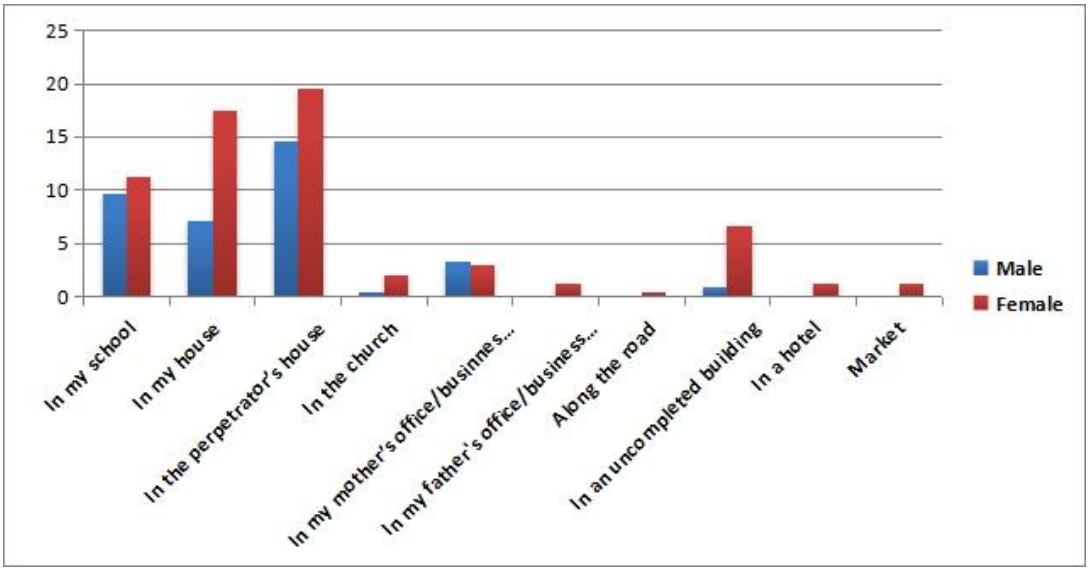

Figure 1 shows the places where child sexual abuse takes place among school children in Edo South Senatorial District of Edo State. It can be observed that the most common place where child sexual abuse took place among male and female respondents were in the school, in the house and in the perpetrator's house with a score of 9.58%; 11.25, 7.08%; 17.5% and 14.58%; 19.58% for male and female respondents respectively. Thus, it is inferred that while child sexual abuse can take place across various places, perpetrator's house is the most common place for child sexual abuse to take place among the respondents.

Figure 2: Temporal patterns of child sexual abuse among school children in Edo South senatorial district of Edo state

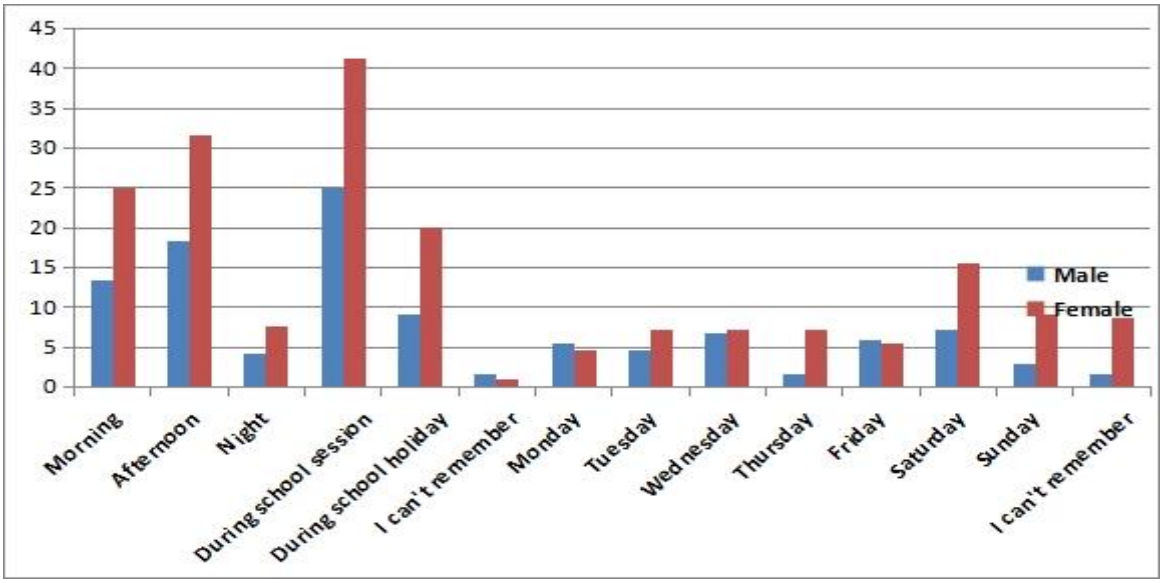

Figure 2 reveals the period of time where child sexual abuse takes place among school children in Edo South Senatorial District of Edo State. The chart in figure 2 indicated that the occurrence of child sexual abuse was common during the day (morning 13.33% and 25%; afternoon: 18.33% and 31.66%) for both male and female respondents respectively as against 4.16% and 7.5% at night for male and female respondents respectively. It was also observed that child sexual

abuse occurred more during school session with 25% and 41.25% for both male and female respondents respectively as against 9.16% and 20.08% during school holiday for both male and female respondents respectively.

Finally, the occurrence of child sexual abuse took place during the various days of the week but occurred more on Saturdays (7.08% and 15.41%) for both male and female respondents respectively. The score for other days of the week were child sexual abuse took place for both male and female respondents respectively are: Monday (5.41%; 4.58%); Tuesday (4.58%; 7.08%); Wednesday (6.66%; 7.08%); Thursdays (1.66%; 7.08%); Friday (5.3%; 5.41%) and Sunday (2.91%; 9.16%). It can be deduced therefore that, majority of the respondents experienced child sexual abuse during the day; during school session and on Saturday.

Figure 3: Perpetrators of child sexual abuse among secondary school students in Edo South Senatorial District of Edo State.

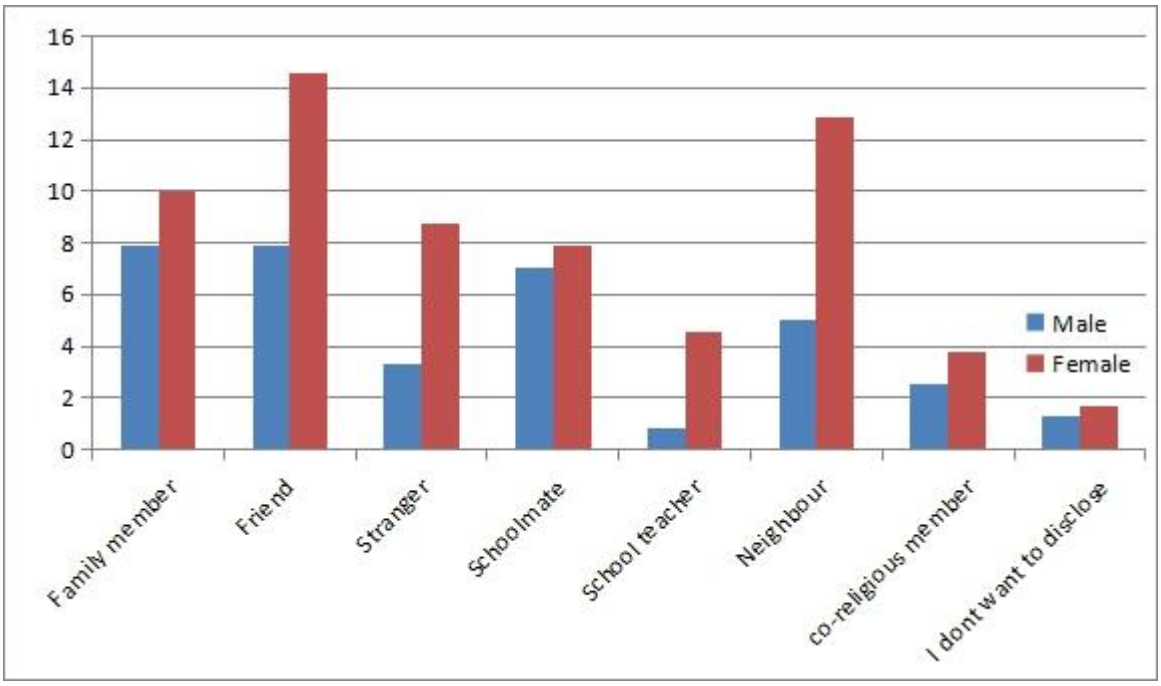

Figure 3 shows the perpetrators of child sexual abuse among secondary school students in Edo South Senatorial District of Edo State. It was observed that majority of the female respondents (14.58% and 12.9%) indicated that they were sexually abused by friends and neighbours respectively. Also, majority of the male respondents (7.91% and 7.91%) indicated that the perpetrators were family members and friends respectively. Other perpetrators of child sexual abuse for both male and female respondents respectively were strangers (3.33% and 8.75%); schoolmate (7.08% and 7.91%); school teacher (0.83% and 4.58%); and co-religious members(2.5% and 3.75%). It can be deduced that majority of the respondents were sexually abuse by their friends.

Discussion of Findings

On the forms of CSA among school children in Edo South senatorial district of Edo state, findings revealed that majority of the respondents have experienced various forms of contact and non-contact CSA including verbal sexual abuse, exposure and stimulation of the genitals as well as sexual penetration. This finding corroborates the findings of Balogun and Adenowuro (2020) who reported a CSA prevalence of 29.0% with respondents experiencing both contact and non-contact forms of CSA. Specifically, findings from the study revealed low prevalence of penetrative CSA among secondary school students in Edo State. The low prevalence of penetrative CSA reported in this study may be attributed to the cultural and societal norms in Edo state which frowns at penetrative CSA and CSA in general. However, the contrast in the prevalence of penetrative CSA in this study and other studies may be due to the variation in the availability and effectiveness of child protection laws and regulations across geographical zones.

Further on the patterns of the patterns of CSA among school children in Edo South Senatorial District of Edo State, findings revealed that the most common place where child sexual abuse takes place among the respondents were in the school, in the house and in the perpetrator's house. Majority of CSA perpetrators were family members, friends and neighbours with CSA occurring more during the day; on Saturdays; during school session; and majority of the perpetrators were older than their victims.

In a study on the places where CSA likely occurred, Selengia, Thuy and Mushi (2020) corroborated the finding of this study by reporting that the location of abuse was spread among home, school and perpetrator's home. However, Daral, Khokhar, and Pradhan (2016) contradicted this finding by reporting that most CSA took place when the victim was involved on a travel or journey. Reporting on the identity of CSA perpetrators, Abdulkadir, Umar and Musa, (2011) corroborated the findings of this study by opining that a careful reviews of CSA perpetrators in Nigeria showed that majority of the perpetrators were friends, neighbours and family members and most perpetrators of sexual abuse are usually males. In contradicting this finding, Selengia, Thuy and Mushi (2020) reported that strangers are the most common CSA perpetrators.

Conclusively, regarding the time of CSA occurrence, while the study by Finkelhor (2009) contradicts the finding of this study by reporting that CSA victims were more likely to be victimized at night, Uchendu and Nwogoh (2015) corroborated the finding of this study by stating that day time CSA was significantly higher than nocturnal abuse. However Finkelhor (2009) study corroborates the finding of this study when they stated that CSA abuse was higher on Fridays or Saturdays than on other days of the week. In line with this, the researcher attributes the peculiarities in the identity of the perpetrators as well as the times and places of CSA occurrence to the fact that in gaining access to the victim, the perpetrators need to create trust and familiarity in order to reduce the suspicion of sexual abuse by parents/caregivers and in carrying out CSA, the perpetrator may want to choose places and times where they can have easy access and control over victims.

Conclusion

Based on the findings of this study, the following conclusions were drawn:

1. School children in Edo South senatorial district have experienced various forms of contacts and non-contact child sexual abuse.
2. Child sexual abuse incidences among school children in Edo South senatorial district mainly occurred at homes, schools, and in the perpetrators' house.
3. The common child sexual abuse perpetrators among school children in Edo South senatorial district were family members, friends and neighbours who were older than the victims.
4. Child sexual abuse incidences among school children in Edo South senatorial district occurred during the day while school was in sessions.

Recommendations

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

1. The government should provide public enlightenment on the risk factors and prevention of CSA to help combat its occurrence.
2. Schools should collaborate with parents/caregivers to develop and implement comprehensive child protection policies that clearly outline guidelines and procedures for preventing, detecting, and responding to child sexual abuse both at home and in schools.
3. The law enforcement agencies, the legislative and judicial arms of government should work cooperatively to ensure that CSA perpetrators regardless of who they are get penalties that are commensurate with the crime.
4. Schools should provide support and resources for survivors of child sexual abuse, including counselling services and referrals to appropriate professionals.

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INFLUENCE OF GENDER ON PARTICIPATION IN LEISURE ACTIVITIES AMONG FEDERAL CIVIL SERVANTS

[1]MUBARAK UMAR,[2]SHUAIBU SHANTALI AMINU, BULUS WYORK ZAMANI AND [4]MURTALA MOHAMMED JANGEBE

[1]Department of Human Kinetics and Health Education, Ahmadu Bello University, Zaria

[2]Department of Physical and Health EducationCollege of Education, Zuba

[3]Department of Physical and Health Education, Federal College of Education, Zaria

[4]College of Health Sciences and Technology Tsafe, Zamfara State

mubfta@gmail.com07066660066

Abstract

Without some form of stress relief or fun in our life, one will find himself only working and that can lead to increased stress, illness, disease or other factors that may hider appropriate and successful performance. Human being weren't meant to work without break; individual should have a balance of work and leisure. Our bodies need rest, relaxation and enjoyment every once in a while; and that's where the benefits of leisure comes into play. This study was conducted to assess the influence of gender on participation in leisure activities among federal civil servants in Nigeria. To achieve this purpose, ex-post facto research design was used. A total of 663 respondents were selected through multi-stage sampling procedures. Descriptive statistics of Mean and standard deviation was use to answer the research question, Inferential statistics of independent sample t-test was used to test the hypothesis formulated. The results revealed that gender has significant influenced on the federal civil servants participation in leisure activities. Based on the result, it was concluded that gender is one o the factors that determines civil servants' participation in leisure activity. Based on the finding, it was recommended that more recreational facilities should be provided for females within their establishment while encouraging both male and female to be more active in leisure activities and Governments at all levels should endeavor to provide affordable leisure infrastructures that could be easily accessible by the low-income earners in order to encourage participation in leisure activities.

Keywords: Gender, Participation, leisure, civil servant, Influence

Introduction

Study of leisure activities has become an interesting area of research. A specific body of knowledge has been developed, directly related to work as well as non-work, to the effect of changing patterns related to mental and physical health (Godin, 2013). To Michiels and Kaugker (2011) leisure is an activity to which the individual may freely devote himself outside the needs and obligations of his occupation, his family and society; for his relaxation, diversion and personal development. People may wonder why and how they can think of and partake in any leisure activities when in real sense, they are struggling to survive and make ends meet. It is indeed necessary here to emphasize that we can only struggle well and think properly when we are mentally sound and physically fit (Suleiman, 2014).Peterson and Gunn (2018) submitted that

participation in leisure activities make one fit, gives participants more energy, greater mental alertness, reduces stress and allows for better time management. Recent findings revealed the potential of participation in leisure-time physical activities to contribute to positive health not merely the absence of diseases but associated with the capacity to enhance life satisfaction and ability to improve individual's capability to withstand stress (Godin, 2013).

Participation in leisure activities have the power to create social cohesion and increase productivity, prevent cardiovascular diseases, reduce the risk of diabetes and improve plasma lipid, reduce premature mortality and morbidity, enhance bone health later in life and improve academic achievement and influence a person's mentality, prevent musculoskeletal disorder (Couneya & Fredrich, 2014). Heasman and Arwal (2014), stated that participation in leisure activity helpsin building and maintenance of muscular strength and endurance, enhances self-esteem, self-confidence as well as self-concept.

Throughout the history participation in leisure was found to be one of the productive means of social and economic development. Hunnicutt (2016) explained that understanding the factors that motivate people to participate in leisure-time physical activity is important to encourage persistence in physical activity which is advantageous to the development of physical and psychological well-being of the people. In interpreting leisure behaviour, Hutchinson and Brooks (2011) suggested that moods play an important role in leisure experiences. In the same light, individuals act upon their perception of reality rather than on objectives facts themselves. In other words, the extent to which an individual participate in some activities is not purely a function of the capacity of this activity to satisfy their needs, wants or motives. It is rather a function of how the individual perceives the benefits provided by the activity.

Despite the availability of recent researches that focus on discussing the important benefits of leisure activities, it was observed that some federal civil servants seem not to be participating actively in leisure activities as expected. Lack of interest was assumed to be primary cause of not participating in leisure activities, apart from interest there are some factors that may serve as barriers to leisure participation some barriers may permanently or temporarily hinders individual participation. Gender is one of the factors that may affect individual participation in leisure activities.

It is also noted that in daily routine, one's behavior, interest and choices of life style is directly affected by his /her gender. Gender differences reflect on individuals' leisure behaviour because some of the leisure activities need certain physical abilities. There are differences in men and women socialization, some community beliefs that women are generally in the position of having home-centered life style and their socio- economic status is lower (Mesch & Manor,2011).

This study was focus to assess the influence of gender on participation in leisure activities among federal civil servants in Nigeria.

Research Question

Does gender influence participation of the federal civil servant in leisure activities?

Hypothesis

Gender has no significant influence on the federal civil servants' participation in leisure activities.

Methods and Materials

Ex- post- facto research design was employed to assess the influence of gender on participation in leisure activities among Federal civil servants. According to Cresswell (2012), this research design is deemed appropriate largely because the phenomenon is best applied from given target units. Also information collected using this design cannot be manipulated, can be retrieved through questionnaire and most appropriately used to assess the influence gender on participation in leisure activities.

The population for this study comprised all junior and senior, Male and Female federal civil servants working in all Ministries and MDAs of the Federal Government.

A sample size of Six hundred and Sixty Three(663) was used for this study as suggested by Research Advisor (2006). A multi stage sampling procedure was used in this study. Stratified sampling technique was used to select the subjects for this study. The six(6) geo-political zones were considered as a stratum. From each stratum, simple random sampling was used to select two States at random. Simple random sampling procedure was also used in selecting sample (male/ female junior and senior federal civil servants) from each of the federal secretariat, located at each of the State selected.

The instrument that was used in this study was a self-developed questionnaire. The questionnaire used consisted of two main sections A and B. Section A was on personal information of the respondents such as age, income status, family type, gender, educational status and employee status, while section B consisted of leisure activities participated in by federal civil servants. To score the responses of the respondents, based on how they participate in leisure activity, three scoring mode scales was used as follows: Always =3points, Sometime = 2points and Not at all = 1point.

Data collected was analyzed with the use of SPSS package version 22. Descriptive statistics of frequency and percentage and mean and standard deviation were used to analyze the demographic characteristics of the respondents and to answer the research question respectively. Independent sample t test was used to test the hypothesis at 0.05 alpha level of significant.

Results and Discussion

Table 1: Mean Responses on the influence of Gender on Participation of Federal Civil Servants in Leisure Activities.

	N	Gender	Mean	Mean Difference	Constant Mean
Participation of leisure activities	435	Male	17.1072	3.1662	2.5000
	228	Female	13.9173		

Table 1 above shows the mean responses on the influence of gender on participation of Federal civil servants in leisure activities. This showed that gender influence the participation of federal civil servants in leisure activities. Male have a mean of 17.1072 while female have a mean of 13.9173with a mean difference of 3.1662. This shows gender influence participation of federal civil servants in leisure activities because the mean difference of 3.1662 is greater than constant mean of 2.50.

Hypothesis: Gender has no significant influence on the federal civil servants' participation in leisure activities.

Table 2: Independent t-test Analysis on gender influence on the federal civil servants' participation in leisure activities

	Gender	Mean	SD	df	t	Sig(p)
Participation in leisure activities	Male	17.1072	4.3566	662	11.099	0.001
	Female	13.9173	3.9871			

t-crit. = 1.972, Confidence Level = 0.05

Table 2 above shows the t-value of 11.099 at 662 degree of freedom (df) and a significant level of 0.001 at 0.05 level of confidence. This shows that the t-cal. is greater than the t-crit. of 1.972 and the p-value is lower than alpha level of significance. This result indicates that gender of federal civil servant has significant influence on participation in leisure activities as opposed the null hypothesis which states that "gender has no significant influence on the federal civil servants' participation in leisure activities." Hence the null hypothesis was rejected.

Discussion

The primary purpose of this study was to determine the influence of gender of the federal civil servants on their participation in leisure activities. The finding revealed that gender of Federal Civil Servants has significant influence on their participation in leisure activities. One of the reasons for this outcome may be because of difference in gender which

on its own imposes some levels of limitation on the amount of time available to women. For instance at the close of work women are expected to rush home to cater for the needs and welfare of their households whereas their male counterparts are not necessarily bound to provide such responsibilities beyond facilitating what will make their women folks to be able to provide family needs. This may have enabled the men folk to be more involved in participation in various leisure activities than their female counterparts. This is in line with the finding of Evenson, Birnbaum, and Bedimo-Rung, (2011), which revealed that males have more free time after their working hours, than their female counterparts more likely to participate in leisure activities than their female folks.

Conclusion

On the basis of the research findings it is concluded that:

- Gender of federal civil servants has significant influence on their participation in leisure activities, it is also concluded that males has more time to participate in leisure activities than females.

Recommendations

On the basis of the finding and conclusion of this study following recommendations were made:

- The Federal Ministries and agencies should provide more recreational facilities within the establishment while encouraging female civil servant to participate more.
- Governments at all levels should endeavor to provide affordable leisure infrastructures that could be easily accessible by the low-income earners in order to encourage them into participation in leisure activities.

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PATHOGRAPHIC REPRESSION OF CORONAVIRUS-INDUCED TRAUMA IN REMI RAJI'S *WANDERER CANTOS*

IWABI ABRAHAM MODAHUNSI, (PHD)[1] AND JOSEPH AJAGUNMOLU MAYAKI[2]

[1]Department of English, Federal College of Education, Kontagora, Niger State, Nigeria In Affiliation with the Ahmadu Bello University, Zaria

[2]Writing and Rhetoric Studies, University of Utah, USA

joseph.mayaki@utah.edu, iwadahunsi@gmail.com, 08165100409

Abstract

Coronavirus (also known as Covid-19) is one of the deadly pandemics in the history of mankind. It claimed many lives in Nigeria and across the globe in 2020. Some survivors of the virus employed different means to recount their experiences. Such narrative helps to suppress the trauma and possible posttraumatic stress disorder of the virus. In the medical humanities, such literary narrative is dubbed pathography, scriptotherapy, bibliotherapy and pathotextualism. This study examines the pathographic repression of Coronavirus-induced trauma in Remi Raji's poetry collection, with a view to explicating the poet's experiences, in poetic thought, at the Intensive Care Unit (ICU) of the Oyo State Infectious Disease Centre, Olodo, Ibadan, in December 2020. It adopts a qualitative research methodology within the ambit of the Freudian psychoanalytic theory. The poems reveal that the poet undergoes traumatic conditions such as solitary confinement, anorexia, syncope, trance, hallucinations, thanatophobia, and also witnesses a condition worse than his. Raji represses these traumatic experiences by narrating them in the pathographic text called *Wanderer Cantos*. The poetry collection affirms the therapeutic potency of poetry. Poetry performs therapeutic functions by soothing achy minds. Raji employs the poetic genre to heal his psyche of coronavirus-induced trauma and sensitises his readers to its devastating effects.

Keywords: Pathographic text, Coronavirus-induced trauma, Remi Raji, *Wanderer Cantos*

Introduction

The travails of diseases and infirmary are challenges the whole of mankind had to contend with over the years. Human beings suffer from different afflictions at different stages of their lives. The pain they experience constitutes the narrative motif of their social interaction. Sometimes, the lettered in society explore diverse artistic mediums to explain their experiences and the nature of their dis-ease, in order to purge out their minds and get relief from their traumatic state, as well as educating others about their illnesses. Such experiences, of ill-health, are communicated sometimes in songs, artistic designs, prose narrative, drama and in poems. The preoccupation of this article is the communication of morbidity in poetic thought, within the ambit of Remi Raji's Covid-19 experiences, as reflected in his poetry collection entitled *Wanderer Cantos* (2021). Communication is an integral part of medical procedures resulting in healing. It plays a pivotal

role in the medical practice, from the point of consultation with the physician, diagnosis, treatment and monitoring of healing process. Such communication is usually oral and in writing. It is incumbent on the patient to narrate what (s)he feels in the body chemistry while the doctor scribes the salient points of the narrative, as a guide in the course of treatment. The narrative, in the medical humanities, is dubbed pathography. The other terms used to describe it are bibliotherapy, scriptotherapy and what Stephen Ese Kekeghe (2020) calls pathotextualism.

Traumatic State and Psychoanalysis

Trauma is a term denoting deeply distressing and disturbing experiences resulting in psychic wound after one is exposed to traumatic conditions. Traumatic experiences sometimes result in Posttraumatic Stress Disorder (PTSD). The American Psychiatric Association (2013), in Omobowale and Sakiru (2018), explains PTSD as "a mental disorder that can develop after a person is exposed to traumatic events such as sexual assault, warfare, traffic collision or other threats". It encompasses the response to a deeply overwhelming, distressing or disturbing occurrence which someone tries to cope with. Traumatic experience is usually shocking and upsetting, causing psychological disturbance. Cathy Caruth (1996) describes trauma, from a psychoanalytic perspective which is the interest of this study, as "the response to an unexpected or overwhelming violent event or events that are not fully grasped as they occur, but return later in repeated flashbacks, nightmares, and other repetitive phenomena". It operates on a repressive and eruptive oscillation causing ugly memories and psychic pains. Mdika (2014) argues that Caruth draws her postulation about trauma from Sigmund Freud's psychoanalytic theory, by stating that: "what the parable of the wound and the voice thus tells us, and what is at the heart of Freud's writing on trauma…is that trauma seems to be much more than a pathology, or the simple illness of a wounded psyche: it is always the story of a wound that cries out, that addresses us in the attempt to tell us of a reality or truth that is not otherwise available". The crux of Caruth's view of trauma is that traumatic experience makes its sufferer wallow in bewilderment of what is known and what (s)he does not comprehend about his/her condition. In the proem to *Wanderer Cantos* (2021), the poetry collection studied in this article, Raji exerts that:

> The last section of this collection is devoted to the personal experience of coronavirus, and the triumph over the trauma of the scourge. The lines were clipped from recollections of sensation, desperation and alertness which came upon the awareness of my immobility in December of 2020, in the intensive care unit of the Oyo State Infectious Disease Centre, Olodo, Ibadan.
>
> How does it feel to be down with the coronavirus? Or is it freak flu, or an invented illness more wicked than malaria? There have been too many denials and counter-denials. I am aware of too many conspiracy theories for and against the virus. All I know, as a blood witness, is that the virus is freaking real, with an unyielding intent to suspend all living organs in the body, to congeal the veins, to seize the trachea and execute a coup d'etat against the lungs, to bring down or suspend the gift of oxygen in the body and induce it to atrophy. For a familiar Nigerian reference, it causes the loudest palpitations of the heart and makes the body temperature to go up and up like the pump price of petrol. The spike rarely comes down. I

> know surely that it is all about immune deficiency and freak organ failures. Sadly too, between the saved and the lost, I think the virus behaves like a lottery.

Raji tries to communicate his traumatic experiences with coronavirus in poems. It is the potency of communication in healing that Sigmund Freud theorised into psychoanalysis. Psychoanalysis is a narrative-based healing which Freud propounded to treat his psychiatric patients. He would make his hysteric patients narrate their biographies in order to pinpoint the psychogenesis of their hysteria. This clinical-psychological and psychiatric procedure was afterwards brought to bear on literary hermeneutics to psychodiagnose the characters in literary texts, the creative process of literary works and the psychological effects of literary texts on the readers. Narrative of a (dis)ease and its attending traumatic impact by a physician-writer, patient-writer or an observant creative writer offers a snapshot of the affinity between literature and medicine.

Raji's *Wanderer Cantos* (2021) presents the poet's traumatic experiences of his contact with the vicious coronavirus, in December, 2020. The poetry collection offers a patient-writer/survivor's account of how a patient feels when they contact coronavirus. It chronicles how the virus rendered Raji's immune system defenceless, shattered his thought and his struggle to reconcile his movements and exact contact with the deadly disease, which constitute the pathogenesis of his traumatic state and poetic-therapy. The part of the poetry collection which is covid-19-induced traumatic narrative, is premised on omniscient point of view − otherwise known as first-person point of view. This helps to bring to the fore the interior monologue of the poet and foreground the therapeutic essence of the poems in the face of illness-induced trauma. The therapeutic potency of the poems manifests in the poet's purgation of his emotion when he struggles to survive Covid-19. This involves the sublimation, by a patient-writer and survivor, of psychical wound and tremor which the deadly coronavirus triggers into a thought-shared readable material to repress the memories.

Pathography/Clinical Autobiography

Pathography is premised on the axiom which says that only the wearer knows where the shoe pinches. Pathography is an autobiographical experience of an author during sickness. It is a patient-writer's testimonial of their illness or affliction. A pathographic narrative borders on a patient-writer's experiences with illness and the medical care sought for wellness. Such narrative presents the writer's health condition, the medical procedure for treatment and the traumatic impact of the infirmity on the patient. Anne Hunsaker Hawkins (1999) writes that, as a literary genre, pathography is a personal narrative concerning illness, treatment and sometimes death. Hawkins (1999) in Annemarie Jutel and Ginny Russel (2021) describes pathography as "articulate[ing] the hopes, fears, and anxieties so common to sickness, but [also serving] as guidebooks to the medical experience itself, shaping a reader's expectations about the course of an illness and its treatment". Such (clinical) autobiography pinpoints the thought, assumptions and attitudinal disposition of the patient towards their illness, as well as the myth which people conjure about the ailment. Donna Mccloskey and Dina Mckelvy (2012) see pathography

"as a form of autobiography or biography that describes the personal experiences of illness and sometimes death. The duo adds that:

> pathographies, authored not only by patients and their families but also by physicians and other health care professionals who have experienced infirmity either firsthand or as witnesses, help to make sense of what is happening to them during often chaotic and overwhelming circumstances. The reading of pathographies by health care providers helps them to understand their patients better and teach them things that they won't learn from textbooks. Pathographies can provide a unique window into the experiences of patients whether in the form of poetry, graphic novels, vignettes, or other narratives.

Stephen Kekeghe (2022) opines that pathography is the narrative of a patient's health condition from the auto/biographical perspective. The common denominator in these scholarly definitions of pathography is the place of self-narrative, first-hand experiences and personal encounter with an infirmity. Such clinical narrative – a first-person illness documentary − in the medical humanities, is also referred to as scriptotherapy, bibliotherapy or pathotextualism.

Many writers have emphasised the imperative of autobiography in relation to firsthand account of the nature of ailments and the patients' feelings during infirmity. Femi Oyebode (2003) in Sola Owonibi (2009) opines that:

> Autobiographical accounts of the experiences of psychiatric illness provide an insight into the nature of psychiatric disorder in a way that is not possible from standard psychiatric texts.

The thrust of Oyebode's assertion is that the patient's narrative offers more valid account of the effects of a disease and the pains the patient feels than the second-hand information of a medical practitioner contained in a textbook. Indeed, Oyebode (2003) avers that an autobiographical account of an illness enables health care practitioners to have detailed nature of a patient's health condition and health comorbidity. An autobiography allows individuals to express the most significant aspects of their lived lives — either positive or negative. Not all autobiographies offer in-depth clinical testaments of patients' diagnosis with illnesses, detailing the medical procedures and recuperation.

Poetic-therapy

Poetic imagination is therapeutic. Poetry performs therapeutic functions by soothing achy minds. Nick Mdika (2014) argues that poetry plays a pivotal role in therapeutic conceptualisation of literary works. He adds that "as a genre, poetry plays a significant – perhaps in some respects unique – part in providing a therapeutic memorialisation of history and its trauma (p. 51). Soumai Osamnia and Yasmina Djafri (2020) opine that poetry is considered as one of the most widely employed forms of creative and curative writing in therapeutic healings. These scholars postulate that writing poetry helps to identify and overcome the psychic ache a person may be contending with. In this wise, repressed thoughts and emotions are purged out and indirectly shared with the readers. Such poetic composition falls within the scope of scriptotherapy and can be the reason Riordan Richard (1996) recommends scriptotherapy for the individuals suffering from psychic pain.

