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EDITORIAL

Publishing of well researched papers in reputable journals has become an indispensable culture that must necessarily be adhered to by all academics in the university system. Now that the publishing market has been proliferated by all manners of seemingly "International Journals" the Department of Human Kinetics and Health Education, EKSU has decided to float a journal that will attain all the attributes of **Real International Standards.**

The birth of this journal, **(Journal of Human Kinetics and Health Education Pedagogy)**, did not come out of the blues, but came as a result of deliberate efforts of some members of the Department, who used their many years of vast experiences in editing, reviewing and publishing quality papers in many renowned, local and international journals.

The maiden edition ensures the publication of articles from different segments of human kinetics, health education and related issues. The journal also enjoys wide- spread patronage from different authors to ascertain its global outlook.

Members of the Editorial Board wish to assure the reading public and intending authors that this journal shall be published on regular basis in conformity with the dynamic trend in academic world. Our appreciation goes to the Heads of Department, past and present, the Professors and other members of the Department for their contributions to the successful launch of this journal.

Professor Isaac Olusola AKINDUTIRE,
Editor- In- Chief

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CONTENTS

A COMPARATIVE STUDY OF SELECTED PHYSICAL PHYSIOLOGICAL CHARACTERISTICS OF HANDBALL AND BASKETBALL PLAYERS

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Abstract

The study examined the differences in the body composition of handball and basketball players. Specifically, comparisons were made on the physical and physiological characteristics which can be used to classify and identify sportsmen and women in related or similar competitive games. Participants for the study were 22 handballers and 23 basketballers, all of which are university players. The physical characteristics considered were percentage body fat, circumference of calf, thigh and biceps, lean bodyweight, height and skinfold measure, while the physiological characteristics were resting heart rate systolic blood pressure, blood pressure, diastolic blood pressure and VO₂ max. Results of t-test indicated that significant difference existed between handballers and basketballers in percentage body fat, biceps, circumference and skinfold measure at the triceps, subscapular and thigh. The result also showed that similarities existed in the body weight, height, lean body weight, thigh and calf circumference, and umbilicus supra-illine skinfold measures of both handballers and basketballers. These result suggested that physical composition of sportmen and women could be similar in players of games with similar body movements. The level of training in each game however affects the players' physiological characteristics.

Keywords*:*   Comparative, Physiological, Handball, Basketball and Players.

Introduction

The game of handball is very similar to basketball, as they are both played with hands within specific court areas. The objective of both games is to move fast and score goals or make "basket" more than the opponent. According to Talabi (1992), both games are considered very vigorous where the players can be extremely fast and demand for instantaneous decisions, good coordination and quick responses. Both games also consist mainly of passes and shooting to score or make a basket in the case of basketball.

Akeredolu (1987) described and likened handball and basketball games as doing an endurance run of 10,000 meters by alternating running and resting with the runs being about three times as long as the rest. The application of the knowledge of physiology to sport training has been shown, over the years, to be significant in improving general physical and

physiological characteristics (fox, 1984). Each sport makes various demands on each athlete. These demands are on the structure and functions of the athlete's bodies. Implicitly, the training schedules specifically designed for a particular sport should develop the athletes terms of the level of physical and physiological characteristics required for good performance in that particular sport (Talbot,1981). For the games of handball and basketball, Craig (1979) and (Ogunleye & Onuoha (2017) considered both as vigorous games that requires tremendous fitness, energy, speed agility and endurance of players.

Agbonjimi (1994) and Ajiduah (1989) found that body build and body composition could be used sometimes to classify and qualify the physiological characteristics of athletes. They claimed that both body build and body composition can be determine and predict performance level of an individual in a particular activity. Akeredolu (1987) have also observed that certain groups of athletes have demonstrated body build and composition variables, which differs substantially from other categories of athletes and non-athletes.

These physical and physiological characteristics have been found to determine the participation of individual athlete in one sport or the other. According to Umedum (1982), the biological and social nature of human beings have made it necessary for mankind to engage in one form of physical activity or another from birth to death. Based on these facts, participation in various physical activities at various levels has been the priority of people and this depends on the physical and physiological characteristics of individual. Thus certain body types are apparently related to the endowment of certain performance characteristics, essential fro sports participation.

Methods

Forty-five (45) participants from University of Lagos were selected and used for this study. All subjects were preparing for the Nigeria University Games (NUGA) preliminaries during measurements period. The measurements taken were on weight (kg) circumference of calf, thigh and biceps (cm) height (m) and skinfold using the Behinke and Wilmore (1974) measures. The % body fat was based on Brozek et al (1963) equation, as stated on Ogunleye & Nwadibia (2018).

$$\% \text{ Body fat} = \frac{(4,570 - 4,142) \times 100}{\text{Body density}}$$

Lean body weight of each subject was estimated from the difference between

the total weight and the fat weight as suggested by Calberg et al (1983) thus:

LBW= Body weight-(% fat x body weight
     DB

Physiological parameters – Resting heart rate was taken before the beginning of the training and the same was applied to the measurement of resting blood pressure.

Heart rat was taken for ten seconds and multiplied by six to obtain the beats per minutes.

General descriptive statistics was used to analyse the result and t-test of independent variables were used to analyse the two groups of players, and significance was set at 0.05 alpha levels.

Results
Table 1: Physical Characteristics of the Subjects

Variables	Groups	No. of Subject	Mean	SD	t-Value
Weight (kg)	Handball	22	61.45	7.51	0.74
	Basketball	23	65.48	6.09	
Height (M)	Handball	22	1.60	0.182	-2.04
	Basketball	23	1.70	0.061	
L.B.W	Handball	22	60.15	6.01	-1.08
	Basketball	23	62.30	7.22	
%fat	Handball	22	6.27	1.40	-3.35
	Basketball	23	7.77	1.60	

(t.05=1.684)

The handballers in this study have slightly higher body weight than the basketballers as shown on the table1. However, the difference in the four physical variables are insignificant when compared as shown on the table 1. The handballers in this study carry much less percent body fat (6.27) than their basketballer with (7.77%). The t-value of 2.62 shows that differences is insignificant since these demands are on structure and functions of their bodies in terms of sports and a lower body fat content due to higher degree of physical activity.

Table 2: Anthropometric Measurement of the Subject (Skinfold Measurement)

Variables	Groups	No. of Subject	Mean	SD	t-Value
Biceps	Handball	22	30.07	1.47	3.70
(CM)	Basketball	23	28.80	2.12	
Thigh	Handball	22	50.05	3.06	1.22
(CM)	Basketball	23	49.23	4.51	
Calf	Handball	22	35.03	2.18	0.60
(M)	Basketball	23	34.61	2.16	

Significant at 0.5 level

The handballers in this study have higher circumference values in the Biceps, Thigh and Calf regions of the body than their counterpart in basketball as shown in table 2. Only the t -value (3.70) for the difference in Biceps circumference is highly significant at 0.05level. The Biceps muscles of the handball players due to higher hypertrophy as a result of heavier workload.

Table 3: Anthropometric Measurement of the Subjects (Skinfold Measurement)

Variables	Groups	No. of Subject	Mean	SD	t-Value
SubScapuler	Handball	23	8.26	1.61	2.06
(MM)	Basketball	23	7.11	1.80	
Triceps	Handball	22	4.65	0.71	-2.68
(MM)	Basketball	23	5.41	0.90	
Umbilicus	Handball	22	7.65	2.81	0.68
(CM)	Basketball	23	7.60	1.17	
Supra-illiae	Handball	22	7.68	3.04	-6.61
	Basketball	23	8.20	2.67	

Significant at 0.05 level

The result in this study shows that handball players have lower value of anthropometric measurement compared to the basketball players, as indicated in table 3 with a score of 4.65mm, 5.72mm, 7.65mm and 7.68mm to 5.4mm to 5.41mm, 7.33mm, 2.00mm and 8.20mm at the triceps, supra-illiea and thigh skinfold.

While the basketball players show more reduction at sub-scapular, and umbilicus skinfold as indicated in the table. It could then be proved that handball players are more demanding on fitness and strength. The mean was 130 to 140 B/P of a t-value of 0.28 compared to diastolic B/P mean was 77 to 74 respectively of a T-value of 0.12 which shows that there was no significant difference. Which oxygen uptake in liter per minute for those of handball players is 2.99 liters per minutes, compared to basketball players with 3.03 liters per minutes with T-value of 0.257. This shows no significant difference between the ballgame players.

The two games are ball games, but the ball used in the handball is smaller compared to the one used in basketball. This is effect means more work force would have to be applied for basketball. The significantly higher hypertrophy seen in the hand muscles of handballers of over basketballers as revealed by the circumference measured could be explained along the line of the fastness and easier ball manipulation in handball as compared to basketball. This supports Talabi (1992) and Sloan (2005) studies.

The speed involved in handball game is more than that of the basketball game, due its fast nature. Since both sports consist of almost similar movement, then handball players are likely to need more speed and endurance to cover the longer distance due to fatness involve. This might also account for the significantly lower amount of body fat and thigh skinfold measure of handball players over basketball players as indicated in table 3. However, the result is compared with others result such as those obtained by Zuts and Corbun (1977) on American College Freshman which was2.89 liters per minutes and Duston and Caprariola (1984) on twenty-four healthy female subjects which was 2.98liter per minute.

Conclusion

Both handball and basketball players in this study are similar as far as body weight, height, lean body. Weight characteristics are concerned. They also show similarities in thigh and calf muscle circumferences and umbilicus and supra-illiae regions. This could be due to similarities of body movements during the game.

However, the two categories of players are different in the amount of body fat. This could be an indication in the difference of their training levels. Handball players are also different from basketball players in their skinfold measures at the sub-scapular, triceps and thigh regions. While handball and

basketball players could benefit from similar training programme, specific adaptations to cater for specific parts of the body will be needed for each group of players (Craig, 2007)

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AEROBIC EXERCISES AS GOOD PROMOTER OF BODY FITNESS

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A**bstract**
Aerobic exercise which is also called cardiovascular exercise is any sustained, rhythmic activity that affects large muscle groups. Aerobic exercise tasks the lungs and the heart to work harder as the body's need for oxygen is increased. Aerobic exercise is physical exercise of low to moderate intensity activities performed for extended periods of time that depends primarily on aerobic energy generating process. Aerobic exercise is of various types. These includes; running, jogging, stairs climbing, cycling, walking, aerobic dance, water aerobics, yoga, swimming and aerobic gymnastics. Aerobic exercise should involved five to ten minutes warming up at an intensity of 50%-60% maximum heart rate followed by at least 20minutes of exercise at an intensity of 70%-80% of maximum heart rate ending with 5-10 minutes of cooling down at an intensity of 50%-60% of maximum heart rate. Aerobic exercise can improve body functional ability, maintain independence of the body and give good quality of life. These are achieved by engaging in aerobic exercises lowering heart rate and blood pressure, improving body fat and weight control, increasing blood supply to muscles and ability to use oxygen, improving glucose tolerance and improving mental health, reducing stress and lowering incidence of depression. In order to achieve all these, a minimum duration and frequency of exercise of at least thirty minutes should be performed at least three times per week.

Key words: Aerobic, Aerobic exercise, Body fitness, Work out

Introduction

Body fitness is the ability of an individual to cope with the stress of every modern day living. It is also the ability to maintain positive and meaningful social relationships, have a high level of cardiovascular and muscular fitness and a good habit of an active lifestyle. Total body fitness is a state of physical, emotional, social, spiritual, mental and nutritional fitness (Harwood, 2012). Total fitness can also be defined as how well the body performs in each one of the components of physical fitness. Physical fitness is a state of health and well-being, more especially the ability to perform aspects of sports, occupations and daily activities (Centers for Disease Control and Prevention, 2018; Health Galaxy, 2016). It is the condition of the body which enables an individual to use his/her body in activities requiring strength, muscular endurance, cardiovascular endurance, flexibility, coordination, agility, power, balance, speed and accuracy, without undue experience of fatigue and

exhaustion. Physical fitness is the ability of an individual to carry out his daily task successfully without feeling too tired and still have enough energy to attend to other tasks. The five components that make up total fitness are; cardiovascular endurance, muscular strength, muscular endurance, flexibility and body composition.

General fitness as described by Fitness Health (2020) includes incorporating a healthy and nutritious diet, physical activity, rest and mental stability and well-being into ones daily lifestyle. General fitness can be said to be a state of health and well-being while specific fitness is the ability to perform specific aspects of sports or occupations. Physical fitness can prevent or treat many chronic health conditions brought on by unhealthy lifestyle or aging (U.S Department of Health and Human Service Presentation, 2013). Working out (exercise) can help individual to sleep better and to stay healthy. It is important to engage in physical activity in order to keep fit and stay fit. Aerobic exercises can be used to keep the body fit.

The term aerobic simply means living in air. It refers to the use of oxygen to adequately meet energy demands during exercise through aerobic metabolism. Aerobic is referred to as relating to, involving or requiring free oxygen to

adequately meet energy demands during exercise (Cooper, 2010; Stephen, 2011; Hallett, 2014). Light-to-moderate intensity activities that are sufficiently supported by aerobic metabolism can be performed for extended periods of time. Aerobic exercise can be designed to be low-intensity so that all carbohydrates are aerobically turned into energy.

Aerobic exercise also called cardiovascular exercise is any sustained, rhythmic activity that affects large muscle groups. Aerobic exercise presses the lungs to work harder as the body's need for oxygen is increased. Wikipedia, the Free Encyclopedia (2012), describe aerobic exercises as physical exercises of relatively low to moderate intensity activities that are rhythmical in nature, using large muscle groups and that can be maintained continuously. Aerobic exercises overload the heart and lungs and cause them to work harder than at rest. It is important for an individual to engage in physical activities one enjoys doing that overload the heart and lungs for a continuous period of time, making the person to enjoy a healthy life. Wikipedia, the Free Encyclopedia (2012) noted that what is generally called aerobic exercise might be better termed "solely aerobic", because it is designed to be low-intensity enough not to generate lactate via pyruvate

fermentation, so that all carbohydrate is aerobically turned into energy.

Aerobic exercises can be supported in the body by glycogen reserves, fat reserves or a combination of both depending on the intensity. As the glycogen levels in the muscle begin to fall, glucose is released into the bloodstream by the liver and fat metabolism is increased so that it can fuel the aerobic pathways, burning increased exertion, muscle glycogen is broken down to produce glucose which undergoes glycolysis producing pyruvate which then reacts with oxygen (Krebs cycle) to produce carbon dioxide, water and energy.

Types of Aerobic Exercise

There are various types of aerobic exercises which include; Running and Jogging Fitness, Jump Rope/Skipping rope Exercise, Dance Aerobic, Step Aerobic Exercise, Indoor Cycling and Spinning, Stair Climbing, Fitness Walking, Swimming, Jazzercise Aerobic Fitness, Water Aerobic Fitness, Yoga Exercise, Weight Training for women and Aerobic gymnastics, Jumping jacks, Kick boxing, Circuit training, Rowing, Skating, Stationary bicycle, Treadmill, Indoor rower, Elliptical trainer.

Running and Jogging - are the typical aerobic activities. Running is a way of allowing the body to move rapidly on the feet where the feet are above the ground. Jogging is a form of running or trotting at a slow or gentle pace with less stress on the body to maintain a steady speed for longer periods of time. Running and jogging burn a lot of calories in a short period of time and also very stimulating. Running can be done outdoor or indoor on treadmill.

Walking- Walking can be described as a movement of the body where only one foot at a time have contact with the ground. Walking can be of different kinds such as, trekking, hiking, bushwalking, race walking, beach walking, hill walking, and Nordic walking. Walking can be done indoor on treadmill.

Skipping or Jump Rope Aerobic Exercise - A ropeis theequipment used in the sport of skipping/jump rope. One or more participants jump over a rope swung so that it passes under their feet and over their heads. There are many techniques that can be used in performing skipping. Skipping is similar to jogging or bicycle riding in the use as a cardiovascular workout and production of high intensity level. Thisis a kind of exercise that can be

done practically anywhere, at anytime, does not need a lot of instruction time and with simple equipment. Children love jump roping.

Step Aerobic Exercise- This involves stepping up and down on a rectangular,square, or circular platform. The platform is raised 10 – 30 centimeters. Step aerobics keeps the tempo at which the heart pumps high, keeping it fit and making it to stay fit. Thisis one of the most accepted and effective ways of exercising in a class or at home. All that is required is a step and some upbeat music.

Indoor Cycling and Spinning - Cycling can be done indoor and outdoor. This can be done on moving or on stationary cycle. Cycling is one of the most practiced exercise classes at the gymnasium. A 45 minutes class can burn 500 calories or more of a major but low impact workout that suits people of all ages. Other benefits of cycling are the mental aspect, soothing music and encouragement with the benefits of workout in a group of likeminded exercisers.

Dance Aerobics - Aerobic dance is a cardiovascular workout set to music in a group exercise setting. It is a particular type of workout style performed in group

setting. Aerobic dance is a cardio-based group exercise class (Wolfe, 2018). In aerobic dance, the body is fully used in rhythmic large muscle movements. The amount of impact of the feet on the floor during aerobic dance, determines its intensity. When one foot is contact with the ground when performing, the aerobic dance is a low-impact exercise. It becomes a high-impact exercise when both feet are off the floor for a short time. In Aerobic dance, participants concentrate on their abilities. An aerobic dance class starts with a warm-up dance of 3-5 minutes, followed with a dance based movements to music for the next 30-45 minutes gradually increasing the (RHR) heart rate (Hallet,2014, Wolfe, 2018). The dance session is ended with a 3-4 minutes cool down followed by stretches. Participants in dance aerobics improve their health in a fun way, lose weight, tone muscles and improve the quality of their life meaningfully.

Examples of aerobic dance are; Jazz exercise, Ballroom dancing, Belly dancing, Masala Bhangra and Pump it up.

Aerobic Exercise Guidelines

Aerobic means "with oxygen" and refers to the use of oxygen in a muscle's energy generating process. Many types of exercise are aerobic, and by definition are

performed at moderate levels of intensity for extended periods of time. Cooper (1968); Felman and Kandola (2019) noted that an effective aerobic exercise should involve 5 – 10 minutes of warming up at an intensity of 50 – 60% of maximum heart rate, followed by at least 20minutes of exercise at an intensity of 70 – 80% of maximum heart rate, ending with 5 – 10 minutes of cooling down at an intensity of 50 – 60% of maximum heart rate. Rowland (1996) found in his study that, when adult's type training in terms of intensity was performed, VO_2 max improved between 7 and 26%. Exercise intensity is shown in ones breathing and heart rate. Heart rate gives a better understanding of exercise intensity. The higher the exercise intensity one engages in during physical activity, the higher the heart rate.

Heart rate is the number of heart beats per minute while at rest. A normal resting heart rate (RHR) for most adults ranges from 60 to 100 beats per minute. Measuring ones heart rate is an easy way of gauging one's health, as it provides information on how the heart muscle function. A normal RHR can vary from person to person. An unusually high or low resting HR can be a sign of trouble in the body. A RHR that is slower than 60 beats per minute is referred to as

bradycardia (slow heart) and a rate that is faster than 100 beats per minute is termed tachycardia (fast heart). A healthy heart rate can vary depending on the situation around. In healthy people, a slower heart rate can be as a result of being physically fit, on a medication, or sleep patterns. A slower HR can indicate a sign of disease including heart attack or other heart disease, infections, and high levels of potassium in the blood. On the other hand, a fast HR in healthy people can be as a result of exercise, being nervous or excited, using a stimulant or being pregnant.

The Harvard Medical School Special Health Report Diseases of the Heart (2019) recommended the use of fingers in checking pulse at the wrist or at the side of the neck. At the wrist, lightly press the index and middle fingers of one hand on the opposite wrist below the base of the thumb. At the neck, lightly press the side of the neck below the jawbone. Count the number of beats in 15 seconds and multiply by four. This gives the resting heart rate.

Heart rate is an important component to monitor during exercise because it is a useful indicator of the intensity of effort and body's physiological adaptation. Heart rate is an important component in cardiovascular fitness

assessment and training programmes. It is important to know the target heart rate which is the range of numbers that reflect how fast the heart should be beating when exercising. Individual can monitor heart rate and try to reach this target zone during exercise. The intensity of physical exercise should always be based on an individual's fitness level and goals of the exercise.

Doyle (1998) and Felman and Kandola (2019) recommended the American College of Sport Medicine position stand, 1990 guidelines for aerobic based on the Recommended Quantity and Quality of Exercise for Developing and Maintaining Cardio-respiratory and Muscular Fitness in Healthy Adults as follows:

Mode: Aerobic Exercise

Frequency: 3 – 5 days per week

Duration: 20 to 60 minutes of continuous aerobic activity.

Intensity: 50 – 85% of maximal aerobic capacity (VO$_2$ Max), or 50 – 85% of Heart Rate Reserve or 60 – 90% of Maximal Heart Rate

- **Low Intensity:** 35–60% of Heart Rate Reserve, or 60–70% of Heart Rate Reserve.

- **Moderate Intensity:** 60 – 80% of Heart Rate Max, or 60 – 70% of Heart Rate Reserve

- **High intensity:** 80 – 90% of Heart Rate Max, or 70 – 85% of Heart Rate Reserve

How to determine Heart Rate Training Range

The Karvonen formula is recommended to determine heart rate training range. The Karvonen formula is a mathematical formula that helps determine the target heart rate training zone. The formula uses maximum and resting heart rate with the desired training intensity to get the target heart rate. In determining the heart rate training range, measure the resting and maximum heart rate for more accurate results or estimated traditional formula of 220 minus the age can be used for maximum heart rate.

Karvonen fomula;

Target Heart Rate = [(max HR – resting HR) x %Intensity] + resting HR

- Find the Resting Heart Rate (RHR)
  HR max = 220 – age

Find the Minimum Heart Rate Training Range

Find the Maximum Heart Rate Training Range

Benefits of Aerobic Exercise

Aerobic capability can be increased by different types of aerobic exercise thereby greatly improving functional

ability, maintaining independence and the quality of life. Aerobic exercise of low intensity for over a reasonable period of time such as running, stair climbing, jogging, jumping rope, bicycling and aerobic dance, will help in developing the maximum oxygen up take, coordination and space awareness of an individual. Aerobic exercises will in no small measure help in developing cardio-respiratory endurance, proper functioning of the heart and other related organs.

Among the recognized benefits of performing regular aerobic exercises according to Dolye (1998), Felman and Kandola (2019) are; Lower heart rate and blood pressure at any level of sub maximal exercise, increased threshold for lactic acid accumulation, increased blood supply to muscles and ability to use oxygen, lower resting systolic and diastolic blood pressure in people with high blood pressure, increased HDL cholesterol (the good cholesterol), decreased blood triglycerides and reduced body fat and improved weight control. Other benefits include; improved glucose tolerance and reduced insulin resistance reducing the risk for diabetes and strengthening the muscles involved in respiration, to facilitate the flow of air in and out of the lungs.

Regular performance aerobic exercises also help in strengthening and enlarging the heart muscle, to improve its pumping efficiency and reduce the resting heart rate, known as aerobic conditioning (Felman & Kandola, 2019). There is also improved mental health including reducing stress and lowering the incidence of depression is equally achieved. Energy molecules such as fats and carbohydrates storage increased within the muscle, allowing for increased endurance and body fats are equally burnt while building leaner muscle.

Regular performance of aerobic exercises increase the speed at which aerobic metabolism is activated within muscles, allowing a greater portion of energy produced to be used for intense exercise, thereby preserving intramuscular glycogen. Aerobic exercises also enhance the speed at which muscle recover from high intensity exercise. Participation in regular aerobic exercise make people live longer than those who do not exercise regularly and also help to protect memory, reasoning, judgment and thinking skills in older adults and improve cognitive function in children and young adults(Watts, 2012; Peterson, 2017 & Mayo Clinic Staff, 2020).

All these require a minimum duration and frequency of exercise. At least thirty minutes of moderate-intensity exercises should be performed at least

three to five times per week to bring out the expected benefits in the body.