Chavis (2011) in Osamnia and Yasmina Djafri (2020) submits that poetry performs a distinctive therapeutic and inspirational function in human health. Chavis (2011) asserts that the unsurpassed place of poetic-therapy has been affirmed from antiquity all through medical practice. She confirms categorically that the…medicine men and women of ancient civilizations chanted poems as part of their healing art. In *Writing to Heal* (2004), James Pennebaker enjoins people to write and read poems, because they help in healing psychic wounds. Therefore, poetic-therapy involves an accurate description of the cause(s) of an ailment and the pain it triggers. It also gives clues to the socio-cultural perception of the sickness depicted in the poem. Often, the poet recounts his/her survival strategies and medical procedures in order to instil hope in the readers. By so doing, the poet undergoes traumatic narrative and healing, on one hand, while the readers, on the other hand, learn how to take precautions against the disease. Little wonder that Chavis (2011) states that "concise lyrical expressions, confessional and personal intone, tend to grab and hold reader's attention as they speak to the senses, mind and heart". Good poems elicit an emotion from the readers and spur them to make imaginary journey into the wor(l)d of the poet.

Pathographic Indices of Traumatic Covid-19 Encounter in *Wanderer Cantos*

Remi Raji's *Wanderer Cantos* (2021) is a poetry collection that is made up of Sixty-eight unequal poems divided into two parts. Part one of the collection comprises an array of poems portraying different socio-cultural, socioeconomic and socio-political settings and themes. The second part subtitled: "Corona Canto and monologues: my life in the bush of the impossible virus", gives a pathographic account of Raji's contact and diagnosis with the deadly coronavirus. The poems in this part can be subcategorised into: (I) poems dealing with the critical stage of Raji's battle with coronavirus, (II) his response to treatment, convalesce and flashback to activities before he was diagnosed with the virus and (III) his discharge and thanksgiving. In "A quiet and lonely place", the first poem of the second part, Raji recounts the abrupt immobility the coronavirus brought upon his wellbeing. The decimating effect of the virus on his immune system is as if:

> Everything stood still: motion, breath and clock,
> except voices which became bodies asking,
> praying,
> whispering.

The quote above succinctly shows how devastating coronavirus is. It makes one configure the imagery of its horrifying and debilitating nature. The virus destabilises every normal routine of the patient. The voices the poetic persona hears are, probably, those of his immediate families who are agitated and supplicating to God for divine intervention and healing. This coincides with the voices of the medical personnel who arrive to take him to the Oyo State Infectious Disease Centre, Olodo, Ibadan. The disease pulls him down so much that he can hardly fix any idea or comprehend anything, except the sound of the siren of the ambulance that takes him away. The poem also portrays the alertness and prompt response of the medical personnel upon the arrival of the poet at the hospital. "Everybody arrived in their expertise" (p. 85). The medical

personnel, metaphorically compared with the "Astronauts in white and green and blue" (p. 85) arrive to draw the poet's blood for laboratory test. The metaphoric trope of "astronauts" alludes to the vigilance put up and the protective gear the medical personnel wear against the deadly virus. The poet is petrified by the discomfort the virus brings upon him and opines that, at that material time, everything – animate or inanimate − becomes immaterial except the premonition of death. Raji croons that:

Everything stood still.
Everything,
Everybody,
Except Death.

These lines reveal the overwhelming physical and psychological impact of coronavirus on the poet. The second poem narrating the experiences of the poet with coronavirus reflects the swing mood and abnormal body temperature the virus triggers. The virus makes one behave infantile and brings about awkward temperature characterised by "a screaming coldness in the heat of day" (p. 86). Whenever this bizarre coldness descends, the patient finds it extremely difficult to stand, as if he/she is expiring, due to "mutations and organ failures" (p. 96). This ambivalent nature of the virus is captured in stanzas three and four of the poem entitled "The pickpocket", which is a metaphor for the killjoy stance of coronavirus. According to the poet:

The coronavirus has a golden knife.
It peels the orange for you in a moment,
and stabs you in the arm thereafter.
In the morning, it is black seed oil,
hot tea, inhale steam, then cold bath before breakfast.
The most dreadful time is when the sun goes down,
It is cold, it is hot, the temperature spikes,
The nurse is confused by the viral sequence
fluctuating, between 38.5 and 37.8 and back again.
The spike is the cruel cudgel of the virus,
to make a mess of the vital organs.

The virus is capable of paralyzing a person's wellbeing. It makes one completely uncomfortable and plunges him/her into psychological disorder. Deploying verisimilitude, through repetition and stream of consciousness, Raji laments, in the poem entitled "A Different December," that:

I arrived with a petulant bag,
a screaming coldness in the heat of day.
a simmering anger against the virus,
I stood up but I sat down watching

as I walk out of my body
bundle of phlegm, turbo of menthol and mint
the breathless hysteria of a silent tempest.
I arrived with a different rhythm in my blood.

It is psycho-diagnostically evident, from the above verses, that the spike of the coronavirus plunges Raji into syncope and/or unconsciousness. To walk out of one's body is to faint. The severity of Raji's condition, in comparison with the other patients', also compounds his anxiety. The poets makes one understand that he meets many patients of different ages – men and women at the Oyo State Centre for Disease Control − who are victims of the virus he metaphorises as "the pickpocket" (p. 87). Some of the patients have been treated and survived but they are still monitored. In the words of the poet: "these patients are agile, unlike me, they scare me" (p. 87). The poet longs for the little freedom these individuals enjoy, in spite of their confinement to the hospital. His sensitivity to freedom becomes more expressive in the poem headlined "Too many calls spoilt the solitude" (p. 96). Raji melancholically asserts, in the poem, that "…I needed freedom to fly, the energy to run…" (p. 96). What it implies to be confronted with (dis)ease is made clearer in these particular poems. Given the above line, it seems solitude is Raji's anathema. Unlike in the course of treating other non-contagious diseases that few relations are allowed to visit or stay with the patient, a coronavirus patient mostly lives in isolation from non-infected people. This is part of the measures to contain the spread of the virus. The disadvantage of such solitary confinement, in the words of the poet, is that "Death could be very cheap, and lonely" (p. 96), if a patient's condition deteriorates in the absence of the medical personnel.

Raji does not only despise his confinement to the isolation centre but also the noise the recuperated patients make jars his "chest" (p. 87). As the virus continues to decimate the poet's immune system and the noise made by the convalesced patients playing "scrabble, ludo and other games" (p. 87) causes him mental dis-ease, he probably recalls his status as a scholar-poet and professor vis-à-vis the status of the other patients and realises that, coronavirus, as a "thief does not know character, tongue or quota" (p. 87). Raji's opinion is a home truth; diseases are not respecters of social strata.

The incessant pains caused by the coronavirus and the mental dissonance of the noise snowball into auditory, tactile and visual hallucinations. In his psychoanalytic postulations, Sigmund Freud (1936) in Craig Steel (2015) "argued that the phenomenon of hallucinations was a product of forgotten or repressed traumatic memories entering the conscious mind". Auditory hallucination is a sensory perception of hearing voices without external stimulus. Tanu Thakur and Vikas Gupta (2022) assert that auditory hallucination is associated with schizophrenia but it is not specific to it. "Nonpsychotic disorders associated with auditory verbal hallucinations are affective, trauma-related, substance-related and neurological disorders. Tactile hallucination is a bizarre or false sensation of touch or perception of movement on one's body. Visual hallucination occurs when someone sees things or people that are not really present. Visual hallucination can be caused by mental illness,

the side effects of medication and physical illness (Chitra Badii, 2019) like coronavirus which Raji is diagnosed with. In the poem titled "Note to self: I travelled", Raji recounts that:

All those who left without consent came back:
Harry carried me to Atukwei in Accra,
in search of a cure,
Pius kept telling them nothing was wrong.
"Can't you see, he's just resting,
take him back please; give him the band,
give him the band."
When I turned to reply,
the doctor was muttering and smiling,
setting my arm for another drip.

Raji's condition may have transmogrified into trauma-induced trance culminating in hallucination. Harry and Pius are probably Raji's two deceased allies, Harry Garuba and Pius Adesanmi. Both allies appear to him in the trance. Line seven of the poem titled "Breaking new#1" (p. 90) affirms that the poet undergoes "ten days of vacuous emptiness" (p. 90) before he begins to show signs of recuperation signified by self-controlled defecation. The use of *vacuous emptiness* – two synonymous words − in the same context attests that the poet's state transcends the emptiness of his stomach as a result of anorexia but unconsciousness. The poet affirms, in the poem dubbed "Denial" (p. 98), that he wakes "from a new unfamiliar bed" (p. 98) unable "…to write, or think…" (p. 98) and wonders how he gets "…caught/in the unpredictable valleys of the truant virus" (p. 98).

The two poems entitled "Breaking news #1" (p. 90) and "Breaking news #2" (p. 91) dwell on Raji's response to treatment and convalesce. The former borders on the poet's ability to defecate at 2:00pm − "the fourteenth hour" (p. 90) − of December 18, 2020 and the latter reflects the diminutive task he is able to perform. The poet chooses to wash his "two dirty underwears" (p. 91) not because they are filthy but "to perform a rite of presence" (p. 91), indicating his convalescing. Raji's ability to perform this minute task manually is an elixir to his COVID-19 morbidity, sign of recovery from and triumph over it. Having washed the two pants, the poet is able to ascertain the restoration of his sense of smell and expresses a sigh of relief. He adumbrates that:

I loved the little ocean of foams
and bubbles created by joyful waters…
The smell was sweet of the Atlantic ocean in my hand
the innocent smell of two pants,
one blue, one grayish, now wringed,
both relieved of their own antiseptic sins.

The decontamination of the pants symbolises the gradual restorative process of the poet's health and fortification against the virus. This gradual response to treatment and hope of survival reveal Raji's posttraumatic stress disorder. Conflicting flood of thoughts permeate the poet's psyche, struggling to pinpoint and reconcile the exact point of his contact with the lethal coronavirus. Raji exclaims, in the poem titled "The virus is a metaphor" (p. 99) that: "I kept plodding through flashes and fences of receding past" (p. 99). The eruption and repression of the memories of his past movements before the diagnosis are indices of the traumatic state of the poet. Raji metaphorically likens the attack of the virus to a stray bullet that hits a defenceless fellow and resolves that: "I got felled without knowing, it was like the Lekki shooting/I carried no weapon. Perhaps I wandered too far from home/harmless. The bullets cut deep in the dark, cut-and-dried". Allusion to the "Lekki shootings" (p. 99) during the #EndSARS protest in October, 2020 in Lagos makes Raji point easily understood. Scores of unarmed youths were killed during the protest. The imagery the poem elicits is melancholic and the cathartic effect is empathetic as fear and the possibility of death becloud the psyche of the poetic persona. He echoes that:

> Malaria denied complicity; Blood Pressure raised her hand
> helplessly
> the other members of the Immunity Battalion declared non-
> involvement
> leaving only the volatile virus to plead its own case.
> No case, actually, for the virus is the lord of all morbidities.
> Fear and ignorance became the dual weaponry of death.
> Courage was the last murmur or tether to survival. Nor blood nor
> breath.
> I became a precipice, hovering between fear and courage,
> fluctuating, between the glowing darkness and the gloomy lights.
> A levitating evidence of luminal existence, I was here but not here.
> I was water but I needed fire to burn me into a coolness.
> I was the beginning of an end, but I saw the end of old beginnings.

The last five lines of the above quote bring to the fore the uncertainty and the thought of death inscribed in the mind of the poet when he is being treated for coronavirus. They also capture the severity of the virus, which the poet calls "the lord of all morbidities" (p. 99). It is altogether oxymoronic that *darkness*, which symbolises everything gloomy – including death – is said to be *glowing* while *light*, which personifies life becomes *gloomy*. It simply means that that Raji does not give in to the coronavirus is by providence, because it is implied in the excerpt that the poet has developed thanatophobia and becomes traumatic.

Raji's poetic account of the killer coronavirus lucidly affirms that every stage of the treatment of the virus, to the point of discharge in the case of the lucky survivors, is traumatising. The poet himself is continuously traumatised to the point of

the exit fumigation at the hospital. Before he leaves his solitary ward for the High Dependency Unit (HDU) for debriefing, discharge and exit fumigation, the poet witnesses a traumatising emergency cornavirus condition. Female unconscious patient in need of oxygen is "wheeled supine" (p. 97) into the ward where the poet is, prompting the doctors to neglect him abruptly and attend to the woman. Raji writes that:

> I watched as the doctors tested pulse and breath
> The bouncy graphs appeared slow, long and rise
> tiny bleeps and frantic sounds on the screen.
> A decade of minutes after, the machine revved her back to voice.
> Then she became a riot of tongues and stories
> The doctors waited all through and forget my presence.

This scene appears didactic to the poet. Raji comes to appreciate the solitary confinement he had despised. He admits that: "The solitude I loved and hated became so dear" (p. 97). The woman's critical condition, which the poet is unaware of its end, prompts him to adhere strictly to the doctor's prescriptions, as well as advice "like an order" (p. 97). He becomes appreciative of his own condition and sees his healing as "a miracle" (p. 97).

Conclusion

The pathographic section of Raji's *Wanderer Cantos* (2021) is a stream of traumatic experiences of his struggle to survive coronavirus. It explains what it feels to be down with the deadly coronavirus. In this poetry collection, the poet offers a conflation of personal reminiscence of pangs, feelings, medical procedures and precautions against the coronavirus affliction. His critical condition bestrides the doorstep of death and life, but he is divinely granted a second chance to live. Those who survive the attack of the virus, like the poet, are miraculously lucky. The survival notwithstanding, the lucky ones live with the traumatic strain of the virus. Raji takes to writing, through the poetic genre, to ease the trauma of the dis-ease and repress the posttraumatic stress disorder his encounter with the virus has triggered or may still trigger. Raji's situation can be likened to that of someone who strays into the lion's den and comes back alive. Such person will forever be grateful and tell his story and retell it. Telling the story infuses inner joy − a sense of triumph – and therapeutic effect that heal the psychic ache the experience has caused.

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INFLUENCE OF KNOWLEDGE, ATTITUDE AND PRACTICE OF MENINGITIS PREVENTION AMONG THE RESIDENTS OF ZAMFARA STATE, NIGERIA

JUNAIDU MAIGANDI, BILKISU USMAN KILA AND MOHAMMED INUWA

[1]Zamfara State University, Talata Mafara jmaigandi@gmail.com08083946357

[2]Kaduna State University bilkisuusmankila@gmail.com 07063598736

[3]Aminu Saleh College of Education, Azare Bauchi State, Nigeria miazare90@gmail.com 08065407190

Abstract

The study assessed the Knowledge, Attitude and Practice of Prevention of Meningitis among the Resident of Zamfara State, Nigeria. The purpose of this study was to assess the knowledge about meningitis; assess the attitude of Resident towards the prevention of meningitis and assess the practice towards the prevention of meningitis in Zamfara State. Relevant literature was reviewed. ex-post facto research design was used for the study. Four hundred and thirty (433) respondents were selected using simple random sampling out of the population of Resident living in Zamfara state. The data collected was analyzed using one sample t test. The finds of the study revealed that there is knowledge about meningitis among the Resident of Zamfara State; Attitude towards the prevention of meningitis in Zamfara State is positive, and Practice towards the prevention of meningitis among the Resident of Zamfara State is not good. The study recommends among others that information and awareness should be provided to Resident of Zamfara state on new strategies of prevention of meningitis in order for them to have in depth knowledge on strategies that can be used to prevent meningitis; Resident of Zamfara state should be encouraged by government and health personnel on how to maintain positive attitude towards meningitis prevention strategies through mass media, seminars/ workshop and community health related programs

Keywords: Knowledge, Attitude, Practice, Meningitis

Introduction

Meningitis is an inflammation of the three thin membranes covering the brain and the spinal cords which are collectively called the meninges. It is a serious and sometimes fatal infection affecting the central nervous system and is caused by different bacterial and viral etiologic agents. It is associated with autoimmune disease; the main symptoms are fever, headache, nausea, and neck stiffness, which are similar to those presenting in infectious, malignant, or other forms of meningitis and the clinical cause is also varied and can be acute, chronic, or recurrent, and thus is not helpful in differential diagnosis (World Health Organization, 2009). It is extremely difficult to prove that co-morbid autoimmune disease is a direct cause of meningitis, but the exclusion of other etiologies is essential for accurate diagnosis. Such diagnosis is made from a full set of physical and laboratory data and imaging findings. Furthermore, in patients with

autoimmune diseases treated with immune-suppressive or immune-modulating agents, it is often difficult to differentiate meningitis is associated with autoimmune disease from infectious or drug-induced meningitis. (Rosentain and Bilukha, 2011).

Mulholland (2007) contended that the strangely contradictory opinions concerning meningitis which have been held by physicians of more than ordinary intelligence and information, are clearly traceable to their having seen but few cases of the disease, to their limited acquaintance with its diversified forms, or to their superficial study of its recorded history. Lesions are essentially the same in all, although varying in degree as much as congestion does from exudation and in extent from what is invisible to the naked eye to a profuse accumulation of inflammatory products. Yet the degree and extent of these lesions, and the greater or less energy in the primary impression of the morbid cause of the disease are the two elements, out of which this great variety in its phenomena arises.

Just as in typhoid fever the blood disorder and the intestinal lesion combine to impress upon that disease a characteristic expression which Is compounded of those two elements in various proportions, so that in one case the attack may terminate in coma before intestinal symptoms arise, or marked intestinal lesions are developed; and in another prolonged diarrhea and moderate fever may be almost the only prominent phenomena; so in epidemic meningitis the blood disease may vary through every grade, from extreme hypnosis to extreme hyperemesis, from typhoid symptoms to inflammatory, and the nervous disorder present those infinite diversities in degree and kind which depend upon the existence of congestion or of exudation in the membranes of the nervous centers, on the participation of one part or another of the brain or spinal marrow in the change, its degree and extent, and on the relative proportion of the blood and tissue changes in the aggregate lesions. (King, 2004)

It will readily be anticipated that, like other fatal epidemic diseases, meningitis is sometimes sudden and sometimes gradual in its development. In the former case, the patient on awaking suddenly from a sound sleep, or, while pursuing his ordinary avocations, may be attacked with chilliness, prostration, vomiting and headache, of which symptoms the last is often intensely distressing. As in other epidemic diseases, also, such seizures are most common during the earlier periods of its prevalence; but, later in its course premonitory symptoms are more frequently observed. They may last for an hour or two, or may extend to several days; and, in general, it may be stated that the longer their duration the milder will be the subsequent attack. But the symptoms in either case are essentially the same; prostration, chilliness, feverishness, and sometimes vomiting and sharp pains in the head, back and limbs. The character of the vomiting, as well as the absence of all gastric lesions prove that it is produced by an irritation of the brain. All of these symptoms, their succession and degree of gravity, were as fully described.

However, attitude towards prevention of meningitis as a disease among residents is important in understanding their health seeking behavior and use of appropriate preventive methods. Some of the studies reviewed indicated that people now regard meningitis as a dangerous disease that can kill and affects both children and adult (W.H.O 2012). Most people also strongly felt that meningitis can be prevented. Such positive attitude is essential for behavior change

campaigns. In addition, the failure to consider residents' knowledge, attitude and practices about meningitis prevention has contributed to the inability of programmes against meningitis to achieve sustainable meningitis prevention. It is of paramount importance that the knowledge, attitude and practice towards meningitis is studied in Zamfara State in order to understand better which the disease strikes widely.

Unfortunately, despite much scientific advancement in diagnostics and therapeutics, there is still considerable morbidity and mortality. The World Health Organization (2006) estimates that at least 500,000 new symptomatic infections per year occur worldwide, leading to at least 50,000 deaths. Bacterial meningitis remains a significant cause of morbidity and mortality throughout the world, despite the progress of antimicrobial therapy, especially in developing countries because of lack of preventive medical services, such as vaccination programs. Mortality rates are up to 34% while more than 50% of the survivors suffer from long-term neurological sequelae.

WHO, (2015) observed that "corruption in the health system and uncertainty in the political programme have supported various types of patronage, in this case in the form of contracts for the purchase of medical supplies. There was a widespread belief that a lot of residents have become millionaires over the epidemic". In northern Nigeria, for various reason, the epidemic was poorly managed. It is clear that the spread and belief of the disease could have been taken when early reports became known to health officials (WHO, 2012). At least 813 persons have died in northern Nigeria due to the outbreak of meningitis in November 2016. The eruption of this killer disease and its speedy lethal effect had generated massive concern from across and outside of the country. But due to the general lack of adequate knowledge on the disease, many Nigerians, including public officials ascribed superstitious essence to epidemic. (Narrel and Gilles 2012)

In several occasions, individuals and organizations such as the Association of Medical Laboratory Scientists of Nigeria (AMLSN) have pleaded with the federal government to redirect its focus on local production of vaccines. But the government wouldn't do this given the many years it had been clamoring for erecting vaccines and drug production plants in the country (Adegbola, Secka, Lahai, Lloyd-Evans, Njie,Usen, 2012). In line with the above assertions, it is expected that people are at risk of meningitis because they are least likely to have the means to prevent and treat meningitis. This is one of the reasons why people suffer physically and intellectually and often cannot contribute to the betterment of the society. Based on the above problems stated so far, the researcher develops interest in undertaking a research on the knowledge, attitude, practices towards the prevention of meningitis among the people of Zamfara State as this may help to provide a basis through which the problem of meningitis could be drastically reduced if not totally eradicated.

1.3 Statement of Problem

Despite much scientific advancements in diagnostic and therapeutic, there is still morbidity and mortality. Bacteria miningitis remain a significant cause of morbidity and mortality throughout the world, despite the progress of

antimicrobial therapy, especially in developing countries because of lack of preventive medical services such as vacation programs.

This study is set to:

Assess the knowledge about meningitis among the residents of Zamfara State

Assess the attitude of residents towards the prevention of meningitis in Zamfara State

Assess the practice towards the prevention of meningitis among the residents of Zamfara State

Research Questions

The following research questions were raised for verifications

1.What is the knowledge about meningitis among the residents of Zamfara State?

2.What is the attitude of residents towards the prevention of meningitis in Zamfara State?

3.What is the practice of residents towards the prevention of meningitis in Zamfara State?

Major Hypotheses

The knowledge, attitude and practice towards the prevention of meningitis among the residents of Zamfara State is not significant

Sub Hypotheses

1.The knowledge acquired about meningitis among the residents of Zamfara State towards the prevention of meningitis is not significant.

2.The attitude of residents towards meningitis prevention in Zamfara State is not significant.

3.The practice of residents towards meningitis prevention in Zamfara State is not significant.

Methods and Materials

The ex-post facto research design was adopted for this study. The population of this study consisted of the general population of Zamfara State (both males and females). The total aggregate population was 3,284,412. 30% sample size was drawn from the population of teachers from two secondary schools and residences. The sampling covers two secondary schools and two residences from each of the fourteen Local Government Areas of the state. Simple random sampling technique was adopted for this study and this gave the researcher the opportunity to select respondents from the schools. The researcher developed questionnaire adopting the Likert five-point scale options for the collection of data. The content and face validity was determined by giving to the supervisors of this research work and five professionals in Faculty of Medicine Ahmadu Bello University, Zaria to check whether the instrument will be able to test what it is expected to measure. Frequency and percentage distribution were used to show the respondents' contributions on a given item on

the table. To test the hypotheses of this research work, one sample t test, was used to test hypotheses 1, 2 and 3at 0.05 level of significance.

Results and discussions

Demographic characteristics of the respondents

The demographic variables selected along their expressed responses on the variables were age, sex, status, location, and educational qualification. Table 4.1 shows the distribution of the respondents by the respective levels of the demographic characteristics in frequencies and percentages.

Table 1: Demographic characteristics of the respondents

Variable	Variable options	Frequency	Percent
Sex	Female	176	42.1
	Male	242	57.9
	Total	**418**	**100.0**
Location	Rural	201	48.1
	Urban	217	51.9
	Total	**418**	**100.0**
Age range	15-25	47	11.2
	26-35	131	31.3
	36-45	104	24.9
	46-55	67	16.1
	56 and above	69	16.5
	Total	**418**	**100**
Status	Teacher	302	72.2
	Student	116	27.8
	Total	**418**	**100**

Observation on table 1 above with regard to Sex shown that of the total respondents involved in the study, 176 (42.1%) were female while 242 (57.9%) were male. The table also shows that 201 (48.1%) of the respondents resides in the rural areas while 217 (51.9 %) are in the urban area. The age range of the respondents shown that 47 (11.2%) are within the ages of 15-25, 131 (31.3%) are within the age range of 26-35, 104 (24.9%) are within the age of 36-45, 67 (16.1%) are within the age range of 46-55 and 69 (16.5%) are 56 years and above. Also, the status of the respondents indicated that teachers are more represented with 302 (72.2) and students 116 (27.8%). Junior and Senior Secondary school in the state were represented in the study.

Response to Research Questions.

Research Question one: What is the knowledge about meningitis among the residents of Zamfara State?

Table 2: Mean score of responses on the Knowledge of Prevention of Meningitis among the Residents of Zamfara State

Sn	Statement	Mean	Std. Dev.
1	Sharing of items with the infected residents can contribute to the spread of meningitis	2.52	1.242
2	Skipping vaccinations can cause meningitis infection	2.72	.744
3	Working with domestic animals can cause the spread of meningitis	2.87	1.251
4	Living in congested and unventilated rooms can lead to meningitis epidemic	2.68	.744
5	Most cases of viral meningitis occur in children younger than age 5	2.61	1.216
6	Pregnancy increases the risk of meningitis in women	2.58	.677
7	Head injuries and brain surgery also put patients at risk for meningitis	2.65	.744
8	Alcoholism is another causative agent of meningitis	2.60	.880
9	Conditions like HIV/AIDS, cancer, or diabetes can lead to meningitis infection	2.76	1.251
10	Living and working with large groups of residents increases the risk for infectious meningitis.	2.56	.790
11	Vomiting is one of the signs of meningitis	2.51	.677
12	Increased crying and irritability in children indicate that they are infected with the meningitis infection	3.39	.744
13	Headache and frequent coughing cannot be considered as one of the symptoms of meningitis	2.61	1.151
14	Mental confusion and loss of consciousness are possible signs and symptoms of meningitis	2.69	1.917
15	Skin rash commonly near the armpits and on the hands and feet are symptoms of meningitis	2.61	.790
16	Runny nose, and congestion prior to developing other symptoms can be regarded as symptoms of meningitis infection	2.51	1.232
17	Excessive sleeping is another sign of meningitis	2.69	.744
18	Difficulty nursing or eating is not a sign of meningitis	2.64	1.156
19	Joint pain is another possible signs of meningitis Stiff neck also indicates the presence of meningitis	2.65	1.136
20	Stiff neck also indicates the presence of meningitis	2.51	1.125
21	When signs and symptoms of meningitis are noticed, people seek for immediate treatment	2.67	.704
22	Victims of meningitis are taken to hospital for proper treatment	2.52	.988
23	Home treatment is mostly applied to meningitis patients rather than taken them to hospital for proper medication	2.72	1.572
24	When meningitis infection is noticed, antifungal medication is prescribed to treat a fungal infection	2.87	.585
25	Non-Governmental organizations give out drugs as part of their contributions to the victims of meningitis infection	2.68	.817
26	Patients of meningitis are well taken care of by the government	2.61	.677
27	Treatment of meningitis is done by the victim's family only	2.58	.744
28	Mechanical ventilation is provided to the patients if the level of consciousness is very low, or if there is evidence of respiratory failure	2.65	1.136
29	Benzyl penicillin is administered to the patients before transfer to hospital	2.60	.847
30	The most effective way to prevent meningitis is to get vaccinated against the disease	2.76	.790
31	Efforts are been made by both local, state and federal government to address the menace of meningitis epidemic in the state	2.56	1.151
32	Voluntary agencies play a very important role on campaigns against meningitis epidemic	2.51	.868
33	Immunization is conducted at regular intervals to reduce the case of meningitis in the state	3.39	.717
34	Victims of meningitis are kept away from the normal people to reduce instant transmission	2.61	1.156
35	Meningitis can be prevented from spreading by washing hands before and after eating	2.69	1.136
36	Health agencies liaise with the traditional rulers in curbing the problem of meningitis in the state	2.61	1.125
37	World Health Organization contributed immensely on fight against meningitis in the state	2.51	.790
38	People abstain from sharing items where secretions can lurk, such as drinking glasses, water bottles, straws, silverware, toothbrushes, lipsticks or lip glosses, and cigarettes	2.69	1.015
39	Keeping distance from infected people can help to prevent the spread of meningitis	2.64	1.151
	TOTAL	**2.67**	**0.442**

(Decision mean =2.50)

Table 2 above shown the mean score of responses on the knowledge about meningitis among the people of Zamfara State, Nigeria. The aggregate mean score for the table shown that the residents of Zamfara state have knowledge about meningitis. The benchmark mean set to determine the level of such influence is 2.50 as indicated at the bottom of the table. The aggregate mean score for the Knowledge about meningitis is 2.67 which is higher than the midpoint on the four-point scale. This observation implies that people are aware that Victims of meningitis are to be taken to hospital for proper

treatment and also they are aware that it is necessary to abstain from sharing items where secretions can lurk, such as drinking glasses, water bottles, straws, silverware, toothbrushes, lipsticks or lip glosses, and cigarettes to avoid been infected with meningitis.

Research Question Two: What is the attitude of residents towards the prevention of meningitis in Zamfara State?

Table 3: Mean score of responses on the attitude of residents towards the prevention of meningitis in Zamfara State?

S/N	Statement	Mean	Std. Dev.
1	I belief that sleeping in a well-ventilated room can prevent the spread of meningitis	3.82	.835
2	I feel that meningitis is a life-threatening disease	2.91	.880
3	I think that it is not necessary to keep environment clean and tidy	3.30	.765
4	I belief that meningitis can be transmitted from one person to another	3.05	.942
5	I belief that health education can play a very significant role in reducing if not eradicating meningitis in the state	2.97	.850
6	I belief that children and people with old age are most likely to have meningitis infection	2.42	.657
7	I comply to the rules and regulations laid down by the health care providers with the regards to meningitis infection	2.49	.974
8	I believe that the campaigns about the dangers of meningitis attract the attention of many people in both rural and urban areas for the prevention of meningitis	3.33	.744
9	I believe that people who are attacked by the epidemic meningitis should be taken to hospital for prompt action	3.17	.834
10	I believe that home treatment is better that taking meningitis patients to hospitals	2.28	.675
		2.974	**0.815**

(Decision mean =2.50)

Table 3 above shown the mean score of responses on the attitude of people towards the prevention of meningitis in Zamfara State, Nigeria. The aggregate mean score for the table indicated the respondents have positive attitude towards the prevention of meningitis in Zamfara State. The benchmark mean set to determine the level of such influence is 2.50 as indicated at the bottom of the table. The aggregate mean score of the attitude towards the prevention of meningitis was 2.974 which is higher than the midpoint on the four-point scale. This observation implies that residents of Zamfara state belief that sleeping in a well-ventilated room can prevent the spread of meningitis also Many people think that it is not necessary to keep environment clean and tidy to avoid the spread of meningitis.

Research Question three: What is the practice of residents towards the prevention of meningitis in Zamfara State?

Table 4: Mean score of responses on the practice of residents towards the prevention of meningitis in Zamfara State?

S/N	Statement	Mean	Std. Dev.
1	When signs and symptoms of meningitis are noticed, I go for immediate treatment	2.18	1.090
2	I sleep in a well-ventilated room	2.29	1.108
3	I go for immunization against meningitis infection	2.35	1.110
4	I keep my environment clean and tidy to avoid the spread of meningitis	2.28	1.105
5	I keep away from patients of meningitis because it can be transmitted through coughing and sneezing	2.35	1.064
6	I engage in daily exercise to protect myself against the spread of disease	2.23	1.014
7	I don't share personal items with the meningitis patient	2.41	1.040
8	I wash my hands before and after eating because they are convinced that the viruses and bacteria responsible for spreading meningitis can get on to the people's hands and into the mouth	2.39	1.006
9	I volunteer to create awareness on the dangers of meningitis epidemic	2.27	1.007
10	I guide children and elderly persons on how to keep themselves free from epidemic meningitis	2.37	1.076
		2.312	**1.062**

(Decision mean =2.50)

Table 4 above shown the mean score of responses on practice of residents towards the prevention of meningitis in Zamfara State, Nigeria. The aggregate mean score for the table indicated that the respondents do not practice the prevention of meningitis in Zamfara. The benchmark mean set to determine the level of such influence is 2.50 as indicated at the bottom of the table. The aggregate mean score on practice of people towards the prevention of meningitis in Zamfara State is 2.26 which is lower than the midpoint on the four-point scale. This observation implies that people do not sleep in a well-ventilated room and they do no practice good health hygiene's. Also when signs and symptoms of meningitis are noticed, they do not go to the hospital for immediate treatment.

Hypotheses Testing

Hypothesis One: The knowledge about meningitis among the residents of Zamfara State towards the prevention of meningitis is not significant.

Table 5: **One Sample t test on Knowledge about Meningitis**

	Mean	Std. Deviation	t-value	Df	P-value	Verdict
Aggregate mean	2.67	0.442	2.291	416	0.00	Rejected
Constant mean	2.50					

t = 1.972, P < 0.05

Table 5 revealed that the knowledge towards the prevention of meningitis among the residents of Zamfara State is significant. This is because the one-sample t-test calculated value is 2.291 greater than the t-critical of 1.972 at degree of freedom 416 with probability value 0.00 which is less than 0.05 level of significance. Thus, this result shown that the sub-

hypothesis (null) which states that "knowledge acquired about meningitis among the residents of Zamfara State towards the prevention of meningitis is not significant" is therefore rejected.

Hypothesis Two: The attitude of residents towards meningitis prevention in Zamfara State is not significant.

Table 6: **One Sample t test on Attitude of Residents towards Meningitis Prevention**

	Mean	Std. Deviation	t-value	Df	P-value	Verdict
Aggregate mean	2.97	0.815	2.013	416	0.001	Rejected
Constant mean	2.50					

t = 1.972, P < 0.05

Table 6. revealed that the attitude towards the prevention of meningitis among the residents of Zamfara State is significant. This is because the one-sample t-test calculated value is 2.013 is greater than the t-critical of 1.972 at degree of freedom 416 with probability value 0.001 which is less than 0.05 level of significance. Thus, this result shown that the sub-hypothesis (null) which states that "the attitude of residents towards meningitis prevention in Zamfara State is not significant" is therefore rejected.

Hypothesis Three: The practice of residents towards meningitis prevention in Zamfara State is not significant

Table 7: **One Sample t test on Practice of Residents towards Meningitis Prevention**

	Mean	Std. Deviation	t-value	Df	P-value	Verdict
Aggregate mean	2.31	1.062	1.413	416	0.07	Retain
Constant mean	2.50					

t = 1.972, P < 0.05

Table 7 revealed that the practice of residents towards meningitis prevention in Zamfara State is not significant. This is because the one-sample t-test calculated value is 1.413 is less than the t-critical of 1.972 at degree of freedom 416 with probability value 0.07 which is greater than 0.05 level of significance. Thus, this result shown that the sub-hypothesis (null) which states that "The practice of people towards meningitis prevention in Zamfara State is not significant" was therefore retained.

Conclusion

On the basis of the results and in view of the limitation of the study, the following conclusions are drawn:

1. Residents of Zamfara State have knowledge about meningitis prevention strategies
2. Attitude towards the prevention of meningitis is positive among the residents of Zamfara State.
3. Residents of Zamfara State do not Practice the prevention of meningitis

Recommendations

On the basis of the conclusion drawn, the following recommendations were made:

1. Further information and awareness by Government of the State should be provided to people of Zamfara state on new strategies of prevention of meningitis in order for them to have in depth knowledge on strategies that can be used to prevent meningitis.
2. People of Zamfara state should be encouraged by government and health personnel on how to maintain positive attitude towards meningitis prevention strategies through mass media, seminars/ workshop and community health related programs.
3. There is need for a well packaged prevention of meningitis health education intervention by the state government through medias, schools, town hall meetings, community heads and outdoor campaigns which could address and promote a constant practice of prevention of meningitis strategies among people of Zamfara State.

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KNOWLEDGE OF OCCUPATIONAL HEALTH HAZARDS AND SAFETY MEASURE ON BANK WORKERS IN KWARA STATE

ADEBAYO A. T. [1] , OLADOSU R. O.[1] and ABUBAKAR BELLO[2]

[1] Health Promotion and Environment Health Education, Faculty of Education, University of Ilorin, Nigeria

[2]Shehu Shagari College of Education, Sokoto

Corresponding author: adebayo.abiodun.tosin@gmail.com +2348035851705

Abstract

This study was carried out to investigate knowledge of occupational health hazards and safety measure on bank worker in Kwara State. A descriptive research design of the survey type was adopted for the study. The population for the study comprised all bank workers in Kwara State. A Multi-stage sampling techniques was used to select one hundred (100) respondents. Developed structured questionnaire which was validated by experts in the Health Education was used for data collection. The reliability of the instrument was carried out using split-half method using Spearman Brown Prophecy Formula and a coefficient of 0.82 was obtained. The data collected were subjected to frequency counts and inferential statistics of Chi-square to analyze the postulated hypotheses at 0.05 level of significance using SPSS Version 23.0. The findings of the study showed that: occupational safety measure will not significantly have influence on bank workers Level of knowledge of bank workers significantly have influence on occupational health hazards, because cal. χ^2 value (82.43) > critical value (11.07) at df of 5. Occupational safety measures significantly have influence on bank workers, because cal. χ^2 value (43.41) > critical value (11.07) at df of 5.The study concluded that level knowledge of bank workers significantly has influence on occupational health hazards. The study recommended that Health and safety need to be emphasized within the terrain or system of safety management approach. Also, workers should be oriented about the occupational safety measure at work.

Keywords: Knowledge, Occupational Health, Safety Measure, Hazards

Introduction

Health and Safety Professionals Alliance, (2017) stated that the continuous improvement in workplace health, and safety has reduced work-related disease, that includes, injuries and illnesses, in all over the world, and especially in developing nations. Globally, the most valuable assets in an organization are Human Resource (HR). Due to high human resource work performance, the efficient utilization of human resource foresees any company at the uppermost level and hence it is important for companies to make sure that they have a healthy and secure workplace for employees. A safe and healthy work atmosphere promotes work productivity and is a key element of worker human dignity (International Labour Organization (ILO), 2010). Internationally, business passings per populace fell by 14% somewhere in the range between 2000 and 2016. This might reflect upgrades in working environment wellbeing and security, the report says. Nonetheless,

passings from coronary illness and stroke related to openness to long working hours rose by 41 and 19 percent individually. This reflects an increasing trend in this relatively new and psychosocial occupational risk factor (ILO, 2021).

According to Borys, Else and Leggett (2019), relevant, reliable and valid health and safety performance data is said to be crucial in informing the operational and strategic decisions by driving management of health and safety effectively. The occupational safety is explained therefore, to be freedom from the risk of injury and health as freedom from the risk of illness (Akparorue, Omotayo, & Ajala, 2021). Putting resources into well-being and security at work must be viewed as a speculation instead of an expense. The grade to which the company cares for the employee by the means of health and safety in the workplace impacts their work relationships (Dowing, 2015)

The employers are supposed to understand that the employees are productive depending on the standard that they set on the issues of safety and health. Employee productivity is the value employees produce on an individual level every hour they work. When employers provide favorable work place environment employees performance is enhanced (World Health Organization (WHO), 2005).

Ricardo (2007) found that "workload is the most pervasive factor connected to work-related stress." He added that bullying, change, work shift and long working hours are causes of stress in workplace. Measuring the outcome of injury consequently has been said to be at the center of health and safety performance appraisal. Particularly, lost time injury rates have, over time, become the keystone of typical injury reporting and the standard against which organization, industry and national assessments are made (Akparorue Omotayo, & Ajala, 2021).

Mabuza (2018) asserts that safety of employees is very important and employers need to provide protective gears for employees while working so that the employees are able to protect themselves from hazards. Mabuza (2018) asserts that safety of employees is very important and employers need to provide protective gears for employees while working so that the employees are able to protect themselves from hazards.

The measures of health and safety at work have failed to be observed in many companies leaving the employees exposed to health hazards that vary. Sarode & Shirsath, (2015) established that productivity increase is affected by other related risks that are on the rise although there have been reducing measures of the exposure to the 16 risks that are related to machinery and work that is done manually. Yang, Shen, Zhu, Liu, Deng, Chen and See (2015) noted that employees were given welfare facilities by the company they worked for in order to motivate them to be productive and avoid high employee turnover.

Considering the success in improving health and safety over recent years, one would say Nigerian organizations have a great achievement. Although, the ongoing rates of work-related injury and illness has made provision for the evidence to the ongoing challenges that health and 3 safety poses for Nigerian workers, businesses and the broader economy. Not controlling the occupational hazards has contributed to work-related injuries and illness, including more serious injury cases (Akparorue, Omotayo, & Ajala, 2021).

According to Dewe, Michael and Cary (2012) despite the many benefits of workplace such as economic benefits, there are wide range of workplace hazards and risks that affect the safety and health of workers. These hazards include physical factors, psychosocial risk factors, allergies, biological, ergonomic conditions and many more. Bertera, (2003) points out that these factors include safety, labor inspection, employment, gender mainstreaming, labor statistics, maritime safety, child labor and informal economy.

In the end, specific incidents of health and safety system failure are being informed by injury procedures, even though they cannot be said to provide a valid measures of health and safety system integrity. As a result, the success of an occupational health and safety practices depends on the level of commitment and the support all the employees have towards the programme. All employees are critically committed and constantly promoting a safe work environment.

The status of health and safety conditions in the workplace has been a progressing significant concern in Kenya overtime. Therefore, the aim of this study was to find out the knowledge of occupational health hazards and safety measure among bank workers in Kwara State.

Methods and Materials

A descriptive research design of survey type was used adopted for the study. According to Kothari, (2014) research design is an arrangement of the conditions for collecting and analyzing data in a manner that aims to bring together relevant information to the research purpose with economy in procedure hence it is the conceptual structure within which research is conducted. This design was deemed appropriate for the study. The population for this study comprised all bank workers in Kwara State with a projected population of about two thousand, five hundred and fifty-one (2,551) bank workers. The target populations for the study consist of all bank workers in Offa local government area with purposeful sampling technique in which researcher pick the area of interest toward the study which have a total number of 320 populations.

The sample sizes for the study were one hundred (100) bank workers. The sample was selected through multi-stage sampling techniques of purposeful, proportionate and accidental sampling technique was used for the study. In stage 1: purposeful sampling technique in which researcher pick the area of interest toward the study which have a population of three hundred and twenty (320) which form the target population. Stage 2: proportional sampling technique was used to select 30% of the target population which gives ninety-six (96) bank workers but the researcher decide to make use of one-hundred (100) bank workers for the study. Stage 3: accidental sampling technique was used to select one hundred (100) bank workers in the Local Government Area selected for the study. The researcher administer the questionnaire with the researcher assistant to any staffs of bank which are from Local Government Area selected for the study.

The research instrument adopted for this study was a researcher developed structured questionnaire title "Knowledge of Occupational Health Hazards and Safety Measure among Bank Workers in Kwara State Questionnaire (KOHHSMBWKSQ)". The questionnaire was validated by given a draft copy of the instrument to experts in the Health

Education for content validity. Comments and suggestions made by the experts were carefully studied and integrated to improve the quality of the research instrument.

The reliability of the instruments was carried out by adopting a split-half method of determine the internal consistency, by which the questionnaire was pretested among twenty staffs of bank from a Oyun Local Government Area in Kwara State who shared similar characteristics with the participants of this study. The result of the administration was analyzed using the Spearman Brown Prophecy Formula and a correlation coefficient of 0.82 was obtained, this shows that the research instrument was reliable enough for the study.

The instrument was administered with the help of five trained research assistants. The training covered sampling procedures, contents of the questionnaire, how to interpret the items in the questionnaire, and how to get participants' informed consent.

Ethical principles guiding the use of human participants in research was upheld throughout the conduct of this study also ethical approval was obtained. Participation in the study was made voluntary and informed consent was obtained from each participant in the study. The researcher kept confidential all the information supplied by the research participants, while also ensuring the privacy of the participants. The researcher ensures where possible that completed copies of the questionnaire were collected back immediately to avoid loss of the instrument. Frequency counts and percentage was used to answer the research questions while inferential statistics of Chi-square was used to test hypotheses set for the study at 0.05 level of significance using Statistical Package for Social Science Version 23.0

Results and Discussions

Research Question 1: What is the level knowledge of bank workers on occupational health hazards?

Table 1: Showing frequency counts and percentage of level of knowledge of bank workers on occupational health hazards

S/N	ITEMS	YES (%)	NO (%)
1.	Wearing of high hill shoe at work can lead to fall	73 (73%)	27 (27%)
2.	Standing for long period of time during working hours can result into fracture	64 (64%)	36 (36%)
3.	Sitting in a position for a long period of time can result into back ache	71 (71%)	29 (29%)
4.	An exit door should always be open because of emergency	52 (52%)	48 (48%)
5.	Blue ray glass should be use for prevention of eye contact with computer screen	62 (62%)	38 (38%)
6.	Fire extinguishers must be kept in a visible and easy access place	56 (56%)	44 (44%)
	Total	**63 (63%)**	**37 (37%)**

The table 1 shows that 63 (63%) respondents indicate that they have knowledge on occupational health hazards while 37 (37%) respondents indicate that they do not have knowledge on occupational health hazards.

Research Question 2: What is the occupational safety measure among bank workers?

Table 2: Showing frequency counts and percentage of occupational safety measure among bank workers

S/N	ITEMS	YES (%)	NO (%)
7.	Wearing of flat shoe in the banking hall	59 (59%)	41 (41%)
8.	Sitting and standing should not be for long period of time	73 (73%)	27 (37%)
9.	Emergency exit door should not be lock	62 (62%)	38 (38%)
10.	Using of glass for eye protection	70 (70%)	30 (30%)
11.	Fire extinguishers should be in the premises	55 (55%)	45 (45%)
12.	There should be time for break for workers	64 (64%)	36 (36%)
	Total	**64 (64%)**	**36 (36%)**

The table 2 shows that 64 (64%) respondents indicate that they practice occupational safety measure while 36 (36%) respondents indicate that they don't practice occupational safety measure during working hour.

Hypothesis 1: The level knowledge of bank workers will not significantly have influence on occupational health hazards

Table 3: Chi-square analysis showing bank workers knowledge on occupational health hazards

S/N	Variables	YES (%)	NO (%)	df	Cal. χ^2 Value	Critical χ^2 Value	Decision
1.	Wearing of high hill shoe at work can lead to fall	73 (73%)	27 (27%)				
2.	Standing for long period of time during working hours can result into fracture	64 (64%)	36 (36%)				
3.	Sitting in a position for a long period of time can result into back ache	71 (71%)	29 (29%)				
4.	An exit door should always be open because of emergency	52 (52%)	48 (48%)	5	82.43	11.07	H_0 is rejected
5.	Blue ray glass should be use for prevention of eye contact with computer screen	62 (62%)	38 (38%)				
6.	Fire extinguishers must be kept in a visible and easy access place	56 (56%)	44 (44%)				
	Total	**378**	**222**				

$\alpha = 0.05$

The table 3 above shows the result of the hypothesis one which stated that the level knowledge of bank workers will not significantly have influence on occupational health hazards. The calculated chi-square value of 82.43 is greater than the critical value of 11.07 (cal. χ^2 val χ^2 val) with the degree freedom of 5 at 0.05 alpha level of significance. The hypothesis one was therefore rejected. This implies that wearing of high hill shoe at work can lead to fall; also sitting in a position for a long period of time can result into back ache; and standing for long period of time during working hours can result into fractures which have influence on occupational health hazards.

Hypothesis 2: Occupational safety measure will not significantly have influence on bank workers

Table 4: Chi-square analysis showing occupational safety measure on bank workers

S/N	Variables	YES (%)	NO (%)	df	Cal. χ^2 Value	Critical χ^2 Value	Decision
7.	Wearing of flat shoe in the banking hall	59 (59%)	41 (41%)				
8.	Sitting and standing should not be for long period of time	73 (73%)	27 (37%)				
9.	Emergency exit door should not be lock	62 (62%)	38 (38%)	5	43.41	11.07	H_0 is rejected
10.	Using of glass for eye protection	70 (70%)	30 (30%)				
11.	Fire extinguishers should be in the premises	55 (55%)	45 (45%)				
12.	There should be time for break for workers	64 (64%)	36 (36%)				
	Total	**4312**	**2758**				

$\alpha = 0.05$

The table 4 above shows the result of the hypothesis two which stated that the occupational safety measure will not significantly have influence on bank workers. The calculated chi-square value of 43.41 is greater than the critical value of 11.07 (cal. χ^2 val$> \text{tab.} > \text{tab.}$ χ^2 val) with the degree freedom of 5 at 0.05 alpha level of significance. The hypothesis two was therefore rejected. This implies that sitting and standing at work should not be for long period of time; also, using of glass for blue ray glass for eye protection; and there should be time for break for workers to relax which have influence on bank worker.

Discussion of Findings

Hypothesis 1 result revealed that wearing of high hill shoe at work can lead to fall; also sitting in a position for a long period of time can result into back ache; and standing for long period of time during working hours can result into

fractures which have influence on occupational health hazards. This finding is in line with the finding of Ricardo (2007), which discovered that "workload is the most pervasive factor connected to work-related stress." He added that bullying, change, work shift and long working hours in a position are causes of stress in workplace.

Hypothesis 2 result revealed that that sitting and standing at work should not be for long period of time; also, using of glass for blue ray glass for eye protection; and there should be time for break for workers to relax which have influence on bank worker. In support of these findings, previous studies have found poor compliance and lack of regularity in the utilization of safety measures among workers especially in the developing countries due to lack of firm policies on occupational health and safety (Gillen, Kools, Sum, McCall & Moulden, 2004). The non-use of safety devices among workers can be attributed to forgetfulness or beliefs that they were not convenient or necessary.

Conclusion

Based on the findings of the study, the following conclusions were drawn:

i. The level knowledge of bank workers significantly has influence on occupational health hazards.
ii. Occupational safety measures significantly have influence on bank workers.

Recommendations

Based on the conclusion drawn the following recommendations were drawn:

i. Health and safety need to be emphasized within the terrain or system of safety management approach. Employees 'well-being, their health-related issues that spread outside the work environment should also be look at.
ii. Workers should be oriented about the occupational safety measure at work. In synopsis, work environment wellbeing and security practices ought to contribute towards responsibility and guarantee that work environment wellbeing and security policy(ies) are better underscored.

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KNOWLEDGE, AND ATTITUDES OF STREET FOOD VENDORS TOWARDS FOOD SAFETY AS PERCEIVED AMONG RESIDENTS OF KWARA STATE

ADEBAYO A. T.[1], ADEMOLA S. O.[1], KWASAU I. J.[2], ADEBAYO P. A.[3] and OLADEJO D.[4]

[1]Faculty of Education, University of Ilorin, Ilorin Nigeria

[2]Department of Physical and Health Education, Kaduna StateCollege of Education Gidan Waya, Kaduna Nigeria

[3]Department of Microbiology, National Open University of Nigeria

[4]Department of Biochemistry, Federal University, Oye-Ekiti, Ekiti State, Nigeria

Corresponding author: adebayo.abiodun.tosin@gmail.com +2348035851705

Abstract

This study was carried out to investigate (i) knowledge, and (ii) attitudes towards food safety of street food vendors as perceived among residents in Kwara State. A descriptive research design of the survey type was adopted for the study. The population for the study comprised all residents (both male and female) residing in Kwara State. A Multi-stage sampling techniques was used to select one thousand (1000) respondents. Developed structured questionnaire which was validated by 3 experts in the Health Education was used for data collection. The reliability of the instrument was carried out using split-half method using Spearman Brown Prophecy Formula and a coefficient of 0.76 was obtained. The data collected were subjected to frequency counts and inferential statistics of Chi-square to analyze the postulated hypotheses at 0.05 level of significance using SPSS Version 23.0.

The findings of the study showed that:

i. level of knowledge of street food vendors significantly have influence towards foods safety, because cal. χ^2 value (162.51) > critical value (12.59) at df of 6.
ii. attitude of street food vendors significantly have influence towards foods safety, because cal. χ^2 value (92.74) > critical value (12.59) at df of 6.

The study concluded that level knowledge and attitude of street food vendors have influence towards foods safety. The study recommended that Government should conduct special food safety training for street food vendors in accordance with global health guidelines; and also relevant regulatory bodies to enforce laws to limit the risk of food contamination by food handlers.

Keywords: Knowledge, Attitude, Food Safety, Street Food Vendors

Introduction

Globally, Food Borne Disease (FBD) is a serious public health concern, and it is primarily associated with poor food handling and sanitation practice (Zanin, Cunha, de Rosso, Capriles & Stedefeldt, 2017). Outbreaks of food-borne diseases could be due to poor hygiene in restaurants; thus, hygienic food handling is a possible way of protecting people from food borne illnesses (Gomes-Neves, Cardoso, Araújo & da Costa, 2011; Assefa, Tasew, Wondafrash & Beker, 2015).

Foodborne diseases are usually defined as infectious air-borne diseases caused by agents that enter the body through food consumption (World Health Organization, 2000). Foodborne diseases are a significant and growing public health problem in both developing and developed countries (Bhattacharjya & Reang, 2014).

The lack of accurate data on the occurrence of Food Borne Disease makes it difficult for policymakers to improve current regulations (Salleh, Lani, Abdullah, Chilek & Hassan, 2017). Moreover, Food Borne Disease not only affects one's health outcomes but even a single outbreak event results in economic losses due to changes in consumer purchasing behaviour and national expenditure for medical treatment (Hussain & Dawson, 2013). Therefore, food safety practices are essential to reducing the prevalence of Food Borne Disease.

Good knowledge and a positive attitude among food handlers and proper food handling practices can help control foodborne illness outbreaks in certain situations (Sharif & Al-Malki, 2010). In addition to good knowledge and positive attitudes about food safety, socio-demographic conditions, such as the education and food safety training attended by food handlers, play an important role in motivating food handlers to implement appropriate food handling practices (Al-Shabib & Mosi, 2016).

Creating a hygienic and sanitary environment in the food handling premises could be facilitated by food handlers who are knowledgeable and sensitized regarding food safety issues. Evidence shows that food handlers who are educated and trained in food safety practices maintain a hygienic environment in the food handling premises (Manes, Kuganantham, Jagadeesan, Laxmideyi & Dworkin, 2016; Derso, Tariku, Ambaw, Alemenhew, Biks & Nega, 2017).

Consumption of microbiologically and chemically contaminated foods causes illness in millions of people in the world everyday (Havelaar, Kirk, Torgerson, Gibb, Hald, et al., 2015; World Health Organization, (WHO), 1999). It has been estimated that 1 out of 10 people in the world (about 600 million) get sick from consuming contaminated food (WHO), 2020). Among them, 420,000 consequently died, which resulted in the loss of 33 million healthy life years (DALYs) per year, and it has an annual economic toll of US$110 billion in productivity loss and medical expenses in low- and middle-income countries (WHO, 2020). Like other low-income countries, it is estimated that more than 200 diseases spread through contaminated foods (Loukieh, Mouannes, Abou-Jaoudeh, Hanna-Wakim, Fancello & Bou Zeidan, 2018).

However, many of them lack adequate food safety attitudes, knowledge, and practices due to the deficit of food hygiene training. The microbiological quality of street-vended food is an important concern and considered to be a significant contributor to food borne diseases (Al Mamun, Rahman & Turin, 2013; Sousa, Albuquerque, Gelormini, Casal, Pinho, et al., 2022; Rosales, Linnemann & Luning, 2023). The results of several studies conducted on street foods in different countries showed that the foods were positive vectors of food-borne illness (Al Mamun, Rahman & Turin, 2013; Girma, Ketema & Bacha, 2014; Hanashiro, Morita, Matt´e, Matt´e & Torres, 2005; Islam, Hassan, Amin, Madilo, Rahman, et al., 2022).

The relationship between knowledge, attitudes and practices are explained through the KAP model (Simelane, 2005). Knowledge is accumulated through learning processes, which may be formal or informal instruction, personal

experience and experience sharing are possible (Glanz, Rimer & Lewis, 2002). It has traditionally assumed that knowledge is automatically translated into behavior (Glanz, Rimer & Lewis, 2002).

Knowledge was found to be unimportant and cognitive processing of information important in the attitude-practice relationship (Simelane, 2005). Attitude is the way people think, it includes evaluative concepts related to how we feel and behave (Keller, 1998). It includes cognition, emotions and what to know a habit component that refers to how to feel and what to do (Keller, 1998). Attitudes can influence the intention to perform a given practice (Rutter & Quine, 2003).

Restaurant food handlers from low- and lower middle-income countries often have little knowledge about food safety issues (Onyeneho & Hedberg, 2013; Manes, Kuganantham, Jagadeesan, Laxmidevi & Dworkin, 2016). However, there is a possibility of virus transmission through food handlers as the virus could survive for several days on the surfaces of utensils or food handling materials (Olaimat, Shahbaz, Fatima, Munir & Holley, 2020). Proper hand-washing techniques; cleaning of raw materials, kitchen equipment, and environment; and food storage are required to combat food burn disease.

This requires a dire call for sanitation research that diminishes pathogenic pollution of road distributed food sources from the planning and up to utilization. In this regard, the level of knowledge, attitude, and practice on food safety in the street food sector is not well known. Therefore, the aim of this study was to investigate the knowledge, and attitudes of street food vendors towards food safety as perceived among residents in Kwara State.

Methods and Materials

A descriptive research design of survey type was used adopted for the study. Asika (2010) noted that the descriptive research is concerned with the collection and analysis of data for the purpose of describing, evaluating or comparing current event or prevailing practices, event or occurrences. This design was deemed appropriate for the study. The population for this study comprised all residents (both male and female) residing in Kwara State with a projected population of about 3,551,000 (City Population, 2023). Kwara State is located at the North Central of Nigeria and also among the first 16 state created in Nigeria, having 16 local government area with 33,433 km² Area. The target population for the study consist of 8 selected local government area which are selected with systematic random sampling technique of pick one, skip one method which have a total number of 1,982,500 population.

The sample sizes for the study were one thousand (1000) residents (both male and female). The sample was selected through multi-stage sampling techniques of systematic, proportionate and accidental sampling technique was used for the study. In stage 1: systematic random sampling technique of pick one, skip one method was used to selected eight (8) Local Government Area from the sixteen (16) Local Government Area in Kwara State, with a population of 1,982,500. Stage 2: proportional sampling technique was used to select 0.05% of the target population which gives nine hundred and ninety-one (991) sample size but the researcher decide to make use of one thousand (1000) residents as sample size for the study. Stage 3: accidental sampling technique was used to select one thousand (1000) residents from the eight Local Government Area selected for the study. This was done when researcher administer the questionnaire with the researcher assistant to any residents from age 18 – 65 years which are also from the eight (8) Local Government Area selected for the study.

The research instrument adopted for this study was a researcher developed structured questionnaire title "Knowledge, and Attitudes of Street Food Vendors towards Food Safety as Perceived Among Residents in Kwara State Questionnaire (KASFVFSPARKSQ)". The questionnaire was validated by given a draft copy of the instrument to 3 experts in the Health Education for content validity. Comments and suggestions made by the experts were carefully studied and integrated to improve the quality of the research instrument.

The reliability of the instruments was carried out by adopting a split-half method of determine the internal consistency, by which the questionnaire was pretested among thirty residents from a Boluwaduro Local Government Area in Osun State who shared similar characteristics with the participants of this study. The result of the administration was analyzed using the Spearman Brown Prophecy Formula and a correlation coefficient of 0.76 was obtained, this shows that the research instrument was reliable enough for the study.

The instrument was administered with the help of twenty (20) trained research assistants. The training covered sampling procedures, contents of the questionnaire, how to interpret the items in the questionnaire, and how to get participants' informed consent.

Ethical principles guiding the use of human participants in research was upheld throughout the conduct of this study also ethical approval was obtained. Participation in the study was made voluntary and informed consent was obtained from each participant in the study. The researcher kept confidential all the information supplied by the research participants, while also ensuring the privacy of the participants. The researcher ensures where possible that completed copies of the questionnaire were collected back immediately to avoid loss of the instrument. Frequency counts and percentage was used to answer the research questions while inferential statistics of Chi-square was used to test hypotheses set for the study at 0.05 level of significance using Statistical Package for Social Science Version 23.0.

Results and Discussions

Research Question 1: What is the level knowledge of street food vendors towards foods safety as perceived among residents?

Table 1: Showing frequency counts and percentage of level of knowledge of street food vendors towards food safety as perceived among residents in Kwara State

S/N	Variables	YES (%)	NO (%)
1.	Does hand washing before handling raw food reduce the risk of food contamination?	730 (73%)	270 (27%)
2.	Does personal protective equipment have a role in reducing food contamination?	640 (64%)	360 (36%)
3.	Does dressed neatly is crucial while cooking?	770 (77%)	230 (23%)
4.	Is wearing a cape while working and selling is part of personal hygiene?	520 (52%)	480 (48%)
5.	Does re-heating the cooked foods can decrease food contamination?	580 (58%)	420 (42%)
6.	Do you know raw and cooked foods could be stored separately to reduce contamination?	660 (66%)	340 (34%)
7.	Does proper sanitation and cleaning of utensils decrease the risk of food contamination?	550 (55%)	450 (45%)
	Total	**636 (63.6%)**	**364 (36.4%)**

The table 1 shows that 636 (63.6%) respondents indicate that street food vendors have high level knowledge towards food safety in Kwara State, while 364 (36.4%) respondents indicate that street food vendors have low level knowledge towards food safety in Kwara State.

Research Question 2: What is the attitude of street food vendors towards foods safety as perceived among residents?

Table 2: Showing frequency counts and percentage of attitude of street food vendors towards food safety as perceived among residents in Kwara State

S/N	Variables	YES	NO
		(%)	(%)
8.	Do you think that well-cooked foods are free of pathogens?	660	340
		(66%)	(34%)
9.	Do you wear an apron and cap while preparing and serving the food?	520	480
		(52%)	(48%)
10.	Do you think safe food handling is an important part of job responsibilities?	630	370
		(63%)	(37%)
11.	Do you think food vendors can be a source of food-borne diseases?	770	230
		(77%)	(23%)
12.	Does paint fingers can contaminate the food?	510	490
		(51%)	(49%)
13.	Did you think wearing a face mask to reduce the risk of food contamination?	580	420
		(58%)	(42%)
14.	Do you believe personal protective equipment and clothes reduce the risk of food contamination?	640	360
		(64%)	(36%)
	Total	**616**	**394**
		(61.6%)	**(39.4%)**

The table 2 which shows that 616 (61.6%) respondents indicate that street food vendors have positive attitude towards food safety in Kwara State, while 394 (39.4%) respondents indicate that street food vendors have negative attitude towards food safety in Kwara State.

Hypothesis 1: The level knowledge of street food vendors will not significantly have influence towards foods safety as perceived among residents in Kwara State

Table 3: Chi-square analysis showing residents perception of the level knowledge of street food vendors towards foods safety

S/N	Variables	YES (%)	NO (%)	df	Cal. χ^2 Value	Critical χ^2 Value	Decision
1.	Does hand washing before handling raw food reduce the risk of food contamination?	730 (73%)	270 (27%)				
2.	Does personal protective equipment have a role in reducing food contamination?	640 (64%)	360 (36%)				
3.	Does dressed neatly is crucial while cooking?	770 (77%)	230 (23%)	6	162.51	12.59	H_0 is rejected
4.	Is wearing a cape while working and selling is part of personal hygiene?	520 (52%)	480 (48%)				
5.	Does re-heating the cooked foods can decrease food contamination?	580 (58%)	420 (42%)				
6.	Do you know raw and cooked foods could be stored separately to reduce contamination?	660 (66%)	340 (34%)				
7.	Does proper sanitation and cleaning of utensils decrease the risk of food contamination?	550 (55%)	450 (45%)				
	Total	**4452**	**2548**				

$\alpha = 0.05$

The table 3 above shows the result of the hypothesis one which stated that the level knowledge of street food vendors will not significantly have influence towards foods safety as perceived among residents in Kwara State. The calculated chi-square value of 162.51 is greater than the critical value of 12.59 (cal. χ^2 val $>$ tab. $>$ tab. χ^2 val) with the degree freedom of 6 at 0.05 alpha level of significance. The hypothesis one was therefore rejected. This implies that hand washing before handling raw food reduce the risk of food contamination; also dressed neatly is crucial while cook; and having knowledge that raw and cooked foods could be stored separately to reduce contamination which have influence by street food vendors towards foods safety.