Conclusion

In conclusion, aerobic exercises of low, moderate or high intensity such as running, stair climbing , jogging, jumping rope, cycling, and aerobic dance for considerable period of time will help in developing the maximum oxygen up take of the individual coordination and space awareness. Aerobic exercises regularly and adequately performed will in no small measure help in developing individual cardio respiratory endurance, proper functioning of the heart and other related organs.

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CHILD FEEDING KNOWLEDGE AND PRACTICES AMONG NURSING MOTHERS IN ADO-EKITI, NIGERIA

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Abstract

This study was carried out to assess nursing mothers' child feeding knowledge and practices. Descriptive research design of the survey type, was adopted in this study. One hundred and eighty five nursing mothers having babies between 0 and 24months, randomly selected in two health facilities in Ado-Ekiti, Ekiti State, participated in the study. Self- developed questionnaire was the instrument for data collection. Data were analyzed using frequency counts, percentages, mean, ANOVA and Pearson Product Moment Correlation. All inferences were made at 0.05 level of significance. The mean scores of mothers' knowledge that children who are less than 6 months do not need water and that the ideal time to stop breastfeeding a child is after 2years, was just a little above average(M=1.65, SD=.48; M=1.67, SD=.47) respectively. 93.5% of the nursing mothers breastfeed their babies regularly, 53.3%, 65.1%,73.2% and 91.0% of the nursing mothers introduced water, infant formula, cereals and solid foods respectively into their babies diet after 6months.Educational status of mothers had significant influence on mothers' knowledge (F=3.55, P<0.05. Knowledge of child feeding had significant positive relationship with mothers' practices (R=.188, P>0.05). There is need for health workers to regularly give nutrition education to nursing mothers so as to enhance their knowledge and practice of child of child feeding.

Keywords: Nursing mothers, child feeding practices, knowledge, breastfeeding

Introduction

The importance of good nutrition during infancy and early childhood cannot be over-emphasized. Adequate nutrition during the first two years of life, through optimal breast-feeding and appropriate complementary feeding practices, supplies the child's body with the right kind of nutrients and energy for good health, helps the children to grow and develop to their full potential and boosts their immunity against childhood infections (World Health Organization (WHO), 2020).

On the other hand, poor nutrition during the early years of life may result in ill-health, bring about delayed mental and motor development (WHO, 2020), increase infant mortality, cause stunted growth and other childhood health problems that could have future health implications. WHO (2009) citing Martorell et al (1994) and Pollit et al (1995), stated that adults who were malnourished in their

early childhood may not be able to attain their potential height, may have reduced capacity for work and may have impaired intellectual capacity (WHO, 2009). In addition, women who were malnourished in early childhood, have increased risk of having low birth weight babies and may have more complicated deliveries (Martin, 2004).

To ensure adequate nutrition of children in the early years of life, the role of mothers is essential. Mothers are the direct care givers of children and are responsible for making provision for the child's feeding. Mothers are the suppliers of breast milk which is considered to be the best and the major source of nourishment for infants especially during the first six month of life (Martin, Ling & Blackburn, 2016). Mothers are also responsible for providing the children with homemade diet to complement breast milk during the early years of life especially between 6 and 24months when breast milk alone can no longer satisfy the children or be enough to provide the babies with necessary nourishment.

It is not enough for mothers to feed their children. It is also important that they know the right kind of nourishment and feed their children with it. Having adequate child feeding knowledge will go a long way in enhancing mothers' child

feeding practices (Nukpezah, Nuvor&Ninnoni,2018). Children of mothers with poor child feeding knowledge are likely to suffer malnutrition and have poor health status even when they have sufficient food and health resources at their disposal. This is because such mothers may not know the importance of variety and the right amount and types of food items needed to provide their children with the required nourishment (Jemide, Ene-Obong, Edet & Udoh, 2016).

It is important that mothers have adequate knowledge of what appropriate child feeding practices entail so as to be able to make the right decisions on issues relating to child feeding. Some of the appropriate feeding practices recommended by expert for children between 0 and 24 months include initiation of breastfeeding within one hour of birth, exclusive breast feeding for the first 6months of life (WHO, 2020), not introducing water, infant formula, tea, juices or semisolids to the baby's diet until after 6months (UNICEF,2020), introducing solid foods to the child's diet after 6months and breastfeeding the child frequently and on demand till after 2 years of age (WHO,2020).

There are many factors that determine how well mother's knowledge

and practice of child feeding will be. Maternal educational is one of the most commonly reported determinant factors of child feeding knowledge and practice among nursing mothers. The findings of Fadare, Amare, Mavrotan, Akerele & Ogunniyi (2019) attest to the fact that the educational status of mothers hassignificant influence on mothers' knowledge of child feeding. Education enhances literacy which in turn enhances comprehension and understanding of facts. Age of mothers may also be a determinant factor of child feeding knowledge and practice. Young inexperienced mothers may tend to have inadequate knowledge of recommended child feeding practices compared to older mothers.

To ascertain the level of knowledge and practices of mothers in relation to child feeding, it is important to do a thorough assessment from time to time. This will reveal lapses in knowledge and practice and be an eye opener to the need for nutrition education intervention for such mothers. This study was therefore conducted to assess child feeding knowledge and practices with the aim of identifying lapses at which health education intervention could be targeted.

Methods

The study adopted the descriptive research design. One hundred and eighty five nursing mothers randomly selected from two health facilities in Ado-Ekiti Nigeria constituted the respondents for this study. The instrument for data collection is a questionnaire designed by the researcher consisting of three sections. The first section of the questionnaire contains items on the demographic attributes of the respondents. Section B consists of 10 items having a "Yes or No" response format to assess mothers' knowledge of child feeding. In this section, the correct response was coded '2' while the incorrect response was coded "1". The third section consists of 8 items having a 4 point rating scale of "Never, "occasionally", "sometimes", "often",to assess complementary food items commonly used by the respondents. One research assistant supported by nursing officials in the two selected health facilities administered the questionnaire to the selected nursing mothers. On the spot collection of instrument was adopted. Data analysis was done using SPSS version 23.0. Analysis was done using descriptive (frequency counts, percentages and mean) and inferential (ANOVAand Pearson Product Moment Correlation) statistics. Statistical significance was set at $P < 0.05$.

Results

Table 1: Demographic Attributes of Respondents (n=185)

Variable		Frequency	%
Age <18years		5	2.7
18-45years		173	93.5
>45years		7	3.8
Educational status	Primary school	6	3.2
	Secondary school	24	13.0
	Diploma certificate	31	16.8
	Bachelor's degree	106	57.3
	Postgraduate	18	9.7
Frequency of breast feeding			
Regularly		173	93.5
	Not Regularly	12	6.5
Intending age for termination of breastfeeding			
	Before 2years	160	86.5
	After 2 years	25	13.5

Table 1 shows that 173 (93.5%) of the respondents were between the age of 18 and 45years and 57.3% had at least a bachelor's degree. Majority (93.5%) of the mothers breastfeed their babies regularly. Only 13.5% of the nursing mothers intend to stop breast feeding their babies after 2years.

Research Question 1: At what age do nursing mothers introduce complementary food items to their babies' diet?

Table 2: Period of Initiation of Complementary Food Items

Food items	N	Before 6months		After 6months	
		Freq	%	Freq	%
Water	92	43	46.7	49	53.3
Infant formula	63	24	34.9	41	65.1
Cereals	71	19	26.8	52	73.2
Solid foods	67	6	9.0	61	91.0

The result presented in Table 2 shows that 53.3%, 65.1%, 73.2% and 91% of the mothers introduced water, infant formula, cereals and solid foods respectively into their babies' diet before after 6 months.

Research Question 2: What is the knowledge of nursing mothers of child feeding?

Table 3: Mothers' Knowledge of Child Feeding (n=185)

S/N	Item	Correct		Incorrect			
		Freq	%	Freq	%	Mean	SD
1	Babies should be fed with only breast milk for the first 6 months of life	174	94.1	11	5.9	1.94	.24
2	Children below 6 months do not need to be given water	120	64.9	65	35.1	1.65	.48
3	Breast milk contains all the needed nutrients a baby needs for the first 6 months of life	176	95.1	9	4.9	1.95	.22
4	Breast milk contains enough water a baby needs for the first 6 months of life	161	87.0	24	13.0	1.87	.34
5	Babies under 6 months fed with only breast milk are more healthy than babies fed with infant formula	166	89.7	19	10.3	1.90	.30
6	Breast milk alone cannot satisfy a baby that is less than 6 months	123	66.5	62	33.5	1.66	.47
7	If babies less than 6 months old are not given water, they will be thirsty	133	71.9	52	28.1	1.72	.45
8	The ideal time to introduce semi-solid food to babies diet, is after 6 months	151	81.6	34	18.4	1.82	.39
9	Mothers need to still continue to breast feed their babies even after they have started giving them semisolid foods at 6months	179	96.8	6	3.2	1.97	.18
10	The ideal time to stop breast feeding a child is after 2years	124	67.0	81	33.0	1.67	.47

Table 3 shows that majority of the mothers have correct knowledge of almost all the items related to child feeding assessed. It is further revealed in Table 3 that the knowledge on continuity of breastfeeding, even after semisolid foods have been introduced into the babies diet, ranked best among the mothers (Mean=1.97, SD=.18) followed by their knowledge on the adequacy of breast milk

to supply all the nutrients babies need for the first 6 months of life. The knowledge that babies below 6months do not need water rank least among the mothers (Mean=1.65, SD=.48).

Research Question 3: What are the common complementary foods items used by nursing mothers to feed their babies

Table 4:Complementary feeding practices among children above 6months (n=79)

S/N	How often do you feed your children with the following?	Never (%)	Sometimes (%)	Often (%)	Always (%)	Mean	SD
1	Home made cereals	16 (20.2)	20 (25.3)	12 (15.2)	31 (39.3)	3.36	0.61
2	Ready made instant cereals	12 (15.2)	16 (20.2)	15 (19.0)	36 (45.6)	2.15	1.50
3	Fish	9 (11.4)	9 (11.4)	27 (34.2)	34 (43.0)	2.23	1.50
4	Egg	8 (10.1)	8 (10.1)	28 (35.5)	35 (44.3)	2.31	1.45
5	Solid foods (Staples)	22 (27.9)	22 (27.9)	24 (30.4)	18 (22.8)	2.32	1.43
6	Infant formula	13 (16.5)	11 (13.9)	21 (26.6)	34 (43.0)	2.07	1.45
7	Soyabeans products	25 (31.6)	17 (21.5)	15 (19.0)	22 (22.9)	2.26	1.50
8	Beans products	12 (15.2)	18 (22.8)	24 (30.4)	25 (31.6)	1.94	1.43

Table 4 shows that all complementary food items assessed except bean based food items are used by nursing mothers to feed their babies (using a cutoff point of 2.0). However, the most commonly used complementary food items are homemade cereals (M=3.36, SD=0.61).

Hypothesis 1: Age does not have significant influence on mothers' knowledge of child feeding

Table 5: Influence of Age and Educational Status on Child Feeding Knowledge and Practice

Variable		Sum of Squares	df	Mean Square	F	P-value
KnowledgeAge						
	Between groups	4.35	2			
	Within groups	662.71	182	2.18	.60	.551
	Total	667.06	184	3.64		
Educational status						
Between groups						
	Within groups	48.74	4			
	Total	618.32	180	12.18	3.55	.008
		667.06	184	3.44		
Practice Age						
	Between groups	1273.21	2			
Within groups		65762.34	182	636.60	1.76	.175
Total		67035.55	184	3.64		
Educational status						
Between groups		1222.34	4			
	Within groups	65813.20	180	305.59	.84	.504
	Total	67035.54	184	385.63		

Table 5 shows that the P-value for the influence of age on mothers' knowledge of child feeding is greater than 0.05. This implies that the influence of age on mothers' knowledge of child feeding is not significant. Hence hypothesis 1 is not rejected.

Hypothesis 2: Educational status of mothers does not have significant influence on mothers' knowledge of child feeding.

Result of data analysis presented in Table 5 shows that the P-value of the influence of educational status of mothers on knowledge of child feeding is less than 0.05 hence hypothesis 2 is rejected. This implies that educational status of mothers has a significant influence on the mothers' knowledge of child feeding. Further analysis revealed that the mothers with bachelor's degree had better knowledge of child feeding than the other mothers.

Hypothesis 3: Age does not have significant influence on mothers' practice of child feeding. Result of data analysis displayed in Table 5 shows that the P-value for the influence of age on mothers' practice of child feeding is greater than 0.05 hence hypothesis 3 is not rejected. This implies that age does not have significant influence on mothers' practice of child feeding.

Hypothesis 4: Educational status of mothers does not have significant influence on practice of child feeding

Table 5 shows that the P-value for the influence of educational status on mothers' practice of child feeding is greater than 0.05. This implies that the influence of educational status on mothers' practice of child feeding is not significant. Hence hypothesis 4 is not rejected.

Hypothesis 5: There is no significant relationship between knowledge and practice of child feeding

Table 6. Relationship between Knowledge and Practice of Child Feeding

Variable	Mean	Std. Deviation	N	R	p-value
Knowledge	18.1459	1.90403	185	.188	.010
Practice	41.6595	19.08726	185		

Result of data analysis displayed in Table 6 shows the P- value for the relationship between knowledge and practice of breastfeeding is less than 0.05 hence hypothesis 6 is rejected. This implies that there is a significant relationship between the mothers' knowledge and practice of child feeding (r=.188, p<0.05). The positive r value obtained indicates that as the mothers' knowledge of child feeding increases, their practice of child feeding improves.

Discussion

This study was conducted to assess nursing mothers' child feeding knowledge and practices. Findings of this study, unlike that of Berihu, Abera, Berhe &K idanu (2013), and Demilew (2017), show that most of the nursing mothers have adequate knowledge of recommended child feeding practices. This is highly commendable as this is likely going to motivate the mothers to adopt recommended child feeding practices.

The findings of this study, like that of Dermilew (2017) and Fadare et al (2019), show that the educational status of mothers had significant influence on the mothers' knowledge of child feeding. Higher maternal education was associated with better knowledge of child feeding. According to Badran (1995), Education is the pre-requisite of knowledge. It entails acquisition of intellectual and manual skills which in turn impacts on behavior. In addition, education improves literacy and helps people to understand their health needs better. It also helps people to comprehend health related information and follow health related instructions (Goldman & Smith, 2020). Increasing

emphasis towards women education is therefore likely to make them better equipped for their role as mothers.

Findings of this study show that the knowledge of child feeding had a positive significant relationship with child feeding practices among the nursing mothers. This is an indication that a higher level of knowledge of child feeding was associated with improved child feeding practices among the mothers. This is in line with the submission of Nukpezah et al (2018) that having adequate child feeding knowledge will go a long way in enhancing mothers' child feeding practices.

The findings of this study on the frequency of breastfeeding shows that most of the mothers breastfeed regularly. However most of them indicated their intention to stop breastfeeding before the age of two years. Although most of the mothers have the knowledge that breastfeeding a child should continue till 2years, not all are willing to pay the sacrifice. This is likely because most nursing mothers have to combine work with nursing a child and may not find it convenient to breastfeed for a long period.

Another interesting finding of this study is that of the period of initiation of complementary foods. Many of the mothers assessed, though having the knowledge of when complementary foods

are supposed to be initiated in a baby's diet, still indicated that they initiated foods other than breastmilk to their babies' diet before 6months. It is worthy of note that to ensure healthy growth of children under 2 years of age, child feeding practices regarding the initiation of complementary foods as recommended by UNICEF (2002), must be adopted.

Conclusion

Based on the findings of this study, it can be concluded that mothers have adequate child feeding knowledge but lapses still exist in their child feeding practices.

Recommendations

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

1. Education of the female gender should be encouraged so as to improve their literacy level.

2. Health workers should intensify their effort on the nutrition education of pregnant and nursing mothers so as to enhance their knowledge of recommended child feeding practices.

3. Nursing mothers should be given enough support within the family setting to breastfeed regularly and

continue to breastfeed their babies until 2 years of age.

4. Employers should make working conditions conducive for working mothers to adequately nurse their babies

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ASSESSMENT OF BODY COMPOSITION TECHNIQUES: A REVIEW OF LABORATORY AND FIELD METHODS

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Abstract
Body composition is the total components of which the body is made up. The body is made up of both fat and fat–free components. While the fat component is simply referred to as fat mass, the fat-free component termed lean body mass, includes bones, organs, tendons, muscle and others. While appropriate concentration of body fat is required for optimum health and maintenance of life, excessive accumulation of fat is associated with poor public health conditions, resulting in chronic, life threatening diseases, such as cardiovascular diseases, diabetes, stroke and cancer of various kinds. Body fat reduces health related physical fitness and lowers the ability to perform activities requiring sustained effort. In order to maintain appropriate concentration of body fat, periodic assessment of body composition is inevitable. Therefore, this paper discusses the commonly used laboratory and field based techniques of body composition assessments, including hydrodensitometry, bioelectrical impedance analysis, dual energy x-ray absorptiometry, body mass index, skinfolds and body circumference measurements. Although, laboratory methods are more reliable, accurate and in some cases easier to carry out than field based tests, however, laboratory equipment are expensive and unavailable to most researchers. Also discussed in this paper are merits and demerits, benefits and procedural precautions of major body composition assessment techniques.

Keywords: Body composition, hydrodensitometry, body density, bod pod, skinfold caliper

Introduction

Body composition, an important health and performance variable is seen as the total components of which the body is made up. William, (2006) defined body composition as the total mass of the body which includes fat and non-fat components. Baumgartner, Jackson, Mahar and Rowe (2007) defined it as the classification of the body into fat weight and fat free weight. The total body weight

that is made up of fat component is termed body fat mass, while the weight of the body composed of fat-free components such as muscles, tendons, bones, system organs and connective tissues is referred to as lean body weight (Iro, 2008). Studies have revealed that excess body fat is associated with poor public health conditions, resulting in various medical problems including hypertension, diabetes and heart diseases (Baumgartner, et.al,

2007). The consequence of which is increased morbidity and reduced longevity. Excess body fat reduces health related fitness and lowers the ability to perform many activities that require sustained effort, work inclusive (Alker, Wang, Pbert, Thorsen &Lemon, (2015). However, acute absence of body fat is not desirable either. Therefore, appropriate body composition is essential for good health and maintenance of life.

There are two classes of fats found in the body, namely: essential fat and storage fat. As the name implies, essential fat is needed for life and a healthy body. Ogunleye and Vipene (2013) described essential fat as that required for normal physiological functioning of the body and without it poor health is inevitable. Essential fat could be found within and around tissues such as muscles, nerve cells, bone marrow, intestines, heart, liver and lungs is important for general health, physical appearance and for maximizing athletic performance (Baumgartner et.al, 2007). Excess stored fats especially around visceral muscles (fat stored in the abdomen and around vital organs, such as the heart, the intestine, the liver and others) pose a lot of health risks. These constitute unnecessary weight burden and increase the risk of developing degenerative diseases such as heart

diseases, coronary artery disease, hypertension, type 2 diabetes, obesity, stroke, kidney disease, liver disease and certain cancers (Nikolaidis, 2013). Based on the above stated reasons, accurate measurements of percent body fat are needed to assess the individual's fat status in order to develop quality preventive measures to stem down the tide. Assessment of the body fat makes it easier to prevent and manage obesity which is a major risk factor for most chronic diseases.

Assessment of body fatness is one of the major achievements of sports scientists (Baumgartner, et.al. 2007). Various methods of assessment have been discovered and used over the years. In this paper, the author provides the most common methods for assessing body composition, some of which are laboratory based, while others can be used in the field. Laboratory methods of measuring body composition include Dual Energy Xray Absoptiometry (DEXA), Bio-Electrical Impedance Analysis (BIA), Hydrodensitometry (underwater weighing) and Air Displacement Plethysmosgraphy. While Body Mass Index (BMI) assessment, skinfolds and Body circumference measurement are common field based techniques often used in the assessment of body composition. A brief discussion of some of these methods is

inevitable for proper understanding and education purposes. Moreover, understanding the methods for evaluating body composition discussed in this paper can be useful to identify people, children and youths at the risk of becoming obese adults.

Hydrodensitometry

Hydrodensitometry, also known as hydrostatic weighing or underwater weighing is the most commonly used laboratory method of evaluating body composition (Baumgartner et.al, 2007). The objective of underwater weighing is to measure the volume of the body, which is used alongside body mass to calculate the subject's body density. Body density is a value required for calculating percent body fat. It is a bit tasking to determine the volume of an irregularly shaped object or body, and more tasking when it comes to human bodies. Hydrostatic weighing involves placing the participant in a specially designed underwater chair that is attached to a scale, which is submerged completely in water to measure body weight under water (Nieman, 2011). However, prior to entering the tank the participant weight must be taken and lungs exhaled completely in order to keep the standard error of estimate as low as possible. Hydrostatic method of assessing

body composition is based on the assertion that fat tissue is less dense compared to lean tissue. A body consisting more of fat tissues floats while the ones with more fat-free tissues sink in water (William, 2006).

When overweight/obese subjects are hydrostatically weighed, scuba weight belt may be placed on the subject's laps, however, the weight of the chair and the scuba weight belt must be subtracted in order to obtain a truly underwater weight (Baumgartner, 2007). Having obtained the weight of the subject underwater and on land, the tester can now calculate the subject's body volume by subtracting his weight underwater from his weight on land and dividing the score by the value of the water density.

Finally, the tester subtracts the value of the participants' body air components from the score to determine the subject's body volume. According to Baumgartner, et.al (2007), Siri Formula (% body fat=(495/BD)-450,) or Brozek Formula (% body fat=(457/BD)-414, may be used to calculate percent body fat from body density. Underwater weighing is often referred to as the gold standard for body composition analysis due to its' very low standard error of estimate, high accuracy and reliability (Igbanugo, 2006). Unfortunately, water tank, underwater chair and other equipment are expensive

and unavailable to researchers (William, 2006). Furthermore, participants who are scared of water may find it uncomfortable to be submerged and or hold their breath underwater. Moreover, underwater weighing is time consuming, therefore it's not a suitable method in any study involving large sample size (Duren, Sherwood, Czerwinski, Lee, Choh, Siervogel,& Chumlea, 2008).

BOD POD/Air Displacement Plethysmography

Another body density method of estimating body composition is the use of Bod Pod or Air-Displacement Plethysmography to determine the body volume, which in turn is used to calculate body density. According to Bumgartner, et.al, (2007) this method is based on Boyle's law, which states that the pressure of a gas varies inversely with its volume. The only equipment required for this method is a machine known as Bod Pod or body box. Bod Pod measures the amount of displaced air when the participant sits in it (William, 2006). First, the tester takes the air pressure of the empty box and next, the pressure of the filled box. Then the assessor compares the air pressure of the empty box with the air pressure of the filled box to determine how much air is displaced by the participant. By measuring how much air is displaced by the participant, the tester can determine body volume and thereafter, density. Like underwater weighing, the participant body density is then used to analyse his body composition. The major advantage of body box over underwater weighing is that, it is easy to use and many participants can be tested within a short period of time (Baumgartner, 2007). It is actually a method of choice in studies involving large populations; it is fast, comfortable and reliable. However, body box is expensive; therefore, it is not easily accessible to researchers (William, 2006).