Hypothesis 2: The attitude of street food vendors will not significantly have influence towards foods safety as perceived among residents in Kwara State

Table 4: Chi-square analysis showing residents perception attitude of street food vendors towards foods safety

S/N	Variables	YES (%)	NO (%)	df	Cal. χ^2 Value	Critical χ^2 Value	Decision
8.	Do you think that well-cooked foods are free of pathogens?	660 (66%)	340 (34%)				
9.	Do you wear an apron and cap while preparing and serving the food?	520 (52%)	480 (48%)				
10.	Do you think safe food handling is an important part of job responsibilities?	630 (63%)	370 (37%)				
11.	Do you think food vendors can be a source of food-borne diseases?	770 (77%)	230 (23%)	6	92.74	12.59	H_0 is rejected
12.	Does paint fingers can contaminate the food?	510 (51%)	490 (49%)				
13.	Did you think wearing a face mask to reduce the risk of food contamination?	580 (58%)	420 (42%)				
14.	Do you believe personal protective equipment and clothes reduce the risk of food contamination?	640 (64%)	360 (36%)				
	Total	**4312**	**2758**				

$\alpha = 0.05$

The table 4 above shows the result of the hypothesis two which stated that the attitude of street food vendors will not significantly have influence towards foods safety as perceived among residents in Kwara State. The calculated chi-square value of 92.74 is greater than the critical value of 12.59 (cal. χ^2 val $>$ tab. $>$ tab. χ^2 val) with the degree freedom of 6 at 0.05 alpha level of significance. The hypothesis two was therefore rejected. This implies that food vendors can be a source of food-borne diseases; likewise, personal protective equipment and clothes reduce the risk of food contamination; also, well-cooked foods are free of pathogens which have influence of street food vendors towards foods safety.

Discussion

Hypothesis 1 result revealed that hand washing before handling raw food reduce the risk of food contamination; also dressed neatly is crucial while cook; and having knowledge that raw and cooked foods could be stored separately to reduce contamination have influence of street food vendors towards foods safety. This finding is in line with the finding of Musa and Akande (2003) opined that food poisoning and the other food born disease could occur in institution such as schools, hostels, hospitals and prisons, where food and drinks are served or sold to groups of people by food vendors or other handlers.

Hypothesis 2 result revealed that food vendors can be a source of food-borne diseases; likewise, personal protective equipment and clothes reduce the risk of food contamination; also, well-cooked foods are free of pathogens which have influence of street food vendors towards foods safety. This finding is similar to the findings of Al Mamun, Rahman and Turin, (2013); Sousa, et al., (2022); and Rosales, Linnemann and Luning, (2023), which says that many of street food vendors lack adequate food safety attitudes due to the deficit of food hygiene training. The microbiological quality of street-vended food is an important concern and considered to be a significant contributor to food borne diseases.

Conclusion

Based on the findings of the study, the following conclusions were drawn:

i. The level knowledge of street food vendors have influence towards foods safety as perceived among residents in Kwara State.
ii. Attitude of street food vendors have influence towards foods safety as perceived among residents in Kwara State

Recommendations

Based on the conclusion drawn the following recommendations were drawn:

i. The study found that most street food vendors have good food safety knowledge, but their hygienic practices require improvement. Therefore, all levels of Government should conduct special food safety training for street food vendors in accordance with global health guidelines.
ii. It also discovered that street food vendors have positive attitude towards safety food, but more still require towards hygienic environment. It is needed for relevant regulatory bodies to institute measures to ensure the enforcement of food handling laws to limit the risk of food contamination by food handlers.

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DEVELOPMENT OF AN IMB MODEL-BASED EDUCATIONAL MODULE FOR QUITTING TRAMADOL ABUSE AND ITS EFFECTIVENESS AMONG YOUTHS IN BENUE STATE, NIGERIA

ORFEGA ZWAWUA[1] & 4 ROHANI ISMAIL[1] MOHD AZHAR MOHD YASIN[2] NORHAYATI MOHD NOOR[3] TARGEMA IORVAA[4] EMMANUEL KOR[4] TERTSEAGHA SMITH UKPEKEH [4]

[1] Interdisciplinary Health Sciences Unit, School of Health Sciences, Universiti Sains Malaysia

[2] Department of Psychiatry, School of Medical Sciences, Universiti Sains Malaysia

[3] Department of Family Medicine, School of Medical Sciences, Universiti Sains Malaysia

[4] Department of Human Kinetics and Health Education, Benue State University Makurdi, Nigeria

Corresponding Author: Orfega Zwawua (zwawuaorfega@gmail.com)

Abstract

The purpose of this study was to develop and assess the effectiveness of an IMB model-based educational module for quitting tramadol abuse. Sidek module development model (SMDM) guided the development of the module, and the content was sourced from literature and FGD with experts. The organization of the module contents was based on the information-motivation-behavioural skills (IMB) model. Six experts validated the content of the module. Item-level content validity index (I-CVI) and content validity achievement (CVA) of the module were determined with cut-off points set at 0.83 and 70% respectively. The effectiveness of the module was assessed in a quasi-experimental study using intervention and control groups with 51 participants each. The validation results indicated that items 4, 8, 9, 10, 11 and 16 had I-CVIs below 0.83 and were removed from the module. Overall, the module had good CVA of 85.8% and a reliability coefficient of 0.76. The results of the intervention study showed a significant difference in the knowledge about tramadol between the intervention and the control group [F (1.4, 130.1) = 480.6, $p < .001$] with the intervention group recording higher mean knowledge scores after the intervention. A significant difference in the mean self-efficacy scores was also observed [F (1.3, 126.4) = 185.8, $p < .001$] with the intervention group scoring higher on self-efficacy for quitting tramadol use than the control group. A significant difference in the mean behaviour scores was also observed between the two groups [F (1.9, 173.9) = 104.1, $p < .001$) with the intervention group scoring lower on tramadol consumption than the control group. The newly developed module is effective in enabling those persons who struggle with tramadol addiction to quit. The module could serve as an important intervention tool for community health educators, addiction counsellors, officials of rehabilitation centres and researchers interested in drug abuse interventions

Keywords: development, IMB model, educational module, tramadol abuse, effectiveness

Introduction

Tramadol (popularly known as tramol in Nigeria) is a pharmaceutical opioid indicated for moderate to moderately severe pain. However, the prescription analgesic has become a major substance of abuse among youths due to its' euphoric, energetic, and aphrodisiac effects (Bashirian et al., 2014; Bassiony et al., 2015; Fuseini et al., 2019).

Tramadol abuse involves the use of the analgesic contrary to the medical and legal guidelines. Simply put, it is the use of tramadol without medical prescription and for purposes other than pain treatment. Tramadol abuse has become a public health concern issue in many countries in sub-Saharan Africa. For instance, a report by the International Narcotics Control Board (INCB) listed many countries in sub-Saharan Africa (including Nigeria) where there is illicit manufacture of tramadol and heavy non-medical use (Ahmed et al., 2018). Another report identified tramadol as the most abused substance second to cannabis with about 71% of opioid consumers in Nigeria (National Bureau of Statistics, 2018). The approved quota for tramadol in Nigeria is 6000 kg, however, the amount in circulation is about 91000 kg (Klein & Ane, 2019) far exceeding the approved quota. Reasons commonly advanced for use of tramadol among Nigerian youths include delayed ejaculation, prolonged orgasm, prolonged hours at work, and increased boldness and bravery (Chia et al., 2015; Chikezie & Ebuenyi, 2019; Ibrahim et al., 2017; Orhero, 2018). These perceived benefits have contributed to the popularity and massive use of tramadol among Nigerian youths.

The National Council on Health (NCH) in its 59th Meeting held in 2013 put tramadol, (a hitherto prescription-only-medicine) under national control based on national trends of abuse, harm to public health and social well-being (Adeyeye, 2018). This was an intervention to control supply which required the manufacturer, importer, distributor, and retailer to document all transactions involving the drug including its disposal. The schedule in Nigeria regulated tramadol at 50 mg and 100 mg dosage strength; but very high dosages of 200 mg, 225 mg, 250 mg and even 400 mg have infiltrated the market (National Drug Law Enforcement Agency, 2018). In as much as the Government of Nigeria has made efforts to checkmate illicit use of tramadol, the drug still finds its way in large quantities to the nook and crannies of the country. There is also illicit production of tramadol with forged labels in the country to meet the high consumption demands. This is a pointer that laws and force cannot effectively curb tramadol abuse among youths unless supported with an educational intervention that could address the knowledge, attitude, self-efficacy, and behavioural skill deficits regarding tramadol use (Fuseini et al., 2019; Geramian et al., 2012; Wright et al., 2014 and Nickmanesh et al., 2017).

An educational module is a document or tool that contains learning experiences and activities systematically organised to transmit knowledge, values and skills required to carry out some specific tasks for the achievement of some specific objectives (Dimopoulos et al., 2009). Behavioural change theories including the theory of planned behaviour (TPB), the health belief model (HBM), the transtheoretical model (TM), and the information-motivation-behavioural skills (IMB) model have frequently been used to develop educational modules for behavioural change (Copenhaver & Lee, 2006; Chang et al., 2014). The IMB model in particular, has received much attention because of its simple explanation of the complexity of health behaviours and the identification of the constructs (information, motivation, and behavioural skills) that are necessary for behavioural change. The IMB model was developed by Fisher and Fisher (1992) to explain HIV/AIDS-related behaviours and to guide the development of interventions by conceptualizing the psychological determinants of achieving behaviour change. The IMB model includes three primary constructs that influence behaviour

change: (1) information about the risky behaviour; (2) motivation to change the risky behaviour; and (3) the behavioural skills necessary for change (Rongkavilit et al., 2010).

Consistent with the IMB model, providing information about tramadol (first construct of IMB) would facilitate quitting its use. This is because studies have documented that lack of accurate information about substances is one of the factors inducing substance use among young people and an effective intervention should address the knowledge gaps (Elliason, 2018; Embleton et al., 2012; Shamsi et al., 2008). Studies have also shown the importance of motivation (second construct of IMB) in quitting drug use, as there may be favourable attitudes towards drug use which may require the use motivation for change to occur (DiClemente, 1999; DiClemente et al., 2017; Hughes & Naud, 2016; Jardin et al., 2014). It is also needful to include specific behavioural skills (third construct of IMB) in any intervention in substance use. This is justified by literature evidence that refusal and resistant skills are necessary for quitting drug use (Botvin et al., 2001; Scheier et al., 1999; Waldron et al., 2007). The behavioural skill construct of the model emphasises the enhancement of an individual's skills, and perceived self-efficacy to facilitate behaviour change.

Several educational intervention studies have utilized the IMB model which effectively reduced unhealthy and risky behaviours (Copenhaver & Lee, 2006; Fisher et al., 1996; Rongkavilit et al., 2010). However, to the best of the researchers' knowledge, none of these interventions had focused on reducing illicit use of drugs like tramadol. The choice of this model was based on its comprehensive and theory-based strategy for addressing the major correlates of substance use (knowledge, attitudes, and self-efficacy) identified in the literature (Fuseini et al., 2019; Geramian et al., 2012; Wright et al., 2014 and Nickmanesh et al., 2017). Therefore, developing an educational module based on the IMB model to be used by community health educators, addiction counsellors and officials of rehabilitation homes in community settings would be important, particularly for out of school youths who may not have the opportunity to learn about drugs and substances of abuse in school settings.

Methods and Material

This study was conducted in two phases: (1) module development and validation, and (2) community-based intervention study.

Phase One: Module Development and Validation

The module was developed following the steps outlined in Sidek module development model (SMDM) comprising the preparation of the draft module and its validation (Sidek & Jamaludin, 2005). Consistent with the SMDM, the needs for the development of the module were assessed through two sessions of focus group discussions (FGD) with regular tramadol users (eight participants each) who were drawn from areas of profound tramadol abuse in Benue State of Nigeria using snow-ball sampling. The content of the module was sourced from literature review and FGD with psychiatrists, addiction counsellors and health educators. The module's contents were selected and organized in units based on the three constructs of the IMB model: information, motivation, and behavioural skills (Fisher et al., 2003).

Information unit: this unit was developed to address the deficiency in information and knowledge about tramadol. The unit contains basic information on origin of tramadol, description of different types of tramadol, medical use of tramadol, prescription status and regulation of tramadol in Nigeria, tramadol abuse, effects of tramadol abuse and safe withdrawal from tramadol use among other vital informations.

Motivation (affective) unit: this unit was developed to address the attitudinal-related needs identified from the FGD with tramadol abusers. The unit focuses on helping individulas to decide quitting tramadol abuse by motivating them with stories and drama about tramadol abuse and counselling them on how to change attitudes towards tramadol use.

Behavioural skills unit: this unit was developed to address the deficiency in the ability to resist peer pressure and cravings associated with continuous use of tramadol as identified from the FGD with tramadol abusers. The unit covers demonstration of practical skills to build self-efficacy for quitting tramadol abuse. This unit is equally important because it is believed that the shortcomings of young people's self-efficacy could cause continuous abuse of drugs (Chavarria et al., 2012). Studies have also established that lack of refusal and craving-resistant skills could make quitting drug use a challenging or nearly impossible task (Fauziah et al., 2011; Nikmanesh et al., 2017; Olubunmi & Adedotun, 2020).

The information from the literature search combined with the FGD findings were used to generate nine topics for the module: (1) basic information on tramadol (2) description of tramadol, modes of action and routes of administration (3) tramadol abuse and related terms (4) effects of tramadol abuse (I) (5) effects of tramadol abuse (II) (6) effects of tramadol abuse (III) (7) withdrawing from tramadol use (8) changing positive attitudes towards tramadol abuse, and (9) behavioural/self-efficacy skills for quitting tramadol use. The module was initially organized into three units with nine sessions, nine topics and 39 subtopics.

Thereafter, copies of the draft module were emailed along with content validation forms to six experts including two psychiatrists, two addiction counsellors and two health educators for content validation. The validation form was developed around the topics and activities in the module. The experts were requested to rate the relevance of the 39 items on a 4-point Likert scale ranging from 1 (item is highly irrelevant) to 4 (item is highly relevant). The rating scores were entered into Microsoft excel to compute the item-content validity index (I-CVI) and the content validity achievement (CVA) of the module (Madihie & Sidek, 2013). The cut-off point for retaining items was set at 0.83 (Polit, Beck, & Owen, 2007). The percentage formula for module validation by Sidek and Jamaludin (2005) was applied to determine the content validity achievement (CVA) of the module. According to Sidek and Jamaludin (2005), if the percentage of content validity is more than 70%, then the module has good content validity, and if less than 70%, the module does not have a good validity result and it is advisable to re-check the content according to the objectives of the module. The experts were also requested to make a qualitative judgement of the items and make comments and observations.

Module Reliability: Consistent with the SMDM, a pilot test of the module was conducted using 30 long-term tramadol users in Makurdi Local Government Area of Benue State for three days. Participants were exposed to some selected topics under each unit of the module. A 20-item questionnaire constructed based on the objectives of the selected topics was

administered to determine the module's reliability. Since the data collected for this pilot study were continuous using Likert scale, Cronbach alpha was used to measure the module's reliability. The cut-off point was set at 0.70 (Talib et al., 2015).

Phase two: Community-based Intervention Study

A community-based intervention study using quasi-experimental design was conducted to test the effectiveness of the newly developed module. The sample for the study consisted of 51 participants for the intervention group and another 51 for the control group. The effect size of a quasi-experimental study (0.40) by Molina et al. (2012) was used to determine the sample size. Participants were recruited through snow-ball method and were screened for tramadol using Q-cup urine drug test kit (Q-CUDTK). Only those who tested positve for tramadol abuse were recruited. Data were collected at the baseline, two weeks and three months after the intervention using tramadol use and misuse knowledge assessment questionnaire (TUMKAQ) (Zwawua et al., 2021), attitudinal scale for tramadol use (ASTU), tramadol misuse quitting self-efficacy scale (TMQSS) (Zwawua et al., 2021) and tramadol abuse measurement scale (TAMS) (Zwawua et al., 2021).

The intervention and the control groups were located in two different locations of about 70 km distant apart to avoid contamination of information during the intervention. While the intervention group received education about tramadol and the necessary skills for quitting its abuse, the control group was engaged in aerobic dance only throughout the period of the intervention. The intervention lasted for three months covering eight sessions. Data for the intervention study were entered and analysed using IBM SPSS statistics version 26.0 (SPSS Inc., 2013). Negatively skewed items were reverse scored before analysis. An independent t-test and Pearson chi-square statistics were used to compare the sociodemographic characteristics and tramadol use history between the intervention and control groups at baseline. The between group repeated measures analysis of variance (RM ANOVA) was applied to compare the mean knowledge, attitude, self-efficacy, and behaviour scores on tramadol between the intervention and the control groups at baseline, two weeks, and three months after the intervention.

Ethical Considerations

Informed consents were obtained from each participant prior to the commencement of the intervention. During the consent process, the confidentiality of the research data was explained to each potential subject. Participants who gave their consent to participate in the study were conveyed to the laboratory for a urine test. They were assured that the urine sample for screening using the Q-CUDTK test was not to be used for any purpose other than the study purpose. Participants were also advised to go for medical detoxification before quitting tramadol to avoid risks. The study protocol was reviewed and approved by the Human Research Ethics Committee of Universiti Sains Malaysia (USM/JEPeM/19050316) and approval letters were obtained from the Local Councils of Buruku and Gboko before the intervention and data collection.

Results and Material

Module Development

The module's contents were selected and organized in units based on the three constructs of the IMB model: information, motivation, and behavioural skills (Fisher et al., 2003).

Information and knowledge unit: this unit was developed to address the deficiency in information and knowledge about tramadol identified from the FGD with tramadol abusers. The unit contains information on facts about tramadol use and abuse.

Motivation (affective) unit: this unit was developed to address the attitudinal-related needs identified from the FGD with tramadol abusers. The unit focuses on helping individulas to decide quitting tramadol abuse by motivating them with stories and drama about tramadol abuse and counselling them on how to change attitudes towards tramadol use.

Behavioural skills unit: this unit was developed to address the deficiency in the ability to resist peer pressure and cravings associated with continuous use of tramadol as identified from the FGD with tramadol abusers. The unit covers demonstration of practical skills to build self-efficacy for quitting tramadol abuse. This unit is equally important because it is believed that the shortcomings of young people's self-efficacy could cause continuous abuse of drugs (Chavarria et al., 2012). Studies have also established that lack of refusal and craving-resistant skills could make quitting drug use a challenging or nearly impossible task (Fauziah et al., 2011; Nikmanesh et al., 2017; Olubunmi & Adedotun, 2020).

The information from the literature search combined with the FGD findings were used to generate nine topics for the module: (1) basic information on tramadol (2) description of tramadol, modes of action and routes of administration (3) tramadol abuse and related terms (4) effects of tramadol abuse (I) (5) effects of tramadol abuse (II) (6) effects of tramadol abuse (III) (7) withdrawing from tramadol use (8) changing positive attitudes towards tramadol abuse, and (9) behavioural/self-efficacy skills for quitting tramadol use. The module was initially organized into three units with nine sessions, nine topics and 39 subtopics as shown in Table 1:

Table 1

Content Structure of the Module

Unit	Session	Topic	Sub-topic	Objectives	Evaluation	Duration
Information and Knowledge	One	Basic Information on Tramadol	1. Origin of tramadol 2. Medical use 3. Prescription status 4. Availability in Nigeria 5. Regulation in Nigeria 6. Dosage requirement 7. Contraindications	Participants should be able to: 1.State where tramadol originated 2. Describe the medical use 3. State the prescription status 4. Mention the regulated milligrams in Nigeria 4. State the dosage requirement 5. Mention conditions of contraindications	1. Where did tramadol originate? 2. What is the medical use of tramadol? 3. What is the prescription status of tramadol? 4. At what milligrams is tramadol regulated in Nigeria? 5. What is the daily maximum dosage for tramadol? 6. Mention 5 conditions for which tramadol is contraindicated	90 Min.
	Two	Description of tramadol, Modes of Action and Routes of Administration	8. Physical appearance of tramadol 9. Pharmacokinetics of tramadol 10. Pharmacodynamics of tramadol 11. Routes of tramadol administration	1. Describe different forms of tramadol 2. State the number of hours tramadol lasts in the body system before craving starts 3. Describe how tramadol functions in the body 4. Mention the routes of tramadol administration	1. Mention any 3 forms of tramadol 2. How long does tramadol lasts in the body system before craving starts? 3. How does tramadol function in the body? 4. Mention any 3 routes of tramadol administration	90 Min.
	Three	Tramadol Abuse and Related Terms	12. Meaning of tramadol abuse 13. non-medical uses of tramadol 14. non-medical routes for tramadol administration 15. Factors influencing tramadol abuse 16.Perceived benefits of tramadol use 17. Tramadol tolerance 18. Tramadol dependence 19. Tramadol addiction	1. Define tramadol abuse 2. Mention the non-medical uses of tramadol 3. Mention the non-medical routes of tramadol administration 4. Mention factors that influence tramadol abuse 5. Define tolerance 6. Define dependence 7. Describe addiction	1. What is tramadol abuse? 2. Mention any 5 non-medical uses of tramadol 3. Mention any 3 non-medical routes of tramadol administration 4. Mention any 4 factors that influence tramadol abuse 5. What is tolerance? 6. What is dependence? 7. What do you understand by addiction?	90 Min.
	Four	Effects of Tramadol Abuse (I)	20. Immediate effects of tramadol abuse 21. Effects on the central nervous system 22. Effects on the digestive system	1. State the immediate effects of tramadol abuse 2. Mention effects of tramadol abuse on the central nervous system 3. State the effects of tramadol abuse on the digestive system	1. Mention any 5 immediate effects of tramadol abuse 2. Mention any 3 effects of tramadol abuse on the central nervous system 3. State any 3 effects of tramadol abuse on the digestive system	90 Min.

	Five	Effects of Tramadol Abuse (II)	23. Effects on the cardiovascular system 24. Effects on the respiratory system 25. Effects on the reproductive system	1. State the effects of tramadol abuse on the cardiovascular system 2. Mention the effects of tramadol abuse on the respiratory system 3. State the effects of tramadol abuse on the reproductive system	1. State any 3 effects of tramadol abuse on the cardiovascular system 2. Mention any 3 effects of tramadol abuse on the respiratory system 3. State any 3 effects of tramadol abuse on the reproductive system	90 Min.
	Six	Effects of Tramadol Abuse (III)	26. Effects on the immune system 27. Psychological effects 28. Social effects	1. Mention the effects of tramadol abuse on the immune system 2. State the psychological effects of tramadol abuse 3. Mention the social effects of tramadol abuse	1. Mention any 3 effects of tramadol abuse on the immune system 2. State any 3 psychological effects of tramadol abuse 3. Mention any 3 social effects of tramadol abuse	90 Min.
	Seven	Safe Withdrawal from Tramadol Use	29. Tramadol withdrawal 30. Withdrawal symptoms 31. Tramadol detoxification 32. Medical methods of detoxification 33. Personal habits for detoxification	1. Describe tramadol withdrawal 2. Mention the withdrawal symptoms 3. Define tramadol detoxification 4. Mention medical methods of detoxification 5. State personal habits for tramadol detoxification	1.What is tramadol withdrawal? 2. Mention any 5 withdrawal symptoms 3.What is tramadol detoxification? 4. Mention any 2 methods of medical detoxification 5. Mention any 3 personal habits for tramadol detoxification	90 Min.
Motivation (Affective)	Eight	Changing Positive Attitudes towards Tramadol Use to Negative	34. Emotional stories and drama on tramadol abuse 35. Counselling on tips to change positive attitudes towards tramadol abuse	1. Express feelings that tramadol abuse is harmful 2. Express feelings of remorse over involvement in tramadol abuse 3. Express willingness to withdraw from tramadol use 4. Appreciate living a tramadol-free life	1. How is your feeling about tramadol? 2. How do you intend to live your life?	90 Min.
Behavioural Skills	Nine	Behavioural/self-efficacy skills for quitting tramadol use	36. Drama and story on confidence-building skills 37. Counselling on confidence-building tips 38. Refusal skills 39. Craving resistant skills	1. Demonstrate confidence for quitting tramadol 2. Develop tramadol refusal skills 3. Develop craving resistant skills	1. Do you have confidence in your ability to quit tramadol use? 2.What will you do if you are offered tramadol by a friend at a time you want to quit? 3. What will you do if you are having strong cravings for tramadol, and you don't want to take it again?	90 Min.

Validity of the Module

The results of the expert validation indicated that the module items had acceptable I-CVIs except items 4, 8, 9, 10, 11 and 16 with I-CVIs of 0, 0.2, 0, 0.3, 0.3 and 0, respectively. Based on the cut-off point of 0.83, items 4, 8, 9, 10, 11 and 16 were removed from the module. The entire session two was removed from the module because all items under it had I-CVIs below 0.83. The CVA of the module is as presented in Table 2. The content validity achievement of the Edu-MATA was 85.8%. This result shows that the Edu-MATA has good content validity achievement (85.8% > 70%).

Table 2

Content Validity Achievement of the Module

Expert	Total Score	Maximum Score	CVA
Expert 1	134	156	85.9%
Expert 2	135	156	86.5%
Expert 3	134	156	85.9%
Expert 4	134	156	85.9%
Expert 5	135	156	86.5%
Expert 6	131	156	84.0%
Cluster CVA			**85.8%**

Reliability of the Module

The result of the reliability analysis based on the responses in the module reliability questionnaire form using Cronbach alpha showed that the module had a reliability coefficient of .76. This reliability coefficient was accepted because it was more than the recommended reliability coefficient for a newly developed module (Talib et al., 2015).

Effectiveness of the Module

Table 3 presents comparison on the sociodemographic characteristics and tramadol use history between the intervention and control groups at the baseline. The results showed that there were no significant differences in the sociodemographic characteristics and tramadol use history between the intervention and control groups ($P > .05$) at the baseline. This means that the two groups were comparable.

Table 3
Comparison of the Sociodemographic Characteristics and Tramadol Use History between the Intervention and Control Groups

Variables	Intervention	Control	*P-value*
	n (%)	n (%)	
Age			
Mean (SD)	27.7 (3.92)	27.2 (4.27)	.516[a]
Gender			
Male	43 (42.2)	42 (41.2)	.790[b]
Female	8 (7.8)	9 (8.8)	
Marital Status			
Single/separated/widowed	41 (40.2)	34 (33.3)	.116[b]
Married	10 (9.8)	17 (16.7)	
Level of Education			
Primary	5 (4.9)	9 (8.8)	.250[b]
Secondary/tertiary	46 (45.1)	42 (41.2)	
Occupational Status			
Farming	26 (25.5)	29 (28.4)	.656[b]
Construction/fishing/hunting	9 (8.8)	8 (7.8)	
Transportation	7 (6.9)	5 (4.9)	
Trading/white-collar job	7 (6.9)	9 (8.8)	
Tramadol Use Prescription Status			
Not prescribed	49 (48.0)	47 (46.1)	.400[b]
Prescribed	2 (2.0)	4 (3.9)	
Influencing Factor			
Peer pressure	30 (29.4)	31 (30.4)	.879[b]
Sex partner	10 (9.8)	12 (11.8)	
Family relatives	4 (3.9)	3 (2.9)	
Curiosity/experimentation	7 (6.9)	5 (4.9)	
Period of Tramadol Use			
Less than one year	8 (7.8)	11 (10.8)	.449[b]
More than one year	43 (42.2)	40 (39.2)	

a t-test
b Pearson Chi-square

The results of the intervention study as presented in Table 4 showed a significant statistical difference in mean knowledge scores on tramadol between the intervention and control groups after the intervention (F (1.4, 130.1) = 480.6, P < .001). Significant differences were also recorded in the mean attitude scores (F (2, 190) = 360.3, P < .001), self-efficacy scores (F (1.3, 126.4) = 185.8, P < .001), and behaviours scores (F (1.9, 173.9) = 104.1, P < .001) on tramadol between the intervention and control groups at two weeks and three months post-intervention.

Table 4

Effect of Time-Group Interaction on Total Mean Knowledge, Attitude, Self-efficacy, and Behaviour Scores

Outcome measure	Time	Intervention (n = 49)	Control (n= 48)	*F*	*P-value*
		M (95% CI)	*M* (95% CI)		
Knowledge					
	Baseline	13.4 (12.2, 14.5)	14.8 (13.6,15.9)	480.6(1.4,130.1)	>.001
	Two weeks	30.6 (29.6, 31.5)	15.5 (14.6,16.4)		
	Three months	30.4 (29.6, 31.2)	15.8 (15.0,16.6)		
Attitude					
	Baseline	59.2 (58.4, 60.1)	58.2 (57.4, 59.1)	360.3 (2, 190)	>.001
	Two weeks	49.8 (48.8, 50.9)	58.0 (56.9, 59.1)		
	Three months	41.6 (40.6, 42.5)	59.2 (58.2, 60.1)		
Self-efficacy					
	Baseline	36.1 (33.6, 38.6)	35.5 (32.9, 38.0)	185.8 (1.3, 126.4)	>.001
	Two weeks	52.5 (50.6, 54.4)	36.2 (34.2, 38.1)		
	Three months	55.0 (53.8, 56.3)	37.5 (36.2, 38.8)		
Behaviour					
	Baseline	49.5 (47.4, 51.6)	49.9 (47.8, 52.0)	104.1 (1.9, 173.9)	>.001
	Two weeks	46.6 (44.6, 48.6)	50.1 (48.0, 52.1)		
	Three months	35.3 (33.8, 36.8)	50.7 (49.2, 52.3)		

*Repeated measures ANOVA between group analysis regarding time was applied followed by pairwise comparison with 95% confidence interval adjustment by Bonferroni correction.

The pairwise analysis showed that the mean knowledge, attitude, self-efficacy, and behaviour scores on tramadol for the intervention and control groups were almost same at the baseline. However, for the intervention group, there was a marked increase in the mean knowledge and self-efficacy scores on tramadol from baseline to three months post-intervention, and a marked decrease in the mean attitude and behaviour scores on tramadol from baseline to three months post-intervention. On the other hand, the control group recorded almost same mean knowledge, attitude, self-efficacy, and behaviour scores on tramadol throughout the trial.

The results in Table 5 shows that after three months of the intervention, 12 (24.5%) of the participants in the intervention group still tested positive for tramadol, while 37 (75.5%) tested negative. On the other hand, 42 (87.5%) of the participants in the control group still tested positive for tramadol, while 6 (12.5%) tested negative.

Table 5

Result of the Q-Cup Urine Drug Test for Tramadol Use after Three Months of the Intervention

Group	Positive	Negative
	n (%)	n (%)
Intervention (n = 49)	12 (24.5)	37 (75.5)
Control (n = 48)	42 (87.5)	6 (12.5)

Discussion

The content of the module was selected and organized under three units: information and knowledge, motivation, and behavioural skills. The first unit supports the results of studies that have shown that providing young people with accurate information about the negative effects of drugs could encourage withdrawal and abstinence from drug use (Holtz & Twombly, 2007; Sussman et al., 2007; Twombly & Holtz, 2008). The second unit of the module is equally important in changing tramadol abuse behaviour. This unit assumes that drug information plays only a minor role in drug abuse cessation (Allara et al., 2015) and that drug abuse to some extent has its cause in the inability to make rational decisions and express feelings and poor value clarification (Chavarria et al., 2012). Therefore, the goals of an educational intervention should also include a demonstration that drug use is inconsistent with a useful value structure.

The behavioural skills unit of the module could improve the self-efficacy for quitting tramadol use. This is because this unit largely focuses on the confidence-building tips and inculcating the peer pressure and craving resistant skills required for quitting tramadol use. The unit encompasses storytelling and drama-acting involving refusal and craving resistant skills to build the confidence required for quitting tramadol use. The inclusion of the peer pressure and craving resistant skills in the module was considered expedient due the recognition of the influencing role of peer groups in the continuation of tramadol use as reported by Fuseini et al. (2019), and the cravings associated with tramadol use (Stoops et al., 2012; Zacny, 2005). As reported in the literature, the peer pressure/refusal and craving resistant skills are fundamental in developing the confidence required for quitting or abstaining from drug use (Choi et al., 2013; Kadden & Litt, 2011).

The result of the content validity test by experts showed that the module items met the required I-CVIs for inclusion in the final draft of the module except for items 4 (availability of tramadol in Nigeria), 8 (physical appearance of tramadol), 9 (pharmacokinetics of tramadol), 10 (pharmacodynamics of tramadol), 11 (routes of tramadol administration), and 16 (perceived benefits of tramadol). These items were dropped from the module because, in the experts' opinions, items 8, 9, and 10 were too technical for the target population and their inclusion in the module was not necessary. Items 4, 11, and 16 were also deemed unnecessary because, according to experts' opinions, they could induce curiosity and experimentation in the tramadol users, thus causing more harm than good. However, the overall content validity achievement of the Edu-MATA showed that the content could achieve what the module was intended to achieve.

There was a marked increase in the mean knowledge scores on tramadol in the intervention group after the intervention with the control group showing no improvement. The finding is consistent with the result of an intervention study by Martin et al. (2013), which recorded a significant improvement in the knowledge about benzodiazepine among participants in the intervention group, with the control group demonstrating no change in knowledge after one week of the intervention. In the present study, a greater number of participants in the intervention group demonstrated better knowledge about the medical use of tramadol, its prescription status, dosage requirement, contraindications, abuse, and effects of abuse of tramadol, as well as safe ways of quitting tramadol use as compared to the participants in the control group. The significant improvement in the knowledge about tramadol could be attributed to the effectiveness of the module. This confirms the observation in the literature that educational interventions could increase awareness about drug use and misuse, as well as the consequences of drug abuse, thus paving the way for informed decision-making (Cuijpers, 2002; Espada & Hernández, 2015; Faggiano et al., 2008; Giannotta et al., 2014; McBride, 2003; Newton et al., 2017).

A significant decrease in the mean attitude scores on tramadol was recorded in the intervention group at two weeks and three months post-intervention, while it was not same with the control group. The finding is consistent with the result of a study by Arevian and Khasholian (2014) which reported a significant decrease in the overall positive attitudes towards drug use among Lebanese/Armenian youths after participating in an educational program on drug abuse. The finding, however, contrasts a study among adolescents in Benin, Nigeria, which reported no significant changes in the subjects' attitudes towards drug use after participating in a health education program on drug abuse (Chukwuka & Agoreyo, 2015). The reason for this variation could be attributed to the application of affective strategies in the Edu-MATA such as drama acting and storytelling about tramadol abuse and its consequences and useful tips on how to change positive attitudes towards tramadol use to negative to appeal to the emotions of the tramadol users. The finding affirms the assumption that drug information plays only a minor role

in attitudinal change and drug abuse cessation (Allara et al., 2015). It further buttresses the observation that the incorporation of drama in drug education triggers an emotional response to the informational content, and the combination of emotion and information works together to alter positive attitudes towards drug use (Stephens et al., 2007).

There was an increase in the mean self-efficacy scores on tramadol in the intervention group but no increase in the control group after the intervention, indicating a higher level of self-efficacy for quitting tramadol use among the participants in the intervention group. In line with this finding, a study by Sheykhnezhad and Seyedfatemi (2019) indicated that group education could improve the quitting skills of drug abusers through enhancing their self-efficacy and reducing craving beliefs. The higher level of self-efficacy for quitting tramadol use exhibited by the intervention group could be attributed to their exposure to the confidence-building tips in the module. The high confidence level could also be attributed to the pressure-resistant skills and craving-resistant skills in the module. These are fundamental in developing self-efficacy. These results are consistent with other studies (Choi et al., 2013; Kadden & Litt, 2011).

There was a significant drop in the mean behaviour scores in the intervention group after the intervention. This result indicated less consumption of tramadol in terms of frequency and intensity among the participants. This finding is consistent with a quasi-experimental study in Tehran, Iran which reported a significant reduction in the use of substances among the participants in the intervention group, with increased consumption of the substances observed among the control group after implementation of a skill-based substance abuse intervention (Allahverdipour et al., 2009). However, the finding contrasts the result of a study among university students in Kenya that reported no significant difference in drug consumption between the intervention and the control groups after drug abuse awareness campaigns (Mbuthia et al., 2017). The variation in the findings could be attributed to the fact that the drug abuse intervention among the university students in Kenya was solely an awareness campaign about drugs, without affective and skill-based strategies suggesting that only information and awareness campaigns against substance use cannot do enough in reducing substance use. The decrease in the number of those who tested positive for tramadol in the intervention group may be attributed to the effectiveness of the module.

Conclusion

An effective educational module for quitting tramadol abuse with information, motivation and behavioural skill components has been developed to enable those individuals who abuse tramadol to quit. We named this module “Educational Module Against Tramadol Abuse Edu-MATA”. The Edu-MATA may serve as an important tool for community health educators, addiction counsellors and researchers interested in drug abuse interventions. It can also be directly used by those individuals who are struggling with tramadol addiction as it provides useful information on safe withdrawal from tramadol use.

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PREVALENCE OF OBESITY AMONG ADOLESCENTS IN PRIVATE AND PUBLIC SECONDARY SCHOOLS IN CALABAR METROPOLIS, CROSS RIVER STATE – NIGERIA

Ogar, Emmanuel Ekawu[1], Josepgh Odey Ogabor [Ph.D][2], Grace. A. Mbadi-Oli[3] and Martina Ayibeya Apie[4] [Ph.D]

[1,3]. University of Cross River State (UNICROSS), Calabar.
[2,4]. University of Calabar, Calabar, Cross River State

Corresponding author: Princeemmy77@yahoo.com 07031231205 https://orcid.org/0000-0001-6474-8649

Abstract

Calabar municipality is a capital city of Cross River State, predominantly filled with working class and business people. This study was to investigate the prevalence of obesity among adolescents in private and public secondary schools in Calabar Metropolis of Cross River State, Nigeria. Survey method of research design was adopted for the study. Stratified random sampling technique was adopted to select 400 students (i.e. 200 from private and 200 from public secondary schools) in Calabar Metropolis. Structured questionnaire titled Prevalence of Obesity Among Adolescents (POAD) was used to obtain data. The data obtained were analyzed using Independent t-test statistic. All hypotheses were tested at 0.05 level of significance. The results indicated that significant differences existed between the students of private and public secondary schools as regards genders and BMI in the study area. It was recommended among other things that Private school students most especially the adolescents should be involved in proper fitness programmes to help in improving their health status thereby reducing the risk factors of having obesity related disorders.

Key words: Adolescents, Obesity, Prevalence, Private and Public Genders, BMI.

Introduction

A tremendous need exists today to educate clinicians about obesity. This disorder which results from a complex interplay of environmental and genetic factors, is associated with significant morbidity and mortality. Those afflicted with this disorder, suffers emotional consequences from social stigmatization from friends and in addition to having an increased risk of many medical disorders (Luke, 2012). The multiple social, economic and hereditary factors that contribute to obesity makes treatment of the condition a potential discouraging prospect, particularly for the primary care giver with limited time available to spend with each patient (Luke, 2012). Other obstacle to evaluating and treating obesity include lack of insurance reimbursement for treatment, lack of time for patient education and counseling, skepticism about efficacy and safety of specific medical therapies for obesity, a negative perception that obesity represent lack of willpower or self-discipline, and inadequate training and training mechanisms in the medical management of obesity (Lynniki, Young, Riggs & Davis, 2021). The increased calorie intake could result in larger storage of fat in the adiposities or adipose tissues and this maybe one of the leading causes of increased body weight and obesity among adolescents, i.e. when one consume high amount of energy food, particularly fat and sugar, but don't burn off the energy through exercise and physical activity on a regular basis, much of the surplus energy taken in will be stored by the body as fat in the adipose tissues thereby leading to increased in body weight which can lead to obesity (Rachael, 2019). Also, high sedentary lifestyles among adolescents are strongly associated with obesity. Obesity doesn't happen or occur overnight, it develops gradually over time, as a result of poor diet and lifestyle choices from cradle to young adult, such as eating large amounts of processed or fast food, that is, high in fat and sugar, taking too much of alcoholic drinks, ingesting too many sugary drinks into the system (Heude, 2016). Consistent and regular physical activity protects one against increase in weight while decrease in physical activity promotes obesity. Many people have carrier jobs that involve sitting at a desk for most of the day (Lynniki, et al 2021). They also rely on their cars with AC, rather than walking or cycling

to burn of the stored fats. For relaxation, many people tend to watch TV, browse the internet or play computer games, and rarely take regular exercise, these contribute in a great deal to overweight and obesity (Garnett, 2014).

Obesity is an abnormal accumulation of body fat, usually 20% or more over an individual's ideal body weight. Obesity is the accumulation of excess fat in the subcutaneous tissue and other body parts resulting in individuals being 20% and above heavier than their expected body weight (Mast, 2018).

The prevalence of overweight and obesity is confined not only to adults but also being reported among the children and adolescents of developed as well as developing countries (WHO, 2018). Since, adolescence is a period of transition from childhood to adulthood; It assumed critical position in the life cycle of human beings, characterized by an exceptionally rapid rate of growth (Jain, Bharadwaj & Joglekar, 2017). The prevalence of obesity among adolescents has increased significantly in the developed countries during the past two decades and similar trends are being observed even in the developing world and it has reached levels, possing a significant public health concern (Must, 2017).

The prevalence of overweight and obesity in Calabar municipality are risk factors for many health problems, regardless of a person's age. Children and adolescents in Calabar municipality who are overweight and obese, however, face a greater risk of health problems—including type 2 diabetes mellitus, high blood pressure, high blood lipids, asthma, sleep apnoea, orthopaedic problems and psychosocial problems—than their normal weight peers (Goossens, Braet & Decaluwe, 2017). There is an urgent need to investigate the magnitude of this problem in developing countries such as Nigeria and most especially the study area, which is Calabar Metropolis, and to implement prevention strategies as early as childhood by involving families, schools and the whole community (Ugbong, 2019) .

A study by Eme (2017) on prevalence of overweight and obesity among adolescents in secondary schools in Abia state, Nigeria. The study revealed that more females (51.7%) than males (48.3%) participated in the study. A greater percentage of them were within the ages of 10-14 years and more than half of the respondents (57.5%) were from private schools. The reason for more females than males in the population might be because of more enrolment of the females in education in recent times than males. Most males tend to go into business and apprenticeship than the female folks. The background characteristics in this study were comparable to those used in previous studies (Akinpelu, Oyewole & Oritogun, 2018). The mean age of the respondents in this study (14.56±1.84 years) was similar to the findings of (Adesina, Peterside, Anochie & Akani, 2019) where the mean age of their respondents was 14.25±1.25 years. The prevalence of overweight and obesity in this study was 9.7% and 3.5% respectively. This was lower when compared with the prevalence of overweight (15%) and obesity (5%) in Iranian adolescents (Dorosty, Siassi & Reilly, 2016) and Indian adolescents (11.1% for overweight and 14.2% obese). The possible reasons of higher prevalence of overweight and obesity may be linked to their food habit, westernization and government policies in these countries.

However, in Eme (2017) study, there was a significant ($P<0.05$) higher prevalence of overweight (6.7% and 3.0%) and obesity (2.5% and 1.0%) in females than in males respectively. It can be explained by the fact the male adolescents might be involved in more exercise than their female counterpart. This was lower than the findings of a similar study done at Sagamu by Akinpelu, Oyewole and Oritogun (2018), where the prevalence of overweight and obesity in males (8.1% and 1.9% respectively) and females (8.1% and 2.7% respectively) but higher than the findings of similar studies by (Alabi, 2018) and Izuora, (2017). This might be explained by the time these studies were carried out. Both studies were done earlier. The Waist-Hip Ratio (WHR) of the females (12.8%) had more significantly ($P<0.001$) high health risk than males (3.0%).The implication of this result is that the females might be more predisposed to non-communicable diseases such as diabetes and hypertension later in life. According to Manyanga, (2018), the fitness experts, waist-hip ratio (WHR) helps us track our weight loss progress and also serve as a warning about our estimated health risk for problems related to being overweight such as diabetes, stroke and heart disease.

Sedentary lifestyles have a major impact on the overall health of the global population. Many people worldwide engage in sedentary lifestyles, and the prevalence of relevant non-communicable diseases is on the rise (Kirkby, 2014; Benfice; Okoh et al 2015). It is well known that insufficient physical activity, that is, physical inactivity, has a detrimental effect on health. Physical inactivity is the fourth leading risk factor for global mortality, accounting for 6% of global mortality (Alabi,

2018; Nwadiuto, 2012; Jung, et al 2020). Despite the fact that sedentary behavior poses a comparable risk to health and contributes to the prevalence of various diseases, most physical activity-related education in clinical practice is focused on improving the physical activity levels, with less emphasis on lowering the sedentary behavior. In addition to understanding and informing patients about the health impact of a sedentary lifestyle, healthcare providers of various fields, including clinicians, should reflect upon its significance in policies (Ukegbu et al 2017; Mukhopadhyay et al 2015).

The prevalence of obesity is on the rise in developing countries, especially in urban areas such as Calabar Metropolis. The prevalence of obesity has continued to rise at an alarming rate world-wide to such an extent that it has been described as a global epidemic.

Calabar metropolis has experienced rapid and unplanned urbanization in recent years and there have been changes from local diet to western style of diet as well as change in eating habits which is driven by the explosion of fast food canteens and restaurants or eatries. Consequently, over consumption of refined fast foods (i.e. meat pie, fried/jollof rice, snacks, ice cream, indomie, energy drinks etc) is becoming noticeable among individuals, children/adolescents, groups and families in Calabar Metropolis. The health risk of being overweight and obese have being clearly demonstrated: obesity is a risk factor for diabetes, cardiovascular disease, and most cancers, and it is associated with shortened life expectancy. The study also shows the relationship between body mass index (BMI) and risk of mortality which will really help our adolescents most especially in Calabar Municipality to guild against it. Based on this, one can then ask, what is the prevalence of obesity among adolescents in private and public secondary schools in Calabar Metropolis of Cross River State?

Methods and Materials

In this study, the researcher adopted the survey method of research design to conduct the study. The method was best adopted because surveys are mostly conducted to establish the nature and position of prevailing issues. It is important in the study because it deals with group of different individuals for analysis. It also made it possible to reach out to a larger population and at the same time takes care of those areas under consideration in the study. No other research design can provide this broad capability, which ensures a more accurate sample to gather targeted results in which to draw conclusions and make important decisions. It also helps gauge the representativeness of individuals views and experiences.

The sample for the study was made up of four hundred (400) students randomly selected from both the private and public secondary schools in the study area. Twenty (20) schools were selected from the two Local Government Areas of Calabar Metropolis made up of, ten (10) public and ten (10) private schools. And a total number of 100 males and 100 females in public secondary schools and same number in the private secondary schools. This amounts to a sample size of four hundred (400) students.

The sampling procedure used in this study was stratified random sampling technique. Isangedighi (2018), defined stratified sampling as, it identifies and addresses heterogeneity in the population and this reduces sampling error. It is used when the population contains definite subsets, each of which is distinctly different, though within each stratum and the units are homogeneous.

In the first stage the secondary schools in Calabar metropolis were stratified by school type base on their ownership (private and public schools).

Stage two, forty schools were randomly picked from the two Local Government Areas with twenty schools from each Local Government Area (ten private and ten public schools) out of the 64 schools in the Metropolis. In the third stage, each school was stratified base on their classes from each level of SS2 and SS3 classes because of their age bracket and two arms were selected from each of the class of SS2 and SS3 using simple random sampling. In the fourth stage, five students were randomly selected from each arm making ten students from each of the forty schools to make a total of four hundred [400] students which form the sample size used. This method was used because it enables researchers to obtain a sample population that best represents the entire population being studied.

The instruments used for collection of data were:

1. Questionnaire, titled Prevalence of Obesity Among Adolescents Questionnaire (POADQ). Information was gotten from the students using structured questionnaire. Section “A” of the questionnaire covered demographic data and

anthropometric data while in Section "B" information about their diet, eating habit, and lifestyle e.t.c were obtained. The researcher and four trained assistants visited the selected schools to administer the questionnaire which contains close and open- ended questions.

2. Weight measuring scale(kg)

A bathroom scale calibrated from zero to 120 kg was used to measure the weight of the students. The scale was checked and corrected for zero error before every measurement. Each subject was allowed to wear only the school uniform during measurement, their shoes and other extra wears like sweaters were also removed. The weight was read to the nearest 0.5 kg.

3. Height measurement (m)

A mobile height measurement instrument was used to take the students measurement. The students were asked to remove their shoes and stand upright by the instrument and reading was taken to the nearest 0.5m. The body Mass Index was calculated by using the height and the weight measurement to assess for normal weight, overweight and obesity and was calculated by dividing the weight in kg by the square of the height in meters. Body Mass Index=Weight (kg)/Height (m^2).

Reliability estimate was conducted to determine the consistency of the instrument. The instrument was trial tested on 50 students selected in the area that were not part of the ones sampled for the study. The data collected were analyzed using Cronbach alpha reliability method which gave coefficients that ranged from .73 to .79

The procedure for data analysis depended on each hypothesis. Each of the hypotheses of the study was analyzed using appropriate statistical technique. The researcher compared two groups of students, that is public and private secondary school students and the statistical analysis technique for testing all hypotheses was independent t-test. The entire hypotheses were tested at .05 level of significance.

Results and Discussions

This study investigated the prevalence of obesity among adolescents in private and public secondary schools in Calabar Metropolis of Cross River State, Nigeria. In this section each of the null hypotheses of the study was re-stated, the independent and dependent variables identified as well as describing the statistical analysis technique used to test the hypothesis.

Generally, as presented in Table 1 below, the mean score obtained by the 400 subjects as regards to prevalence of obesity was 15.72 with a standard deviation of 3.38 while the 177 males had a mean score of 14.18 with a standard deviation of 3.37 and the 223 females had a mean score of 16.95 with a standard deviation of 2.84.

Table 1

Mean scores and standard deviations of subjects in the study variables (N=400)

SN	Sub variables	Groups		Mean	SD
1.	Prevalence of obesity	Male	177	14.18	3.37
		Female	223	16.95	2.84
		Total	400	15.72	3.38

In this section the null hypothesis of the study was re-stated, the independent and dependent variables identified as well as describing the statistical analysis technique used to test the hypothesis.

Hypothesis 1:

The hypothesis stated that gender does not significantly influence the prevalence of obesity among adolescents in private and public secondary schools in Calabar metropolis. The independent variable is sex which was categorized into male

and female while the dependent variable is prevalence of obesity. The hypothesis was analyzed using Independent t-test analysis tested at .05 levels of significance. The result of the analysis is presented in Table 2.

The result in Table 2 revealed that the mean score obtained by the 223 female subjects as regards to prevalence of obesity was 16.95 with a standard deviation of 2.84 is greater than the mean score of 14.18 with a standard deviation of 3.37 obtained by the 177 male subjects. The mean difference was statistically significant since the obtained t-value of 8.744 with a p-value of .000 at 398 degrees of freedom met the criteria for significant at .05 level. This shows that female subjects differ significantly from their male counterparts as regards to prevalence of obesity with the females being more prevalence to obesity.

Table 2 Independent t-test analysis of school type and prevalence of obesity

Sex	N	$\bar{X}$	SD	t-value	p-level
Male	223	16.95	2.84	8.744*	.000
Female	177	14.18	3.37		

*Significant at .05 level; p<.05; df=398.

Hypothesis 2

The second hypothesis stated that there is no significant difference between the Body Mass Index (BMI) and obesity in private and public secondary schools in Calabar Metropolis. The independent variable is school type which was categorized into private and public while the dependent variable is BMI of adolescents.

The hypothesis was analyzed using Independent t-test analysis tested at .05 levels of significance. The result of the analysis is presented in Table 3.

The result in Table 3 revealed that the mean score obtained by the 200 subjects from private school as regards to BMI was 28.65 with a standard deviation of 3.23 which is greater than the mean score of 23.87 with a standard deviation of 2.58 obtained by the 200 subjects from public school.

The mean difference was statistically significant since the obtained t-value of 16.413 with a p-value of .000 at 398 degrees of freedom met the criteria for significant at .05 level. This shows that adolescents in private schools in Calabar Metropolis differ significantly from their counterparts in public schools as regards to BMI with those from private school having more BMI.

Table 3: Independent t-test analysis of school type and Body Mass Index (BMI)

School type	N	$\bar{X}$	SD	t-value	p-level
Private school	200	28.65	3.23		
				16.413*	.000
Public school	200	23.87	2.58		

*Significant at .05 level; p<.05; df=398.

Discussion

This section focused on the discussion of findings, which emerged as a result of the present investigation in relation to related theories and previous studies. The presentation was done on the basis of the hypotheses

Gender difference and obesity in public and private schools:

The result in hypothesis one revealed that female adolescents differed significantly from their male counterparts as regards to prevalence of obesity with the females being more prevalent to obesity. The result is in support of the findings of Rachael, (2019) on sex differences in regional body fat distribution from pre to post puberty, the objective of the study was to determine the timing and magnitude of sex differences in regional adiposity from early childhood to young adulthood. Regional fat distribution was measured using dual-energy X-ray absorptiometry (trunk and extremity fat using automatic default regions and waist and hip fat using manual analysis) in 1,009 predominantly white participants aged 5–29 years. Subjects were assigned into pre (Tanner stage 1), early (Tanner stages 2–3), late (Tanner stages 4–5), and post (males ≥20 years and females ≥18 years) pubertal groups. Sexual dimorphism in trunk fat (adjusted for extremity fat) was not apparent until late puberty, when females exhibited 17% less trunk fat than males. By contrast, sex differences in waist fat (adjusted for hip fat) were apparent at each stage of puberty, the effect being magnified with age, with prepubertal girls having 5% less and adult women having 48% less waist fat than males. Girls had considerably more peripheral fat whether measured as extremity or hip fat at each stage. Sex differences in regional adiposity were significantly greater in young adults in private schools than in late adolescence in public schools. Also, the result is in support of the study by Heude, (2016) on Sexual dimorphism in which circumference measures was also apparent from a young age with elevated waist circumference and/or waist-to-hip ratio or lower hip circumferences being reported higher in girls than boys as young as 5–7 years. Also (Garnett, 2014, Mast, 2018, Kirkby, 2014), which their data support this work, demonstrating that females has lower waist and greater hip circumferences from early puberty than their male counterparts.

Prevalence of Body Mass Index of adolescents in public and private schools:

The result in hypothesis two shows that adolescents in private schools differ significantly from their counterparts in public schools as regards to BMI with those from private schools having more BMI. The result agrees with a study by Ifeoma and Nwadiuto, (2012) on weight status of adolescents in public and private secondary schools in Port Harcourt using Body Mass Index (BMI), the mean BMI of females in private schools in the study was significantly higher than that of females in public secondary schools from 11 years of age throughout adolescence. Similar trend was observed by Ukegbu, Onimawo and Ukegbu, (2017), and Mukhopadhyay, Bhadra & Bose, (2015). This is different from NHANES findings in which the BMI of males and females were almost identical in public secondary schools. This difference in the BMI between sexes may be as a result of increased fat mass in females in contrast to males who stabilize their fat mass and enlarge their fat free mass.

According to Benefice, Caius and Garnier (2013), the fact that males were taller than females might also have contributed to their low BMI since height is a denominator in calculating BMI in public secondary schools. The result is also in support with a study by Okoth, Ochala, Onwera and Steyn (2015) on determinants of overweight and obesity in Kenyan adolescents in public and private schools, the study aimed at measuring the determinants of overweight and obesity, namely body mass index (BMI), dietary intake and physical activity levels of students (15-19 years) at public (less affluent) versus private (more affluent) schools in Kisumu East District of Kenya (n=387). A 24-hour dietary recall and 7-day food frequency were conducted with each participant. Physical activity levels were measured using the physical activity questionnaire for

adolescents. A higher percent of overweight adolescents was found at private schools than public schools. Overall, 15.5% of adolescents were overweight or obese (BMI>=25). Students at private schools had significantly higher intakes of all nutrients than those at public schools, except for cholesterol and fibre. Differences between private schools and public schools were particularly high for energy, fat, carbohydrate, and polyunsaturated fats, respectively. Carbohydrates, fruit and vegetables, and fats were negative predictors while meat and eggs and protein were positive predictors of BMI. Physical activity levels were lower at public schools than at private schools. The prevalence of overweight students was highest at private schools as were intake of calories, carbohydrate, and fat, suggestive of increased urbanization of lifestyle and associated rise in NCDs. Determinants of overweight and obesity, namely body mass index (BMI), dietary intake and physical activity levels of students (15-19 years) at public (less affluent) versus private (more affluent) schools in Kisumu East District of Kenya (n=387). A 24-hour dietary recall and 7-day food frequency were conducted with each participant. Physical activity levels were measured using the physical activity questionnaire for adolescents. A higher percent of overweight adolescents were found at private schools than public schools. Overall, 15.5% of adolescents were overweight or obese (BMI>=25). Students at private schools had significantly higher intakes of all nutrients than those at public schools, except for cholesterol and fiber. The prevalence of overweight students was highest at private schools as were intake of calories, carbohydrate, and fat, suggestive of increased urbanisation of lifestyle and associated rise in NCDs. However, private school students did have a significantly higher intake of calories, and fat, indicative of a more urbanized diet. This was also reflected by a higher prevalence of overweight in the private schools, which further reflects the influence of increased socio-economic status. The finding that the prevalence of overweight was higher in these schools than that of the DHS further supports the finding of the strong association of increased affluence with increased BMI status. It also emphasizes the importance of dealing with overweight and its sequalae at a young age to prevent the eventual rise in prevalence of NCDs in adulthood (Okoth, Ochala , Onwera & Steyn, 2015).

Conclusion

Based on the result of the findings, it was concluded that:

1. There were significant differences between adolescents in private secondary schools and public secondary schools in Calabar Metropolis, Cross River State-Nigeria regarding prevalence of obesity.
2. The positive effect of education on obesity can summarily be attributed to greater access to health-related information and improved ability to handle such information by the educated, clearer perception of the risks associated with lifestyle choices and improved self-control and consistency of preferences over time.

Recommendations

1. Private school students most especially the adolescents should be involved in proper fitness programmes to help in improving their health thereby reducing the risk factors of having obesity related disorders.
2. The school should organize physical fitness activities programmes for students in private schools on a regular basis at both senior and junior classes so as to develop good respiratory endurance, body composition and flexibility among others.
3. Parents should encourage their children to make good use of their leisure hours by reducing time-taking in sedentary activities like computer games, watching cartoons and movies. But encourage participation in domestic work. This will help in minimizing sedentary life style of the children.

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ASSESSMENT OF THE EFFECT OF STEP AEROBICS ON BODY FAT PERCENT OF OVERWEIGHT FEMALE ADOLESCENTS IN GINDIRI, PLATEAU STATE, NIGERIA

Chollom Dung WASH(PhD)[1], C. E. Dikki(PhD)[2] and Alabidun Mujib[3]

[1]Department of Physical and Health Education, College of Education Gindiri, Plateau State
[2]Department of Human Kinetics and Health Education, ABU Zaria
[3]Dept of Human Kinetics Kwara State University, Malete.
chollonwash@gmail.com 08164453503

Abstract

This study assessed the effect of step aerobics on body fat percent of overweight female adolescents in Gindiri, Plateau state, Nigeria. One group repeated measure experimental research design was used. Sixteen (16) overweight female adolescents who were between 14 and16 years volunteered to participate in the study. The participants were subjected to 8-week step aerobics exercise performed three times a week on alternate days. The training intensity was maintained at between 45% and 50% of heart rate reserve (HRR) and 50% to 55% HRR at the first 4 week and 5^{th} – 8^{th} week respectively. The Borg's rate of perceived exertion (RPE) scale was used to monitor the rate of exertion throughout the training period. Bioelectrical Impedance Analysis (BIA) method was used to assess body fat percent of the participants. Body fat percent of the participants was measured at baseline, immediately after the 4^{th} week and 8^{th} week respectively. Descriptive statistics were used to analyze demographic data of the participants. Repeated-measures Analysis of Variance (ANOVA) was used to test hypothesis at 0.05 level of significance using Statistical Package of Social Sciences (SPSS) version 23. The result of the study revealed significant decrease in body fat percent due to 8-week step aerobics training (p - 0.000) at an alpha level of 0.05. It was concluded that moderate intensity step aerobics performed at 45% -55% HRR three times a week on alternate days for a period of 8 weeks had significant effect on body fat percent of overweight female adolescents in Gindiri, Plateau State, Nigeria. It was recommended that overweight female adolescents should participate regularly in step aerobics to manage body fat percent to achieve optimal health.

Key words: BIA, Body fat percent, Female adolescents, Heart rate reserve, Moderate intensity, Overweight, Step aerobics.

Introduction

Adolescence is a developmental stage in life where females experience a sharp increase in the production of progesterone, oestrogen and small amount of androgen and testosterone which cause reproductive maturation and stimulate physical growth towards adulthood (Kapur, 2015, Todd, Street, Ziviani, Byrne & Hills, 2015). Girls mature early in life usually around the age of 12 years (Bay, Mora, Sloboda, Morton, Vickers & Gluckman, 2012). They show signs of developed adult adipose tissue and lean body mass. During middle adolescence, female's show a decrease in their growth process and most of them are fully developed during late adolescence (Bay *al et*., 2012).

Puberty is a period of physiological change in adolescents characterised by a decrease in insulin sensitivity (Kelsey & Zeitler, 2016). Insulin insensitivity is the major mechanism in the development of metabolic syndrome (MS) (Vukovic, Milenkovic, Mitrovic, Todorovic, Plavic, Vokovic & Zdravkovic, 2015). The term "metabolic syndrome" is a universal term used to indicate that an individual has three out of the following five risk factors: visceral adiposity, high blood pressure, high level of glucose, high level of triglycerides and low level of high-density lipoprotein cholesterol (HDL-C) in individuals (Magge, Goodman, & Armstrong 2017). Kaur (2014) opined that MS is the association of clinical, biochemical, physiological and metabolic factors that are present in an individual which could lead to the growth of atherosclerosis, type II diabetes mellitus (TIIDM), and many causes of cardiovascular mortality. Park, Sovio, Viner, Hardy & Kinra, (2013) posited that some children and adolescents are already being diagnosed with some common adult diseases, when left untreated these diseases will continue throughout one's lifetime and will cause a rise in the risk of cardiovascular diseases and metabolic syndrome later in life.

Gungor (2014) reported that overweight is the accumulation of excess fat in the body which causes increase in body weight. Body Mass Index (BMI) is often used to estimate overweight in individuals by dividing the weight of the body in kilograms by height in meters squared (kg/m^2). A person whit a BMI of 25 kg/m^2 - 29.9 kg/m^2 is considered being overweight. Omisore, Omisore & Abioye-Kuteyi, (2015) reported that the incidence of overweight and obesity among Nigerian adolescence whose ages are 12 - 18 years and are in secondary school is 0 - 2.7% in males and 0 - 9% in females.

Body fat percent is the proportion of the weight of fat in the body in relation to total body weight (Xu, Liu, Liu, Zhu & Han, 2017). MS risk is increased when the percentage of fat in the body is high more specifically visceral fat which affects metabolism (Olafsdottir, Torfadottir, & Arngrimsson, 2016). The BMI is associated with visceral adiposity and is used in assessing the risk of cardiometabolic diseases which serves as a target of cardiometabolic disease therapy (Shah, Murthy, Abbasi, Blankstein, Kwong, Goldfine, Jeroh-Herold, Lima, Ding, & Allison, 2014). Using BMI alone does not categorically identify those at an increased risk of cardio-metabolic diseases, it must be used in combination with BIA method. There is a strong association between metabolic disease risk with regional fat mass and total body fat (Tchernof & Despres, 2013). Body fat percent, waist to hip ratio and circumference of the waist are usually used in calculating measures of body fat percent and are strongly associated to BMI and MS risk (Bener, Yousafzai Darwish, Al-Hamaq, Nasralla & Abdul-Ghani 2013, González-Muniesa, Mártinez-González, Hu, Després, Matsuzawa, Loos, Moreno, Bray & Martinez, 2017). The most recent frequently used procedure in clinical practice to analyze body composition and estimate body fat percent is BIA method due to its exactness, ease to use and it correlates well with dual-energy X-ray absorptiometry (DXA), computed tomography (CT) or magnetic resonance imaging (MRI) (Xu, Cheng, Wang, Cao, Sato, Wang, Zhao & Liang, 2011).