Dual-Energy X-Ray Absorptiometry (DEXA)

Dual energy X-ray Absorptiometry is a direct method of estimating body composition, popularly used by medical practitioners where the body is exposed to a high and a low energy x-ray beam. Using DEXA the subject is made to assume a prone position on a table, where a complete total body scan is done by the machine. Dual-Energy X-Ray Absoptiometry helps to divide the body into three major components of total body bone mineral, fat-free soft tissue and fat mass components. Generally, percent body fat is computed as a ratio of total body fat mass and body weight. Dual-

Energy X-Ray Absoptiometry, in addition to being a fast method of estimating body composition is user-friendly for the tester and the participant. It takes not more than 20 minutes to carry out a whole body scan. The major advantage DEXA has over hydrostatic weighing is that it can be used for participants who are scared of water, children, older people and those who are ill (Baumgartner, et.al, 2007). Due to ease of use, scientific validity, time efficiency DEXA can be described as the best laboratory measure of body composition. Conversely, studies revealed that DEXA estimates of body composition are usually affected by the equipment models and software employed, methodological problems, large body size and intra- and inter-machine differences (Duren, Sherwood, Czerwinski, Lee, Choh, Siervogel & Chumlea, 2008).

Bioelectrical Impedance Analysis

The use of bioelectrical impedance analysis involves the measurement of resistance to the flow of electrical current through the body between selected points. Bioelectrical impedance analysis of body composition is used to estimate total body water (TBW), fat-free mass (FFM), and fat mass by measuring the resistance of the body as a conductor to a very small alternating electrical current (Chumlea

&Guo, 1994). This method is based on the principle that electricity will choose to flow through the tissue that offer the minimum resistance. Scientific evidences show that fat is a poor conductor of electric current when compared with fat free tissue (Edward & Dixie, 2017). Therefore, the higher the amount of body fat the greater the resistance of the body to the passage of electric current (William, 2006). Thus, the bioelectrical impedance analysis estimates percent body fat by measuring bioelectrical resistance of the body. As fast, simple and comfortable bioelectrical impedance analysis is, it has some powerful shortcomings that threaten its validity and reliability. One is the problem of hydration. If the body is dehydrated, it tends to overestimate percentage of body fat compared to what is obtainable at normal hydration. Secondly, the large predictive errors inherent in BIA make it insensitive to small improvements in response to treatment (Chumlea, 2006).

Skinfold Thickness Measurement

One popular and very efficient field method of assessing body composition is skinfold thickness measurements. Studies revealed that about 50 percent of total body fat is contained in the subcutaneous fat layers and can be used to predict the total body fat

(Baumgartner, et.al. 2007). Skinfold thickness is measured with the aid of caliper. Skinfold caliper is a specially designed instrument for measuring a double thickness of subcutaneous fat at certain body locations. Measurements obtained from this instrument are used to determine percent body fat of an individual using standardized equations provided by professionals. There are several types of skinfold calipers in the markets, however, testers are mandated to use the ones approved by the National Research Council of the United States (Baumgartner et.al, 2007). Calipers should be accurately calibrated and have a constant pressure of 10 grams per square millimeter (g/mm) throughout the full measurement range (Nikolaidis, 2013). When used correctly, data obtained through skin fold calipers can provide an estimate of percent body fat that has a high correlation (*r* .80) with underwater weighing, DEXA, and other body composition testing standards. When taking skinfold measurement, the first thing to do is to identify the skinfold sites. In most studies, sum of three skinfolds is used in determining percent body fat in both men and women (Ogunleye & Vipene, 2013). However, one can also use sum of two or seven skinfolds (Baungartner, et.al, 2007).

Using sum of three skinfolds, men's skinfolds measurements are taken from the chest, abdomen and thigh while triceps, suprailium and abdomen are recommended skinfold sites for women. The tester will need to mark the skinfold sites with marker for easy identification. The tester then pinches and pulls the skin with his left hand while holding the caliper in his right hand, thus, the left handgrasps the skinfold firmly with the thumb and index finger, while the caliper is kept perpendicular to the skinfold. The caliper grip is then released to exert full tension on the skinfold, after which the tester reads the dial to the nearest 0.5mm. Minimum of two measurements will be taken on each site and if measurements vary by more than 1mm the third one will be taken to clear all doubts. The average of the two measurements that seem to be the best is used as a measure of the skinfold fat site. The scores obtained from the three sites are then added together and used in estimating the participant's percent body fat using the equation given by the experts. The major threats to the validity and reliability of skinfold measurement include not using a suitable caliper, lack of trained technician and not measuring at the right site. Harpenden, Skyndex-1 and Slim guide calipers are often recommended for

use among others due to their high accuracy and reliability (Nieman, 2011).

Body Mass Index

Generally, people with higher body weights will have higher body fat; therefore, body weight is the most frequently used measure of overweight and obesity. While overweight is having more weight than required for ones height and age, obesity is a condition which predisposes an individual to health and social problems due to excess fat. Body Mass Index is a more reliable tool that uses height and weight to categorize people into different classes. Body Mass Index is simply the ratio of body weight in kilogram to the height per square meter; it is a fast and easy method of determining whether or not the weight of a person is appropriate for his height (Social Policy Evaluation and Research Unit, 2015). The outcome of this calculation is then compared to already prepared BMI reference table in order to determine the subject's weight status Thus, people can be classified as underweight (BMI$\leq$18.5kg/m^2), normal weight (18.5-24.9 kg/m$^{2\leq}$), overweight (25-29.5 kg/m^2) or obese ($\geq$30 kg/m^2). Although BMI is a descriptive index of body physique, it offers a lot of advantages, including availability of national reference data, ease

of use and application to large populations (Edward & Dixie, 2017). However, the major problem with body mass index is its inability to differentiate between fat weight and fat free weight. Therefore, athletes who are highly muscular, with large bones may exceed the World Health Organization standards for over-weight or obesity with regards to their BMI.

Body Circumferences

Measuring body circumferences is another field based indirect technique of estimating body composition. It is very easy, quick and accurate. Here, body density is calculated from combinations of body circumferences, including those of the waist (abdomen), hip (buttocks) neck, arm and leg (Duren, et.al. 2008). However, while there are few reference data available on arm and leg circumferences which is the major factor limiting their usage, the abdominal and hip circumferences are popular among the researchers because of their high correlational values and availability of reference data.

Studies have shown that human body stores fat in abundance around the waist and hip and that higher abdominal and hip circumferences indicates the presence of obesity (Baumgartner, et.al 2007). Large amount of visceral adipose

tissue in the waist or abdomen is an indicator of centralized obesity, also known as android obesity (William, 2006). People with central, visceral obesity are particularly at the risk of cardiovascular diseases, hypertension, type 2 diabetes, liver disease and cancer (Britton, Massaro, & Murabito, 2013; Doyle, Donohoe & Lysaght, 2012). Therefore, as values of waist-hip-ratio increase, the risk of degenerative diseases, particularly, heart attack increases. According to a study carried out by Yusuf, (2005), as quoted by Baumgartner, et.al. (2007), participants of all ages and ethnic groups had a significantly increased risk of heart attack when waist-hip-ratio was 0.90 or greater in men and 0.83 or greater in women. Generally, waist-to-hip ratios greater than 0.85 represent a centralized distribution of fat; most men with a ratio greater than 1.0 and women with a ratio greater than 0.85 are at increased risk for cardiovascular disease, diabetes, and cancers (Duren, et.al. 2008). Waist and hip circumferences are usually measured manually using flexible non-stretchable tapes and in accordance to the World Health Organization (WHO) guidelines (Jaeschke, Steinbrecher & Pischon, 2015). According to these guidelines, waist circumference is assessed at the midpoint between the last rib and the iliac crest,

sometimes on the navel, while the hip circumference is measured at the level of the largest lateral extension of the hips (Lennie, Amofa-Diatu, Nevill & Stewart, 2013). Both measurements must be taken horizontally and without mounting pressure on the body (Sebo, Beer-Borst, Haller & Bovier, 2008). However, accurate measurement of waist and hip circumferences is often faced with certain difficulties. It is time consuming and may require assistance, especially in obese participants (Verweij, Terwee, Proper, Hulshof, & Van-Mechelen, 2013)

Other techniques that can also be used in body composition analysis include, magnetic resonance imaging, total body counting, near infrared light interactance, computed tomography and many more others. Interested scholars are advised to consults good texts authored by professionals to study then.

Conclusion and Recommendation

The accurate determination of body composition, especially total body fat (internal and subcutaneous) is an important health issue. Internal fat, in particular, visceral fat, is a critical factor in the development of chronic diseases such as hypertension, type 2 diabetes, stroke, liver diseases and cancer, which are consequences of obesity. Accurate and

early determination of body fat level through the various techniques discussed in this paper will certainly help to nip in the bud these health issues. Techniques discussed in this paper include hydrodensitometry, air displacement plethysmography, bioelectrical impedance analysis, dual energy x-ray absorptiometry, skinfolds thickness measurement, body mass index and measurement of body circumferences. Although, laboratory methods are more accurate and easy, they can be expensive and sometimes unavailable to researchers. Generally, skinfold thickness measurements and body circumferences are favoured by researchers, largely because they are moderately accurate, easy to use, less expensive and suitable for large population studies.

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ASSESSMENT OF THE PERCEPTION AND ATTITUDE OF POSTGRADUATE STUDENTS TOWARDS MOBILE LEARNING IN EKITI STATE UNIVERSITY,ADO-EKITI, NIGERIA

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Abstract
The study examined the perception and attitude of postgraduate students of Ekiti State University, Nigeria towards Mobile Learning. The study employed descriptive research design of survey type. The population for the study comprised all the postgraduate students of the University. Multistage sampling procedure was used to select a sample of 200 students for the study. The instrument used to collect data for the study was a questionnaire designed by the researcher to elicit information from the respondents on their perception and attitude towards the use of mobile devices for learning. Data collected were analyzed using descriptive and inferential statistics. Frequency counts and percentage were used to answer research questions while hypotheses formulated were tested using Pearson Product Moment Correlation. The findings of the study revealed that the students have positive attitude and perception towards the use of mobile devices for learning and that mobile learning has been useful for their day to day learning activities, research and personal intellectual development. In view of the above, institutions especially at tertiary level should make their environment mobile learning friendly in order to enrich better academic attainment of the students.

Keywords*: Mobile Learning, Mobile Devices, perception, Attitude.*

Introduction

Learning is the process of gaining new knowledge or improving on existing knowledge with a view to changing or improving in behavior or skills. Learning is the process of receiving and digesting information to acquire new idea(s) or build on what one has already known (Oyelere, 2016).According to Advanced English Dictionary (2019), learning is the cognitive process of acquiring skill or knowledge.

There are different methods of learning such as face-to-face, Distance learning and mobile learning among others. Face-to-Face learning method is the most traditional and convectional method of learning which involves live interaction between a learner and a teacher unlike mobile learning which involves use of mobile devices and internet for learning activities. Mobile learning in simple words is defined as the use of portable devices equipped with internet facility in the learning process (Sharma & Madhusudhan, 2017).Mobile learning according to Kearney, Schuck, Burden and Abusson (2012) in the higher education

context refers to the use of mobile and handheld devices in delivery of learning. A mobile device is a portable, wireless computing device that is small enough to be used while held in the hand such as smart phones, laptops and tablets in the delivery of teaching and learning. The advantages of mobile learning supplies learners' information on educational contents that aids the acquisition of knowledge regardless of location and time as long as the environment is mobile learning friendly, for example, through e-library, books and articles can be assessed to enhanced learning. Being able to access learning content anywhere allows students to learn on a flexible basis, in a location that suits them and at a time that suit them. According to Haaj (2011), the introduction of mobile technologies comes with enormous usage in learning which include its innate capability to learn anytime, anywhere create a better retention and recall. According to Adedoja, Botha and Ogunleye (2012), mobile learning has a potential to facilitates learning, thereby addressing the problem of poor access to leaning and it could increase collaboration among students by using mobile devices as research tools during projects and group work .It ,therefore, gives room for interactions between a teacher and learner outside classroom and, also ,between the learners.

Annexing the huge benefits of mobile learning depends on the perception and attitude of learners towards the use of mobile devices for learning purposes. Wang, Shen, Novak &Pan (2009) found out that mobile learning did generate strong interest among students. Rogers,Connlly, Hazelwood &Tedesco (2010) discovered that students found learning with mobile devices enjoyable. According to Mahat (2012), perception of users influence their willingness and readiness towards the use of mobile devices.

Problem of the Study

Mobile devices have become an indispensable tool in students learning activities such as accessing learning content, discussing assignment, access to educational information for instance via e-library and for research purpose among others. Despite the huge benefits of mobile devices to enhance students' learning, it has been observed that students use the mobile devices majorly for social and anti-social activities such as chatting, watching of films, gamming, listening to music and internet fraud among others rather than for academic purposes such as assessing and

downloading educational information such as textbooks, course materials et cet era.

With the rapid development of mobile technology and the increasing availability of wireless mobile devices in day-to-day activities, mobile learning can be of great advantage in learning activities. According to Almaiah (2014), more focus should be geared towards mobile learning and its usage among the University students. Adedoja (2012) posited that mobile learning is a better alternative for facilitating current teaching learning practices in Nigeria in view of the fact that mobile phones and portable computers are becoming more accessible, less expensive and less dependent.

In view of the above, this study examined the perception and attitude towards mobile learning among the postgraduate students of Ekiti State University with a view to assess their disposition towards the use of mobile devices for learning activities.

Purpose of the Study

The purpose of the study is to:

(i) assess the perception of the students towards mobile learning;

(ii) examine the attitude of the students towards mobile learning;

(iii) investigate the usage of mobile learning among the students;

(iv) examine the relationship between the perception of the students towards mobile learning and usage of mobile devices for learning

(v) examine the relationship between the attitude of the students towards mobile learning and usage of mobile devices for learning

(vi) know the relationship between the perception and attitude of the students towards mobile learning.

Research Questions

The following research questions were raised for the study:

(i) What is the perception of the students towards mobile learning?

(ii) What is the attitude of the students towards mobile learning?

(iii) Do the Students use mobile devices for learning?

Research Hypotheses

The following research Hypotheses were postulated for the study:

(i) There is no significant relationship between the perception of the students towards mobile learning and their usage of mobile devices for learning.

(ii) There is no significant relationship between the attitude of the students

towards mobile learning and their usage of mobile devices for learning.

(iii) There is no significant relationship between the perception and attitude of the students towards mobile learning.

Methods

The research design adopted in this study was descriptive of survey type. The population of the study comprised all the postgraduate students of Ekiti State University, Nigeria during 2018/2019 academic session. Multistage sampling procedure was used to select a sample of 200 students used for the study. At the first stage, five faculties were randomly selected from the eight faculties offering postgraduate programs in the University. Two (2) departments were selected from each of the sampled faculties using simple random sampling technique. Twenty (20) students were selected from the sampled departments making a total of 200 students used in the study using snowball sampling technique.

A questionnaire constructed by the researcher which consists of three sections was used to collect data for the study. Section A of the questionnaire consist of items on the perception of the students towards mobile learning, section B consists of items on the attitude of the students towards mobile learning while section C consists of the items on usage of mobile devices for learning among the students.

The face and content validity of the instrument were ascertained by experts in the Field of educational psychology and tests and measurement. The reliability of the instrument was estimated using Cronbach's alpha reliability method and the reliability coefficient of 0.75 was obtained. The questionnaire was administered with the help ofthree research Assistants.

Results

Question 1: What is the perception of the students towards mobile learning?

Table 1: Frequency and percentage of perception of the students towards mobile learning

	Agree		Disagree	
Item	f	%	f	%
Mobile learning aids acquisition of knowledge regardless of location and time	182	91.0	18	9.0
Mobile learning has potential to facilitate learning	175	87.5	25	12.5
Mobile learning creates better retention and recall for learning	178	89.0	22	11.0
Mobile learning is very useful for research purpose	189	94.5	11	5.5
It is more advantageous to use mobile devices for learning rather than for social purposes	85	42.5	115	57.5
Mobile learning is innovative and interesting	118	59.0	82	41.0
Mobile learning is not expensive	75	37.5	125	62.5
Mobile learning encourages exchange of ideas among learners	180	90.0	20	10
Mobile learning can be used to support other learning methods	189	94.5	11	5.5
Mobile learning makes learning more accessible	194	97.5	6	3.0

Table 1 shows the perception of the students towards mobile learning. The results shows that 91% of the students agreed while 9 % disagreed that mobile learning aids acquisition of knowledge regardless of location and time.87.5% of the students agreed while 12.5% disagreed that mobile learning has potential to facilitate learning. It also revealed that 89% agreed while 11% disagreed that mobile learning creates better retention and recalls for learners. It shows that 94.5% agree while 5.5% disagreed that mobile learning is very useful for research purpose.

45.5% of the students agreed while 55.5 disagreed that it is more advantageous to use mobile learning rather than for social activities. 59% agreed while 41% disagreed that mobile learning is innovative and interesting.37.5% agreed while 62.5% disagreed that mobile learning is not expensive. The result revealed that 90% agreed while 10% disagreed that mobile learning encourages exchange of ideas among learners.94.5% agreed while 5.5% disagreed that mobile learning can be used to support other learning methods. The result showed that mobile learning makes learning more accessible.

From the result obtained on the perception of the students towards mobile learning, majority of the students have

good perception about mobile learning. However, majority of the students were of the view that it is more advantageous to use mobile devices for social activities rather than for learning purpose

Question 2: What is the attitude of the students towards mobile learning?

Table 2: Frequency and percentage of attitude of student towards mobile learning

Item	Agree		Disagree	
	f	%	f	%
I believe that mobile learning has made learning accessible	128	64	72	36
I do learn basic knowledge of computer for efficient use of mobile devices for learning	99	45.5	101	55.5
l always ensure that my mobile devices have internet facility for learning purposes	132	66.0	68	34.0
I do update the educational applications in my mobile devices	140	70.0	60	30.0
I always charge the battery of my mobile devices to ensure my access to internet for learning	168	84.0	32	16.0
I encourage people to learn through their mobile devices	174	87.0	26	13.0
I love to have access to internet to enhance learning	181	90.0	19	9.5
I do support my classroom learning with mobile learning	152	76.0	48	24.0
I can't do without learning on my mobile devices	140	70	60	30
I improve daily on mobile learning activities	161	80.5	39	19.5

Table 2 shows that attitude of the study towards mobile learning. The revealed that 64% agreed while 36% disagreed that mobile learning has made learning accessible. The result also shows that 45.5% agreed while 55.5% disagreed that they do learn basic knowledge of computer for efficient use of mobile devices for learning. 66% of the students always ensure that their mobile devices have internet facility for learning purpose

while 34% of the students do not care to always have internet facility in their mobile devices. 70% of the students do update the educational applications while 30% do not update educational applications on their mobile devices.84% of the students agreed while 16% disagreed that they always charge their mobile devices battery to ensure that they have access to internet for learning activities.87% of students agreed while

13% disagreed that they encourage other people to learn through their mobile devices.70% of the students agreed while 30% disagreed to always have access to internet to enhance learning. 70% of the students agreed while 30% disagreed that they complement classroom learning with mobile learning.70% of the students agreed while 30% disagreed that they can't do without learning on their mobile devices. 90% of the students agreed while

10% disagreed that mobile learning has improved their learning activities.

The results showed that the students have positive attitude towards mobile learning.However, majority of the students do not learn basic knowledge of computer to enhance the use of their mobile devices for learning.

Question 3: Do the studentsuse mobile devices forlearning?

Table3: **Frequency and percentage of the usage of mobile devices for learning among the students**

		Agree		Disagree	
Item	**f**	**%**	**F**	**%**	
I use mobile devices to search information for research purpose	130	65	70	35	
I do interact with other learners through the internet using my mobile devices	98	49	102	51	
l do complement learning I received in the classroom with the information I require from the internet	140	70	60	30	
Most of my assignments are done using my mobile devices to get information from the internet	140	70.0	60	30.0	
I do gain a lot knowledge through mobile learning	160	80	40	20	
Mobile learning has improved my learning activities	180	90	20	10	
I use mobile devices for educational purposes than for social activities	171	65.5	29	14.5	
I often use mobile devices for learning	152	76.0	48	24.0	
I have downloaded some learning materials from the internet using my mobile devices	150	75	50	25	
With my mobile devices I do learn at any time in internet friendly location	163	81.5	37	18.5	

Table 3 shows the usage of mobile devices for learning among the

students.65% of the students agreed while 35% disagreed that they use their mobile

devices for research purpose.49% of the students agreed while 51% disagreed that they interact with others learners using their mobile devices.70% of the students agreed while 30% disagreed that they complement the learning they receive in the classroom with the information they acquired from the internet. 70% of the students agreed while 30% disagreed that most of their assignments are done using mobile devices to get information from the internet.85.5% of the students agreed while 15% disagreed that they have gained a lot of knowledge through mobile learning.90% of the students agreed while 10% disagreed that mobile learning has improved their learning activities. Table 3 shows that mjority of the students use mobile devices for learning. 65.5% of the students agreed while 34.5% disagreed that they use mobile devices for educational purposes than for social 76% of the students agreed while 24%

disagreed that they often use mobile devices for learning.75% of the students agreed while 25% disagreed to have downloaded some learning materials from the internet using their mobile devices.81.5% of the students agreed while 18.5% disagreed to learn with mobile devices do learn at any time in any internet friendly location.

The result obtained shows that the students use their mobile devices for learning activities. Though, majority of the students did not use their mobile devices to interact with other learners for exchange of ideas.

Hypothesis 1: There is no significant relationship between the perception of the students towards mobile learning and usage of mobile devices for learning

Table 4: **Correlation of perception of students towards mobile learning and usage of mobile devices for learning**

Variables	N	Mean	SD	DF	r	p
Perception of Students towards mobile learning	200	2.11	1.181	199	0.51	0.003
Usage of mobile devices for learning	200	2.23	1.219			

$p<0.05$

Table 4 shows the relationship between the perception of students towards mobile learning and usage of mobile devices for learning activities among the

students. The result shows that r calculated is 0.51 and p value is 0.003, sincep value (0.003) < 0.05, the null hypothesis is not accepted. This implies that thereis significant relationship between the

perception of the students towards mobile learning and usage of mobile devices among the students. Therefore, the perception of students towards mobile

learning has a lot to do with the usage of their mobile devices for learning.

Table 5:   Correlation of Attitude of students towards mobile learning and usage of mobile devices for learning

Variables	N	Mean	SD	DF	r	p
Attitude of Students towards mobile learning	200	2.85	1.382	199	0.742	0.000
Usage of mobile devices for learning	200	2.23	1.219			

p<0.05

Table 5 shows the relationship between the attitude of students towards mobile learning and usage of mobile devices for learning activities among the students. The result shows that r ccalculate is 0.742 and p value is 0.000,since p value (0.000) <0.05 the null hypothesis is not accepted which implies that there is

significant relationship between the attitude of the students towards mobile learning and usage of mobile devices among the students. Therefore, the attitude of students towards mobile learning has a lot to do with the usage of their mobile devices for learning.

Table 6: Correlation of Perception and Attitude of students towards mobile learning

Variables	N	Mean	SD	DF	r	P
Perception of Students towards mobile learning	200	2.11	1.181	199	0.622	.001
Attitude of Students towards mobile learning	200	2.85	1.382			

p<0.05

Table6 shows the relationship between the perception and attitude of students towards mobile learning among the students. The result shows that r calculated is 0.622 and p value is 0.001, sincep value (0.001) < 0.05, the null hypothesis is not accepted.This implies that there is significant relationship between the perception and the attitude of

the students towards mobile learning. Therefore, the perception of the students has a lot to do with students' attitude towards mobile learning.

Discussion

The finding of the study showed that the students have good perception about mobile learning and that leaning

with mobile devices fosters learning by making learning possible at anywhere and location .This is in consonant with the finding of Rogers(2010) who noted students were of the opinion that leaning with mobile devices was fun and enjoyable. Also, Maag (2007) and Comac (2008) submitted that mobile learners believed that there is ease in using mobile devices for performing tasks related to learning and that mobile learning is flexible and convenient. Agah and Nicer (2018) submitted in their study that most of the participants were of the opinion that the use of mobile technology in the field of education is beneficial and effective. Also, Dogan and Akbarou (2016) reported that positive attitude of mobile technologies are generally exhibited in education. However, Al-Fahad (2009) in his study concluded that the use of mobile technology in education would result in high cost and negative aspects of the quality of existing networks.