Energy balance is the main cause of overweight and obesity, when the body is not able to use all the energy consumed, achieving an energy imbalance helps in preventing overweight in children and adolescents (Wang, Olean & Gortmaker, 2012, Pandita, Sharma, Pandita, Pawar, Tariq, & Kaul, 2016). People who combine sensible eating habit with exercise can have a better reduction in their body fat percent, most especially visceral fat than in other areas affected by the exercise (Marandi, *et al.* 2013). Increase in physical activity (PA) can cause a rise in insulin sensitivity in muscles and glucose usage for energy production. The enzyme lipoprotein lipase (LPL) regulates fat storage, and when PA level raises the release of stored energy in adipose tissue increases, the oxidation of carbohydrates and fat from the muscle is also increased (Hochber, 2011). Skeletal muscle metabolism thus plays a significant role in fat metabolism. The substrates needed for energy supply in the working muscles during continuous moderate exercise are the non-esterified fatty acids transported into muscle from the circulation, as well as from lipolysis of intramuscular triacylglycerol (Van Hall, 2015). During exercise the rate of metabolism and demand for energy increases many folds over the resting rate thereby activating the metabolic pathways for the oxidation of fat and carbohydrate at the same time (Spriet, 2014).

Adolescents are supposed to experience balance growth both in height and weight and are not to be overweight or obese because of their high energy expenditure during this active stage of their growth and development. The school environment and activities encourage active lifestyle and does not permit sedentary living. However, most adolescent girls are living a sedentary lifestyle despite the (WHO, 2011) recommendation that people should perform physical activity at a moderate to severe intensity lasting at least 60 minutes or more daily to achieve optimal health. Most female adolescent girls of Girls High School Gindiri are living a sedentary lifestyle, they are not regularly involved in sporting activities organized by the school. They spent their leisure time doing their assignment, chatting or playing games with their phones.

Step aerobics is a cardiovascular workout that involves stepping up and down on a step platform that can be modified which makes it versatile. People of all fitness levels can engage in it because the height of the step bench can be modified to suit their fitness levels (Nikić & Milenkovic, 2013, Laurel, 2014). Step aerobics could be beneficial particularly to those who

desire to improve their body composition and $V0_{2max.}$ Therefore, this study investigated the effect of step aerobics on body fat percent of overweight female adolescents in Gindiri Plateau State, Nigeria.

Methods and Material

In this study, one group repeated measure experimental research design was used. With this design the participants were assed at three (3) different intervals at baseline, first and second levels of exercise intensity. In the first exercise level, the participants performed step aerobics exercise on a bench height of 10.16cm at an intensity of 45% - 50% HRR for 4 weeks. While in the second exercise level, the participants performed step aerobics exercise on a bench height of 12.7cm at an intensity of 50% -55% HRR for another 4 weeks making a total of 8 weeks.

The population of the study consisted of twenty four (24) overweight female adolescents' students of Girls High School Gindiri, Plateau Sate, Nigeria with a BMI of 25 kg/m^2 to 29.9 kg/m^2 and were 14 to 16 years old. Purposive sampling technique was used to sample nineteen (19) overweight female adolescents from the student's population. The 19 overweight female adolescents volunteered to participate in the study and 3 out of the 19 participants could not continue with the training, after the 4^{th} week. Only 16 participants continued with the exercise to the end of the 8^{th} week and the results of their measurements were used for the analysis. The OMRON BF511 body composition monitor by Omron Kunotsubo, Japan was used to measure the body fat percent at baseline, immediately after the 4^{th} and the 8^{th} week of training respectively. The body composition monitor is a digital device that uses BIA method for the measurement of body composition indices. It does this by sending an extremely weak electrical current through the body along with an individual's height, age and gender data to generate body composition indices.

Informed consent form was willingly signed by every participant. The principal of the school who is a custodian of the students signed as a witness on behalf of the parents. Ethical approval with approval No. ABUCUHSR/2023/013 was obtained to use human subjects for the research from the ethical committee of Ahmadu Bello University, Zaria.

Results and Discussion

The descriptive statistics of mean, standard deviation and standard error of body fat percent of the respondents is presented in Table 1.

Table 1 Descriptive Statistics of Mean, Standard Deviation and Standard Error of Body Fat Percent of the Participants

Variable	Duration	N	Mean	SD	SE
	Baseline	16	36.41	3.57	0.89
BF%	4^{th} Week	16	34.88	4.35	1.09
	8^{th} Week	16	33.73	4.51	1.13

Table 1 shows the means, standard deviation and standard error of body fat percent of overweight female adolescents at baseline, immediately after 4^{th} and 8^{th} week of training. The results showed that the participants had mean body fat percent of 36.41 ± 3.57%, 34.88 ± 4.35% and 33.73 ± 4.51% at baseline, 4^{th} and 8^{th} week of training respectively. The body fat percent was observed to reduce immediately after the 4^{th} and 8^{th} week of step aerobics. This implies that the 8 weeks moderate intensity step aerobics reduced body fat percent of the participants.

To test if this reduction is significant the data is subjected to repeated measure analysis of variance and is presented in Table 2.

Table 2 Repeated-Measures Analysis of Variance on Body Fat Percent of Overweight Female Adolescents

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Training	Sphericity Assumed	57.620	2	28.810	32.170	.000
	Greenhouse-Geisser	57.620	1.308	44.037	32.170	.000
	Huynh-Feldt	57.620	1.383	41.664	32.170	.000
	Lower-bound	57.620	1.000	57.620	32.170	.000
Error (Training)	Sphericity Assumed	26.867	30	.896		
	Greenhouse-Geisser	26.867	19.627	1.369		
	Huynh-Feldt	26.867	20.745	1.295		
	Lower-bound	26.867	15.000	1.791		

Table 2 shows the results of the repeated-measures analysis of variance on body fat percent of overweight female adolescents in Gindiri, Plateau State, Nigeria. The analysis showed that the 8 weeks moderate intensity step aerobics training had statistically significant reduction on body fat percent of the participants *(p* = 0.000) at an alpha level of 0.05. Therefore, the null hypothesis which states that there is no significant effect of moderate intensity step aerobics on body fat percent of overweight female adolescents in Gindiri, Plateau State, Nigeria is rejected.

Discussion

The purpose of this study was to assess the effect of step aerobics on body fat percent of overweight female adolescents in Gindiri, Plateau State, Nigeria. Sixteen (16) female adolescents with mean age of 14.81 years, mean weight 69.94.kg and mean height 1.56m participated in the study. The finding of this study on the effect of step aerobics on body fat percent of overweight female adolescents in Gindiri showed significant reduction of 2.68% after eight weeks of step aerobics on female adolescents ($p = 0.000 < 0.05$). This finding supports that of Najafnia, Bararpour, Amirinejahad and Nakhae (2013) who reported that there was significant decrease in body fat percent of young girls who participated in 8-week step aerobics. The training sessions were performed three times a week lasting 50 = 60 minutes. The training started with an intensity of 50% HR_{max} and was increased to 75% HR_{max}. The significant effect could be attributed to the increase in training intensity. Similarly, the finding of this study supports that of (Mustedanagic *et al.,* 2016) who assessed the effect of step aerobic exercise programme on body composition of female college students for a period of 12 weeks. The main training programme constituted step aerobics exercise. Significant decrease was found in body fat percent of the participants. In their study the training duration was for 12 weeks. In this study, step aerobics was done for 8 weeks which showed significant reduction in body fat percent of the participants. This implies that duration of 8week regular participation of moderate intensity step aerobics would decrease body fat percent of the participants.

The study also supports the result of Narayani and Raj (2010), who reported that the mean body fat percent of overweight women before the commencement of 6 weeks step aerobics training was 23.3835 and was 20.5015 after training. Gokyurek, Sokmen and Usta (2016) reported that a person loses 13% of body fat when he is involved in step aerobics programme. They further went on to advise that it is healthier to lose or control weight through combining healthy diet and exercise to prevent the loss of fat free mass due to diet restriction only. People who combine sensible eating habit with exercise can have a better reduction in their body fat percent (Marandi *et al.,* 2013). Reduction of body fat percent due to aerobics exercise is mediated by the activity of the enzyme lipoprotein lipase (LPL) which regulates fat storage. When physical activity level raises the release of stored energy in adipose tissue increases the oxidation of carbohydrates and fat from muscles is also increased. The increase in physical activity cause a rise in insulin sensitivity in the muscles and glucose usage for energy production. Fat is being metabolized in the skeletal muscles thereby causing a depletion in the fat stores which causes decrease in body fat percent (Spriet, 2014, Van Hall, 2015).

Conclusion

Based on the findings of this study after participating in step aerobics training three times a week on alternate days for 8weeks at a moderate intensity of 45-55% HRR lasting 55-60 minutes per session, it was concluded that there was reduction in body fat percent in overweight female adolescents in Gindiri, Plateau State, Nigeria.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Moderate intensity step aerobics has been shown to decrease body fat percent in overweight female adolescents therefore, overweight female adolescents should participate regularly in moderate intensity step aerobics to decrease body fat percent.
2. Step aerobics training programme provides a lot of fun to the participants, it should be used as an intervention to promote active lifestyle among adolescent girls in schools to achieve optimal health.

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FACTORS AFFECTING THE ADOPTION OF HOME DELIVERY AMONG HAUSA WOMEN IN AKINYELE LOCAL GOVERNMENT AREA (LGA), OYO STATE

[1]AGBAYEWA SOLOMON, [1]ALIYU MOHAMMED, AND [1]HURERA MOUKTAR MACCIDO

Department of Physical and Health Education, Federal College of Education Zaria, Kaduna State Nigeria.

agbayewasolomon5@gmail.com 08161827330

Abstract

Maternal and newborn morbidity and mortality remain one of the public health problems in Nigeria especially in Hausa communities. The consequence of un-assisted delivery by skilled personnel in the home among Hausa women is life threatening to the mother and child. This study was therefore designed to investigate factors influencing HBD among Hausa women in Akinyele Local Government Area (LGA) Oyo State. The study was descriptive cross-sectional in design. A five-stage random sampling technique was used to select LGA, three communities, (Sasa, Moniya and Akinyele), streets, household, 400 consenting respondents who had delivered more than two children. A semi-structured, interviewer-administered questionnaire which included questions on socio-demographic characteristics, 30-point knowledge of risks associated with HBD was used for data collection. Knowledge scores ≤10, >10-20 and >20 were rated as poor, fair and good, respectively. Quantitative data were analysed using descriptive statistics, Chi-square test and logistic regression model at p= 0.05 while qualitative data were analysed thematically. Age of respondents was 32.7±8.8 years. About Forty-nine percent (48.8%) had no formal education, 53.0% had >5 children and 93.2% were Muslims. Knowledge score was 2.3±1.5 and 69.7% had poor knowledge of risks associated with HBD, 43.3% correctly defined antenatal as care given to pregnant women during pregnancy. Sixty-eight percent reported that pregnancy has no associated maternal risk and 75.8% said HBD cannot lead to death of mother and child. Eighty-one percent said the first step to take when a pregnant woman is in labour is to call the aged women to assist her. Ninety-five percent delivered their last baby at home and 83.7% reported they were satisfied with HBD. Eleven percent 10.5% had ever visited health facilities for treatment or delivery and 3.4% received antenatal care during their last delivery. Majority (89.7%) preferred to deliver at home if they were pregnant again. Overall 89.0% stated that HBD is the better than hospital delivery and 59.0% said their culture did not support hospital delivery. There was a significant (p=0.005) association between level of education and HBD. There was a significant association between parity >5 and HBD. Mothers with more than >5 children were more likely to deliver at home compared with those with less than five children (OR: 4.1 =CI= 5.1-6.2). Home delivery is preferred mode of delivery among Hausa women. This is reinforced by socio-cultural factors. Opinion leaders within the community could be targeted for proper health education to encourage hospital utilization for child delivery

Keywords: Home birth delivery, Antenatal care, Hausa women, Socio-cultural factors.

Introduction

Home birth was the only method of delivery until the advent of modern medicine. In developing countries, where women may not be able to afford medical care or it may not be accessible to them, a home birth may be the only option available, and the woman may or may not be assisted by a professional attendant of any kind (Montagu, Yame, Visconti, Harding, Yoong, Joanne & Mock, 2011).

Home delivery is rapidly gaining popularity without women knowing all the risks and one reason many women choose home birth is because of frustration with the medicalization of childbirth and the lack of power that they have in the hospital and there are just not lots of great information out there on giving birth at home. What information does exist seems to point to the conclusion that home births may be more dangerous and pose a higher risk of the baby dying.

More than 20 million women each year, suffers ill health or death during pregnancy and childbirth (Safe Motherhood Newsletter, 2002). Recent estimates suggest that more than 500,000 women die annually of

pregnancy related complications, ninety-nine percent (99%) of those deaths occur in less developed regions particularly Africa and Asia.

The 12th Perinatal and Infant Mortality Report of Western Australia (PIMC) (2007) reports deaths in the years 2002-2004 and relates them to birth place, maternal behaviours, population health and other causative factors. This report found, when combining data from 2000-2004, the perinatal mortality rate for planned homebirths was significantly higher than the rate for hospital births. A home birth in a developed country is an attended or an unattended childbirth in a non- clinical setting, typically using natural childbirth methods, that takes place in a residence rather than in a hospital or a birth centre, and usually attended by a midwife or lay attendant with expertise in managing home births. Women with access to high-quality medical care may choose home birth because they prefer the intimacy of a home and family-centred experience or desire to avoid a medically-centred experience typical of a hospital or clinical setting (Montagu, Yamey, Visconti, Harding, April, Yoong, Joanne & Nancy, 2011). Furthermore, professionals attending home births can be an obstetrician and or a certified midwife. Analysis of the mortality of term babies whose mother choose home birth for the year 2000-2004 showed that the mortality of babies in a homebirth programme was 6.7/1000 total births, compared to a term perinatal mortality of 2.1/1000 total births in planned hospital births at term gestation during the same period (Homer & Nichol, 2009). The same study also stated that there are around 200 planned homebirths in West Australia each year <1% and this proportion has been relatively stable over the past 15 years. Furthermore, of the women transferred, either antenatally or during labour, 14% had a history of a prior caesarean section. The most common reasons for transfer from home to hospital in the pre-labour or antenatal period were pre-labour rupture of membranes and premature labour. The most common reasons for transfer during labour were foetal distress and 'failure' to progress at >3cm cervical dilatation. Postpartum haemorrhage accounted for 48 transfers from home to hospital 23% of the women whose intended place of birth at onset of labour was home. Of the women who were transferred to hospital but whose intended place of birth at onset of labour was home, 46% had a normal vaginal birth and 37% had an emergency caesarean section. Of the women who were transferred to hospital antenatally, 48% had a normal vaginal birth, 10% had an elective caesarean section and 30% had an emergency caesarean section (Homer & Nicholl , 2009).

In a study conducted in three Northern states of Yobe, Katsina and Zamfara in Nigeria revealed that the proportion of women delivering at home has been increasing among recent cohorts: 92.4% and 93.2% of women who gave birth in the 3 years and 1 year preceding the survey respectively gave birth at home (Henry, Radheshyam Sally Stephane & Tukur, 2005).Sullivan and Ranzcog (2008) stated that lack of choice for women with risk associated pregnancies make some women with high risk pregnancies to choose home rather than hospital birth. This can be seen within a context where home birth and hospital birth both carry different risks and offer different benefits to individual women.

Women in Kigoma district value to deliver at home in the presence of the significant others because of their traditional culture. In this case even if complications develop it is difficult for these significant others to detect them early enough hence refer them to higher centres with no delay. Moreover, clarification of values of an individual woman or her family will facilitate women's intention to seek medical care early during their illness.

Lastly, this study aims at looking at the factors influencing adoption of home birth delivery among Hausa women in Akinyele LGA, Oyo State.

Statement of the problem

A larger group of mothers are not knowledgeable to maternal risks during pregnancy and delivery and the dangers associated with home delivery. In Nigeria, three in five births (62%) occur at home according to the 2008 National Demographic and Health Survey, but with regional variations, the northern part of the country having the highest. In the absence of a skilled health worker, a traditional birth attendant was the next most common person assisting a delivery (22 percent). Nineteen percent of births were assisted by a relative or other person, and an equal proportion of births were attended by no one (National Demographic and Health Survey, 2009). The majority of women who received no antenatal care services delivered at home (96 percent) (NDHS, 2009).In these circumstances most of the home deliveries are not attended by skilled personnel.

The delivery in the home subjects a woman into complications such as lacerations (vaginal or uterine), retained placenta, ruptured uterus, postpartum haemorrhage and puerperal sepsis. Home delivery also increase the rate of chid morbidity and mortality, transmission of infections such as HIV/AID, Vesico virginal fistula, Recto-virginal fistula and sepsi. It increase cost of treatment and poverty's, It often happens to some women who agree to enter health unit only when birth complications have advanced and tend to increase the incidence of maternal mortality (Ahmed 1998: Mathew *et al,* 1995).The consequences of un-assisted delivery by skilled personnel is devastating and threatening to the life of both mother and the child. Therefore, this document intends to highlight on some effective measures which could be used to address the problem of home deliveries.

Research questions

The following research questions were set for the study:

1. What is the prevalence of home delivery among Hausa women in Akinyele LGA?
2. What are the factors that hinder the rate at which Hausa women access health facility in Akinyele LGA?
3. What is the effect of significant others on home delivery among Hausa women in Akinyele LGA?

Hypotheses

The Following Null Hypothesis were tested;

1. H_o: Parity has no Influence on adoption of Home birth delivery among Hausa women in Akinyele LGA.
2. H_o: Knowledge has no influence on adoption of Home birth delivery among Hausa women in Akinyele LGA.
3. H_o: Level of education has influence on adoption of Home birth delivery among Hausa women in Akinyele LGA.
4. H_o: Religion has influence on adoption of Home birth delivery among Hausa women in Akinyele LGA.
5. H_o: Culture has influence on adoption of Home birth delivery among Hausa women in Akinyele LGA.

Material and Methods

The study was a descriptive survey that focuses on factors influencing home birth among Hausa women in Akinyele LGA, Ibadan. It was cross-sectional in design which allows data to be collected at one point in time on

several variables such as age, education and parity. The study was conducted in Akinyele LGA Ibadan, Oyo State. These areas (Sasa, Akiyele, Moniya) are densely populated commercial areas with each having its own main market where people of the city come to shop for foodstuff, farm products and materials. The study focused on Hausa women only because majority they do not go to the hospital for delivery rather they delivered at home and the area was dominated by Hausa women. A probability sampling technique was adopted for the study; which gives every member of the target population an equal and independent opportunity of being selected for the study.

Stage one: The three Hausa communities (Sasa, Akinyele and Moniya) in Akinyele LGA were selected using total sampling method.

Stage two: Purposive sampling method was used to select Sasa and Akinyele because the two communities have one cluster each while simple random sampling method (Balloting) as used to select Banki cluster out of the two clusters within Moniya communities.

Stage Three: Simple random sampling technique was used in selecting households within the three clusters.

Stage Four: Simple random sampling technique was used in selecting 140 respondents from each of the three clusters. The participants who were available in a household during data collection were interviewed till the targeted sample size of 400 was met. Any household that did not have an eligible respondent was skipped.

Quantitative methods were used for data collection through questionnaire. The collected data were used to investigate the practices of home delivery among Hausa women in Akinyele LGA Ibadan Oyo of State. The research instrument was subjected to construct, face and content validity measures for consistency. The reliability of the instrument was ascertained a 0.79 reliability coefficient. Data analyses were made using descriptive statistical tools used were mean, inferential statistics of Chi-square (X^2) and logistic regression model for the analysis. Frequency and percentage tables were generated and Cross tabulations of some variables done using Chi-square (X^2) test. The research hypotheses were tested to establish associations between the independent and dependent variables using the Chi-square test at 5% probability level for rejecting the null hypotheses. Cross tabulation of dependent and independent variable was also done to establish associations between the variable.

Results and Discussions

Basically, the findings of this study are presented in this chapter. The results were presented under the following sections.

Table 1: Socio-demographic characteristics of the Respondents (N=400)

Socio-demographic characteristics of the Respondents	Freq. (%)
Age of the respondents	49 (12.3)
1. 14-23 years	198 (49.4)
2. 24-33 years	77 (19.3)
3. 34-43 years	76 (19.0)
4. 44-53 years	
Do you live together with your husband	
1 Yes	379 (94.7)
2 No	45 (5.3)
Religion	27 (6.8)
1 Christian	373 (93.2)

2	Islam	
Tribe		2 (0.5)
1	Yoruba	2 (0.5)
2	Igbo	394 (98.5)
3	Hausa	2 (0.5)
4	Others	
Highest level of education		195 (48.8)
1	No formal education	118 (29.5)
2	Primary education	77 (19.2)
3	Secondary education	10 (2.5)
4	Tertiary education	
Occupation of the respondents		8 (2.0)
1	Civil servant	135 (33.8)
2	Trading	257 (64.2)
3	Housewife	
Husband's occupation		34 (8.5)
1	Civil servant	326 (81.5)
2	Trading	32 (8.0)
3	Farming	8 (2.0)
4	Others	
For how long have you been living in Ibadan		290 (72.5)
1	Up to 5 years	110 (27.5)
2	More than 5 years	

A completion response rate of 100% (400 out of 400) was obtained with the questionnaire among the Hausa women selected for the study, the ages of the respondents ranged from 14 to 53 years and the mean age of 32.8 ± 8.8 respectively with almost half (49.4%) of the respondents within 24-33 years age bracket. Majority (88.7%) of the respondents were married while 1.0% of the respondents were widowed. Majority (94.7%) of the respondents said they were living with their husband while majority (93.2%) were Muslims. The distribution of the respondents based on their level of education shows that, almost half (48.8%) of the respondents had no formal education while only 2.5% of the respondents had tertiary education. Sixty-five per cent of the respondents were housewife; majority (81.5%) of the respondents' husbands' occupation was trading while majority (72.5%) of the respondents claimed they have been living in Ibadan for at least 5 years (See table.1).

Test of Hypotheses

Hypothesis One

Table 2: Parity and Prevalence of home delivery of the respondents

Parity	Prevalence of home delivery			χ^2	P-value
	1 to 5 Children Freq. (%)	6 Children and Above Freq. (%)	All Children at home Freq. (%)		
Less than six children	65 (16.2)	0 (0.0)	123 (30.8)	27.069	0.000
Children and above	36 (9.0)	15 (3.8)	161 (40.2)		
Total	101 (25.2)	15 (3.8)	284 (71.0)		

The first null hypothesis which stated that there is no significant relationship between respondents' parity and their prevalence of home delivery was tested.

Table .2 shows the cross tabulation of respondents' parity with respondents' prevalence of home delivery using Chi-Square statistic. There was a significant relationship between respondents' parity and their prevalence of home delivery at 95 per cent confidence interval ($p<0.05$). Respondents' parity has a role to play in their prevalence of home delivery. The null hypothesis was therefore rejected.

Hypothesis Two

The second null hypothesis which stated that there is no significant relationship between respondents' knowledge of antenatal care services and their prevalence of home delivery was tested.

Table 3: Cross tabulation of Knowledge of ANC and Prevalence of home delivery of the respondents

Knowledge of ANC	Prevalence of home delivery			χ^2	P-value
	1 to 5 Children Freq. (%)	6 Children and Above Freq. (%)	All Children at home Freq. (%)		
Poor	61 (15.2)	7 (1.8)	211 (52.8)	24.063	0.000
Average	32 (8.0)	4 (1.0)	65 (16.2)		
Good	8 (2.0)	4 (1.0)	8 (2.0)		
Total	101 (25.2)	15 (3.8)	284 (71.0)		

Table 3. shows the cross tabulation of respondents' knowledge of antenatal care services with respondents' prevalence of home delivery using Chi Square statistic. There was a significant relationship between respondents' knowledge of antenatal care services and their prevalence of home delivery at 95 per cent confidence interval ($p<0.05$). Respondents' knowledge of antenatal care services has a role to play in their prevalence of home delivery. The null hypothesis was therefore rejected.

Hypothesis Three

The third null hypothesis which stated that there is no significant relationship between respondents' level of education and their prevalence of home delivery was tested.

Table 4.: Cross tabulation of level of education and Prevalence of home delivery of the respondents

Level of education	Prevalence of home delivery			χ^2	P-value
	1 to 5 Children Freq. (%)	6 Children and Above Freq. (%)	All Children at home Freq. (%)		
No formal Education	35 (8.8)	6 (1.5)	76 (19.0)	50.573	0.000
Primary Education	31 (7.8)	6 (1.5)	159 (39.8)		
Junior Secondary Education	18 (4.5)	1 (0.3)	24 (6.0)		
Senior Secondary Education	13 (3.3)	1 (0.3)	21 (5.3)		
Technical School	0 (0.0)	1 (0.3)	0 (0.0)		
OND	4 (1.0)	0 (0.0)	34(1.0)		
Total	101 (25.2)	15 (3.8)	284 (71.0)		

Table 4. shows the cross tabulation of respondents' level of education with respondents' prevalence of home delivery using Chi Square statistic. There was a significant relationship between respondents' level of education and their prevalence of home delivery at 95 per cent confidence interval ($p<0.05$). Respondents' level of education has a role to play in their prevalence of home delivery. The null hypothesis was therefore rejected.

Hypothesis Four

The fifth null hypothesis which stated that there is no significant relationship between respondents' culture and their prevalence of home delivery was tested.

Table 5: Cultural factors and Prevalence of home delivery

Does your culture support hospital delivery?	Prevalence of home delivery			χ^2	P-value
	1 to 5 Children Freq. (%)	6 Children and Above Freq. (%)	All Children at home Freq. (%)		
Yes	73 (19.9)	9 (2.5)	68 (18.6)	77.252	0.000
No	21 (5.7)	6 (1.6)	189 (51.6)		
Total	94 (25.7)	15 (4.1)	257 (70.2)		

Table 5. shows the cross tabulation of respondents' culture with respondents' prevalence of home delivery using Chi-Square statistic. There was a significant relationship between respondents' culture and their prevalence of home delivery at 95 per cent confidence interval ($p<0.05$). Respondents' culture has a role to play in their prevalence of home delivery. The null hypothesis was therefore rejected.

Binary logistic regression

Variable	Odds ratio (95% CI)	p-value
Number of years lived in the area **<5 (reference)** **≥5**	 1.0 4.2 (1.5-11.4).	 p = 0.002
Sex **Female (reference)** **Male**	 1.00 2.2 (1.2 – 7.1)	 p = 0.013

Categorically, after effecting adjustment, it was revealed that respondents with more than five years experience in motorcycle riding were 0.39 less likely to be involved in CMA compared with those with lesser years. (Table 6).

Conclusion

However, the contributing factor to home delivery among Hausa women in Ibadan was poor knowledge (low level of education) poverty, cultural belief, traditions, religion, mothers being unfamiliar with hospital and influence of friends, environment, uncomfortable about being examined by male nurse and physician, worried about cost, being unhappy with separation from their families.

Maternal health care services provided by well trained and equipped health workers is widely recognized as an important protective factor against maternal and new borne morbidity and mortality. In this current study, about 43.3% of the respondents defined it correctly as the treatment given to pregnant women while forty percents of the respondents were able to list two benefits of antenatal care services however delivery in health facility was still low (10.0%) compared to National target of 80%, the findings was lower compare to findings by Nigeria demographic survey of 2010 which was 30% for North central region.

The results from both bivariate and multivariate logistic regression analysis confirmed the strong significant in the association between respondents level of education, respondents knowledge, respondents parity and respondents culture with the prevalence of home deliivery. Delivery in health facility increased with increase the level of education and by increased the number of antenatal care visits, but decreased as the distance between health facility and home increases.

Recommendations

Based on the results of this study, the following recommendations are made:

- Improving education among girls, especially beyond primary school needs to be strongly encouraged by the Government as education has an impact on the women decision on the place of delivery.

- Community awareness needs to be raised on maternal health seeking behavior and families and community in general need to be prepared for means of transport or transport costs.
- Community-based health education should continue to focus on discouraging some of the non-beneficial traditional practices, and promote modern evidence-based practices
- Health facility should be a functional unit for maternal health care equipped with skilled and motivated staff, essential drugs and supplies to provide basic and comprehensive obstetric care.
- Strengthen the effort to improve accessibility of health facilities by increasing the number of health facilities as well as transport.
- Early booking of antenatal care clinic and completion of more than four visits need to be promoted at community level as those attending antenatal clinic early acquire enough information about safe delivery and majority of those attending more than four visit ending up deliver in health facility.

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KNOWLEDGE AND PRACTICE OF CARE GIVERS ON INFANT AND YOUNG CHILD FEEDING IN SABON-GARI LOCAL GOVERNMENT AREA, KADUNA STATE

[1]YUSUF ABDULKABIR TORIOLA, [2]IZANG YAKUBU DAUDA, [3]AYUBA CHRISTIANA SAMDI , [4]OKHAE KELLY RELOBHEGBE AND [5]ABUBAKAR BELLO SOKOTO

Department of Physical and Health Education, Federal College of Education Zaria, Kaduna State Nigeria.
Department of Human Kinetics and Health Education, University of Nigeria Nsukka, Enugu State Nigeria bobbyizang@gmail.com
Department Human Kinetics and Health Education, Ahmadu Bello University, Zaria Kaduna State Nigeria bobbyizang@gmail.com
Department of Health Promotion and Education, Faculty of Public Health, College of Medecine, University of Ibadan
Shehu Shagari College of Education, Sokoto
Coresponding Author:**y.toriola@yahoo.com +234 `8163471528,**

Abstract

Nigeria faces a significant challenge in addressing the high prevalence of malnutrition among children, with the country having the second-highest burden of stunted children globally. In Nigeria, like other countries, understanding the knowledge, attitudes, and practices of IYCF is essential for designing effective interventions and policies to improve child nutrition. This cross-sectional descriptive survey study sought to assess the knowledge, attitude, and practice of IYCF in Sabon-Gari Local Government Area, Kaduna State, Nigeria. A multi-stage sampling technique was used in selecting the 356 eligible care-givers from six wards sabon gari LGA for the study. A quantitative interviewer-administered questionnaire comprising five sections was used to elicit information on the socio-demographic characteristics of the respondents, knowledge and practices of caregivers towards infant and young child feeding (IYCF), as well as the factors influencing these practices. Respondents' knowledge was measured using a 9-item scale (poor<3), (fair=4-6), and (good=7-9). Practice was measured on a 5-item scale (unhealthy practice<4) or healthy practice≥4). The data were subjected to descriptive and inferential (Fisher exact) statistical analyses at $p \leq 0.05$. The mean age of the respondents was 31.54±6.5 with age ranges from 31 to 40 years, Majority (79.3%) of the respondents had good knowledge regarding IYCF. The majority of participants (95.5%) were aware that breastfeeding should commence within the first 30 minutes after birth, Similarly, most respondents (91.1%) knew about exclusive breastfeeding. In terms of actual practice, the study revealed a low prevalence of 39.1% of healthy infant and young child feeding practices among the respondents. Only a minority practised exclusive breastfeeding, while a significant proportion introduced complementary foods before the recommended age of six months. The influence of family members on child care, low breast milk production and education were recognized as factors influencing child-feeding practices. The study outcomes indicate a discrepancy in knowledge, and practice levels concerning infant and young child feeding in Sabon-Gari Local Government Area. Caregivers demonstrated satisfactory knowledge and unhealthy practice; however, feeding practices remained low. To address the risk of malnutrition, it is important to prioritize health promotion and education, awareness campaigns and the strengthening of antenatal and postnatal care services.

Keywords: Knowledge, Practice, Infant and young child feeding.

Introduction

Malnutrition is usually defined as a chronic condition, which may be a consequence of over- or under-consumption of any or several essential macro- or micronutrients relative to the individual's physiological and pathological requirements (Ecker &Nene, 2012)

Nutrition is the intake of food in proportion to the body's dietary requirements. A well-balanced nutrition mixed with regular physical activity is the cornerstone of good health. Poor nutrition can result in lowered immunity, increased disease susceptibility, stunted physical and mental growth, and decreased productivity (World Health Organisation (WHO), 2019).

Nutrition is a critical part of health and development. Better nutrition is related to improved infant, child, and maternal health, stronger immune systems, safer pregnancy and childbirth, lower risk of non-communicable diseases (such as diabetes and cardiovascular disease), and longevity (WHO, 2018). It is also necessary for physical growth, mental development,

performance and productivity, as well as health and well-being. The food we eat, our health, and the environment in which we live all interact to determine our nutritional status (Bishwas, 2015).

Infant and Young Child Feeding (IYCF) consists of the initiation of breastfeeding within 1 hour of birth, Exclusive Breastfeeding (EBF) for 6 months, a continuation of breastfeeding for up to 2 years and beyond the introduction of complementary foods, minimum dietary diversity, minimum meal frequency, minimum acceptable diet, and consumption of iron-rich or iron-fortified foods (WHO, 2020).