The study, also, revealed that most of the students have positive attitude towards the use of mobile devices for learning activities. The study showed that majority of the students use their mobile devices for academic purposes. The findingof the study is in consonant with the submission of Fetaji and Traxler (2009) that students make use of mobile

devices for learning because of the benefits they get from it. The finding of the study also revealed that majority of the students use their mobile devices for learning activities. This is in agreement with the finding of Williams and Bearman (2008) that mobile learning has been useful for boosting students' performance and that it gives students opportunity to perform at their convenient time and space. Also, Ahassan (2016) in his study submitted that the use of mobile devices in education increases the efficiency of learning through access to knowledge and communicating with others. The study also revealed that there is significant relationship between the perception and attitude of the students towards the use of mobile devices for learning and that, the perception of the students towards mobile learning significantly influences their attitude towards the use of mobile devices for learning.

Conclusion

The study discovered that the students have good perception and positive attitude towards mobile learning and that there is significant relationship between the perception and attitude of the students towards mobile learning. Therefore, the perception of the students influences their attitude towards the use of mobile devices

for learning activities. However, majority of the students were of the opinion that it is more advantageous to use mobile devices for social activities than for mobile learning. Also, majority of the students do not learn basic knowledge of computer to enhance the use of their mobile devices for learning and that majority of the students do not use their mobile devices to interact with other learners for exchange of ideas.

Recommendations

Based on the findings of the study, it is recommended that:

(i) Educational Institutions' Management should ensure that their institutions are mobile learning friendly to enhance students' perception and attitude towards mobile learning.

(ii) Students should exchange ideas by interacting through their mobile devices since mobile learning is not location or time bound

(iii) Relevant organs of the institution should organize seminars for the students on the use of their mobile devices for learning and to, also, encouraged them to use their mobile devices more for learning rather than for social activities.

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FACTORS INFLUENCING WORK-TIME ALCOHOL USE AMONG COMMERCIAL MOTORCYCLISTS IN IREPODUN/IFELODUN LOCAL GOVERNMENT AREA, EKITI STATE, NIGERIA

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Abstract

Observation has shown that work-time alcohol use among commercial motorcyclists is on the increase. Thestudy investigatedthe regularity of work-time alcohol use andfactors influencing work-time alcohol use among commercial motorcyclists in Irepodun/Ifelodun Local Government Area of Ekiti State. Descriptive research design of the survey type was used to conduct the study. Due to the transitory nature of the study group, convenience sampling technique was used to select 220 registered commercial motorcyclists. A validated structured questionnaire was used to elicit information from the respondents. The reliability of the instrument was determined using Cronbach Alpha with item by itemreliability coefficient of 0.81. Administration of the questionnaire was done with the aid of three research assistants. Descriptive statistics of percentage was used to answer the research questions whileLinear logistic regression was used to determine the influencing factor that would most contribute to work-time alcohol use among the commercial motorcyclists. Finding shows that 36.8% of the respondents are more regular users of alcohol while the commonly used substances were 'paraga' 19.6% and beer 19.1%. Respondents used alcohol more regularly to ward off stress and to increase performance. The commonest sources for obtaining the substance are through hawkers and from motorcycle parks. It was recommended that sale of alcoholic substances should be prohibited in the parks and provision of recreation centres for relaxation of the commercial motorcyclists.

Keywords: Commercial motorcyclists; 'okada'; work-time; alcohol use; regularity, influencing factors

Introduction

Motorcycle became means of public transportation in Nigeria following the introduction of the economic policies termed Structural Adjustment Program in 1980's (Ezeibe, Nzeadibe and Ali, 2017). The untoward hardship resulting from the policies include lack of adequate vehicles for public transportation for the teeming population. Poor road network with the attendant need to dodge numerous potholes, inadequate vehicles, affordability and accessibility to commercial motorcycle vis-à-vis the increasing unemployment of the youths contributed to the booming of the business of commercial motorcycling (Raji, Saliu, Gada, Bakare, Oladigbolu and Kaoje, 2017). The significant contribution of commercial motorcycling to poverty

reduction and social life was documented by scholars. The relative relevance of motorcycles became questionable based on the records of the numerous road accidents among this group of road users. Studies have revealed that majority of commercial motorcyclists drink-drive. Riding a motorcycle under the influence of alcoholic substance has been associated with many risky forms of behaviour on the road such as over speeding, not using helmet, not having driver's licence (Santos, Coelho, Bonfim and Ceballos, 2019). Inability to obtain drivers' license may be an indication that such motorcyclist is riding without adequate training.

The high prevalence of work-time alcohol use among commercial motorcycle riders is becoming alarming and a concern in public health.Alcohol use has been described as a global problem resulting into social and public health problems in many societies (Ogundipe, Omotola, Alabi, Oluwadare andObawole,2019).Ogundipe, et al., 2019). Commercial drivers in sub-saharan Africa have been referred to as notable high-risk drinkers with prevalence rate of use ranging from two-thirds to over four-fifth (Bello, Ndifon, Mpama and Oduwole, 2011). Anecdotal evidence assumes that work-time alcohol use is

very common among commercial motorcycle riders at the same time, extant literature have established increasing rate of alcohol use among commercial motorcyclists (Ogunmodede, Adio, Ebijuwa, Oyetola and Akinola, 2012; Johnson and Bada, 2015; Seyed, et al, 2016).Omumu, Tibi and Chenube (2017) asserted that commercial motorcyclists have alcohol problems. The study done on alcohol use among road users discovered a higher prevalence of 34% among motorcyclists and 17% among motorists (Damsere-Derry, Palk and King, 2018). On the other hand,Abiona,Aloba and Fatoye(2006)discovered a prevalence of 67.2% which was adjudged to be high though majority claimed to drink after work hours with very few engaging in hazardous drinking.

Based on the impact of alcohol in road traffic accidents and other social and health conditions, drivers have been described as a group that deserves special attention with regards to alcohol control (Bello et al, 2011).Road accidents linked with motorcyclists riding under the influence of alcohol has been recorded among younger age group motorcyclists that are current alcohol drinkers who self - reported alcohol consumption12 hours preceding the accident (Tumwesigye, Atuyambe and Kobusingye, 2016). A

similar study conducted among commercial driversin a semi urban community in South western Nigeria, found a prevalence of 67.2% alcohol use out of which 47% of were heavy alcohol users,15.3% moderate and 37.7% were occasional users (Abiona, Aloba and Fatoye, 2006)

Alcoholic beverages are derived from sugar fermented by yeast. It could also be described as fermented liquor that contains ethanol. Commercial motorcyclists drink various types of alcoholic substances. Kehinde and Adegoke (2012)described the three common alcoholic substances as: beers which contains 3to 8 percent alcohol as well as wines containing 8to 12 percent alcohol and distilled spirits in forms of whiskey, vodka, gin containing 40-50 percent alcohol.The study of Ogunmodede et al (2012) revealed that 76.7% of commercial motorcyclists takelocal dry gin while 12.7% take beer with 10.7% taking palm wine. Abiona et al (2006) discovered beer as the most commonly used alcoholic substance followed by palmwine.

Some factors influencing alcohol use by commercial motorcyclists have been recorded by scholars. Akpan and Ikorok(2014) asserted that the reason for the high prevalence of alcohol use among

drivers is its ready availability and the perceived good feeling associated with its use. Alti-Muaza and Ahigu (2008) linked the use of alcohol among commercial motorcyclists with the need to suppress fatigue and to keep awake. Ogunmodede et al, 2012) claimed that the presence of alcohol retailers in and around okada parks provides accessibility thereby encouraging patronage. Ogundipe et al (2019) reported that majority of the commercial cyclists couldn't conduct their business without using locally brewed alcohol in the morning due to the cold weather and in some instances to conform with the peer group culture. Akpan and Ikorok (2014) discovered that commercial drivers believed that the use of alcohol will improve their performance significantly and keep sleep at bay for as long as possible. Commercial motorcyclists also use alcohol frequently for social reasons. In addition, the mood alteration characteristic of alcohol would enhance its use in masking unease or pains and group association (Makinde, Awomodu, Oyerinde and Adeoye, 2016)

Scholars have documented the high prevalence of hazardous alcohol use among commercial motorcyclists. The use of alcohol otherwise known as "opaehin", "apeteshi", "sapele water", "ogogoro", "kainkain", "paraga" depending on

thelocality in Nigeria, has been discovered not to have time constraint. For instance, Makinde et al (2016) lamented that avisit to any okada park as early as 8 am will reveal a lot of disgusting sights concerning their level of drug addiction and this habit continues among them till late in the night. It is in view of this background that this study aimed to find out the regularity of alcohol use while working, the types of alcoholic substances used, as well the sources where commercial motorcyclists obtained their alcoholic drink and the factors influencing the use of alcohol among commercial motorcyclist in Irepodun/Ifelodun Local government Area of Ekiti State. The study was also to determine which of the influencing factors will most contribute to work-time alcohol use.

Research Questions raised for the study are

1. What is the regularity of alcohol use?

2. What are the types of alcoholic substances used by commercial motorcyclists?

3. What are the factors influencing work-time alcohol use?

4. Where do commercial motorcyclists obtain alcoholic substances used?

Research Hypothesis formulated for the study include:

HO1: Which of the influencing factors will contribute most to work-time alcohol use among commercial motorcyclists

Methods

Descriptive research design of survey type was used to examine the work-time alcohol use and the influencing factors among commercial motorcycle riders in Irepodun/Ifelodun Local Government, Ekiti State. The sample size was made up of 220 respondents selected using simple random sampling and convenience sampling methods. The Local Government Area headquarters and two towns were used for the study. Simple random sampling was used in selecting 11 motorcycle parks and 20 consenting respondents were selected from each park using convenience sampling technique. The study adopted the use of 21-item structured self-report questionnaire which consists of two sections. The first part was used to elicit information on demographic characteristics of the respondents and the second part sourced for information on the conceptual domains of work-time alcohol use, regularity and factors influencing alcohol use. The reliability of the questionnaire was determined using Cronbach alpha where a reliability

coefficient 0.81 was obtained. The administration of the research instrument was done with the aid of three research assistants who helped in the explanation of the purpose of the study. With the assistance of their union leaders, the willing motor cycle riders responded to the items in the questionnaire. Out of the 220 copies of questionnaire administered,

a total of 204 were retrieved with complete responses representing 92.9% response rate. SPSS 20.0 version was used to analyse the data. The research questions were answered using descriptive statistics of frequency and percentage. The contribution was determined using linear logistic regression analysis.

Results

Research Question 1: What is the regularity of work-time alcohol use?

Figure 1: Bar Chart showing the regularity of work-time alcohol by commercial motorcyclists in Ifelodun/Irepodun Local Government Area in Ekiti State.
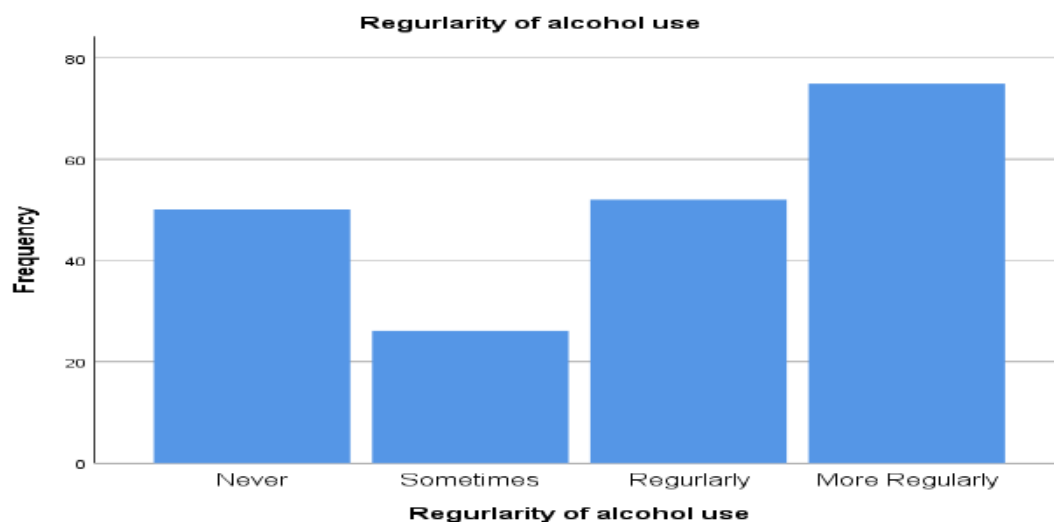
The bar chart in Figure 1 reveals that majority of the commercial motorcyclists 75 (36.8%) more regularly engage in work-time alcohol use while 52 (25.2%) are regular users. Only 26 (12.7%) of the commercial motorcyclists sometimes

practice work-time alcohol and 51 (25.0%) has never engaged in work-time alcohol use**.**

Research Question 2: What are the types of alcoholic substances used by commercial motorcyclists?

Figure 2: A bar chart showing the types of alcoholic substances consumed by commercialmotorcyclists
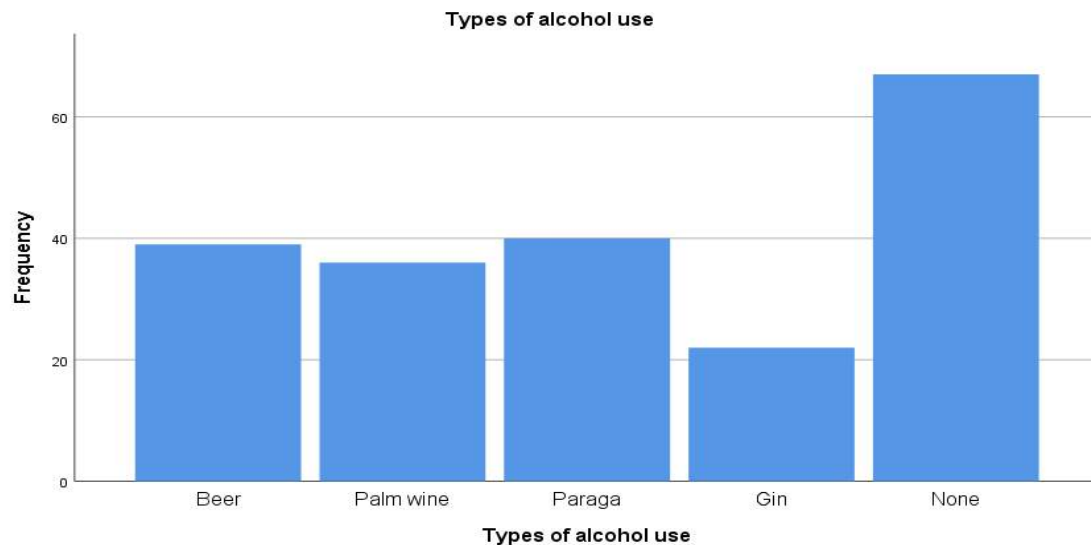
Findings on the types of alcoholic substances as displayed in Figure 2 reveals that though 67 (32.8%) do not consume any of the identified alcoholic substances. 'Paraga' 40 (19.6%) topped the list of the types of alcohol consumed by commercial motorcyclists followed by beer 39 (19.1%) and palm wine 36 (17.6%) while the least use was gin with only 22 (10.8%) consumers.

Research Question 3: What are the factors influencing work-time alcohol use?

Table 1: Frequency and percentage of factors influencing work-time alcohol use

	More Regularly		Regularly		Sometimes		Never	
	f	*%*	*F*	*%*	*F*	*%*	*F*	*%*
To ward off stress	71	34.8	50	24.5	17	8.3	66	32.4
To feel good	49	24.0	54	26.5	27	13.2	74	36.3
To relief fatigue	60	29.4	49	24.0	26	12.7	69	33.
For social interaction	60	29.4	54	26.5	26	12.7	64	31.4
To be alert	68	33.3	43	21.1	21	10.3	72	35.3
To increase performance	71	34.8	48	23.5	16	7.8	69	33.8
Because it is easily available in parks	64	31.4	35	17.2	20	9.8	85	41.7

Table 1 clearly shows the factors influencing work-time alcohol use among commercial motorcyclists. To ward off stress and to increase performance 71 (34.8%) are the commonest factors influencing use of alcohol, followed by to be alert 68(33.4%) and easily available in parks 64 (31.4%). That alcohol is easily available in okada parks would not be of interest to 85 (41.7%) as they reported

they will never use alcohol despite the availability.

Research Question 4: Where do commercial motorcyclists obtain alcoholic substances used?

Table 2: Frequency and Percentages of sources of alcohol to commercial motorcycle riders

Sources of alcohol	More Regularly		Regularly		Sometimes		Never	
	f	%	*F*	%	*f*	%	*F*	%
Bars	49	24.0	25	17.2	36	17.6	84	41.2
Local shops	57	27.9	30	14.7	29	14.2	88	43.1
Home	44	21.6	30	14.7	33	16.2	97	47.5
Okada Parks	64	31.4	35	17.2	20	9.8	85	41.7
Friends	62	30.4	51	25.0	18	8.8	73	35.8
Alcoholic substances sold by Hawkers	64	31.4	38	18.6	16	7.8	86	42.2

Table 2 shows that 'Okada' parks 64 (31.4%) and alcohol hawkers 64 (31.4%) are the majorsources from which commercial motorcycle riders regularly obtained alcohol used at work-time. The other competing sources from which commercial motorcyclists regularly obtained alcohol is from friends 62 (30.4%) and local shops 57 (27.9%)

Hypothesis 1: Which of the influencing factors will contribute most to work-time alcohol use among commercial motorcyclists

Table 3: Linear Logistic Regression of factors influencing work-time alcohol use

	Unstandardized coefficients		Standardized coefficients			95% Confidence interval	
	Beta	Standard error	Beta	T	Sig.	Lower	Upper
Constant	.604	.124		4.87	.000	.360	.849
To ward off stress	.318	.091	.335	3.515*	.001	.140	.497
To feel good	.074	.083	.074	.882	.379	.238	.091
To relief fatigue	.221	.086	.227	2.577*	.011	.052	.390
For social interaction	.049	.105	.049	.463	.644	.159	.256
To be alert	.025	.077	.026	.320	.749	.127	.176
To increase performance	.279	.088	.297	3.17*	.002	.105	.453
Alcohol hawkers available	.015	.059	.017	.262	.794	.101	.131
Because it is easily available in Okada parks	.007	.054	.008	.137	.891	.113	.098

The linear logistic regression of the contribution of determinants of work-time alcohol use among commercial motorcyclist reveals that to ward off stress {B =.335   t = 3.32 p = .001} will contribute 33.5% to work-time alcohol use. To increase performance {B = .297 t = 3.17 p=.002} will contribute 29.7% and to relief fatigue {B= .227 t = 2.577 p=.052} will contribute 22.7% to work-time alcohol use while easily available in 'okada' parks {B = .007 t =.137 p> .05} will contribute 0.8% which is the least among all the factors

Discussion

The descriptive statistical result shows that 36.8% of the respondents engage in work-time alcohol use more regularly while 25.2 % are regular users. The summation of the two clearly shows that commercial motorcyclists engage in work-time alcohol use. The findings agreed with the findings of Kehinde and Adegoke (2012) in a similar study among commercial motorcyclists where three-quarters of the respondents were discovered to be moderate and heavy alcohol users. Likewise, Abiona et al (2006)'s record of 67.2% prevalence of alcohol use as well as the high prevalence rate recorded in related studies of Omumu et al. (2017) and Ogundipe et al. (2019)without any contrary

submissionestablish that commercial motorcyclists engage in work-time alcohol use.

Sources where the substances used were obtained from revealed that,'okada' parks, hawkers of alcoholic substances and friends were the predominant sources. National News (2013)'s survey of Lagos motor and motorcycles parks reported the influx of cheap alcohol sellers in the parks and that the sellers of herbal drugs steeped in indeterminate alcohol content were drawn to the parks because the commercial motor drivers and commercial motorcycle drivers constitute the greater part of their customers. Kehinde and Adegoke (2012) reported that "paraga" is commonly sold by vendors in motor parks where commercial motorists and motorcyclists have easy access to them. The easy access to 'paraga' at the parks could be linked with the findings in this study that 'paraga' is the commonest alcohol consumed by the motorists as opined by Akpan and Ikorok (2014) that alcohol in parks and the environs contribute a great deal to the drinking habit indulged by commercial drivers. The regularity of alcohol use as discovered in this study could be linked with the assertion of Ogunmodede et al (2012) that the presence of alcohol retailers in and around 'okada' parks ensured accessibility

thereby encouraging patronage. Availability of alcohol in and around the parks may encourage experimenting with alcohol and subsequent use.

The discovered self-reported factors influencing work-time alcohol use among commercial motorcyclists are to ward off stress and to increase performance. Both buttressed the view of scholars such as Alti-Muaza and Ahigu (2008) that discovered that alcohol was used to suppress fatigue while Akpan and Ikorok (2014) revealed that alcohol is used to enhance performance. Further statistical test revealed that the duo: to ward off stress will contribute 33.5% and to enhance performance will contribute 29.7% to use of alcohol during the working period. Close to them is to relief fatigue with the contribution of 22.7%. The least contribution to work-time alcohol use is the availability of alcoholic substance at the parks. The need of work-time alcohol use to increase performance as discovered in this study could be laid on the premise that most commercial motorcyclists start the business with the aim of generating income because better alternatives are not available(Kolawole and Afolabi, 2017) as well as the need to make enough money to settle owners of motorcycles or pay the instalment on the motorcycle to take risks (Sanusi and

Emmelin, 2015). The fact that getting income to sustain themselves and family may require boosting their strength as such will enhance their performance. Similarly, majority of commercial motorcyclists work under stress as stated by Kolawole and Afolabi (2017) that commercial motorcyclists work between 6 and 7 days per week may necessitate the use of alcohol to ward off stress

Conclusion and Recommendations

The study revealed a high prevalence of work-time alcohol use among commercial motorcyclist while at work. It shows that many commercial motorcyclists drink drive while at work. Availability of alcoholic substances at 'okada' parks and obtaining alcoholic substances from hawkers were the common sources from which users get the substances and the main factors influencing usage. The major factors influencing use are to ward off stress, to enhance performance and to be alert. It was clearly revealed that to ward off stress and to enhance performance will contribute to work time alcohol use more than the other factors. It was thus recommended that government should prohibit the sale of alcoholic substances in 'okada' parks. Health educators should organize educational programme to sensitize the commercial motorcyclists on

the physical and social health implications of work-time alcohol use and the government should provide recreational centre around the park where the commercial motorcyclists could ease off the stress.

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ENDOGENOUS DETERMINANTS OF SURGICAL SITE INFECTIONS AMONG PATIENTS ATTENDING HOSPITALS IN EKITI STATE, NIGERIA

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Abstract
Surgical Site Infection (SSI) still remains substantial burden to patients attending hospitals in Ekiti State despite advancement in the field of surgery. This study investigated the endogenous determinants of surgical site infections in patients attending hospitals in Ekiti State, Nigeria. It adopted descriptive research survey to study a sample of 150 health workers consisting of surgical doctors, theatre nurses and surgical ward nurses of which 50 samples were used from each of the 3 groups of health workers. Stratified random sampling technique was used to divide the state into 3 strata following senatorial districts, simple random sampling to select one hospital per stratum and purposive sampling to select doctors, theatre nurses and surgical ward nurses. Determinants of Surgical Site Questionnaire (DSSIQ) was used for data collection after being validated by experts in medicine, test and measurement and health education, and was pre-tested for reliability yielding 0.89 index, while it was administered to the health workers, completed and collated with 100% returns. The data were analysed using descriptive statistics of percentage, mean and standard deviation and inferential statistics of linear and multiple regression. The results showed that patients' underlying medical condition was a significant determinant of SSI (f value of 7.845 with p value of 0.000 < 0.05) and patient's personal hygiene was also a significant determinant of SSI (f value of 30.319 with p value of 0.000 < 0.05). It was concluded that patients' underlying medical condition is the most commonly observed cause of surgical site infection according to the finding of this study.It was recommended that efforts should be put in place by government, health agencies, community, family and individuals towards prevention of diseases that can complicate surgeries and cause SSI with emphasis on health education for patients.

Keywords: Endogenous determinants, Patients, Surgical site infection.

Introduction

Surgery is the branch of medicine that employs operations in the treatment of disease or injury. Surgery can involve cutting, abrading, suturing or otherwise physically change body tissue or organs. Surgical Site Infections (SSIs) are the most common infections that occur during hospitalization globally and a major cause of morbidity and mortality following surgical operations. It is believed to be a major source of worry to the patient, health professionals, and the community as a whole, and this is due to the fact that an infected wound can prolong hospitalization by 5 to 20 days and

subsequently increase medical costs. These infections occur after operation within 30 days if no implant is used and one year if implant is used (Mangram, Horan, Pearson, Silver &Jarvis, 1999).

Makkanen and Huhtala (2006) reported that the highest number of surgical infections is post-operative infections, and in cases where the hospital care is prolonged, the need for medical and special care increases with a possible re-operation, this will inconvenient the family, cause the patient more pains, discomfort, economic and social hardship to the family. According to them, the longer the patient stays on admission, the more he/she is prone to other infections. In most cases, infection develops during the healing process. It does not matter if it is an open or closed wound. When an infection occurs, it can be diagnosed from patient's weakened physical condition or from local symptoms from the wound. The wound starts to get red from its margins, and then gets swollen and painful. When the infection develops further, the wound starts to secrete and produce bad odour. At this point the wound bleeds more easily and the surface becomes wider and deeper.

In some hospitals in Ekiti State, surgical site infections commonly occur especially after abdominal operations like caesarean section, fibroid removal,

appendix removal, hernia repair, and orthopaedic or bone operations. For health educator, the role of preventing surgical site infections is comprehensive and span the continuum of care. They play a crucial role in providing counseling and education to patients during the initial pre-operative visits and clinics, especially in relation to smoking cessation; glucose control in patients with diabetics; instructing patients to report new rashes or skin infections and to bathe or shower with soap or an antiseptic before surgery.

The risk of surgical site infections in developing countries is higher than the equivalent surgical procedures carried out in high-income countries (Mukagendanez, Munyaneza & Muvunyi, 2019). This is so in sub-Saharan Africa countries like Tanzania, surgical site infections rate is 26%, while the incidence for Uganda is 58.5%. In children undergoing surgical operation in Ahmadu Bello University Teaching Hospital, Zaria, surgical site infection rate of 14.3% in clean incisions, 19.3% in clean contaminated incisions, 27.3% in contaminated incisions, and 60% in dirty incisions were observed(Ameh, Mshelbwala, Nasir, Lukong, Jabo &Anuma, 2009).

Surgical site infections are associated with considerable morbidity and mortality and may double the length of

post-operative hospital stays with attributable increased cost of treatment. In some cases, patients may require re-admission after initial discharge leading to additional cost of treatment, repeated operations and other treatments. Infections increase the discomfort and disability experienced by patients following surgical procedures and still causes considerable morbidity and high cost to the health care system. Surgical site infections accounted for 14% to 16% of all nosocomial infections and was the most common health associated infections among surgical patients in the United States of America despite the improvement in surgical technique and advances in infection control practices (Mangram, Horan, Pearson, Silver & Jarvis, 2009). It is also becoming increasingly important in medico-legal aspects or simply put medical litigation in which a case of injury or ailment occurs during treatment of a patient, requiring investigation by the law enforcing agents; essentially to fix the responsibility regarding the causation of the injury, severe SSI may quadruple the cost of care and decrease patients' quality of life.

The most frequently cited determinants of SSIs have been broadly defined under endogenousfactors and exogenous factors (Lobley, 2013).

Endogenous factors are patient related determinants which include: nutritional status of patients, underlying medical conditions like HIV and diabetes, cigarette smoking, skin bleaching habits, poor personal hygiene and obesity/overweight. Age of patient refers to the length of time that a patient has lived or existed and could be a considerable factor that increases the chance of surgical site infections. Aged people and young children are generally more prone to infections. This is because immunity is relatively low among the two extremes of age. Study has shown that advanced age is one of the important determinants of Surgical Site Infections (Stotts & Wipe-Tevis, 2001). Immunity, which allows man to fight invading microorganisms deteriorate with the aging process and it is not very active in young children.

Malnutrition refers to deficiencies, excesses or imbalances in a person's intake of nutrients. Patients who are malnourished have been found to possess reduced immune response to infection. Obesity which is a product of abnormal nutrition is considered as a determinant of poor outcomes from different kinds of surgical procedures. Malnourishment negatively affects normal immune function and often results in poor wound healing causing surgical site infections and poor

post-operative outcomes (Alfargieny,Bodalal, Bendardaf, Fadil&Langis, 2015).

Smoking refers to the inhalation of smoke of burning tobacco encased in cigarettes, pipes and cigars and could be associated with inhibited wound healing and decreased blood circulation to the skin due to obstruction of blood vessels from aggregated blood components(https://medical-dictionary.thefreediction). Cigarette smoking can restrict blood flow to the skin and prevent essential nutrients from reaching a wound. This is why cigarette smoking is considered a determinant of surgical site infection.

Underlying medical condition refers to disease or health conditionthat serves as a basis or cause for another secondary disease. Some diseases and underlying medical conditions have been identified as determinants of surgical site infections; they include, diabetes mellitus, HIV and cancer. Diabetes could cause lower immunity due to white blood cell malfunction when the blood sugar is high, SSIs occur in diabetic patient due to poor supply of glucose, oxygen and protein to the surgical site tissue. Patients with HIV and cancer have depressed immune system leading to delay in wound healing and

surgical site infections(Stotts&Wipe-Tevis 2001).

Skin bleaching agents reduce skin quality by removing the protective epidermis (outer covering of the skin), while its chemical ingredients suppress the immune system thereby making the body susceptible to diseases and surgical site infections (Darko, Aduful & Edwin, 2013). Poor personal hygiene of patient has been observed to be an important determinant of SSIs, as dirty body surfaces may harbour harmful microorganisms that may easily enter surgical cuts made during surgery leading to SSIs.

This study through its findings looked critically into patient related factors or endogenous factors in the cause of surgical site infections among patients attending hospitals in Ekiti State. Essentially, it successfully identified which one/ones among the factors of age; skin bleaching, nutrition, underlying medical conditions, personal hygiene and smoking could be identified as the endogenous determinant of SSIs in Ekiti State, as well as strategies for its prevention.

Research Questions

This study found answers to the following research questions:

1. What are the common endogenous determinants of surgical site among patients attending hospitals in Ekiti State?
2. What are the health education strategies in the prevention of surgical site infections among patients attending hospitals in Ekiti State?

Research Hypotheses

The following hypotheses were formulated and tested at 0.05 level of significance

1. Patient's personal hygiene will not be a significant determinant of SSIs amongsurgical patients attending hospitals in Ekiti State.
2. Patient's underlying medical conditions will not be a significant determinant ofSSIs among surgical patients attending hospitals in Ekiti State.

Methods

This study employed descriptive research design. The design allows for the investigation of many variables and their interrelationships at the same time with a view to discover the common endogenous determinants of SSI in patients attending hospitals in Ekiti State. The population for

this study comprised surgical doctors, theatre nurses and surgical ward nurses, using simple random sampling technique to select one hospital from each of the 3 tertiary hospitals in Ekiti State. Stratified random sampling technique was used in tandem with the 3 senatorial districts as follows: Federal Teaching Hospital (FETHI), Ido-Ekiti in Ekiti North, Ekiti State University Teaching Hospital (EKSUTH), Ado-Ekiti in Ekiti central and General Hospital (GHI), Ikere-Ekiti in the southern senatorial district. 150 health workers were sampled using purposive sampling technique, 50 surgical doctors, 50 theatre nurses and 50 surgical ward nurses were purposively sampled from the selected hospital from each of the 3 senatorial districts of EkitiState in the ratio 20: 20: 10 (FETHI, EKSUTH, GHI respectively). A self-designed structured questionnaire tagged Determinants of Surgical Site Infections Questionnaire (DSSIQ) was used for the study. The questionnaire was divided into five sections, A to E. Section A contained demographic characteristics of the respondents such as sex, religion, marital status and educational background; Section B considered the common endogenous causes of SSI; Section C sought information on SSI preventive health education strategies; while Section

D provided information on the endogenous determinants of SSI among patients attending hospitals in Ekiti State. To ensure the validity of the instrument, a draft of the questionnaire was vetted by three experts in Health education, Test and Measurements and Guidance and Couselling, Ekiti State University, Ado-Ekiti. The pilot study involved the administration of the instrument to 30 respondents (all of the General Hospital, Ikole-Ekiti, Ekiti State) that were not included in this study but have similar characteristics as respondents in the actual study. The instrument was administered on them twice within interval of two weeks. The scores from the two sets of responses were correlated using Pearson's Product Moment Correlation (PPMC) to determine the reliability co-efficient. The instrument yielded a reliability coefficient of 0.89

which was considered high enough for the study. The copies of questionnaire were administered to the health workers with the help of five trained research assistants, after seeking permission from the authorities of the health institutions that were selected as well as the respondents. All the copies of the questionnaire administered were collated on the spot with 100% returns after proper completion for analysis.The data were analysed using descriptive statistics of frequency counts, percentages, mean and standard deviation, while hypotheses were tested using linear and multiple regression analysis.

What are the common endogenous determinants of surgical site among patients attending hospitals in EkitiState?

Results

Table 1: Common Endogenous Determinants of SSIs

Variable	Very common (%) on monthly basis	Common (%) once every 3 months	Not common(%) once every 6 months	Mean	Standard Deviation
Skin bleaching	2(1.3)	112(74.4)	36(24.0)	1.77	.45090
Cigarette Smoking	3(2.0)	113(75.3)	34(22.7)	1.79	.45313
Aged patient	4(2.7)	146(97.3)	0(0.0)	1.97	.16165
Young patient	5(3.3)	145(96.7)	0(0.0)	1.97	.18011
Nutritional status	68(45.3)	80(53.3)	2(1.3)	2.44	.52431
UnderlyingMedical status	87(58.0)	43(28.7)	20(13.3)	2.45	.71922
Personal hygiene	22(14.7)	75(50.0)	53(35.3)	1.79	.67850

Table 1 showed that surgical site infections are very common among patients with underlying medical conditions as represented by 87 respondents (58.0%) and patients with poor nutrition 68(45.3%). Most of the variables stated above are all common endogenous determinants, because 50 to 97.3% of the respondents indicated that all the endogenous determinants of SSIs are common among patients attending hospitals in Ekiti State. Also, 53 respondents representing 35.3% indicated that poor personal hygiene of patients was not a common determinant.

What are the health education strategies in the prevention of surgical site infections among patients attending hospitals in Ekiti State?

Table 2: Health Education Strategies in Prevention of SSIs

S/N	Item	Never (%)	Sometimes (%)	Often (%)	Mean	Standard Deviation
1	Continuous health education of health workers on SSI prevention practice	0 (0.0)	60 (40.0)	90 (60.0)	1.40	.49154
2	Organized health talks for patients on prevention of patient related causes of SSIs	0 (0.0)	71 (47.3)	79 (52.7)	1.47	.50096
3	Health education for patients and families on effective method to reduce SSI	1 (0.7)	68 (45.3)	81 (54.0)	1.47	.51379
4	Health education information in leaflets and translated into local languages	0 (0.0)	61 (40.7)	89 (59.3)	1.41	.49286
5	Quality health information on SSI that prevents patients from seeking information from untrusted sources	0 (0.0)	71 (47.3)	79 (52.7)	1.47	.50096
6	Health information on SSI before surgery	6 (4.0)	64 (42.7)	80 (53.3)	1.51	.57634
7	Health information on SSI after surgery	6 (4.0)	66 (44.0)	78 (52.0)	1.52	.57603
8	Health information on SSI using social media	0 (0.0)	60 (40.0)	90 (60.0)	1.40	.49154
9	Health education for health workers on SSI prevention	0 (0.0)	57 (38.0)	(93) (62.0)	1.63	.48531
10	Hospital management sponsored training of health workers on latest technological advancement in SSI prevention	0 (0.00)	94 (62.7)	56 (37.3)	1.38	.48701

Table 2 showed that the health education strategies often adopted in hospitals in Ekiti State are health education for health workers on SSIs prevention (62.0%) and continuous health education of health workers on SSIs prevention practice (60%). These were closely followed by health education information on leaflets translated to local languages (59.3%). Also, about 38% to 62.7% of respondents indicated that all the education strategies are sometimes carried out in hospitals in Ekiti State, with 62.7% of the respondents indicating that hospital sponsored training for health workers was done sometimes in Ekiti hospitals. About 4% of the respondents indicated that all the health education strategies are never conducted for patients attending hospitals in Ekiti State.

The results of the analysis of the research questions showed that endogenous SSIs are very common in patients with underlying medical

conditions, and all the endogenous determinants are common among patients attending hospitals in Ekiti State. Exogenous SSIs are also very commonly experienced from bacteria flora on the hands of health workers as well as the use of unsterile surgical instruments. Health education for health workers on SSIs prevention and continuous health education of workers are the strategies often adopted in hospitals in Ekiti State.

Ho 1: Patients' personal hygiene will not be a significant determinant of surgical site infections

Table 3: Linear regression analysis of personal hygiene

Model	Unstandardized coefficient		Standardised Coefficient	T	P value
	B	Std Error	Beta		
(Constant) Personal hygiene	21.075 .468	.979 .085	.412	21.542 5.506	.000 .000

R=.412

R2=.170

Adjusted R2=.164

F=30.319

P value=.000

Table 3showed that an F value of 30.319 with P value of 0.000 table value is less than 0.05, when the sum of data on personal hygiene was statistically regressed against the sum of all the endogenous determinants of SSI at 0.05 level of significance. Hence the hypothesis which states that patients' personal hygiene will not be a significant determinant of SSIs was rejected. This is an indication that patients' personal hygiene is a significant determinant of SSIs. Table 3 further showed that 17% of the total variance in SSIs was attributable to patients' personal hygiene.

Ho2: Patients' underlying medical condition will not be a significant determinants of surgical site infections.

Table 4: Linear regression analysis of underlying medical conditions

Model	Unstandardized Coefficient		Standardized coefficient	T	P value
	B	Std. Error	Beta		
(constant) Underlying medical conditions	22.436 .311	1.416 .111	.224	15.842 2.801	.000 .006

R=.224

R2=.050

Adjusted R2=.044

F=7.845

P value=0.00

Table 4 showed that an F value of 7.845 with P value of 0.000 table value is less than 0.05, when the sum of data on underlying medical condition was statistically regressed against the sum of all the endogenous determinants of SSI at 0.05 level of significance. Hence the hypothesis which states that patients' underlying medical condition will not be a significant determinant of SSIs was rejected. This is an indication that patients' underlying medical condition is a significant determinant of SSIs. Table 4 further showed that 5% of the total variance in SSIs was attributable to patients' underlying medical conditions.

Discussion

The study examined the determinants of surgical site infections among patients attending hospitals in Ekiti State. The findings of the study were consistent with many findings of previous studies, though findings in some studies contradict the findings. The finding of this study showed that in Ekiti State, the most common endogenous or patient related determinant of SSIs is patients with underlying medical conditions 87(58.0%). Underlying medical conditions such as skin infections, diabetes, obesity, cancer, HIV/AIDS have been reported to be among endogenous determinants of surgical site infection.

The finding of this study supported the finding of Scotts and Wipe-Tevis (2001), which opined that medical underlying or diseases are risk factors for developing SSIs, also; Faraday, Elaina, Trish, Perl and Karen (2012) in their research finding submitted that people with a past history of just a single skin infection may be three times more likely to

develop a painful, costly and potentially deadly surgical site infection after surgery. The same type of bacteria that cause skin infections such as abscesses, impetigo or cellulitis, are the same types of bacteria known to cause wound infections in the operations that were studied. Although, the research does not establish a cause-and-effect relationship between a past skin infection and SSI but believes that the association between the two is strong and should not be ignored.

The findings revealed that poor nutritional status of patients is among the highest common determinants of SSI in patients attending hospitals in Ekiti State 65(45.3). Characteristics of abnormal nutrition include: obesity, underweight, malnutrition. The finding of this study is in agreement with earlier finding by Gunningberg et al (2008), that malnutrition has long been an increased risk for nosocomial infections including SSI as patients who are malnourished have been found to possess less competent immunity response to infection. The finding also supported the works of Alfargieny et al (2015), that malnourishment negatively affects normal immune function and often results in poor wound healing, placing the patient at risk for SSISs and poor post-operative outcomes.

The findings of the study revealed that patients' underlying medical condition is a significant determinant of SSIs. Underlying medical conditions that may be risk factors in surgery include: diabetes, skin infections, obesity, cancer, HIV/AIDS. The study supported the earlier finding by Everhart, Alteau and Calhoun (2013) that multiple patient comorbidities have been identified as SSIs risk factors including obesity, tobacco use, diabetes, immunosuppression, malnutrition and coagulopathy. Also supported by this study is the finding of Martin, Kaye, Knott, Nguyen, Santarossa, Evans, Betran and Jaber (2015) that diabetic patients are at a considerable risk for developing SSIs while undergoing most types of surgeries compared to non-diabetic patients.

Conclusion and Recommendations

The study investigated the endogenous determinants of SSI among patients attending hospitals in Ekiti State. Based on the data collected and analysed, it is necessary to conclude that patients' underlying medical condition isthe most commonly experienced endogenous determinant of SSI in Ekiti State.The study further showed that poor personal hygiene practices among patients attending

hospitals in Ekiti State is also very significantly high compared with other endogenous or patient related factors,this may not be unconnected with the prevailing socio-economic factors, ignorance, tradition, superstitious beliefs, and poor attitude towards early utilization of medico-surgical care. In addition, the findings of the study showed that the health education strategies often adopted in hospitals in Ekiti State are health education for health workers on SSI prevention practices. These findings are strong indications of the need for management of hospitals to give priority to the prevention of patient related causes of SSI, by ensuring treatment of underlying medical disease and putting emphasis on the need for healthful living habits. It is therefore recommended that more efforts should be put in place by governments, health agencies, community, family and individuals towards the prevention of diseases that can complicate surgeries and cause SSI, also, preventive health education should not be limited to the training of health workers, rather, consideration must be given to health education for patients and their family.

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IMPACT OF FOX EQUATION ON MAXIMUM OXYGEN INTAKE (VO₂ MAX) OF STUDENTS DURING RECOVERY AFTER EXERCISE

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Abstract

This study investigated the maximum oxygen consumption of students of the Human Kinetics and Health Education Department, University of Port Harcourt, using the equation (VO₂ Max = 6.3- 00.193 ×HR sub). It went on to compare the values of male and female and the relationship of VO₂ max to anthropometric measurement. The Harvard step test was used and the subject was required to perform for a period of two months. Seven males and seven females were used for the study. Most of the students were found to have low VO2 max levels while there was no significant difference between the scores for the males and females. Based on these, the Human Kinetic Department was advice to place athletes under the sane level of training as far as workload is concerned.

Keywords: Impact, Fox Equation, Maximum Oxygen, Step Test, Exercise

Introduction

The central component of physical activities is that it implies to large muscle (body) movement, intensity, duration and frequency are attributes used to characterize physical activity (Ogunleye & Onuoha, 2017). While other attributes such as the setting for physical activity, describe the context in which the activity occurs. The diverse setting for physical activity include household and domestics physical activity including vigorous housework and gardening, which may confer some health benefits (Ogunleye & Nwadibia, 2018).

Some specific anthropometrics measurements are necessary for athletic performance (Agbojinmi, 1995). It is common practices among athletic than their male to give lesser workloads to female athletes than their same counterparts despite the fact that they engage in the same event.

Oduyale (1998) has shown that thigh muscle girth was found to correlate positively with VO₂ Max (Ajiduah, 1996; Agbojinmi and Amusa 1995) and leg mechanical power in standing broad jump performance. Oduyale 1998 again stated that training workloads are also accompanied by longer recovery periods due to physiological status.

On the other hand, coaches may have knowledge of physiological principles and

physical differences in both sexes; a fundamental principles similar physiological response in different sexes.

The previous researches conducted to determine the physical structure in relation to performance proved that individual constituted no decisive bearing on performance in given a field of sport (Agbojinmi, 1995). While Igbanigo (2006) said the capacity of an individual to perform his normal daily tasks without undue fatigue and with enough strength energy left over to satisfactorily meet with any emergency situation that calls for physical exertion. Emiola (2007) sees Fox equation in determining components of physical fitness. He explained that the components of physical fitness can be grouped into two, health-related components of physical fitness and skill-related components of physical fitness.

This study would update the already established knowledge stated above and look at the application of fox equation to determine physiological response in the recovery heart rate and VO_2 to determine physical fitness status through physiological parameters.

The purpose of this study was to ascertain the use of fox equation to determine the maximum oxygen intake (VO_2 max) of Physical and Health Education student of University of Port Harcourt, during the recovery period after exercise.

Hypotheses

1. There is no significant different in the resting pulse rate of both male and female subjects.
2. There is no significant different in the recovery pulse rate of both male and female subjects.
3. There is no significant different in maximum oxygen consumption (VO_2 max) of both male and female subject.
4. There is no correlation between maximum oxygen consumption (VO_2 max) and anthropometric measurement.

Methods

The fourteen subjects (seven males and females) used in this study were all Human Kinetic and Health Education students of University of Port Harcourt. They were randomly chosen and the consent of the Head of Department was sought for the use of the students and the gymnasium. All the subjects were informed about the nature of the test in which they will be required to participate. Informed consent was secured from all of them after the test protocol has been explained. The research design adopted

was the experimental research design that was for the study.

On arrival for the test, each subject was made to settle down for body measurement and that of pre-test (resting) pulse rate. The pulse rate was obtained by simple palpation of the radial artery at the wrist of the right hand. This was taken for one minute.

Two branches, fifty centimeters (50cm) and fifty-eight centimeters (58cm) were provided for the Harvard step test for both female and males respectively.

Each of the subjects was made to step up and down the bench continuously for a period of two minutes. At the expiration of the exercise period, the pulse rate was immediately taken for the recovery period. The pulse rate was monitored by the investigators while the recording was going on. The test was administered between the hours of 6.00am-8.00am to avoid any other physical education (practical) class.

The correlation coefficient was used to determine the relationships between the anthropometric measurement taken and the recovery heart rate of both males and females. The mean and standard deviation of the recorded pulse rate were obtained for two groups of subject.

The t-test was used to compare the means obtained for two groups in order to determine whether there would be any significant difference in pulse rate of the male and female subject before and after exercise session.

Discussion

A close study of table 1 shows that there were differences in the recorded values of the body measurement obtained for both male and female subjects. The mean score for male is 134.2 and standard deviation of 11.6 while the score of female is 136.5 and the standard deviation of 11.7 the differences between these values are statistically significant.

Table 1: body measurement of male and female HKE students

	MALES			FEMALES		
S/N	NTG	MTG	CALF	UTG	MTG	CALF
1	54	53	32	49	48	36
2	53	47	30	52	53	35
3	52	52	34	50	50	35
4	47	46	31	51	47	34
5	48	47	30	56	56	36
6	56	57	37	54	52	36
7	51	51	34	46	48	34

	MALES	FEMALES
Mean	134.2	136.6
Std. Deviation	11.6	11.7

Keys

UTG – Upper Thigh Girth

MTG – Middle Thigh Girth

Table 2 shows the rest and recovery pulse with their means and standard deviations. It showed that few of the subjects resting rates came close to mean resting rates, which were84.5 and 75.4 respectively. When compared to the mean recovery pulse rate 101.2 for males and 59.8 for females, it was discovered that there is much significance difference. The standard deviations for the two groups are 10.1 for the males and 7.8 for the females.