Infant and young child feeding is a cornerstone of care for childhood development. Worldwide, about 30% of children under five are stunted because of poor feeding and repeated infections (WHO, 2003). Childhood nutrition entails ensuring that children consume nutritious foods to aid proper growth and development, as well as to prevent obesity and future diseases (Karnik and Kanekar, 2012). Adequate nutrition during the first year of life, with rapid growth, is vital to ensure that infants grow both physically and mentally and achieve their fullest potential (Colorado Department of Public Health and Environment, 2013). Poor feeding practices are a major threat to social and economic development. Knowledge, attitudes, and practices associated with infant and young child feeding are an essential first step for any 'need-felt' intervention programme designed for a positive behavioural change in infant health (Sriram, Soni, Thanvi, Prajapati, &Mahaya, 2013).

It has been found that optimal infant and young child feeding is one of the most effective single interventions to improve child health. It prevents malnutrition, reduces neonatal, infant, and child mortality, and reduces the risk of infectious diseases like diarrhoea and pneumonia substantially (WHO; UNICEF, 2003).

Appropriate feeding practice, such as the early initiation of breastfeeding within 1 hour of birth; breastfeeding exclusively for the first 6 months of life; and introducing nutritionally-adequate and safe complementary (solid) foods at 6 months, combined with continued breastfeeding up to 2 years of age or beyond, provides children with the required nutrients to kickstart their development (WHO & UNICEF, 2001). Appropriate feeding practice promotes caregiver-child attachment and psychosocial development, physical growth, as well as lower susceptibility to typical childhood ailments and a greater ability to cope with them, increased performance and productivity, as well as a lower risk of some non-communicable diseases later in life (WHO, 2019).

Non-compliance with the IYCF practice may result in malnutrition, neonatal mortality, and morbidity. The incidence of morbidity and mortality among infants and young children could be significantly reduced by optimal feeding. In most formidable circumstances, breastfeeding and supplementary feeding are the preferred methods of infant feeding (WHO, 2021).

Statement of the problem

Malnutrition in children is a major problem with global implications because appropriate nutrition is a critical determinant of their well-being (Sanju, 2015). An estimated 2 million children in Nigeria suffer from Severe Acute Malnutrition (SAM), but only 2 out of every 10 affected children receive treatment (United Nations International Children Emergency Fund, 2015). Nigeria has the second-highest burden of stunted children in the world, with a national prevalence rate of 32 % among children under five (Nwosu & Ataguba, 2020). Nearly 2 in 5 (37%) children under five are stunted (height for age less than 2 SDs from the World Health Organisation (WHO) child growth standards), while 7% are wasted (too thin for height), and 22% are underweight (too thin for their age) (NDHS, 2018). Additionally, rural children have higher levels of stunting, wasting, and underweight compared to urban children (NDHS, 2018).

In Nigeria, among children aged 6-23 months, only 23 % have the minimum necessary dietary diversity, and only 42 % have the minimum adequate frequency. One out of every three children in Nigeria is stunted, and one out of every ten children is

wasted (UNICEF, 2015). Mothers and other caregivers play a critical role in providing appropriate nutrition for their infants. Inappropriate feeding practices among mothers and caregivers can contribute to malnutrition in infants. Several studies relating to infant and young children feeding practices and malnutrition have been undertaken in Nigeria. A study was carried out to explore the barriers to exclusive breastfeeding in Sabon-Gari Local Government Area, Kaduna State. Husbands' opinions, socioeconomic status, and health status were identified as the major barriers to exclusive breastfeeding (Ohaeri & Bello, 2016). There is a need to further promote the benefits of exclusive breastfeeding and the timely introduction of complementary foods among young mothers to improve the nutritional status of children. However, there are fewer studies on the knowledge and practice of caregivers of children under 5 regarding infant and young child feeding in Sabon-Gari Local Government Area..

Research Questions

The following research questions were used to guide this study:

1. What knowledge do mothers have on infant and young child feeding practices sabon gari Local Government Area?
2. What are the practices of infant and young child feeding among mothers sabon gari Local Government Area?
3. What are the factors associated with infant and young child feeding practices sabon gari local Government Area?

Broad Objective

The broad objective of this study was designed to assess the knowledge and practice of caregivers on infant and young child feeding in Sabon-Gari local Government Area, Kaduna State.

Specific Objectives

The specific objectives were to:

1. Assess the knowledge of caregivers towards infant and young child feeding practice in Sabon-GariLocal Government Area.
2. Determine the practice of infant and young child feeding among caregivers in Sabon-Gari Local Government Area.
3. Identify the factors associated with infant and young child feeding practices Sabon-GariLocal Government Area.

Research Hypotheses

Ho1: There is no significant relationship between demographic characteristics of care givers and their knowledge on infant and young child feeding.

H02: There is no significant relationship between demographic characteristics of care givers and the practice of infant and young child feeding.

H03: There is no significant relationship between knowledge and attitude of care givers towards infant and young child feeding.

H04: There is no significant relationship between knowledge and the practice of infant and young child feeding.

Material and Methods

A cross-sectional descriptive research design was adopted for this study, using the quantitative method. The study was conducted in Sabon-Gari Local Government Area (LGA), one of the 23 LGAs in Kaduna State Nigeria. The Hausa were the dominant ethnic group in the area. The local government area had 12 wards, each governed by councillors who were coordinated by the central chairman. The study was carried out among mothers and caregivers in Sabon-Gari Local

Government. The population for this study comprised caregivers of under 5 children Sabon-gari Local Government Area. The sample size for this study was estimated using the Leslie Kish formula for a single proportion, which was:

$n = \frac{z^2pq}{d^2}$ (Leslie Kish,1965)

Where:

n = sample size

z^2 = standardized normal distribution at 95% confidence level

$z^2 = 1.96^2 = 3.8416$

P = 69.52% rate of adherence to EBF (Ohaeri & Bello, 2016)

q = 1 - p = 1 - 0.6952 = 0.3048

d = 0.05 at 95% CI = 0.0025

$n = \frac{z^2pq}{d^2} = \frac{3.8416 * 0.6952 * 0.3048}{0.052}$

n = 326 individuals

To accommodate errors, a non-response rate of 10% was added to the sample size. A non-response rate of 10% of 326 = 32 was derived. Therefore, 32 was added to the calculated sample size, making the final sample size 358 to address issues of incomplete response. The eligible participants were selected using a multistage sampling technique.

Stage 1: A simple random sampling technique by balloting was used to select 6 wards (Hanwa, Chikaji, Jushin Waje, Jama'a, and Basawa) from the 12 wards of the Local Government Area.

Stage 2: Systematic random sampling was used to select the houses in the selected wards for the study.

Stage 3: A simple random sampling technique was used to select one (1) eligible caregiver in the selected house as a respondent. The questionnaires used for this study achieved a completion response rate of 100% (358 out of 358) among the caregivers selected for this study. The study utilized an interviewer-administered questionnaire to gather information on the knowledge and practice of mothers towards infant and young child feeding practices. Three research assistants were recruited and extensively trained on research ethics and procedures necessary for the study. A brief explanation of the study was provided to the respondents and verbal consent was obtained from each individual prior their participation. The research instruments was subjected to construct, face and content validity measure for consistency. The instrument's reliability was confirmed using Cronbach's coefficient measure of 0.7.Data was analysed using descriptive statistics such as frequency, mean, and Percentages were employed, along with inferential statistics such as the Chi-square test (p=0.05) to test hypotheses. Significant variables were further analysed using regression analysis to identify predictors.

Results and Discussion

Table 2 Respondents with Correct Knowledge on infant and young child feeding (N=358)

Knowledge Statement	Frequency	Percentage
Breastfeeding should commence within the first 30 minutes after child birth	342	95.5
Children less than 6 months of age should not be given any other food apart from breastmilk	326	91.1
water and other food can be given to children less than 6 month of age	130	36.3
Breastmilk does not have enough water and nutrients to meet the needs baby less than 6 months	184	51.4
A child should be given other foods apart from breastmilk after 6 months.	327	91.3
Babies should not be given immunization at birth	293	81.8
Mothers should continue breastfeed even when the child is sick	325	90.8
The food of a child should contain varieties of food including fruits and vegetables	338	94.4
The first milk given to the child can help fight diseases and infections	328	91.6

Respondent's Knowledge on infant and young child feeding shows that most of the respondents (79.3%) had a good knowledge, 19.0% had fair knowledge and 1.7% had poor knowledge of infant and young child feeding when measured on a 9-point scale (Figure 1).Table 4.2 provides information on the correct knowledge statement regarding infant and young child feeding. It can be inferred that there is generally good knowledge among the study population about the importance of breastfeeding for infants. The majority of respondents (95.5%) knew that breastfeeding should commence within the first 30 minutes after child birth, which is in line with the World Health Organization's recommendation. Similarly, most respondents (91.1%) knew that children less than 6 months of age should not be given any other food apart from breastmilk. However, the results also indicate some misconceptions among the respondents. For example, 36.3% believed that water and other food can be given to children less than 6 months of age, which is not recommended by health experts. Additionally, a sizeable number of respondents (48.6%) believed that breastmilk does not have enough water and nutrients to meet the needs of babies less than 6 months, which is not true. Also, there were some misconceptions about immunization, as only 82% of respondents believed that babies should not be given immunization at birth. On the positive side, most respondents (91.3%) knew that a child should be given other foods apart from breastmilk after 6 months, which is in line with current guidelines. Similarly, a large proportion (94.4%) knew that the food of a child should contain varieties of food including fruits and vegetables. Finally, it is encouraging that most respondents (90.8%) knew that mothers should continue breastfeeding even when the child is sick, and that the first milk given to the child can help fight diseases and infections. This demonstrates a good understanding of the health benefits of breastfeeding for both mother and child.

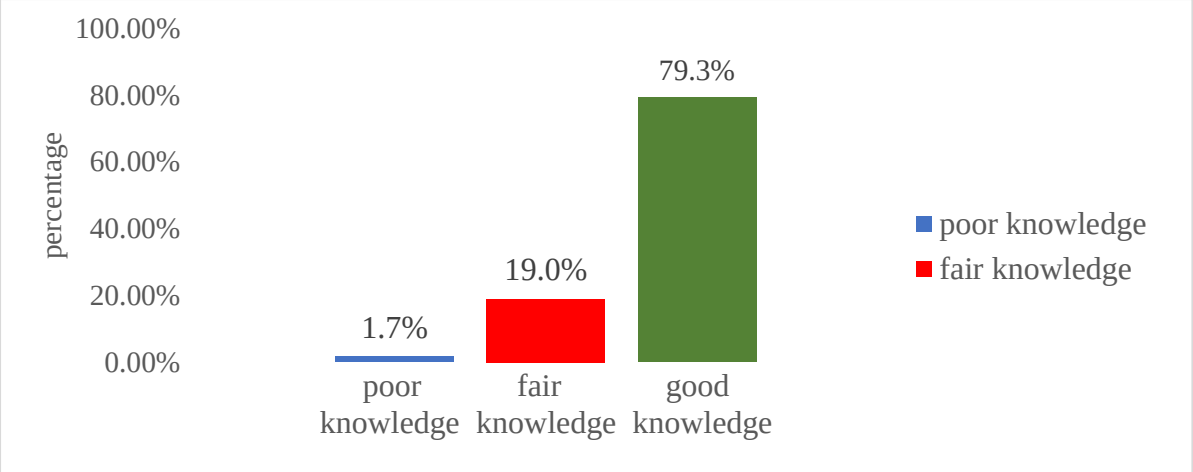

Figure 1

Table 3: Respondent's Practice infant and young child feeding (N=358)

Practice question	Frequency	Percentage
Supplement food given to child before his/her 6 months birthday (N= 473) *		
Water	232	49.0
Herbs	120	25.3
Soft drinks	58	12.3
Solid food	63	13.3
Duration of breast feeding		
1 to 3 months	44	12.3
4 to 5 months	161	45.0
6 months and above	153	42.7
Frequency of daily feeding		
Once	19	5.3
Twice	75	20.9
three times	169	47.2
four times and above	95	26.5

***Multiple responses included**

Figure 1 Respondents' knowledge on infant and young child feeding (N=358)

Respondent's Practice infant and young child feeding :Most of the respondents (60.9%) had unhealthy practices towards infant and young child feeding,on a 5-point scale (Figure2). The majority (96%) of respondents breastfed their youngest child, while 4% did not because they were caregivers and not mothers. Additionally, 95.3% of respondents reported giving their children a mix of different foods while feeding their children complementary food such as fruits and vegetables, while 4.7% did not.In terms of what else was given to their youngest child apart from breast milk before the age of 6 months, the most common responses were water (39.5%), followed by herbs (20.4%), soft drinks (9.9%), food (10.7%), and nothing (19.6%). This data shows that only 19.6% of the respondents practised exclusive breastfeeding. Regarding how long respondents fed

their youngest child exclusively breast milk before giving them other food, 12.3% of respondents breastfed exclusively for 1 to 3 months, 45.0% breastfed exclusively for 4 to 5 months, and 42.7% breastfed exclusively for 6 months and above.When it comes to how many times a day respondents fed their child solid foods, the most common responses were three times a day (47.2%), followed by four times or more (26.5%), twice a day (20.9%), and once a day (5.3%). This shows that only 73.7 % of the total respondent are in line with the WHO guidelines for complementary feeding.

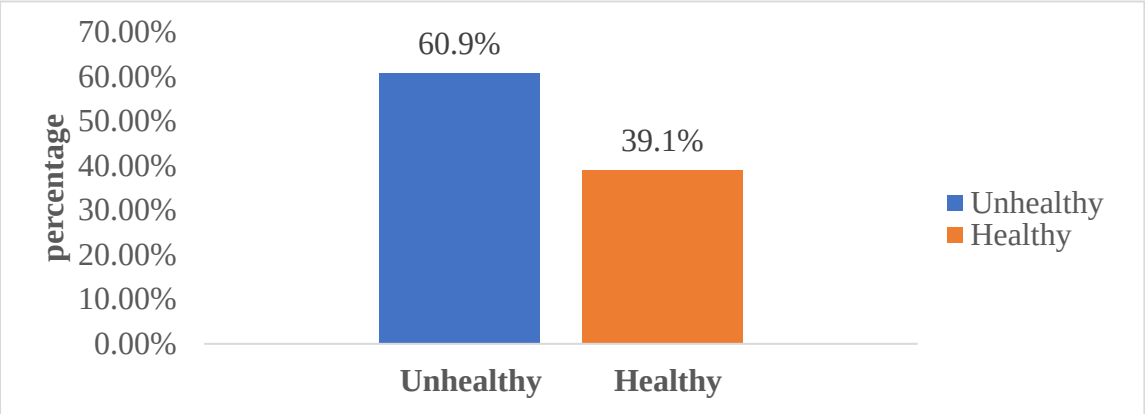

Figure 2Respondent's practice of infant and young child feeding (N=358)

Table 4: Factors influencing infant and young child feeding(N=358)

Factor question	Frequency	Percentage
Level of support provided by spouse (N=137)		
No Support at all	7	5.0
a little support	53	38.6
moderate support	38	27.7
full support	39	28.7
Type of support provided		
Finance	65	50.0
House chores	38	28.5
nursing and feeding	28	21.5
Sources of influence on child care		
Work		
Not at all	113	31.6
a little	152	42.5
Moderate	75	20.9
a lot	18	5.0
Health status to breastfeed		
Not at all	194	54.2
a little	105	29.3
Moderate	50	14.0
a lot	9	2.5

Table 5 Factors influencing infant and young child feeding cont'd(N=358)

Factor question	Frequency (N)	Percentage (%)
Family		
Not at all	146	40.8
a little	104	29.1
Moderate	63	17.6
a lot	45	12.6
level of education		
Not at all	168	46.9
a little	100	27.9
Moderate	43	12.0
a lot	47	13.1
Low breast milk production		
Not at all	182	50.8
a little	97	27.1
Moderate	52	14.5
a lot	27	7.5

Factors influencing infant and young child feeding

According to the survey results, 96% of the respondents breastfed their youngest child, while 4% did not. Of those who breastfed, 38.8% reported that their husbands provided support, while 61.2% did not. Among those whose husbands provided support, 28.7% reported that their husbands gave full support, 38.6% received little support, 27.7% received moderate support while 5.0% received no support at all. When asked about the level of support provided by the spouse, 50.0% indicated that financial support was given, 28.5% mentioned support with house chores, and 21.5% received nursing and feeding support. The health status to breastfeed was also assessed. It was found that 54.2% of the respondents reported no health constraints, 29.3% had a little limitation, 14.0% had moderate limitations, and only 2.5% experienced significant health constraints affecting breastfeeding. The influence of family on child care was investigated as well, 40.8% reported no influence from the family, 29.1% mentioned a little influence, 17.6% reported moderate influence, and 12.6% reported a significant influence from their family on child care. Regarding education, 46.9% of respondents reported that the level of education did not affect a child's feeding, while 13.1% reported that it had a lot of influence.

Furthermore, 50.8% of respondents reported that having low breast milk production did not affect their decision to breastfeed or use formula, while 27.1% reported that it had a little influence, and 7.5% reported that it had a lot of influence. Additionally, 98.3% of respondents reported that they felt equipped with enough knowledge on how to feed their child, while 1.7% did not. Out of those that said no, 50.0%wanted to know more about food formulation and multitasking, 16.67% wanted to know more about boosting breast milk production, while 16.67% wanted to understand what the baby needs at a given time, and 16.67% wanted to know more about food procurement and identification of fake food products. On ly 3.9% of respondents reported that they had trouble giving nutritious food to their child, while 96.1% did not. Among those who had trouble, financial constraints were reported by 46.15%, low breast milk production by 38.46%, and work-related constraints by 15.38%. When it comes to cultural practices or beliefs, 99.2% of respondents reported that it did not affect how they fed their child, while only 0.8% reported that it did(figure 2). Among those who reported that it did, 50.0% reported that food taboo was a factor, while 50.0% reported that restriction of movement was a factor.

Hypotheses testing

Table 6:Association between respondents' socio-demographic characteristics and knowledge (N=358)

Socio demographic characteristics	Knowledge categorization on infant and young child feeding			X^2	Df	P-value
	Good	Fair	Poor			
	Freq(%)	Freq(%)	Freq(%)			
Age						
11 to 20yrs	6(46.2%)	5(38.5%)	2(15.4%)	16.248	6	0.007*
21 to 30yrs	97(77.6%)	26(20.8%)	2(1.6%)			
31 to 40yrs	158(83.6%)	30(15.9%)	1(0.5%)			
41 to 50yrs	23(74.2%)	7(22.6%)	1(3.2%)			
Educational status						
Primary	15(68.2%)	6(27.3%)	1(4.5%)	28.778	8	0.001*
Secondary	93(74.4%)	28(22.4%)	4(3.2%)			
Tertiary	175(85.0%)	31(15.0%)	(0.0%)			
Others	1(33.3%)	(66.7%)	0(0.0%)			
None	0(0.0%)	1(50.0%)	1(50.0%)			

The results of the Fisher exact test revealed the relationship between the demographic characteristics of caregivers and their knowledge of infant and young child feeding. The hypothesis being tested is "there is no significant relationship between demographic characteristics of caregivers and their knowledge on infant and young child feeding." For each socio-demographic characteristic, the table shows the knowledge categorization on infant and young child feeding, including the Percentages of caregivers with good knowledge, fair knowledge, and poor knowledge. The table also provides the Fisher exact test (X2), degrees of freedom (df), and p-value. There is a significant relationship between mothers' age, educational status, occupational status, monthly income and their knowledge of infant and young child feeding ($X2 = 16.248$, $df = 6$, $p < 0.007$; $X2 = 28.778$, $df = 8$, $p < 0.001$. The p-value is less than the significance level of 0.05, indicating a significant relationship. Caregivers aged 21 to 30, 31 to 40, and 41 to 50 have higher proportions of good knowledge compared to caregivers aged 11 to 20. Caregivers with tertiary education have the highest proportion of good knowledge, while caregivers with primary education have the lowest proportion of good knowledge. The p-value is greater than the significance level of 0.05, suggesting no significant relationship. Based on the chi-square test results, we reject the null hypothesis for mothers' age, educational status, indicating a significant relationship with knowledge of infant and young child feeding.

Table 7: Association between respondents' socio-demographic characteristics and practice(N=358)

Socio-demographic characteristics	practice categorization on infant and young child feeding		X2	df	P-value
	Healthy	Unhealthy			
	Freq(%)	Freq(%)			
Mothers age in years					
11 to 20yrs	2(15.4%)	11(84.6%)	8.649	3	0.034*
21 to 30yrs	44(35.2%)	81(64.8%)			
31 to 40yrs	76(40.2%)	113(59.8%)			
41 to 50yrs	18(58.1%)	13(41.9%)			
Educational status					
Primary	8(36.4%)	14(63.6%)	8.263	4	0.052
Secondary	38(30.4%)	87(69.6%)			
Tertiary	93(45.1%)	113(54.9%)			
Others	1(33.3%)	2(66.7%)			
None	0(0.0%)	2(100.0%)			
Type of marriage					
Monogamy	117(42.3%)	159(57.6%)	6.925	1	0.031*
Polygamy	21(30.0%)	49(70.0%)			

Association between Respondents' demographic characteristics and practice of Infant and young child feeding

Table 7 below presents the relationship between the demographic characteristics of caregivers and their practice of infant and young child feeding. The hypothesis being tested is "There is no significant relationship between demographic characteristics of caregivers and the practice of infant and young child feeding."For each socio-demographic characteristic, the table shows the practice categorization on infant and young child feeding, including the Percentages of caregivers with healthy practice and unhealthy practices. The table also provides the chi-square statistic (X2), degrees of freedom (df), and p-value. There is a significant relationship between mothers' age, type of marriage and their practice of infant and young child feeding (X2 = 8.649,df = 3, p = 0.034.The p-value is less than the significance level of 0.05, suggesting a significant relationship. Caregivers aged 41 to 50 have a higher proportion of healthy practice compared to caregivers in the other age groups and Caregivers in polygamous marriages have a higher proportion of unhealthy practice compared to caregivers in monogamous marriages.

However, there is no significant relationship between educational status, marital status, and the practice of infant and young child feeding (X2 = 8.263, df = 4, p = 0.052; X2 = 2.846, df = 4, p = 0.597). The p-value is greater than the significance level of 0.05, indicating no significant relationship. Based on the chi-square test results, we reject the null hypothesis for mothers' age in years and type of marriage indicating a significant relationship. However, we fail to reject the null hypothesis for educational status and marital status, suggesting no significant relationship.

Table 8: Association between Respondents' knowledge and practice of infant and young child feeding(N=358)

knowledge	Practice		X2	df	P-value
	Healthy	Unhealthy			
	Freq(%)	Freq(%)			
Poor knowledge	0(0.0%)	6(100.0%)	10.152	2	0.005*
Fair knowledge	18(26.5%)	50(73.5%)			
Good knowledge	122(43.0%)	162(57.0%)			

***Significant (P<0.05)** *This is an important finding; more participants with good knowledge have healthy practice

The table 8 below shows the relationship between knowledge and practice of infant and young child feeding practices. The hypothesis being tested was "There is no significant relationship between knowledge levels and practice. "The table shows the frequency of individuals who were categorized as having healthy or unhealthy practices based on their level of knowledge. The results indicate a significant relationship between knowledge and practice ($X2 = 10.152$, $df = 2$, $p = 0.005$). Caregivers with poor knowledge had a higher proportion of unhealthy practices (100%) compared to no instances of healthy practice. Among those with fair knowledge, 26.5% exhibited a healthy practice, while 73.5% had an unhealthy practice. Caregivers with good knowledge demonstrated a healthier practice, with 43.0% having a healthy practice and 57.0% having an unhealthy practice. This is an important finding as more participants with good knowledge have healthy practice. This demonstrates the importance of education and knowledge when it comes to proper infant and young child feeding practices. The Fisher exact test results suggest rejecting the null hypothesis, indicating that knowledge levels are significantly associated with the practice being examined. Caregivers with poor knowledge are more likely to exhibit unhealthy practices, whereas those with good knowledge tend to have a higher likelihood of adopting healthier practices.

Table 8 Influence of socio-demographic characteristics on knowledge of infant and Young child feeding

***Others (private contractors) ****Significant (P<0.05)**

Variables	Sig.	OR	95% Confidence Interval	
Occupation			**Lower Bound**	**Upper Bound**
Civil servant(ref)	-	-	-	-
Trader	0.354	0.684	0.306	1.527
Student	0.824	1.166	0.301	4.516
Artisan	0.767	0.876	0.365	2.105
Unemployed	0.124	0.312	0.071	1.376
***Others**	**0.040	0.087	0.008	0.899

Logistic regression analysis: Logistic regression is used to further analyse the significance of associations identified for the variables which had statistical associations under hypothesis testing. Binary logistic regression is used to test for significance and odd ratio.

Influence of socio-demographic characteristics on Infant and young child feeding knowledge: Logistic regression analysis revealed that respondents within the others category has a p-value of 0.040, which is less than 0.05, indicating a

statistically significant association between this occupation category and the outcome variable. The odds ratio of 0.087 suggests that individuals in the others category have approximately 91.3% lower odds of the outcome variable compared to Civil servants. The confidence interval ranges from 0.008 to 0.899, indicating a wide range of plausible odds ratios. This is Compared with Trader, Students, Artisan and Unemployed respectively (p= 0.354, OR=0.684, CI = 0.306 - 1.527; p= 0.824, OR=1.166 CI = 0.301 - 4.516; p= 0.767, OR=0.876, CI = 0.365 - 2.105; p= 0.124, OR= 0.312, CI = 0.071 - 1.376).

Conclusion

Overall, this study highlights both positive and concerning aspects of infant and young child feeding (IYCF) practices among caregivers Sabon-Gari Local Government Area. While the respondents generally demonstrated good knowledge and poor practice towards IYCF, there was a significant gap between knowledge and actual practices. This indicates a need for targeted interventions to improve IYCF practices in the area.

Several factors influencing IYCF practices were identified, including spousal support, family influence, breastfeeding challenges, and cultural practices. These factors should be considered when designing interventions and programmes aimed at improving IYCF practices. Strategies such as health promotion and education, public awareness campaigns, social approaches, and advocacy are recommended to address these challenges effectively. The study concludes by calling for comprehensive efforts from various stakeholders, including government agencies, healthcare providers, educators, community leaders, and civil society organizations.

Recommendations

Based on the findings presented in the previous sections, the following recommendations can be made:

1. Enhancing Knowledge:

- Development and implementation of educational programmes on infant and young child feeding (IYCF) to address misconceptions and gaps in knowledge.
- Collaboration with healthcare providers to ensure accurate and consistent information about IYCF is provided to parents and caregivers.

2. Improving Practice:

- Strengthen antenatal and postnatal care services to provide comprehensive support and guidance on IYCF practices.
- Train healthcare providers to offer individualized counselling on breastfeeding techniques, proper introduction of complementary foods, and the importance of exclusive breastfeeding for the first six months.

3. Community Support:

- Establish community support networks, such as mother-to-mother support groups, to create a supportive environment for breastfeeding mothers.
- Encourage involvement of fathers, family members, and community leaders in promoting and supporting IYCF practices.
- Collaborate with local organizations and NGOs to organize community events and campaigns that raise awareness and provide resources on IYCF.

4. Continuous Monitoring and Evaluation:

- Regularly monitor and evaluate the effectiveness of interventions and programmes aimed at improving IYCF knowledge, attitudes, and practices.
- Collect and analyse data on IYCF indicators to identify areas for improvement and inform evidence-based decision-making.

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PREVALENCE AND PREDICTORS OF RISKY SEXUAL BEHAVIOUR AMONG ORPHANS AND VULNERABLE ADOLESCENTS IN ORPHANAGES IN IBADAN OYO STATE, NIGERIA

OLUWATOMIWA ADUNADE OBIELODAN[1], OLUWAFEMI POPOOLA[1], OLATUNDE AYINDE[2], OLUWASEFUNMI OBIELODAN[1].

[1]Department of Community Medicine, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Nigeria.
[2]Department of Psychiatry, College of Medicine, University of Ibadan, Ibadan, Nigeria
tomiwadunade@yahoo.com 08168837513

Abstract

Risky sexual behaviour (RSB) and its associated social, physical, and mental health consequences pose a growing public health concern worldwide, particularly among Orphans and Vulnerable Adolescents (OVA) due to their heightened vulnerability. This study aimed to investigate the factors influencing RSB among OVAs residing in orphanages within Ibadan, Oyo State, Nigeria. A cross-sectional study encompassing OVAs from ten orphanages was conducted, employing a total population survey approach. An interviewer-administered questionnaire was utilized to gather data on respondents' socio-demographic characteristics and their engagement in RSB. RSB indicators were identified using the Youth Risk Behavior Study tool, alongside inquiries about drug and alcohol use. The association between categorical variables was assessed using chi-square tests, while predictors of RSB were identified through logistic regression analysis, maintaining a significance level of 5%. The study included 214 respondents, among whom 42 (19.6%) reported ever engaging in sexual activity, with a mean age at first sexual debut of 13.4 years. Approximately 40 (18.4%) of the respondents exhibited at least one of the three RSB indicators. Marital status (unmarried parents; p=0.005), lower educational attainment of the respondent (p=0.004), alcohol consumption ($p<0.05$), and drug use ($p<0.05$) were significantly associated with RSB in the initial bivariate analysis. However, in the logistic regression model, only a history of alcohol consumption (95% CI=3.6-31.7; p = 0.00) remained a significant independent predictor of RSB. This study highlights a noteworthy association between alcohol use and RSB among OVAs residing in orphanages, underscoring the importance of addressing alcohol-related factors in interventions aimed at reducing RSB in this vulnerable population.

Keywords: Risky Sexual Behaviour (RSB), Orphans and Vulnerable Adolescents (OVC), Alcohol use, and Drug use.

Introduction

Risky Sexual Behaviour (RSB) gives rise to various negative health outcomes among adolescents. RSB and its related physical, psychological, and social repercussions, have increased among orphans and vulnerable adolescents. This is fast becoming a public health concern worldwide (Fite and Cherie, 2016). There are an estimated 140 million Orphans and Vulnerable Children (OVC) in the world (UNICEF, 2013). Sub-Saharan Africa is home to approximately 60 million OVC (UNAIDS 2010; UNICEF 2012). In Nigeria, the number of OVCs is estimated to be 20% of the total sub-Saharan OVC population. It is also reported that approximately 25% of an estimated 70 million children in Nigeria, are characterized as vulnerable. As of 2008, Nigeria had an estimated 17.5 million OVC (FMWASD, 2008: Tagurum et al., 2015).

Worldwide although there is no accurate data available, the estimate suggests that 2-8 million children live in orphanages with the majority being in eastern Europe, Latin America, Asia & Africa (USAID, 2009; Human right watch, 1999). In sub-Saharan Africa, the number of children living in orphanages has been increasing, this increase is alarming, and it is attributed to increased natural disasters, war, religious/ political crisis, HIV/AIDs, and poverty (Brown 2009; UNICEF, 2009; Folarinmi, 2015). Moreover, the extent of hardship faced by orphans due to the death of their parents leads to negative consequences for them (Embleton, 2016).

Generally, OVA may be at high risk of early sexual activities. For instance, a study carried out among OVA in Nigeria, found that one in seven OVA is engaged in RSB (Adeniyi, 2008). Also, 5% of male OVAs initiate sexual activity before age 15 compared to 2% of non-OVA (NPC, 2014). Some studies carried out in Africa found that orphan status was linked with having an earlier sexual debut, multiple sexual partners, and transactional sex (Operario et al., 2011). However, some other studies found that orphan status is not significantly linked with increased sexual risk-taking among OVA, but other factors were found to play a significant role in increasing OVA-taking RSB.

Therefore, understanding the magnitude of risky sexual behaviour and exploring its underpinning predictors is pivotal to addressing the needs of orphans and vulnerable children. This will help mitigate the negative outcomes and provide targeted interventions. However, there is a paucity of information in this regard in Nigeria. Therefore, it is the purpose of this study to assess the sexual practices as well as their associated factors among OVC in Ibadan Nigeria. The findings of this study will be significant in improving the orphanage environment, and implementing and shaping policies in Nigeria.