Table 2: Rest and Recovery Pulse Rate of Subjects

	MALES		FEMALES	
S/N	RHR	RCHR	RHE	RCHR
1	82	114	76	68
2	94	65	60	58
3	64	126	70	52
4	86	94	84	62
5	90	134	76	56
6	74	162	72	60
7	100	78	90	62
TOTAL	592	708	528	418
X	84.5	101.14	75.4	59.71
SD	9.19	10.05	8.68	7.72

Key

RHR – Resting Heart Rate

RHR – Recovery Heart Rate

X -   Mean

SD -   Standard Deviation

Table 3: Predicted Maximum Oxygen Intake (Vo₂ Max) of the Male and Female Subjects with the Use of Fox Equation

S/N	VO$_2$ MAX (MALE)	VO$_2$ MAX (FEMALE)
1	4.099U/min	4.987U/min
2	5.026	5.180U/min
3	3.868	5.290
4	4.485	5.103
5	3.713	5.219
6	3.173	5.142
7	4.794	5.103
TOTAL	29.165	36.021
X	4.165	5.146
SD	2.04	2.27

Table 3 shows that the mean for males was 4.17 and the standard deviation of 2.04 while the female have a mean VO$_2$ max score of 5.14 and standard deviation of 2.27. The difference between these values are statistically significant.

Table 4 and 5 indicated the relationship between the variables and their t- score to ascertain if there are any significant difference. The body measurement in relations to VO$_2$ max has a value of 0.016.

Result of t-test indicated that there is only a slight difference between male and female subject.

Table 4: Correlation and Variables Measured in both Male and Female Subject

VARIABLES COMPARED	PPMC	INTERPRETATION
Body measurement male /female	0.90	Highly positive
Body measurement/VO$_2$ max (Male)	0.68	Slightly positive
Body measurement/VO$_2$ max (Female)	0.66	Slightly positive

In the correlation of both male and female subjects, it was indicated that body measurement of male and female was 0.96 showing a high level of correction when compared to VO$_2$ max of male and female with 0.68 and 0.66 indicating slightly positive correlation as an indices of determining their level of fitness.

Table 5: t-test values of all variables Measured in both Males and Females

VARIABLE	MALE					
	X	SD	t-test	X	SD	t-test
	134.2	11.6	11.5	136.5	11.7	11.7
	84.5	9.2	9.1	75.4	8.7	8.6
	101.2	10.1	10	59.8	7.8	7.6
	4.16	2.1	2.03	5.15	2.3	2.2

In comparing the mean recovery heart rates of the male and female subject, the male recorded a relatively higher values at the time space of two minutes compared to oduyale's (1988) findings of females scoring higher. The result however does not show much difference between the recovery pulse rate and the resting pulse rate of all the subjects.

VO$_2$ max has often been used as a determinant of one's level of physical fitness (Chado,1990) and has been used by coaches and athletic trainers over the years (Ayodabo,1990).

In their study on VO$_2$ max in both male and female subjects, Astrand (1960), Oduyale (1988), Ayodabo (1990) and Agbojinmi (1995) concluded that both male and female athletes could be placed under the training conditions because previous studies had shown only slight differences.

Oduyale (1988) and Kaplan (1988) found that resting heart rate in adult females averages about ten beats faster than their male counterparts under any given set of conditions. High altitude study done by Hannon (1996) comparing male and female acclimatization process indicated that few weeks of exposure, the female subjects exhausted a slightly grater trachycardia than the males of any given period of exposure. In this study, the reverse is the case as result obtained on the subject on their VO$_2$ max was slightly positive. Amusa and Igbanugo (1990) produced similar physiological responses. This principle highly buttressed the study compared to Oduyale's (1988) study as they all exhibited the same pattern of recovery after exercise. Further explained, a smaller heart would need grater efforts to pumps out blood, more so when it is given a very exerting work to do. Thus, in order to meet up with the demand of the body's tissues for nutrients and oxygen, it needs to be faster.

Conclusion

From this study, the following conclusions could be drawn:

The physiological response in terms of pulse rate of both groups of subjects to exercise is similar. As a result, a well-trained female athlete can withstand the same level of stress with her trained male counterpart.

The maximum oxygen consumption of most of the subjects was also found to be below values given by Chado (1990). This could be due to the fact that students have just returned from break and might not have had active lives while on break.

Recommendations

This study found out that 55 percent of students had loss level of VO_2 max in comparison to standard measures as compared to Chado (1990). To improve on this therefore, the KHE Department is advised to give the students enough aerobic exercise during practical lessons, which could help improve their situation. Even though there are slight differences in VO_2 max between male and female subjects, it is advisable that coaches and trainers place both male and female athlete under the same training condition for maximum training effects.

In the choice of athletes for event that require a good state of fitness, anthropometric measurement should be taken into consideration since they have found to relate positively to VO_2 max. This will go a long way in improving their performances.

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LEARNING FACILITIES AND THE TEACHING OF SCIENCE TOWARDS SUSTAINABLE DEVELOPMENT IN EKITI STATE

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Abstract
Education plays a crucial role in the development of a nation. The socio-political and economic development of a nation is in many ways determined by the quality and level of educational attainment of the citizens. It is upon this background that this study investigated learning facilities and the teaching of science in Ekiti State. The study adopted descriptive design of the survey type. The population consisted of Biology, Chemistry and Physics teachers in Ekiti State. 300 teachers teaching these three core science subjects were selected using multistage sampling procedure .The instrument used was a questionnaire tagged 'The leaning facilities for the teaching of science questionnaire'. It was used to seek information whether the teaching facilities are enough for effective teaching and are well utilized by the teachers. The instrument was validated by experienced science teachers and their corrections were implemented. A reliability coefficient of 0.81 was obtained using test retest method. Two research questions were raised. The data generated were analyzed using descriptive analysis of frequency counts and percentages.The result of the finding showed that the facilities are not adequate enough to support teaching of science subjects. Also, it was revealed that the few facilities available were not utilized regularly by the science teachers due to paucity of power supply. It was recommended that the government should provide enough teaching facilities to the school. Also, teachers should be encouraged by organizing workshop on how to utilize the available facilities for effective teaching.

Key Words: Learning facilities, Teaching, Science, Sustainable development

Introduction

The teaching of science in Nigeria commenced in 1859 with nature study, this later expanded to Physics, Chemistry and Biology. Science has developed into one of the greatest and most influential field of human endeavour in resolving human problems. The application of knowledge, productive skill and sustainable technological development in Nigeria are achieved through meaningful science education. For instance, Badejo (2016) believed that one of the values which exact a nation is education. It is the only legacy a parent can bequeath to a child, which will continue to be with the child forever. As Nelson Mandela once said that Education is the most powerful weapon which can be used to change the world.

Education is the bedrock of modern civilization.

Education has been confirmed as the vehicle for the socio-economic and technological advancement of any people all over the world. Okumu (2008) believed that education is a fundamental human right as well as a catalyst for economic growth and human development. Education plays significant roles in the lives of individuals as well as nations through individual skills, competencies and attitude. Education also contributes to national development through provision of an appropriate human resources that helps to stimulate productivity and eliminate hunger, poverty, diseases and ignorance.

Education is critical for promoting sustainable development and improving the capacity of the people in order to address environmental and developmental issues. Education for sustainable development empowers people to change the way they think and work towards a sustainable future. It also allows every human being to acquire the knowledge, skill, attitude and values necessary to stage a sustainable future. Sustainable development is the organizing principle for meeting human developmental goals while at the same time sustaining the ability of natural systems to provide natural resources. Also, it is a development that meets the needs of the present without compromising future exploitations. Sustainable development has many criteria such as social (e.g growth of public participation and awareness), economy (e.g growth of annual income) and the most important, environment (e.g growth of facilities / infrastructure and ecological management). A teaching approach that centers on the teacher, making the students passive is bad for science teaching and learning .Such approach will soon kills the interest of students in the subject. Biehle (2008) opined that school facilities affect teachers' recruitment, retention, commitment, and effort with respect to students' behavior, engagement, learning and growth in achievement. Thus, facilities quality is an important prediction of teachers' retention and students' learning. Owoeye (2000) submitted a positive relationship between school facilities and school effectiveness. In the same vein, Ahunaya and Ubadudu (2006) supported the provision of adequate facilities for effective teaching and learning in the schools.

Buckley, Schneider and Shang (2004) supported that where facilities and resources are available a qualified and motivated science teacher will deploy methods that center on the learners. Such an approach emphasizes practical activities

and has the pupils' experimenting, solving problems, discussing with each other and involved in practical hands – on activities. This approach stimulates curiosity, imagination and critical thinking, thus, improve the performance of the students. Lewin (2000) believed that availability of science laboratory is not a guarantee of students' performance until both the student and teachers actually use science laboratory facilities effectively without any hindrance. Infrastructural facilities could lead to poor learning outcome due to poor learning environment. Ayeni (2014) submitted that schools with adequate and well equipped laboratory have better results in the certificate examinations than those that are ill-equipped.

School libraries are considered as one of the most important resources within educational facilities. A growing body of research found that school facilities affect health, behavior, engagement, learning, and growth in achievement. Thus, research generally concluded that without adequate facilities and resource, it is extremely difficult to serve large number of children with complex needs. Harold (2015) was disturbed with persistent complaints from academics about rundown facilities, ill-equipped (or unequipped) laboratories and lack of inadequate funds. Chuckuemeka (2008) examined the efficiency of

utilization of laboratory facilities during teaching Basic science and reported a significant influence on the students learning outcome. The researchers observed that many science teachers did not utilize or manage the unique environment of school laboratory effectively because practical activities cannot be possible without the basic apparatus and the necessary equipment which are not readily available in most of the schools.

Science students need to interact with the facilities in order to have real information about the concepts of science. The researcher found out that the use of laboratory equipments facilitates the teaching and learning of science subjects, inculcates scientific reasoning and enhances academic performance in the subject.

Statement of the Problem

It is unfortunate that education has not really been accorded the priority it deserves despite the fact that section 18 of 1999 constitution stipulates that government should direct its policy towards ensuring that there is equal and adequate educational opportunities at all levels. It also stipulates that government should promote science and technology, and strive to eradicate illiteracy.

Unfortunately, public schools are not what they are supposed to be; anyone with even recent knowledge of what obtains in public school and how things should run would agree that all is not well with the Nigerian educational sector. When funding is grossly inadequate, as it currently is, there is progressive deterioration of infrastructure, with persistence complaints from both teachers and students about rundown facilities and ill-equipped (or unequipped) laboratories. It appears all these could be responsible for low performance in the final examination by science students in public secondary school as observed by the researcher.

Purpose of the Study

The purpose of the study is to examine whether learning facilities are enough to support effective teaching for science towards sustainable development in Ekiti state .Also to find out if the available facilities are well utilized to enhance leaning.

Research Questions

The following research questions were raised for the study:

1. Are there enough facilities for teaching science in senior secondary schools in Ekiti State?

2. Are the facilities available well utilized by the science teachersin senior secondary schools in Ekiti State?

Methods

The study employed descriptive research design of the survey type. The population of the study consisted of all science teachers in secondary schools in Ekiti State, out of which 300 science teachers were sampled across the three senatorial districts in the state using multistage sampling procedure. The first stage involved random selection of 5 Local Government areas from the three senatorial districts. This was followed by selection of 5 schools from each Local Government area using simple random sampling technique. All the teachers of Physics, Chemistry and Biology in selected schools were included in the study.

The research instrument employed for the study was a questionnaire titled "The learning facilities for the teaching of science questionnaires" (LFTSQ). It sought information that confirms whether the teaching facilities are enough for effective teaching and if they are well utilized by the teachers. The instrument was validated by experience science teachers who are WAEC and NECO

examiners. The reliability of the instrument was ensured by using test retest method using Pearson Product Moment Correlation. The reliability coefficient of 0.81 was obtained. The data obtained were analyzed using frequency count and percentage score.

Results

Research Question 1:

Are there enough facilities for teaching science in secondary schools in Ekiti State?

In order to answer the question, frequency counts and percentage were used to analyze the responses on the items below.

Table 1: Adequacy of facilities for teaching science in secondary schools in Ekiti State.

SN	ITEMS	YES	%	NO	%
1.	There are separate laboratory for science subjects in the school.	43	14.3	257	85.7
2.	There are enough laboratory equipment for teaching in the school.	62	20.7	238	79.3
3.	There are enough books in the school library	81	27.0	219	73.0
4.	There are enough ICT centre in the school.	21	7.00	279	93.0
5	There are enough internet service in the school.	18	6.00	282	94.0
6	The classrooms are enough for teaching	143	47.7	157	52.3
7	There are enough furniture for teachers	148	49.3	152	50.7
8	There are enough instructional materials for teaching science subject	80	26.7	220	73.3
9	There are enough white boards for teaching	91	30.3	209	69.7
10	There are enough entrepreneurship facilities for the teaching.	16	5.33	284	94.7
	Average		23.4		76.6

Table 1 shows that 14.3% of the respondents indicated that there are separate laboratory for science subject, 20.7% believed that there are enough laboratory equipment for teaching science while 27.0% of the respondents indicated that there are enough books in the school library, 7.00% believed that there are

enough ICT centre in the school. The table also showed that 6.0% of the respondents agreed that there are enough internet service in the school, 47.7% indicated that the classrooms are enough for teaching while 49.3% agreed that there are enough furniture for the teachers. 26.7% reported that there are enough instructional

materials for teaching, 30.3% agreed that there are enough white boards for teaching while 5.33% indicated that there are enough entrepreneurship facilities for teaching.

It was indicated on the average that 23.4% agreed that science teaching facilities are enough which indicate that teaching facilities for teaching science

subjects are not enough to enhance effective teaching that can bring positive changes on the student performance.

Research Question 2:

Are the available facilities well utilized by the science teachers in secondary schools in Ekiti State?

Table 2: Utilization of facilities by Science Teachers in Ekiti State.

S/N	ITEMS	YES	%	NO	%
1.	Do you prefer to use classroom for teaching?	147	49.0	153	51.0
2.	Are you using separate laboratories for each science subject?	47	15.7	253	84.3
3.	Do you visit library for teaching aids to assist in your teaching?	93	31.0	207	69.0
4.	Does the location of the library discourage you from going there?	63	21.0	237	79.0
5.	Do you teach your students with instructional materials?	102	34.0	198	66.0
6.	Do you agree that using instructional materials will make your work fast?	152	50.7	148	49.3
7.	Do you agree that inadequate practical sessions in science affects your students' performance	151	50.3	149	49.7
8.	Do you prefer to write note on white board than black board?	87	29.0	213	71.0
9.	Do you use ICT gadget to teach your students?	25	8.33	275	91.7
10.	Does the quantity of the equipment encourage you to teach	72	24.0	228	76.0
	Average		31.1		68.8

The table showed that 31.1% of the respondents indicated that they utilized the learning facilities while 68.8% do not utilize the facilities available as expected by the teachers.

Discussion

The findings show that in most schools, there were no separate laboratories for science subjects, no adequate laboratory equipment while most of the libraries are without books and teaching aids. Also, 91.7% do not have ICT centres talk less of having access to internet service. This indicates that the facilities are not enough for meaningful teaching of science. This is in line with Harold (2015) who expressed in his study that the persistent complaints from academics about rundown facilities, ill-equipped (or unequipped) laboratories and lack of adequate funds. We are in the era of ICT. This has made a wealth of knowledge readily available and easy to access. Ultimately, this helps facilitate rapid development in regards to the social, economic and environmental issues. This can be achieved through surfing of internet with the use of ICT gadget available within their reach, implementing ICT gadgets in our workplace, schools and residence. Also, Ayeni (2014) submitted that schools with adequate and well equipped laboratories have better results in the certificate examination than those that are ill-equipped. Ahunanya and Ubadudu (2006) supported the position of adequate facilities for effective teaching and learning to take place. The development of various education facilities contributes substantially to the development of the nation.

The finding also shows that the facilities are not well utilized by the teacher. This is supported by Okonkwo (2013) who observed that many science teachers do not utilize or managed the unique environment of the school laboratory effectively because practical cannot be possible without the use of basic apparatus and necessary equipment.

Conclusion and Recommendations

Based on the findings of the study, it was concluded that the learning facilities of the teaching science are not enough as expected by the researcher. Also, it was concluded that the available facilities were not utilized by the teachers for meaningful teaching of science. It was therefore recommended that government should provide enough facilities for the teaching of science in schools. In addition, teachers should be encouraged by the government through organizing workshop and

seminars on how to use learning facilities for effective teachings.

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MEDICAL HISTORY, PHYSICAL EXAMINATION AS A RECIPE FOR SUSTAINABLE HEALTHY LIVING

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Abstract
The paper examined the physical fitness testing techniques and the various methods used for pretest screening as recipe for sustainable healthy living. There is an increase in sudden death among Nigerians, due to sedentary lifestyle or inactivity. Automation and cybernation have not only reduced the work week for many, but have also greatly reduced muscular work in many Nigerians with the use of automobiles and engaging in sedentary recreational activities. This prevented man from not satisfying his biological needs for physical activity; therefore, the need for this physical fitness testing in order to prevent sudden death. The paper spelt out the purposes of the pre-participation in health screening as to identify individuals with medical contraindications to exercise, disease symptoms, risk factors and special needs, and concludes that the health screening procedures should be valid, cost-effective and time-efficient in order to prevent sudden death. The paper recommends that all sedentary persons should receive medical clearance prior to becoming more active, begin with a moderate exercise programme and testing should be performed by American College of Sports Medicine certified personnel.

Keywords: Informed consent, Medical history, Physical examination, Physical fitness testing.

Introduction

The individual must be physically, mentally, socially and emotionally fit in order to be able to perform activities of daily living such as bathing, dressing, eating, self-care, toileting, typing, carrying, walking and other manipulating skills. Health is wealth, without good health, the individual cannot live an active life, talk less of sustainability. Many people in this millennium live a sedentary way of life due to the use of machines which prevented them from making use of their body for most of the activities of daily living.

Physical fitness is the ability to meet the ordinary as well as the unusual demands of daily life safely and effectively without being overly fatigued and still have energy left for leisure and recreational activities. Physical fitness is classified into health-related fitness, skill-

related and physiologic fitness components. These components contribute to an individual's overall level of fitness. In terms of general health promotion and wellness, the main emphasis of physical fitness programmes should be on the health-related components. (Hoeger & Hoeger, 2007).

Hahn, Teutsch, Paffenbarger and Marks (1990), Hoeger and Hoeger (2007) stated the benefits of regular physical activity, as improvement in cardiorespiratory function, reduction in Coronary Artery disease risk factors, decreased mortality and morbidity, decreased anxiety and depression, enhance feelings of wellbeing and enhanced performance of work, recreational and sport activities. To corroborate this Elizabeth and Linda (2016) opined that participation in regular physical activity associated with a multitude of benefits including reduction in chronic disease and premature mortality and improved quality of life.

Automation and cybernation have not only reduced the work week for many, but have also greatly reduced muscular work in many Nigerians. With television. Radio, movies and other sedentary recreational activities, and the wide use of automobiles with power steering, "push button" windows and seats in automobiles,

man is not satisfying his biological need for physical activity. Illness and death from degenerative diseases are increasing. Automation also reduces the pride and satisfaction man takes in his work, and the population explosion, increased urbanization and growing population limit the freedom and enjoyment of his leisure time.

The purpose of the pre-exercise screening is to prevent sudden death. Sudden cardiac death is an unexpected natural death from cardiac cause with 1 hour of the onset of symptoms (Zypes, 1998).

The causes of sudden death as identified by Bagnall (2016) were coronary artery disease (especially in the 30-35 years of age) and cardiomyopathies. In their own findings, Finacchiaro, Papadakis and Robertus (2016) through autopsy identified the causes of sudden death as coronary artery disease, idiophatic interstitial fibrosis or hypertrophy and genetic factors. Booth and Kohl (2016) submitted that physical inactivity and chronic diseases caused sudden death.

To prevent sudden death, there is need for regular exercise for the prevention of chronic diseases and maintenance of a healthy lifestyle and longevity. To achieve this there is need for

health screening 'wellness check' before taking part in physical activities.

Preliminary health screening information from medical and physical examination is a sine qua non in the assessment of clients physical fitness profile. This information is important for the classification of person's health status and lifestyle. The information gathered from the initial health and lifestyle evaluations help in screening clients for physical fitness testing, identifying individuals with medical contraindications to exercise with disease symptoms and risk factors and identifying individuals with special needs.

Purpose of the study

The purpose of the study is to determine client's readiness for physical activity and to review client's past and present personal and family health history focusing on conditions requiring medical referral and clearance for sustainable healthy living.

Statement of the problem

There is prevalence of sudden death due to cardiac arrest among the citizens in Nigeria. The widespread is due to failure of most Nigerians to address health issues at the appropriate time before it aggravates to uncontrollable conditions.

They fail to do regular medical checkup at least once a year as recommended by American College of Sports Medicine (ACSM, 1995). This failure makes early diagnosis of chronic cardiovascular diseases like diabetes mellitus, hyperlipidemia and hypertension impossible.

Other factors that may cause sudden death without prior medical examinations includes sedentary lifestyle, inactivity and the use of automobiles which reduces performance of activities of daily living. Early detection of the diseases through Medical history, Physical Activity Readiness Questionnaire (PAR-Q) and other medical examination before the diseases become uncontrollable will prevent sudden death among Nigerians.

Health screening for physical activity

Health Screening for physical activity as opined by American college of sports medicine (ACSM, 1995) is to optimize safety during exercise testing and participation, and to permit the development of a sound and effective exercise prescription, initial screening of participants relative to important health factors is necessary for both the apparently and those with chronic disease. ACSM also spelt out the purposes of the pre-participation in health screening as:

1. Identification and exclusion of individuals with medical contraindications to exercise

2. Identification of individuals with disease symptoms and risk factors for disease development who should receive medical evaluation before starting an exercise programme.

3. Identification of persons with clinically significant disease considerations who should participate in a medically supervised exercise programme.

4. Identification of individuals with other special needs.

In their own submission, Brian, Brian and Gregory (2017) identified the purpose of an annual physical examination also known as "Wellness Check"as a test to determine the general status of someone's health, this test should be carried out by Primary Care Provider (PCP) or certified ACSM personnel which could be a medical doctor, a nurse practitioner, or a physician assistant. During the examination, the clients are free to talk to the PCP or ACSM certified personnel about any ongoing pain or symptoms that the clients are experiencing or any other health concerns that they might have. Brian, Brian and Gregory

(2017) recommended that a physical examination should be carried out at least once a year, especially in people over the age of 50. These examinations are used to;

1. Check for possible diseases so they can be treated early

2. Identify any issues that may become medical concerns in the future

3. Update concerns in the future

4. Update necessary immunizations

5. Ensure that a healthy diet and exercise routine are maintained

6. Check cholesterol, blood pressure and blood sugar levels

7. Build a relationship with the Primary Care Provider (PCP). So that these conditions can be treated before they become severe.

The health screening procedures should be valid, cost-effective and time-efficient. Procedures range from self-administered questionnaires to sophisticated diagnostic tests. The Physical Activity Readiness Questionnaire (PAR-Q) (Thomas, 1992) has been recommended as a minimal standard for entry into low-to-moderate intensity exercise programme.

Physical Activity Readiness Questionnaire (PAR-Q)

PAR-Q is a questionnaire for people aged 15 to 69. To determine a client's readiness for physical activity. It was designed to identify individuals as having lower or higher risk. Higher risk individuals were required to obtain medical exercise clearance prior to enrolment for physical activity (Thomas, Reading & Shepherd, 1992).

Table 1: Physical Activity Readiness Questionnaire (PAR-Q) for assessing readiness for physical activity.

S/N		YES	NO
1.	Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by a doctor?		
2.	Do you feel pain in your chest when you do a physical activity?		
3.	In the past month, have you had chest pain when you were no doing physical activity?		
4.	Do you lose your balance because of dizziness or do you ever lose consciousness?		
5.	Do you have a bone or joint problem that could be made worse by a change in your physical activity?		
6.	Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition?		
7.	Do you know of any other reason why you should not do physical activity?		

Table 1 shows the PAR-Q, has seven questions designed to identify individuals who need medical clearance from their physician before taking any physical fitness tests or starting an exercise programme. If client answered 'Yes' to one or more of the questions, they are referred to their physician to obtain medical clearance before engaging in physical activity.

When the medical clearance is obtained, clients are advised to start the activity slowly and gradually increase the intensity of the activity (principle of progressive overload), in order to prevent the clients from being injured. Clients are also advised to restrict their activities to the ones that are safe for them, they are encouraged to find out which community programmes are safe and helpful for them.

If clients answered 'No' to all PAR-Q questions honestly, it means the clients are fit to engage in physical activities bearing the principle of progressive overload in mind, starting the activities slowly and gradually increase the intensity of the activities until the activities can be effectively performed and fitness level achieved.

Table 2: Informed Consent for PAR-Q

I have read, understoodand completed this questionnaire. Any questions I had were answered to my full satisfaction

NAME_____

SIGNATURE_____   DATE _____

SIGNATURE OF PATIENT _____   WITNESS_____
OR GUARDIAN (for participants under the age of majority)

Source: *ACSM Guidelines (1995)*

Table 2 shows the informed consent given to the client before participating in physical activities programme or a fitness appraisal. It is used for legal or administrative purpose in case a client is injured when performing the activities, this serves as insurance cover for the trainer. Clients are advised not to take part in physical activity if they are not feeling well because of a temporary illness such as a cold or fever. They are advised to wait until they feel better before they can take part in the activities. Clients that are pregnant should obtain medical clearance from a doctor before engaging in physical activities.

Preparation for Physical Examination

The Client should make appointment with the Primary Care Provider (PCP) and gather the following paperwork before the physical examination:

1. List of current medications taken, including over the counter drugs and any herbal supplements.
2. List of any symptoms or pain experienced by the client.
3. Results from any recent or relevant tests
4. Medical and surgical history.
5. Names and contact information for other doctors the client has seen recently.
6. A copy of front and back of an implanted device such as a pacemaker or defibrillator.
7. Any additional questions the client would like to be answered.

The client should dress in comfortable clothing that would allow the Primary Care Provider (PCP) to perform

full examination of the clients' body (Brian, et al, 2017).

Pre-test Evaluation

Medical History: The pretest medical history should be carried out thoroughly. This should include remote and recent past history on the following components of the medical history: medical diagnoses, previous physical examination findings, history of symptoms, recent illness, hospitalization, or surgical procedures, orthopedic problems, medical use and drug allergies, other habits, exercise history, work history and family history (ACSM guidelines, 1995).

Physical Examination: Preliminary Physical examination should be performed by the attending physician or other qualified personnel prior to others on the following components of the Physical Examination:

1. Body weight in some instances, determination of body composition (percent body fat) may also be desirable

2. Pulse rate and regularity

3. Resting blood pressure, supine and standing

4. Auscultation of the lungs with specific attention to uniformity of breath sounds in all areas (absence of rales, wheezes, and other breathing sounds)

5. Palpation of the cardiac apical impulse

6. Auscultation of the heart with specific attention to murmurs, gallops, clicks, and rubs

7. Palpation and auscultation of carotid, abdominal, and femoral arteries

8. Palpation and inspection of lower extremities for edema and presence of arterial pulses

9. Absence or presence of xanthoma and xanthelasma

10. Follow-up examination related to orthopedic or other medical conditions which would limit exercise testing

11. Tests of neurological function, including reflexes

Source: ACSM Guidelines (1995)

Administration of Physical Examination

Prior to meeting the primary care Provider, a nurse will ask series of questions on Physical Activity Readiness Questionnaire (PAR-Q), Medical history and Physical examination, the answer to the questions will determine the action to

be taken by the PCP. The Primary Care provider starts the examination by inspecting the patient's body for unusual marks on growths. Feeling the patient's abdomen and other parts of the body for consistency, location,size, tenderness, and texture of the patients' individual organs. The examination can be done in standing, sitting or lying positions.

The PCP will use a stethoscope to listen to the various partsof the body like the heart to make sure no abnormal sound and that the heart rhythm is okay. The PCP also used a percussion technique to discover fluid in areas where it should not be, as well as locate the borders, consistency, and size of organs. Other parts of the body checked by the PCP are the height, weight and pulse rate. When the patient is being certified fit, he or she can take part in physical activities.

Conclusion

The study observed that there is need for physical fitness testing before engaging in physical activities in order to determine the fitness status of the individual prior to exercise. Physical fitness testing is used to determine the fitness status of the individual. After being certified fit to take part in exercises, engaging in moderate intensity exercises 2 to 3 times a week enhances the fitness

level of the individual. Regular medical examination is a sine qua non in the prevention of the cardiovascular diseases so that man can do activities of daily living, which promotes sustainable healthy living. Prescribing the type of exercise most suitable for the fitness status of the individual will prevent sudden death.

Recommendations

1. Patients should do physical exercises of moderate intensity 2 to 3 times a week after being certified fit by a medical personnel

2. There should be health status check up once in a year, with the use of simplest methods of medical checkup on blood pressure and Body mass index.

3. Patients should participate in structured exercise and patient education (based on physician referral and conscientious of the rehabilitation team).

4. Patients should not take part in physical activity when the systolic blood pressure is >200mmHg or resting diastolic blood pressure >110mmHg where there is a drop in blood pressure (>20mmHg with symptoms) when there is uncontrolled sinus tachycardia (>120 beats/min) when there is

uncontrolled diabetes (resting blood glucose >400mg/dl).

5. Patients should engage in activity counseling and family education.

6. Patients should engage in self-care activities, arm and legs range of motion movement and other low-resistance activities. The posture in which activities should be performed should progress from lying to sitting to standing.

7. Dosage of exercise to be given should be based on medical history, clinical status and symptoms

8. Intensity, duration, frequency and progression of exercise should be considered for the patients.

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DETERMINANTS OF MARITAL INSTABILITY AMONG MARRIED WOMEN IN SOUTHWEST, NIGERIA

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Abstract
Marital instability has become an issue of concern in Nigeria. Most marriages have been under serious threat of disintegration. It is against this background that the study examined the determinants of marital instability among married women in Southwest, Nigeria. It determined the prevalence, level of marital instability and impacts on married women. The descriptive research design of the survey type was adopted for the study. The population consisted of married women in Government Ministries and Departments, Public Secondary Schools, and Local Government secretariat offices in Southwest, Nigeria. The sample for this study consisted of 1,703 married women selected through multi-stage sampling procedures. A self-developed questionnaire tagged Marital Instability Questionnaire (MIQ) was used to collect data for the study. The instrument was validated and a reliability co-efficient of 0.83 was obtained through Cronbach Alpha method. Data collected were analysed using descriptive statistics such as percentages and mean scores. The findings revealed that the most prevalent forms of marital instability experienced by married women included lack of sexual satisfaction, views not respected, lack of care for children and fighting. It further revealed that the level of marital instability among married women was moderate. The finding also showed that in-law interference and childlessness influenced marital instability while cultural belief, age difference at marriage and religion were not factors that determined marital instability among married women. It was recommended that married women should be encouraged to utilize the services of health educators, marriage counselors and office of the public defender for proper guidance.

Keywords: Marital, Instability, Determinant, Socio-cultural, Prevalence, Implication.

Introduction

Marriage is one of the oldest institutions in the world with all indications. It is as old as the world herself as it remains the only institution responsible for procreation, which is the basis for forming the society at large. It entails the coming together of a man and a woman for companionship and most importantly for procreation considering the cultural belief and values in Nigeria.

Marriage varies according to different cultures, but it is principally an institution in which interpersonal

relationships usually intimate and sexual interaction are acknowledged (Bell, 2001). Marriage also called matrimony or wedlock is a socially or ritually recognized union or legal contract between spouses that establishes rights and obligations between themselves, their children and also their in-laws (Odebode ,2019).It involves legal rights, responsibilities, and duties that are enforced by both secular and sacred laws. As a legal contract ratified by the state, marriage can only be dissolved with state permission (Borgatta & Edgor, 2010).

Optimistically, everyone will expect that the love which is the sole origin of the union called marriage should be capable of making a lovable and harmonious marriage that can only be compared to a heavenly home or experience (heaven on earth). It is however disappointing to observe that as respected and cherished as the institution which is coupled with the eagerness on the part of every young women and men to be part of this institution alongside with the commitment thereof; yet many of the marriages are nothing but hell on earth.

Consequently, the institution of marriage has witnessed a dramatic decline in patronage by young persons. As a result of marital challenges and crises, the marriage institution is faced with a low

patronage and commitment to the causes of its survival (Okon, Oyibo, Tella and Tella, 2008). The researchers observed that young educated men and women are running away from getting into marriage relationship. A close look at the age, maturity and personality of graduate students revealed that many of the men who are matured enough and who should have been married are still out of the marriage institution.

Marital instability is the failure of husband and wife to perform their role obligations in marriage. Marital instability has become an issue of concern in Nigeria. It is associated with separation, divorce and single parenthood. It is a situation whereby there is marriage un-satisfaction which could lead to marriage breakdown, separation, desertion or divorce.

It is obvious that the increasing rate of divorce, cases of single parents, wife battering are among the resultant effects of marital instability in modern African society. Marital instability has made people to currently witness the invasion of many areas of human activity by a radical individualism; economic life, excessive competition among others. This individualism certainly does not encourage generous, faithful and permanent self-giving. This has resulted in marriages characterized by individualism and

excessive competition between spouses. It cuts across every race, economic status, educational and even religious status. The endemic nature of the factors that impede marriage stability made it alarming especially in Africa where marriage is religiously adored. This mind troubling issue has motivated the researchers to explore the factors that could threaten the stability of marriage.

It has been observed that some factors responsible for marital instability could be categorised under social and cultural factors. The social factors include the educational status, occupational status, income status and age difference while the cultural factors entails in-law interference, childlessness, religion, cultural belief, age at marriage.

The role of the man in the Nigerian culture is that of a master and controller of home. The man wants to maintain this role all the time and does not want a situation that will militate against it lest society sees him as a weakling. It appears that some men are weary of marrying women who have acquired higher education. Men in this group will contend that it will be easier for them to be able to have control over women who do not have more than a school certificate education or those who did not attend school at all regardless of their own educational background. This is

with the belief that such will not see them as equals and as such give them enough respect and thereby enabling them master of the home.

A graduate marrying a primary school certificate holder, may soon realize that their varying social status could create gap between himself and the wife especially when relating to other people belonging to their varying social groups with varying societal values that cannot match. This could be a source of conflict and possible failure of their marriage. Nwokocha (2002) noted that a woman with primary school certificate who did not bother to know how to relate to people in her graduate husband's social class will with time learn more about her in her marriage if she has to succeed, and this also applies to man.

The researchers observed that when the man has a lower educational qualification than the wife and his financial standing is also lower, he may develop feeling of resentment, jealousy and incapability at being able to have a control over his household, especially if the man did not approve of such educational attainment. The situation may lead to instability, eventual separation or divorce in the marriage.

Women with better occupation or higher position in their professional line

are bounds to have access to more money and be fixed up with different obligations as demanded by their profession and designation which may not enable them to give a maximum attention to family matters while the husband if not considerate may take this up and becomes an issue.

In a situation where a woman is highly paid compared to what the husband earn, a jealous husband may springs into unreasonable actions and reactions to issues just to destabilize such woman to make sure she never develop any ego. It is culturally believed that the husband is ultimately supposed to be the bread winner of the family and anything different from this may generate chaos in such home.

From observation, it is noted that some in-laws, most often, see only the negative aspects of their sons or daughter in-laws. It would have been most beneficial to their children if they appreciated the virtues of their in-laws and de-emphasised the little faults since no human being is faultless. But some in-laws are after the fault of their sons or daughter in-laws which could end up making the marriage not stable. For example, when a man gets married, the anticipation by family members is having children in the nearest possible time. As the marriage progresses if there is no sign of pregnancy,

worries set in for the couples; the period of waiting for pregnancy is a time of anxiety and unsolicited advice and suggestions from relatives and friends. The woman who is unable to become pregnant is the focus of discussion by the in-laws. The in-laws never care to know who is the cause of the barrenness but would simply accuse the woman either of infidelity, teenage abortion or witchcraft. Such interference from the families of either of the spouse could end up having negative effects on the marriage.

One of the general cultural beliefs in Yoruba marriage is that procreation is the basic aim of marriage, for them marriage and procreation are inseparable. Children are regarded as great treasure to their parents, relations and their immediate community. The absence of supporting factors in a marriage may however signal failure. In a purely African setting, the status of a wife in her husband's family remains shaky and unpredictable until she begets a child. She becomes really secure after the birth of a male child. At this stage she is welcome as a responsible housewife in her husband's extended family. The birth of the child gives her the title– *wife*, prior to this time she may simply be referred to as a wife only in anticipation (Ani, 2009)

In a Yoruba society that encourages and promotes parenthood, with its current social norms and culture, childlessness can be stigmatizing. The traditional idea that couples should reproduce and want to reproduce is still widespread in Nigeria especially in Southwest. Childlessness is considered deviant behavior in marriage and this may lead to adverse effects on the relationship of the couple.

It is certain that every individual is a believer of one faith, religion or the other as the case may be. This however may range from one country or race to the other, meanwhile marriage in recent times has nothing to do with a particular a particular country or tribe. Never the less a man and woman from different tribe or religious background may come together to marry each other on the basis of love, however it is expected in most part of Nigeria as a country that the husband which is the head of the family dictates which religion the family as a whole will embrace, while any objection to this will generate or degenerate into problems.

Women who marry while still in their teens are twice as likely to have unstable marriage as women in their thirties (South, 2001). The author further observed that those who marry in their thirties are likely to experience divorce as those who marry in their twenties. The researcher observed that women who enter their first marriage at a later age are at greater risk of doing so with a child from a previous informal union, or even delayed pregnancy which may be a destabilizing factor. They may likely enter into marriage with high level of education, a factor that could contribute to marital instability.

It therefore becomes inevitable to identify those factors that may determine instability in marriage. Based on this background, the study was designed to examine the determinants of marital instability among married women in Southwest, Nigeria.

Objectives of the study

The study is specifically designed to:

1. determine the prevalence of marital instability among married women in southwest, Nigeria;
2. assess the level of marital instability among married women;
3. explore the determinants of marital instability among married women;
4. examine the impacts of marital instability among married women

Research questions

The following research questions are generated to guide the study:

1. What is the prevalence of marital instability among married women in southwest, Nigeria?
2. What is the level of marital instability among married women?
3. What are the social-cultural determinants of marital instability among married women?
4. What are the impacts of marital instability among married women?

Methods

The descriptive research design of the survey type was used in this study. The design was considered appropriate because it allows information to be obtained from a representative sample of the population in the actual situation as they exist and focuses on the observations and perception of the existing situation on issues. The population consisted of married women in Government Ministries and Departments, public Secondary Schools, and Local Government secretariat offices in Southwest, Nigeria. The married women are those between the age of 21 and 60 years. The States in Southwest region of Nigeria at the time of study were Lagos, Ogun, Oyo, Osun, Ondo and Ekiti. The samples consisted of 1800 married women from 15 Government Ministries and Departments, 75 public secondary schools and 15 Local Government secretariat

offices in Southwest, Nigeria. The samples were selected through multi stage sampling procedures.

In stage one, three States (Lagos, Osun and Ekiti) were selected from the six States in Southwest, Nigeria through random sampling technique. The second stage involved the selection of five Local Government Areas from each of the three States using simple random sampling technique. In stage three, 1 Ministry/ Department, 5 public Secondary Schools and 1 Local Government secretariat office were selected from each of the 15 Local Government Areas earlier selected through simple random sampling technique. In stage four, 20 married women were selected from Government Ministry/Department; 10 married women were selected from public Secondary Schools; and 50 married women were selected from Local Government Secretariat offices through proportional sampling technique. In all, 300 married women were selected from 15 Government Ministries/Departments; 750 married women were selected from 75 public Schools; and 750 married women were selected from 15 Local Government Secretariat offices. A total of 1800 respondents participated in the study. A self-developed questionnaire tagged "Marital Instability Questionnaire (MIQ)" was used to collect data for the study. The instrument consisted of three sections, the

first section was design to collect bio-data of the respondents, second section focused on items that borders on marital instability while the last borders on items related to the socio-cultural factors as it affect marital instability. The instrument was subjected to face and content validity while the reliability co-efficient of 0.83 was obtained for the instrument through Cronbach Alpha method. Trained research assistants were responsible for the administration and collection of the instrument from the respondents under the supervision of the researchers. The research questions were answered using descriptive statistics such as frequency counts, percentages, Bar chart and mean scores.

Results

Research Question 1:

What is the prevalence of marital instability among married women in Southwest, Nigeria?

The results on the prevalence of marital instability are presented in Table 1.

Table 1: Marital instability among married women

S/N	ITEMS	Frequently	Sometimes	Never	Mean
1	My partner is unfaithful in the marriage	443 (26.0)	812 (47.7)	448 (26.3)	2.00
2	My partner disagrees with me on any issue	497 (29.2)	786 (46.2)	420 (24.7)	2.05
3	My partner fight me on slighted issue	619 (36.3)	618 (36.3)	466 (27.4)	2.09
4	My partner does not respect my views on sensitive family issues	624 (36.6)	677 (39.8)	402 (23.6)	2.13
5	My partner does not communicate with me	497 (29.2)	837 (49.1)	369 (21.7)	2.08
6	My partner does not satisfy me sexually	684 (40.2)	616 (36.2)	403 (23.7)	2.17
7	My parents interfere with the affairs of my family	525 (30.8)	802 (47.1)	376 (22.1)	2.09
8	My partner does not show respect to my parents	762 (44.7)	230 (13.5)	711 (41.7)	2.03
9	I have no access to my partner's belonging	726 (42.6)	180 (10.6)	797 (46.8)	1.96
10	My partner does not pay attention for our children welfare	684 (40.2)	573 (33.6)	446 (26.2)	2.14
11	My partner smokes	432 (25.4)	513 (30.1)	758 (44.5)	1.81
12	My partner consumes alcohol	435 (25.5)	553 (32.5)	715 (42.0)	1.84
13	My partner spends too much money outside our family	496 (29.1)	350 (20.6)	857 (50.3)	1.79
14	My partner engages in extra-marital affairs	435 (25.5)	719 (42.2)	549 (32.2)	1.93
15	My partner does not contribute to financial obligation at home	519 (30.5)	291 (17.1)	893 (52.4)	1.78
16	My partner does not care for me	551 (32.4)	493 (28.9)	659 (38.7)	1.94

Mean Cut-off: 2.00   Percentages in Parenthesis

Table 1 showed the prevalence of marital instability among the respondents. Using the criterion mean score of 2.0 as cut-off to determine the affirmative of each statement, the respondents indicated that the most marital instability experienced were frequent fighting ($\bar{x}$= 2.09), views not respected ($\bar{x}$ = 2.13), communication gap ($\bar{x}$= 2.08), lack of sexual satisfaction ($\bar{x}$= 2.17), parental interference ($\bar{x}$ = 2.09) and lack of care for the children ($\bar{x}$ = 2.14). The least factors of marital instability experienced by the respondents included lack of home financial support ($\bar{x}$ = 1.78), spending

money outside ($\bar{x}$ = 1.79) and partner smoking habit ($\bar{x}$ = 1.81).

Research Question 2:

What is the level of marital instability among married women in Southwest, Nigeria?

Marital instability is measured and grouped into low, high and moderate as presented in Table 2.

Table 2: Level of marital instability

Levels of marital instability	No of Respondents	Percentage
Low (16.00 – 24.25)	420	24.7
Moderate (24.26 - 39.34)	990	58.1
High (39.35 – 48.00)	293	17.2
Total	**1,703**	**100**

Table 2 revealed the level of marital instability experienced by the respondents. The mean score and standard deviation of the responses were used to determine the levels as either low, moderate or high. The low level of marital instability was determined by subtracting the standard deviation from the mean score (31.80 – 7.55 = 24.25). The moderate level of marital instability was determined by the mean score (31.80) while the high level of marital instability was determined by adding the mean score and standard deviation (31.80 + 7.55 = 39.35). Therefore, low level of marital instability starts from 16.00 to 24.25, the moderate level starts from 24.26 to 39.34 and the high level of marital instability is from 39.35 to 48.00. The findings showed that the level of marital instability among married women in Southwest Nigeria was moderate. Figure i further revealed the level of marital instability at a glance
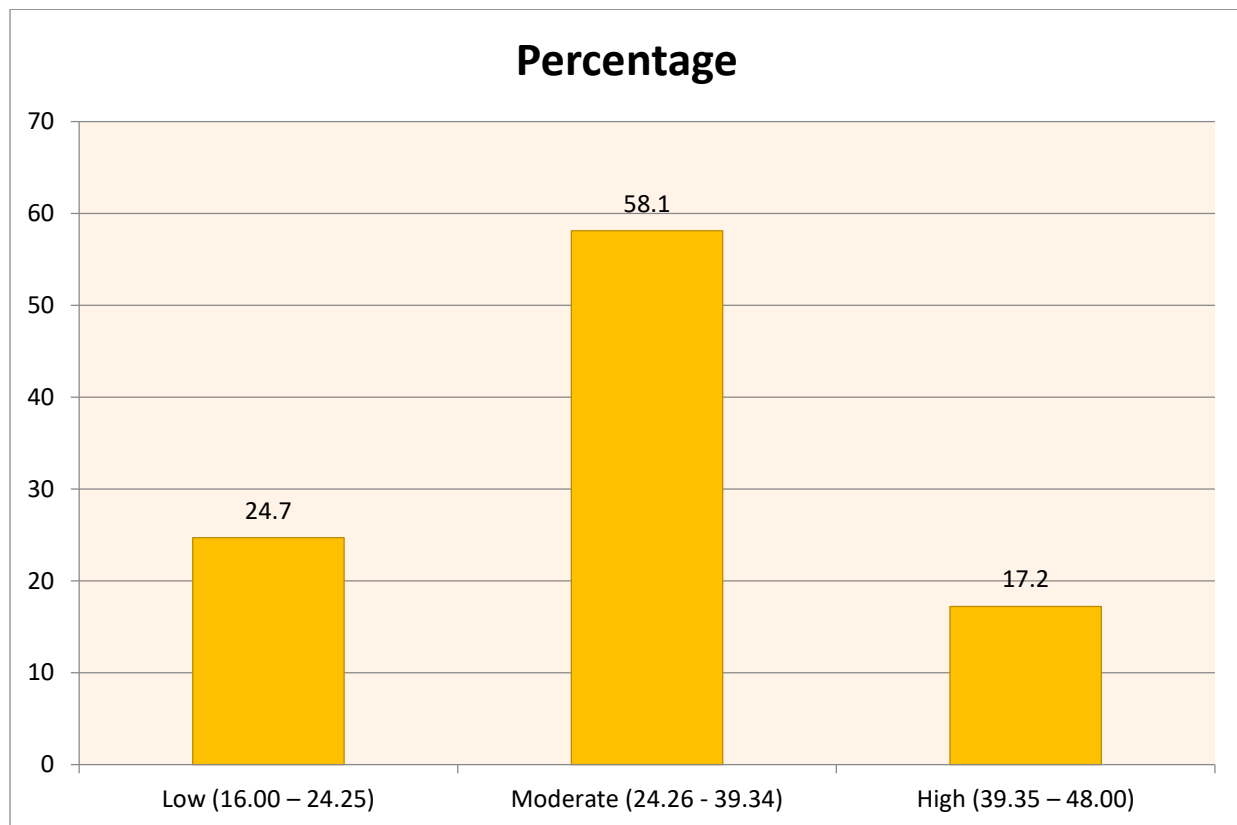
Figure i: Bar Chart Showing Level of marital instability among the respondents

Research Question 3:
What are the socio-cultural determinants of marital instability among married women?
The results of socio-cultural determinants of marital instability are presented in Table 3.