Concept of Risky sexual behavior

Risky sexual behaviour can be defined in a number of ways, the most widely used definition is according to the behaviour itself: unprotected vaginal, oral, or anal intercourse (Charine, 2007). A second definition of risky sexual behavior is having multiple sexual partners, low rates of condom use, high frequency of sexually transmitted diseases, and having sexual intercourse at a young age (Dir *et al*., 2014; Gillen *et al*., 2006; Lansford, Dodge, Fontaine, Bates, & Pettit, 2014; Schooler & Ward, 2006; Wingood, Diclemente, Harrington, & Davies, 2002). Risky sexual behavior among adolescents is a major public health concern since it can have serious negative outcomes, such as increased odds of sexually transmitted diseases like chlamydia, HIV, and HPV virus (Kotchick, Shaffer, Miller, & Forehand, 2001; Lansford *et al*., 2014; Björnsdóttir, 2015). A large body of research has examined the precursors of risky sexual behavior (Aalsma, Fortenberry, Sayegh, & Orr, 2006; Lansford *et al*., 2014; Shrier, Harris, Sternberg, & Beardslee, 2001). Risky sexual behavior has numerous risk factors, such as substance abuse (Shrier *et al*., 2001), peer pressure, and delinquency (Lansford *et al*., 2014). Psychological factors like low self-esteem (Boden & Horwood, 2006; Ethier *et al*., 2006) and depression (Shrier *et al*., 2001) also may be important precursors for risky sexual behavior.

Specific risky sexual behaviour common among adolescents

- Too early initiation of sexual activity (Diala *et al*., 2011)
- Sexual intercourse without the use of contraception (Odeigah *et al*., 2019)
- Unplanned pregnancy (Kalmuss *et al*., 2007)
- Multiple sexual partners and sexual intercourse with a partner infected with an STI and HIV/AIDS (Izugbara & Modo, 2007)
- Oral sex (Odeigah *et al*., 2019)

These behaviours are considered in two broad categories namely:

- Indiscriminate behaviours including having multiple partners; having risky, casual or unknown partners; and failure to discuss risk topics prior to intercourse.
- Failure to take protective actions such as the use of condoms and birth control.

Risky sexual behaviour is the major factor in the rising rate of sexually transmitted infections (STIs) including HIV. Adolescents typically have higher STI rates than other groups with the highest rates of gonorrhea between the ages of 15-19 years (Aral and Haffner 1995). Risky sexual behaviour is a matter of concern with STIs, as it is now well documented that STIs have a co-factor role in HIV transmission.

Method and Material

The study was conducted in Ibadan, the Capital City of Oyo State Nigeria using a cross-sectional study design.

The study was carried out in ten selected adolescent orphanages in Ibadan the capital of Oyo state. The list of all orphanages (30) in Ibadan was obtained from the Oyo state ministry of women affairs and poverty alleviation. Only ten of the 30 orphanages had adolescents. All 10 orphanages were selected to be a part of this study.

In each of the orphanages, the total sampling of all the available adolescents between the ages of 14-19 was sampled. The range of adolescents in the adolescent orphanages ranged from 7- 55. Therefore, a total sampling was used.

Table 1: List of Orphanage Homes

S/N	Name of orphanage	Number of adolescents in orphanage
1	Jesus' children mission	55
2	Living word mission	36
3	All mighty God compassion home	34
4	Ibadan mercy home	31
5	Galilee foundation	28
6	Oyiza orphanage home	25
7	His Heritage home	14
8	Status Dignus home	8
9	Winnie's castle	7
10	Covenant children mission	7
	Grand Total	**245**

The study population included orphaned and vulnerable adolescents from orphanages. This study included any orphaned and vulnerable adolescent (an adolescent whose biological parent(s) are absent from their life) aged 14 to 19 years, living in an orphanage setting, regardless of the reason for orphanhood.

Inclusion criterion: Eligible participants were adolescents aged 14- 19 years living in orphanages.

Exclusion criterion: Adolescents living in orphanages that were ill at the time of the study.

The sample size was determined by considering the prevalence of risky sexual behavior among orphans and vulnerable children in a study conducted by catholic relief services and the catholic secretariat of Nigeria in 2008 in eight states of Nigeria. This was found to be 16% (Adeniyi et al., 2008), 95% confidence Interval, a 5% margin of error (d = 0.05) and a 10% allowance for non-response rate. Based on this the calculated minimum sample size was 229.

An interviewer-administered questionnaire was used to get information on sociodemographic characteristics and risky sexual behaviour of orphans and vulnerable adolescents in orphanages. The questionnaire was adapted from previous literature.

Risky sexual behaviour was adapted from Youth Risk Behaviour Survey; items were extracted from this tool that indicates risky sexual behaviour such as the number of sex partners in the last year, sex under the influence of alcohol or drug, and have you ever used condoms before during sex. Any respondent who experiences at least one of these is said to have experienced risky sexual behaviour.

Data was collected over a period of four weeks using trained Research assistants. Research Assistants (RAs) were trained over a period of three days on the content and method of administration of the questionnaire and the maintenance of ethical standards. The questionnaire was pre-tested to assess for clarity and sensitivity of questions as well as the understanding of the study participant about the questions. Based on the result of the pre-test, some modifications were made. The reliability of the

section of the questionnaire is as follows: The risky sexual behaviour section of the questionnaire has been validated in Nigeria with a Cronbach alpha score of 0.81 (Ugogi, 2013).

Questionnaires were checked for errors daily, Data was entered, cleaned, and coded manually into the computer. Descriptive statistics were used, and Inferential statistics were done using a chi-square test to determine the associations between variables. Multivariate analysis was also used to determine the independent predictors of risky sexual behaviour which are age, gender, marital status of parents, educational status of respondents, and orphan status using binary logistic regression, and the result was considered for statistical significance ($p<0.05$).

Ethical approval was sought and obtained from the Ethical Committees of UI/UCH before commencing the study. Permission was sought from the Oyo state ministry of Women affairs/ social development and poverty alleviation. Approval to administer the questionnaires was sought from the management boards of the selected orphanages. Assent was gotten from adolescents below 18 years. Informed consent was gotten from adolescents aged 18-19 years and from the caregivers of each orphanage before administering the questionnaire. Participation in the study was voluntary and information collected from the study participants was kept strictly confidential.

Results and Discussion

Participants

The majority 87.8% (n=215) of the 245 individuals invited to participate in the study consented. Only 0.5% (n=1) of the questionnaire was excluded from the data analysis as it was incomplete.

Therefore 214 respondents' questionnaires were included in the final data analysis.

Socio-demographic characteristics

Table 2: Socio-demographic Characteristics

Variable	Frequency	Percentages
Age 14-16	152	71.1
17-19	62	28.9
Gender Male	119	55.6
Female	95	44.4
Ethnic group Yoruba	138	64.5
Hausa	19	8.9
Igbo	34	15.9
Others	23	10.7
Residence before placement in orphanage biological parents	129	60.3
Others	85	39.7
Status of parent One parent alive	69	32.2
Both alive	128	59.8

Both dead	17	8.0
Marital status of parent Married	157	73.4
Unmarried	57	26.6
Educational status of respondents' Primary education	47	22
Secondary education	148	69.2
Tertiary education	19	8.8

*Others: Grandparent, Other relatives, Adopted family.

This study included a total of 214 participants with ages ranging from 14-19 years and a mean age of 15.7 ± 1.57 years. Table 2 shows the socio-demographic characteristics of respondents.

More than half (55.6%) of the respondents are male. Majority of the respondents were Yoruba (64.5%). Majority of the respondents (60.3%) resided with their biological parents before placement in the institution and (74.8%) of the respondents still had contact with family members. Majority of the respondents (59.8%) have both parents alive. Most of the respondents (69.2%) are currently in secondary school.

Sexual behaviour among respondents

Table 3: Sexual Behaviour among Respondents'

Variables	Frequencies	Percentages
Ever had sex		
Yes	42	19.6
No	172	80.4
Multiple sexual partners Yes	19	8.9
No	195	91.1
No condom use		
Yes	36	16.8
No	178	83.2
Sexual intercourse with drugs or alcohol Yes	9	4.2
No	205	95.8

Proportions of OVA in orphanages in Ibadan who are sexually active are being investigated and the result is as presented in table 3. It revealed that 19.6% of the respondents have ever had sex, and 80.4% have never had sex. This established that the majority of the respondents are not sexually active. Of those who reported that they are sexually active, the mean age at first sexual experience was 13.43 years. Adolescents who had never used condoms were reported to be 16.8%. Adolescents who consumed alcohol or used drugs before they had sexual intercourse were revealed to be 4.5%. Adolescents who had multiple sexual partners were reported to be 8.9%.

Table 4: Association between socio-demographic characteristics and risky sexual behaviour

Variables	No risk N (%)	High risk N (%)	X2	p-value
Age				
14-16	123(80.9)	29(19.1)	0.05	0.82
17-19	51(82.3)	11(17.7)		
Gender				
Male	95(79.8)	24(20.2)		
Female	79(83.2)	16(16.8)	0.39	0.53
Ethnic group				
Yoruba	108(78.3)	30(21.7)	5.67	0.13
Hausa	18(94.7)	1(5.3)		
Igbo	27(79.4)	7(20.6)		
Others	21(91.3)	2(8.7)		
Parent status				
Single/double orphans	69(80.2)	17(19.8)	3.01	0.22
Social orphans	105(82.0)	23(18.0)		
Residence before placement in institution				
Biological parent	108(83.7)	21(16.7)	8.14	0.15
Others	66(77.6)	19(22.4)		
Marital status of parent Married	124(86.7)	19(13.3)	7.90	0.005*
Unmarried	50(70.4)	21(29.6)		
Educational status of respondents				
Primary education	30(63.8)	17(36.2)	10.86	0.004*
Secondary education	128(86.5)	20(13.5)		
Tertiary education	16(84.2)	3(15.8)		

*Significant variables, *Others: Grandparent, Other relatives, Adopted family.

Association between socio-demographic characteristics and risky sexual behaviour

More male adolescents (20.2%) compared to female adolescents (16.8%) were engaged in risky sexual behaviours. More adolescents between the ages of 14-16 (19.1%) compared to ages 1719 (17.7%) were engaged in risky sexual behaviours. More adolescents in the Yoruba ethnic group (21.7) engaged in risky sexual behaviour as compared with other ethnic groups. Those who are single/ double orphans (19.8) were engaged more in risky sexual behaviour than social orphans. More adolescents who lived with other relatives (22.4%) before placement in the orphanage compared to those who lived with biological parents engaged in risky sexual behaviour. Adolescents who are in primary education (36.2%) compared to those who are in tertiary (15.8%) and secondary institutions (13.5%) engaged more in risky sexual behaviour with a statistical significance. Adolescents whose parents are unmarried 29.6% engaged more in risky sexual behaviour than those whose parents were married with a statistical significance.

Table 5:Logistic regression on Predictors of Risky sexual behaviour

Age				
14-16	1			
17-19	0.82	0.30	2.17	0.69
Gender				
Male	1			
Female	1.12	0.47	2.65	0.81
Orphan status				
Social orphan	1			
Single/double orphan	0.90	0.36	2.23	0.81
Marital status of parent				
Married	1			
Unmarried	2.22	0.93	5.29	0.07
Ethnic group				
Yoruba	1			
Hausa	0.29	0.03	2.56	0.26
Igbo	1.76	0.58	5.42	0.32
Others	0.49	0.08	2.98	0.44
Residence before placement in institution				
Biological parents	1			
Others	1.28	0.52	3.14	0.58
Educational status of respondents				
Tertiary education	1			
Secondary education	0.53	0.11	2.42	0.40
Primary education	1.63	0.32	8.42	0.56
Alcohol use				
No	1			
Yes	10.65	3.57	31.72	0.00*
Drug use				
No	1			
Yes	1.06	0.34	3.34	0.92

Factors associated with risky sexual behaviour

Table 6 shows the logistic regression analysis of predictors of risky sexual behaviour among OVA. Predictors for risky sexual behaviour were orphan status, educational status, age and gender, marital status of parent, the residence of respondents before placement in an institution, social support, depression, conduct disorder, alcohol use, and drug use.

Respondents who were between the ages of 14-16 were 1.22 times less likely to engage in risky sexual behaviour than adolescents who were between the ages of 17-19 (95% CI=-0.30-2.17). Respondents whose gender is female are 1.1 times more likely to engage in risky sexual behaviour than adolescents who are male (95% CI= 0.47-2.65). Respondents who are single/double orphans are 1.1 times less likely to engage in risky sexual behaviour than those that are social orphans (95% CI=0.36-2.23). Respondents whose parents are unmarried were 2.2 times more likely to engage in risky sexual behaviour than respondents whose parents were married (95% CI=0.93-5.29). Respondents who resided with other relatives were 1.3 times

more likely to engage in risky sexual behaviour than respondents who resided with their biological parents before placement in orphanages (95% CI= 0.52-3.14).

Respondents who are in secondary school are 1.9 times less likely to engage in risky sexual behaviour than those in tertiary education (95% CI=0.11 – 2.42) while those who are in primary school are 1.6 times more likely to engage in risky sexual behaviour than those in the tertiary institution (95% CI=0.32-8.42).

Furthermore, adolescents who used alcohol were 10.6 times more likely to engage in risky sexual behaviour than adolescents who never consumed alcohol (95% CI=3.57-31.72). There was a statistically significant association between alcohol use and risky sexual behaviour. Adolescents who had ever used drugs were 1.1 times more likely to engage in risky sexual behaviour than adolescents who had never used drugs (95% CI= 0.34-3.34).

Discussion

This study tried to add knowledge regarding the magnitude of risky sexual behaviour among OVA and factors which may have an impact on the possibility of participating in such behaviour among this special population.

The overall sexual activity among OVA ages 14-19 years in this study was found to be 19.6%. This study result is consistent with another study carried out in Nigeria among OVA reported 16% (Adeniyi et al., 2008). However, this study result contrasts with other studies carried out in Nigeria among adolescents non-OVCS in which there is higher sexual activity. Therefore, living in an orphanage may appear to independently protect adolescents from sexual activities. This is in line with the findings of a study carried out in western Kenya among orphan adolescents comparing living in institutional care and family-based care setting (Embelton, 2016). The findings of the study confirmed the independent protective effect of caregiver supervision and support, especially as it relates to transactional sex and sexual violence among OVA. The mean age at first sexual debut among this OVA was found to be 13.43 years.

OVA who were single/double orphans and social orphans had almost equal chances of engaging in RSB. There was no statistically significant association between orphan status and risky sexual behaviour. This study was supported by a different study conducted earlier, which reported that orphan status was not significantly associated with increased sexual risk-taking behaviour among OVA, but rather sociocultural psychological, economic, and contextual factors play a significant role in OVA risk-taking behaviour (Juma et al., 2013; Puffer et al., 2012). Furthermore, RSB among OVA has been found to be influenced by the OVA care environment, which in the study is an orphanage setting.

Adolescents whose parents were unmarried engaged more in risky sexual behaviour than those whose parents were married. There was a statistically significant association between the marital status of parents and risky sexual behaviour among OVA in the bivariate analysis. Although from the logistic regression model adolescents whose parents are unmarried are 2.2 times more likely to engage in risky sexual behaviour than those whose parents were married. There was no statistically significant association between the marital status of parents and risky sexual behaviour in the logistic regression model. These findings demonstrate that parental marital stability may play a role in reducing these risks even when the adolescent is not currently residing with their parents.

Moreover, this study declared that alcohol and drug use have a significant influence on the fate of participation in risky sexual activities. From the study, less than a quarter of OVAs had ever used both alcohol and drugs. The bivariate analysis revealed that more than half of adolescents who had ever consumed alcohol and ever used drugs engaged more in risky sexual behaviour than adolescents who had never consumed alcohol and never used drugs. This study is in line with a study conducted among OVA in Kenya by Embleton et al (2016) which stated that alcohol and drug use was strongly associated with increased sexual risk-taking behaviour and exploitation among adolescents. A study carried out by Ramrakha, et al (2000) also revealed a strong association between risky sexual behaviour and drug use.

Also, from the logistic regression model, adolescents who had ever consumed alcohol were 10 times more likely to engage in risky sexual behaviour than adolescents who had never consumed alcohol. In the logistic regression and the bivariate analysis, there is a statistically significant association between alcohol use and risky sexual behaviour. This is in accordance with studies carried out by Natsanet, (2014), Ramrakha et al, (2000), and Embleton, (2017) which stated that alcohol consumption was a significant predictor of risky sexual behaviour for both males and females. Many studies also indicated that alcohol users were more likely to have non-regular sex partners and more likely to engage in risky sexual behaviour (Malhotra, 2008; Kliewer, 2007), such as multiple sexual partners, unprotected sexual intercourse, selecting high-risk partners after drinking alcohol

(Cooper, 2002). However, from the study, there was no statistically significant association between drug use and RSB in logistic regression models.

Conclusion and recommendation

This study revealed that less than a quarter of OVAs were sexually active, this is not significantly high. It was therefore found in this study that overall, living in an orphanage appears to independently protect adolescents from sexual activities. From this study, there is a clear association between lifetime consumption of alcohol and risky sexual behaviour among OVAs in orphanages.

Therefore, Orphanages involved in orphan upbringing should have alcohol prevention education for adolescents.

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SYNERGY BETWEEN ACADEMIA AND INDUSTRY FOR THE DEVELOPMENT OF HUMAN KINETICS AND HEALTH EDUCATION CURRICULUM IN TERTIARY INSTITUTIONS IN BAYELSA STATE

ADATA DICKSON DIEPIRIBO (PhD)

Diepiriboadata@gmail.com +2348037922314

Department Of Science Education, Faculty of Education, Niger Delta University, Bayelsa State

Abstract

The study examined how the synergy between academia and industry can aid development of Human Kinetics and Health Education curriculum in tertiary institutions in Bayelsa State. The questionnaire used was of a descriptive nature. The study was driven by these three research questions. Human kinetics experts from Bayelsa State's universities and sports organizations made up the study's sample population. We utilized a random sample of 158 people from the whole population. Researchers used a Synergy Between Academia and Industry Questionnaire (SBAIQ) they created and had experts verify as a reliable data gathering tool. Cronbach's alpha was used to calculate the instrument's dependability, and a value of 0.78 was found. Using mean and standard deviation, we found the answers to our study questions. The study revealed the benefits, the challenges and possible support strategies needed to enhance the synergy between academia and industry for the development of Human Kinetics and Health Education curriculum in tertiary institutions in Bayelsa State. It was suggested that authorities should facilitate this connection between enterprise and organizations by establishing favorable conditions and legislation.

Keywords: **Synergy, Academia, Industry, Development, Human Kinetics and Health Education Curriculum**

Introduction

Human Kinetics and Health Education (HKHE) plays a crucial role in promoting the physical, mental, and social well-being of individuals. In tertiary institutions, the objectives of the HKHE syllabus are to provide students with the fundamental understanding and skills they need to succeed in their chosen fields professionals in various health and fitness-related fields. Human kinetics and health education's goals are consistent with those of the country's official policy on schooling FRN (2013), which aimed at: “Providing students with a professional physical and Health Education knowledge and skills that will positively facilitate Physical Education, Games and Sports and Health Education changes in the community which could lead to the attainment of healthful living and productive society” The primary objectives of this program is to:

- learn to solve human mobility difficulties using your head and your body.
- fitness and health education educators for secondary and higher education schools.
- develop the skilled workers the Sports Council, educational organizations, and the commercial sector require to fill the roles of sports executives, coaches, and coordinators.
- provide a solid foundation for further study in the fields of PE, HE, RE, and S (NUC, 2021).

Despite the universally accepted position of Human Kinetics and Health Education, Appaih, (2012) has disclosed that graduates of Human Kinetics and Health Education have experienced difficulties fitting into the world of work comfortably. So many reasons have been attributed to the issue of unemployable Human Kinetics and Health Education, among which are funding (Bently, 2013), lack of resources and experiences (Appiah, 2012), disconnect between the curriculum and what is obtained in real world. This has attracted the attention of researchers globally, and building synergy and collaborations has been recommended as the antidote.

The curriculum is crucial to every program because it is the yardstick by which success is judged. Curriculum, according to Oludele and Dosunmu (2013), is "a network of varying activities" that translates design into educational events and alters people's attitudes so that they are willing to engage in them. Some HKHE graduates fall short of expectations in the workplace, suggesting that the institution's current curriculum should be updated to better prepare students for the digital workplace of the 21st century. This was the outcome of a disconnect between what was taught in schools and what was required in the workplace. In other words, the knowledge and abilities taught in the classroom did not align with those needed in the workplace. This was due to an absence of synergy between academic institutions and businesses, which would have allowed for the development of a more all-encompassing curriculum that better reflected the needs of modern enterprises in terms of technological literacy. According to Oladunjoye (2015), graduates of inadequate educational programs are ill-equipped to adapt to the rapid pace of technological advancements in the modern workplace.

Synergy occurs when two or more entities interact or cooperate to create an outcome that is greater than the sum of their individual parts. As a group, they are able to get more done than they could on their own. Collaboration amongst experts from diverse fields is the key to success and making a real impact. The idea is that when two businesses merge, the resulting entity will be stronger and more successful than each one alone. According to Ejeka and Ebenezer-Nwokeji (2017), a partnership between an institution and an industry might take the shape of either a written contract or an informal understanding between two parties. This is a cooperative partnership since both parties gain and provide something to the arrangement. The goal is to maximize everyone's positive contributions to development and expansion. This suggested that cooperation between academic institutions and businesses is necessary for the creation of an effective HKHE curriculum that would enable the receiver to meet the requirements of the business environment. Because of this, it became clear that a round table discussion including representatives from both institutions and businesses was essential for preventing this issue.

One of the most successful and efficient methods for advancing technology in industrialized countries is keeping the lines of communication open between universities and businesses, and between businesses and governments. Such partnerships may take various forms, such as the finalization of joint research initiatives, the division of joint research deals, the development of joint curricula, and the implementation of an idea-based educational system (Ibẹmẹ, 2o2o). Mouton (2015) argues that connections within education-related organizations and sectors may serve a crucial role in keeping and putting to good use additional funding for educational institutions, fostering concepts, easing the transfer of innovation, and ensuring that graduates are prepared to succeed in the real world of work. To this end, this study aims to investigate how the synergy between academia and industry can aid the development of the Human Kinetics and Health Education curriculum in tertiary institutions in Bayelsa State.

Statement of the Problem

The synergy between academia and industry can bring numerous advantages to the development of the HKHE curriculum. Industry stakeholders, including health professionals, fitness experts, and policymakers, possess valuable insights into the current health trends, technological advancements, and best practices. By collaborating with academia, these stakeholders can contribute to the curriculum's relevancy, applicability, and responsiveness to the changing health landscape in Bayelsa State.

Bayelsa State, located in the Niger Delta region of Nigeria, faces unique health challenges due to its socio-economic and environmental factors. The state has a growing population and an increasing prevalence of health issues such as non-communicable diseases, obesity, and sedentary lifestyles. To address these challenges effectively, it is imperative to have an HKHE curriculum that aligns with the needs of the local community and prepares students to tackle these issues. This study is geared towards filling this gap.

Purpose of the Study

The study's primary purpose was to investigate how the synergy between academia and industry can aid the development of the Human Kinetics and Health Education curriculum at Bayelsa State's higher education facilities. In particular, the research was able to accomplish what was needed:

a) To assess the current status of the HKHE curriculum in tertiary institutions in Bayelsa State.

b) To The goal is to find areas where businesses and universities may work together on curricula.

c) To identify Challenges hindering the implementation of synergy between academia and industry for the development of the HKHE curriculum in tertiary institutions in Bayelsa State

Research Questions

The subsequent questions served as guides for the research:

1. Where does Human Kinetic Health Education stand in Bayelsa State's higher education facilities at the moment?
2. What are the potential areas of collaboration between academia and industry in curriculum development?
3. What barriers prevent interaction among academics and business from shaping the HKHE curriculum at Bayelsa State's higher education institutions?

Methodology

This research used a questionnaire with a descriptive approach. The population of the study comprised of all Human Kinetic and Health Education (HKHE) lecturers in the three government owned institutions which have the department and in government ministries and firms in Bayelsa State. All 88 lecturers in the department of Human Kinetic and Health Education (HKHE) and 70 ministry experts formed the study sample. The instrument for data collection was a “Synergy between Academia and Industry Questionnaire (SAIQ).” Thirty questions make up the survey. Each question had four possible responses: strongly agree (SA = 4), agree (A = 3), disagree (D = 2), and strongly disagree (SD = 1) on a 1-to-4-point scale. Three professionals in the field in Rivers State checked the instrument's external validity. Cronbach's alpha was utilized to calculate the instrument's internal consistency, and the resulting reliability coefficient was 0.87. The researcher handed out the 158 questionnaires she had made herself. Statistics like mean and standard deviation were used to the study's data to draw conclusions. A mean score of 2.50 was utilized to make a judgment on the study questions. The study's 4-point rating interval served as the basis for this calculation. Items with a mean value of 2.50 or above were regarded to be agreed upon, while those with a mean value of 2.50 or below were considered to be disputed upon.

Analysis and Results

Research Question 1

Where does Human Kinetic Health Education stand in Bayelsa State's higher education facilities at the moment?

Table 1: Mean and standard deviation on the current status of HKHE curriculum in tertiary institutions

S/N	Items	Mean	SD	Remark
1	The curriculum aligns with the current trends and developments in the field of Human Kinetics and Health Education	2.21	0.76	Disagree
2	The learning objectives of the curriculum are clearly defined and communicated.	2.17	1.21	Disagree
3	The curriculum adequately prepares students for careers or further studies in related fields.	2.00	1.02	Disagree
4	The core concepts and theories in Human Kinetics and Health Education are adequately covered in the curriculum	2.12	0.89	Disagree
5	Some specific topics or areas should be added or expanded in the curriculum	2.37	0.61	Disagree
6	There are topics or areas that are not relevant and could be removed from the curriculum	2.45	0.79	Disagree
7	The teaching methods used in the curriculum are effective	2.21	0.57	Disagree
8	Modern teaching techniques, such as multimedia presentations, interactive sessions, and practical demonstrations, incorporated into the curriculum	2.09	0.82	Disagree
9	There are sufficient learning resources (e.g., textbooks, online materials, research papers) to support the curriculum	2.51	0.66	Agree
10	The assessment methods used in the curriculum are appropriate for measuring students' understanding and application of knowledge	2.77	0.55	Agree
11	The assessments align with the stated learning objectives.	2.05	0.71	Disagree
12	The curriculum includes practical experiences such as laboratory work, internships, or fieldwork	2.21	0.76	Disagree
	Grand mean	2.25		

Researcher's Desk (2023)

Table 1 shows that there was complete agreement among respondents on their disapproval of all of the presented constructs. The means fell significantly short of the predetermined cutoff of 2.50, demonstrating widespread consensus. Low variability in answers was indicated by a standard deviation of 0.45 to 1.3. The average mean and standard deviation were 2.25 and 0.7, respectively, further illustrating this point. This indicated that the current status of the HKHE curriculum needs urgent review.

Research Question 2

What are the potential areas of collaboration between academia and industry in curriculum development?

Table 2: Mean and standard deviation on the collaboration between academia and industry in curriculum development

S/N	ITEMS	Mean	SD	REMARK
1.	The combined efforts have the potential to revolutionize HKHE's curricula and teaching methods.	3.21	0.76	Agree
2.	The commonality of knowledge between academics and business leaders is the basis for productive cooperation.	2.97	1.21	Agree
3.	Participants' ability to provide effective managerial oversight will be bolstered by synergy and cooperation between institutions and the industry in the creation of HKHE curricula.	3.00	1.02	Agree
4.	The partnership has the potential to significantly alter the status quo of curriculum and teaching methods.	3.12	0.89	Agree
5.	The syllabus will be contextualized, modularized, and competency-driven as well as shift toward more experiential and work-based learning models as a result of collaborative efforts.	3.67	0.61	Agree
6.	Through coordinated efforts, students may have access to long-term resources that help them navigate their education and careers.	3.45	0.79	Agree
7.	The stakeholders will be better able to create new curriculum, teach merged professional and academic course work, and better assess student progress and employer demands if they work together and benefit from professional growth possibilities made possible by synergy and cooperation.	3.71	0.57	Agree
8.	Co-investment in infrastructure may be established, and mutually beneficial assets for long-term curriculum durability can be established via synergy and cooperation.	3.09	0.82	Agree
9.	The instructional model, as well as the competences and abilities that students at HKHE need to learn to compete in the economy of the twenty-first century, will continue to evolve thanks to synergy and collaboration in curriculum development.	3.51	0.66	Agree
10.	Through this partnership, businesses will be able to offer apprenticeships to students as a means of education.	3.77	0.55	Agree
11.	Aggregate Mean	3.05	0.71	

Researchers' Desk (2023)

Table 2 shows that there was complete consensus among respondents about all of the table's constructs. All the mean scores are over the predetermined cutoff of 2.50, therefore the consensus is obvious. Low variability in answers was indicated by a standard deviation of 0.45 to 1.3. The average was 3.05 and the standard deviation was 0.7, both indicative of this. This suggests that the following are areas where academic institutions and private sector organizations may work together on curriculum development: instructional practices, academic model, define and refine the competencies, establishing foundation for co-investing in facilities, and equipment and strong executive leadership from the participants.

Research Question 3

What barriers prevent interaction among academics and business from shaping the HKHE curriculum at Bayelsa State's higher education institutions?

Table 3: mean and standard deviation on the challenges hindering the implementation of synergy between academia and industry for development of HKHE curriculum in tertiary institutions

S/N	ITEMS	X	SD	REMARK
1	Poor funding	3.15	0.43	Agree
2	Lack of appropriate policy framework	3.26	0.49	Agree
3	Lack of synergically enhanced mindset	3.43	0.67	Agree
4	Encourage and support fruitful international student and graduate intern technical, intellectual, and managerial relationships and connections.	3.43	0.71	Agree
5	Differences in Political interest	2.97	0.49	Agree
6	The practical skills acquired by architecture school grads have not been favorably impacted by the challenges of conventional instructional techniques.	3.34	1.05	Agree
7	Problems with limited practical training and antiquated classrooms hinder institutions' ability to adapt to changing industry.	3.68	1.03	Agree
8	Architecture programs that don't adequately prepare students to solve real-world issues in the field provide challenges for synergy and cooperation.	3.89	0.45	Agree
9	Books, workstations, and machinery are scarce and expensive, which hinders teamwork and cooperation.	3.03	0/98	Agree
10	When the economy is in a bad position, particularly during a recession, it may be difficult for institutions and businesses to work together.	3.29	0.90	Agree
	Aggregate	3.02		

Source: Researchers' Desk (2023)

Results presented in Table 3 above indicated that all items had a mean value above the criterion mean of 2.5 which implies they are major challenges hindering the synergy between academia and industry for the development of HKHE curriculum in tertiary institutions in Bayelsa State.

Discussion of Findings

According to the results, all of the participants were in agreement that the HKHE curricula now used in Bayelsa State's higher education institutions are inadequate. All the mean scores were far lower than the predetermined decision value of 2.50, making this disagreement quite clear. This proved that the existing HKHE curriculum is in dire need of revision.

The research showed that there is room for improvement in the areas of instructional practices, educational model, defining and refining the competencies, laying the groundwork for jointly investing in infrastructure and supplies, and providing strong managerial guidance from the participants in the curriculum development process. This outcome lends credence to the claim made by Matthew-Odu and Igbogi (2023) that incorporating real-world skills into the classroom enhances curricular delivery.

According to the results, the lack of synergy between universities and businesses in Bayelsa State is a major barrier to the establishment of HKHE curricula in higher education institutions. Other obstacles include a lack of funding, a lack of a suitable policy structure, a rigid implementation of approved curriculum, an insufficient connect of educational resources with the real ethnically diverse and multilingual workplace, and a lack of a synergistically enhanced mindset. These results corroborate the claims of three separate authors (Ibẹmẹ, 2o2o; Chọrlẹs-Owọbọ, 2o2o; Sindiso, and Nhlọnhlọ, 2018) who all found no evidence of synergy between higher education and business.

Conclusion and Recommendations

The research identified the following as promising areas for cooperation between universities and businesses in syllabus creation: instructional practices, academic model, define and refine the competencies, laying the groundwork for facility co-investment, and equipment and strong executive leadership from the participants. Benefits include increased communication and collaboration between academic and business sectors, as well as the pooling of assets to ensure the long-term viability of educational programs. The study also identified the challenges hindering the synergy between academia and industry for the development of HKHE curriculum in tertiary institutions.

The study's findings led to the accompanying suggestions for further research:

1) All parties must take action to remove the obstacles that prevent the relationship from flourishing.
2) The government is responsible for facilitating the rules and conditions that will allow Industry and institutions to join up efficiently. Financial limitations, a dearth of qualified workers in local sectors, a dismissive attitude toward homegrown innovations, and the scale and ownership structures of existing businesses are all common causes of these restraints.
3) Students and teachers alike might benefit from having their perspectives on the importance of connection and progress refreshed, thus efforts to that end should be supported.

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