Table 3: Socio-cultural determinants marital instability among married women

S / N	I T E M S	S A	A	D	S D	Mean
1.	In-laws interference in decision making do cause marital instability	134 (7.9)	411 (24.1)	957 (56.2)	201 (11.8)	2.28
2.	Overstaying of in-laws do generate problems in marriage	68 (4.0)	510 (29.9)	886 (52.0)	239 (14.0)	2.24
3.	Educational background of in-laws can influence marital instability	66 (3.9)	274 (16.1)	614 (36.1)	749 (44.0)	1.80
4.	Delay in child bearing do influence problem in marriage	241 (14.2)	834 (49.0)	561 (32.9)	67 (3.9)	2.73
5.	Inability to have a particular child sex can generate problems in marriage	37 (2.2)	610 (35.8)	933 (54.8)	123 (7.2)	2.33
6.	Issues on number of children to have in the family could lead to problems in marriage	226 (13.3)	799 (46.9)	622 (36.5)	56 (3.3)	2.70
7.	Having little or no regard for husband or wife could be as a result of age gap	0 (0.0)	237 (13.9)	1055 (61.9)	411 (24.1)	1.90
8.	Disparity in level of couples education can generate issues	37 (2.2)	610 (35.8)	933 (54.8)	123 (7.2)	2.33
9.	Occupational schedule do affect family	233 (13.7)	734 (43.1)	692 (40.6)	44 (2.6)	2.62
10	Nature of occupation women engages in could dictate marital instability	37 (2.2)	610 (35.8)	933 (54.8)	123 (7.2)	2.51
11	Distance of primary place of assignment could generate problems in marriage	426 (25.01)	599 (35.2)	521 (30.6)	157 (9.2)	2.87
12	Poverty do contribute to marital instability	224 (13.2)	801 (47.0)	610 (35.8)	68 (4.0)	2.72
13	High disparity in the income of couples can generate issues in marriage	64 (3.7)	475 (27.9)	928 (54.5)	236 (13.9)	2.19
14	High demand from the wife's or husband's family can generate problems in marriage	97 (5.8)	424 (24.9)	979 (57.5)	203 (11.9)	2.23

Mean Cut-off: 2.50   Percentages in Parenthesis

Table 3 showed the socio-cultural determinants of marital instability among the respondents. Using the criterion mean score of 2.50 as cut-off to determine the

affirmative of each statement, the respondents indicated that the major determinants of marital instability are delay in child bearing ($\bar{x}$ 2.73), decision on the number of children ($\bar{x}$ = 2.70), occupational schedule of couples ($\bar{x}$ = 2.62), distance of the primary place of assignment ($\bar{x}$ = 2.87) and poverty ($\bar{x}$ = 2.72). The least factors that could determine marital instability included

educational backgrounds of in-laws ($\bar{x}$=1.80) and inability to have a particular child sex ($\bar{x}$=2.33), lack of regard for husband ($\bar{x}$= 1.90).

Research question 4:

What are the impacts of marital instability among married women?

The results of impacts on marital instability are presented in Table4.

Table 4: Impacts of Marital Instability among Married Women

S / N	I T E M S	S A	A	D	S D	Mean
1.	Infertility could be as result of marital instability	29 (1.7)	133 (7.8)	646 (37.9)	895 (52.6)	1.59
2.	Maternal mortality and death	96 (5.6)	205 (12.0)	893 (52.4)	509 (29.9)	1.93
3.	Drug abuse is noticeable among couples with marital challenges	97 (5.7)	99 (5.8)	1033 (60.7)	474 (27.8)	1.89
4.	Marital instability could lead to exhibition of fear	0 (0.0)	754 (44.3)	688 (40.4)	261 (15.3)	2.29
5.	Demonstration of anxiety could be as a result of marital instability	0 (0.0)	754 (44.3)	688 (40.4)	261 (15.3)	2.29
6.	Marital manifestation of hysteria could be a result of marital instability	93 (5.5)	1349 (79.2)	0 (0.0)	261 (15.3)	2.75
7.	Depression could be as a result of marital problems	114 (6.7)	582 (34.2)	828 (48.6)	179 (10.5)	2.37
8.	Aggressive and hostility could be as a result of marital instability	26 (1.5)	1029 (60.4)	648 (38.1)	0 (0.0)	2.63
9.	Marital instability affect the well-being of the children	9 (0.5)	1581 (92.8)	112 (6.6)	1 (0.1)	2.94
10.	Marital instability could make the children prone to drug abuse	21 (1.2)	1626 (95.5)	35 (2.1)	21 (1.2)	2.97
11.	Marital instability could lead to chronic diseases and stroke (hypertension)	3 (0.2)	938 (55.1)	759 (44.6)	3 (0.2)	2.55
12.	Marital instability could lead to extra marital affairs	26 (1.5)	1674 (98.3)	1 (0.1)	2 (0.1)	3.01

Mean Cut-off: 2.50   Percentages in Parenthesis

Table 4 showed the impacts of marital instability in the marriage affairs of the respondents. Using the criterion mean score of 2.50 as cut-off to determine the affirmative of each statement, the respondents indicated that the major health implications of marital instability are hysteria ($\bar{x}$ = 2.75), aggressiveness and hostility ($\bar{x}$ = 2.63), affects well-being of children ($\bar{x}$ = 2.94), children prone to drug abuse ($\bar{x}$ = 2.97), chronic diseases ($\bar{x}$ =

2.55) and extra-marital affairs ($\bar{x}$=3.01). The least impacts of marital instability included infertility ($\bar{x}$ = 1.59), maternal mortality and death ($\bar{x}$ = 1.93) and drug abuse among couples ($\bar{x}$ = 1.89).

Discussion

The study having examined the determinants of marital instability among married women in southwest, Nigeria revealed that the most prevalent forms of marital instability experienced by married

women included frequent fighting, views not respected, communication gap, lack of sexual satisfaction, parental interference, lack of respect to parents and lack of care for the children. This findings confirmed the report of Odebode (2019) who found out that sexual incompatibility, in-law interference were part of factors responsible for marital stress in Kwara state, Nigeria. The study revealed that level of marital instability among marred women in Southwest, Nigeria was moderate. The probable reason for this could be as a result of socio-cultural factors surrounding marriages. This finding was in line with the earlier study of Agupugo (2008) who found out that factors such as in-law interference, sexual incompatibility, and childlessness constituted family instability among couples. This finding contradicted the report of Asa and Nkan (2017) who found out a low level of marital instability among married women in Akwa Ibom state, Nigeria.

The study revealed that the health implications of marital instability are manifestation of hysteria, aggressiveness and hostility, poor well-being of the children, drug abuse and extra-marital affairs. This finding is in agreement with the study of Evelyn and Yeon (2017) who submitted that marital instability affect children's well-being. Marital instability has health effects on the husband, wives and children. The findings also confirmed the study of Ojukwu (2013) who revealed that indulging in sexual excesses, children outside wedlock, drug abuse and high blood pressure were the implications of marital instability.

Conclusion

Based on the findings of this study, it was concluded that frequent fighting, communication gap, lack of sexual satisfaction and parental interference were the major prevalence of marital instability. The level of marital instability was low. Delay in child bearing, occupational schedules of couples and poverty were the major determinants of marital instability while the impacts included hysteria, indulging in extramarital affairs and exposure of children to drug abuse. It was recommended that married women should be encouraged to utilize the services of health educators, marriage counselors and office of public defender.

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INFLUENCE OF SOCIAL FACTORS ON WOMEN'S PARTICIPATION IN ADMINISTRATIVE LEADERSHIP IN PUBLIC AND PRIVATE UNIVERSITIES IN ONDO STATE

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Abstract
The study examined the influence of social factors on women's participation in administrative leadership in public and private universities in Ondo State, Nigeria.The descriptive research design of the survey type was used in this study. The population consisted of all women in academic and administrative cadre in private and public universities in Ondo State.The sample for the study consisted of 150 women who are senior staff from 2 public universities and 2 private universities in Ondo State. The sample was selected using multistage sampling procedure. A self-designed research instrument tagged Administrative Leadership Questionnaire (ALQ) was used to collect relevant data for the study. The instrument was subjected face and content validity through thorough screen experts of social studies and Tests and Measurement. The reliability level of the instrument was established through test re-test method. The data collected through the instrument were analyzed using Univariate Analysis of Variance (ANOVA) and t-test at 0.05 level of significance. The findings of the study revealed that educational status and household size influenced women's participation in administrative leadership while religion and marital status had no influence on women's participation in administrative leadership. Also, there was no significant difference in women's participation in administrative leadership in public and private universities in Ondo State. Based on the findings of the study, it was recommended among others that there is need to place priority on women's education since it is the bedrock of nation building.

Key words: Social, Women's Participation, Administrative, Leadership, Public, Private, Universities

Introduction

Leadership is the capacity to influence others through inspiration motivated by passion, ability or to guide and to others without force into a decision. Yukl (2008) defined leadership as the behaviour of an individual that direct activities of a group toward a shared goal. Leadership is also explained as influential role over and above mechanical compliance with the routine directives of the organization. Leadership can be expressed as the process of influencing the activities of group of individuals toward achievement of organizational goals. As a concept, it is an act of articulating visions,

embodying values, and creating an environment within which the vision and mission of the organisation can be accomplished. It can also be equated as a process meaningful direction to collective efforts and creating efforts to be expended willingly to achieve some prescribed purposes. This implies that it is the ability of individuals to step outside the culture, initiate and manage evolutionary changes by influencing, motivating, and enabling committed followers to contribute toward the effectiveness and success of the organization.

Mbiti (2007) posits that leadership has to do with the execution of policies and decisions which help to direct the activities of an organization towards the achievement of its specified aims. Leadership is also seen as the process whereby one person influences others to do something of their own volition, neither because it is required nor because of the fear of consequences of non-compliance (Okumbe, 2003). At the core of most definitions of leadership are two functions: providing direction and exercising influence. Each of these functions can be carried out in different ways and such differences distinguish many models of leadership from one another.

It is a common belief that behind every successful man, there is a woman. Over the years, there has been raging debates among diverse people over the participation or desire of women in leadership positions. Some argue that women are regarded as weaker sex owing to social values, norms and beliefs, which have placed them in a subordinate position to men in nation's political system. This 'sexual division of labour' in the political system is often traced to the onset of colonialism in Nigeria.

The quest for the girl-child education has been encouraged and prioritized by the Nigerian Government and its institutions over the years. The results of the girl-child education have been very encouraging. Unlike in the past when the girl-child was treated as a breed for a future husband, today, both men and women get educated in all fields of our national endeavours. The Nigerian state has records of women who have excelled in their various disciplines and national development.It is widely known and accepted that women constitute a powerful force for leadership role in Nigeria (Ugbogu, 2016; Lawrence, 2010).

It is observed that Nigeria as a strong patriarchal society, where the male members of the society are seen and believed to be better than the females, women are subjugated, seen and treated as subordinates to their male counterparts. Females are therefore sandwiched and buffeted between the patriarchal control of

the males in the community and cultural demands that restrict them to the kitchen and the bedroom. The roles they are expected to perform in these areas are highly demanding and time-consuming that those who find themselves in positions of leadership in a place of work have to put in more effort in enhancing the organisational roles.

Cornwell (2005) reported that women are still treated in many African contexts as second class citizens; denied rights to land and inheritance; play the second fiddle and subjected to preferential basis on which men's entitlements are regarded by legislative, customary and statutory institutions. Women treated in this way cannot have self-esteem yet we have some women in leadership positions that seem to be performing very well.

In the same vein, the 2014 Gender Equality in Public Administration (GEPA) of the United Nations Development Programme, as cited by Lateef (2014), states that the leadership in the public sector, which universities in Nigeria belong, has a long way to go in terms of achieving gender parity. Although the female gender is making inroads into the administrative leadership, the women are still vastly outnumbered by their male counterparts. About 15% of the women in public service occupy decision-making positions.

In Nigeria, females are regarded as inferior to men. Most especially in the Muslim dominated regions.Hence, they are denied access to both honoured and utilitarian role open only to the males. Such roles as administration and disposal of property, leadership in societal affairs including religion and governance are exclusively meant for their male counterparts. Even the right of choice in respect to entry to marital partners is denied to women. While it is known that such discriminatory practices exist in this country, their prevalence and cultural value systems and norms that perpetuate them are not adequately understood. Sustainable and all-around developments of a society cannot be brought about without the full and unreserved participation of both men and women in the development process, and such a balanced development should also call for the elimination of all forms of discrimination, and the protection against all forms of violence against women.

In the tertiary institutions across the country, a large number of women are engaged in the teaching and non-teaching duties. There are large numbers of women who are professors, many have also served as Registrars, Bursars, and University Librarians. These are enviable positions regarded as principal officers, and the officers constitute the management of each tertiary institutions in Nigeria. That the

women in the Nigerian University are doing well cannot be gainsaid. A closeobservation of the occupants of leadership positions in the Nigerian institutions shows that men occupy most of the leadership positions while women, who are medically fit, educationally sound and have made remarkable achievements in their careers are less interested in vying for the administrative positions in the tertiary institutions.

In any typical Nigerian University, the organization structure is the same and practiced as inherited from the colonial master, Britain. Each University has the Visitor, who is also referred to as the proprietor of the university. The next in rank is the Chancellor who is an appointee of the Visitor. The Chancellor presides and confers awards of degrees, diplomas and certificates on deserving graduands at convocation ceremonies.

Following the Chancellor, who most of the times is usually a monarch, is the Pro-Chancellor and Chairman of Council. He presides over the University Governing Council and also an appointee of the Visitor. The Visitor also appoints members on the University Governing Council. These council members are popularly called "External Members of Council". The other members of council comprise of the Vice Chancellor, Deputy Vice-Chancellor(s), four members representing the Senate, two members representing the Congregation, one member representing the Alumni and the Registrar, who is the Secretary to the Council.

While it is worthy of note that appointment of the Chancellor, Pro-Chancellor and Chairman of Council and external members of Council are at the prerogative of the Visitor, the other positions are filled by elections except the positions of Vice Chancellor and Registrar. Findings show that seven Senate members indicated interest and sought votes, for election as members of Council of the Federal University Technology, Akure in 2017. Of all the seven candidates, only one was female. She lost the election to the men.The issue that called for concern is that, there are plenty qualified female members of Senate to represent the organ on the University Council. It behooves on reasonable minds to ask why the women are not forthcoming, when it pertains to manning administrative positions in universities.Hughes, Ginnett, &Curphy (2009) asserted that women are vital to national development but as a result of the negative attitude of the society about them, they have been described as the forgotten 50% of the population, the neglected human resource for development or the forgotten factor in economic development.

As earlier stated, the principal officers in each university consist of the Vice Chancellor, Deputy Vice-Chancellor(s), Registrar, Bursar and University Librarian. They constitute the management of the University and direct the day-to-day administration of affairs geared towards achieving the objectives of the University. Of all the positions, it is the post of the Deputy Vice-Chancellor that is occupied via election by Senate and confirmation by the Pro-Chancellor and Chairman of Council. All the other positions are by the indication of interest via applications, shortlisting and formal interactions before appointment by the Governing Council.

Moreover, at the level of Schools/Faculties, the Dean is the head and the appointment is by election by the Board of Studies or Faculty Board as the case may be. A close observation of the present Deans of Faculties at Adekunle Ajasin University, Akungba-Akoko shows that, of all the six Deans of Faculties in the University, only one is a female while the University has qualified and erudite female professors that eminently qualified to serve as Deans. In the case of the Federal University of Technology, Akure, all the nine Deans are men.

Promoting women participation in all spheres of national life have been globally accepted as a development strategy that will not only reduce poverty level of women but also serve as a means of eradicating harmful practices against their interest. However, Cornwell (2005) noted that several factors such as traditions, values, customs, sexual stereotyping of social roles have always militated against the full participation of women in their workplace. Although the Nigerian constitution provides all citizens with the right to show interest in leadership positions, the participation of women, especially in terms of vying for leadership positions have been minimal in Nigeria. This might not be unconnected with the patriarchal culture which significantly aids gender discrimination against women at work.

However, Cornwell (2005) noted that several factors such as traditions, values, customs, sexual stereotyping of social roles have always militated against the full participation of women in administrative leadership in their workplace.The researchers therefore, set out to findout the social factors that could influence women's participation in administrative leadership in public and private universities in Ondo State.Specifically, the study examined the:

i.   influence of religion on level of women's participation in administrative leadership in Universities in Ondo State;

ii.   influence of educational status on level of women's participation in administrative leadership in Universities;

iii.   influence of marital status on level of women's participation in administrative leadership in Universities;

iv.   influence of household size on level of women's participation in administrative leadership Universities; and

v.   difference between women's participation in administrative leadership in private and public universities in Ondo State

Research Hypotheses

The following research hypotheses are raised for this study

1)   Religion will not significantly influence the level of women's participation in administrative leadership in universities in Ondo State.

2)   Educational status will not significantly influence the level of women's participation in administrative leadership in universities in Ondo State.

3)   Marital status will not significantly influence the level of women's participation in administrative

leadership in universities in Ondo State.

4)   Household Size will not significantly influence the level of women's participation in administrative leadership universities in Ondo State.

5)   There is no significant difference between women's participation in administrative leadership in private and public universities in Ondo State.

Methods

Research Design

The descriptive research design of the survey type was adopted in the study. The design was considered appropriate because this approach allows information to be obtained from a representative sample of the population in the actual situation as they exist. A survey research studies a small sample from a large population from where inferences would be draw about the characteristics of the defined population. Therefore, the survey research provides conceptual and methodological design for investigating the problem of the study.

Population

The population consisted of all women in academic and administrative

cadre in private and public universities in Ondo State.

Sample and Sampling Technique

The sample for this study consisted of 150 women in academic and administrative cadres in private and public universities in Ondo State. The sample was selected through multi-stage sampling procedure.In stage one, four universities which comprised of two public universities and two private universities were selected from all the universities in Ondo State using stratified random sampling technique. In stage two, fifty women were selected from each of the public universities while twenty-five women were selected from each of the private universities using stratified random sampling technique so as to capture women in academic and administrative cadre.

Research Instrument

An instrument titled "Women's Participation in Administrative Leadership Questionnaire (WPALQ)" was used to collect relevant data for this study. The WPALQ consisted of two sections namely A and B. Section A sought information on demographic data of the respondents which include type of university, status, religion, educational status, marital status and household size. Section B consisted of 20 items which sought for information on

level of women's participation in administrative leadership in Universities. A four-point rating scale response options provided for the respondents to choose from are: Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD).

Validity of the Instrument

The face and content validity were ascertained by giving the designed questionnaire to experts of Tests and Measurement for vetting before distributing to the respondents. To ensure face validity of the instrument, the experts helped to determine the face value of the appropriateness of the instrument. To ensure content validity, the experts checked the items and ascertain that the items represent the factors specified in the research questions. In so doing, all irrelevances and ambiguous items were eliminated.

Reliability of the Instrument

The reliability of the instrument was determined through the test-retest method. A trial test was carried out outside the sampled area. The instrument was administered on twenty respondents, within a period of two weeks the instrument was re-administered on the same set of respondents. The data collected on the two tests were correlated using Pearson's

Product Moment Correlation statistics which yielded a co-efficient of 0.83 which was considered high enough to make the instrument reliable.

Administration of the Instrument

The researchers personally administered the instrument in each of the institutions sampled in the study. The researchers were responsible for the administration and collection of the instrument from the respondents.

Data Analysis

Inferential statistics such as two-way Analysis of Variance (ANOVA) and t-test were used to test the research hypotheses. Hypotheses 1 – 4 were tested using two-way Analysis of Variance (ANOVA) while hypothesis 5 was tested using t-test analysis. All hypotheses were tested at $\alpha = 0.05$ level of significance.

Results

Hypothesis 1: Religion will not significantly influence the level of women's participation in administrative leadership in universities in Ondo State

Table 1: Two-way Analysis of Variance (ANOVA) on influence of religion and level of women's participation in administrative leadership

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8689.896[a]	5	1737.979	277.477	.000
Intercept	252784.673	1	252784.673	40358.389	.000
Religion	1.464	1	1.464	.234	.630
Level of Participation	5546.983	2	2773.492	442.802	.000
Religion * Level of Participation	8.919	2	4.460	.712	.492
Error	901.944	144	6.263		
Total	**432852.000**	**150**			
Corrected Total	**9591.840**	**149**			

a. R Squared = .906 (Adjusted R Squared = .903)

Table 1 shows that the F-cal value of 0.712 is not significant because the P value (0.492) is greater than 0.05 at 0.05 level of significance. This implies that the null hypothesis was rejected. Hence, religion has no significant influence on the level of women's participation in administrative leadership in universities in Ondo State.

Hypothesis 2: Educational Status will not significantly influence the level of women's participation in administrative leadership in universities in Ondo State.

Table 2: Two-way Analysis of Variance (ANOVA) on influence of educational status on level of women's participation in administrative leadership

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8774.413[a]	8	1096.802	189.190	.000
Intercept	242889.864	1	242889.864	41896.673	.000
Educational Status	75.362	3	25.121	4.333	.006
Level of Participation	2583.296	2	1291.648	222.800	.000
Educational Status * Level of Participation	211.182	3	70.394	12.143	.000
Error	817.427	141	5.797		
Total	**433052.000**	**150**			
Corrected Total	**9791.840**	**149**			

a. R Squared = .915 (Adjusted R Squared = .910)

Result in Table 2 revealed that the F-cal value of 12.143 is significant because the P value (0.000) is less than 0.05 at 0.05 level of significance. This implies that the null hypothesis was rejected in other to determine the level of administrative leadership in Universities, the graphical is presented in Figure (i). Hence, educational status significantly influenced level of women's participation in administrative leadership in universities in Ondo State. In other to authenticate the educational status interactive influence on women's participation in administrative leadership in Universities, graphical representation is required and presented below.
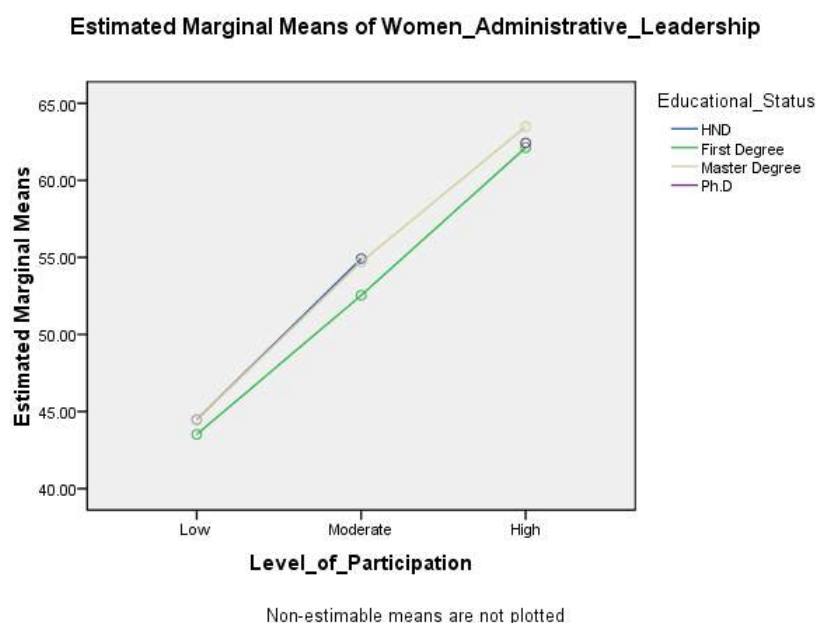

Estimated Marginal Means of Women_Administrative_Leadership

Figure i: Interactive influence of educational status on women's participation in administrative leadership in universities in Ondo State.

Hypothesis 3: Marital status will not significantly influence the level of women's participation in administrative leadership in universities in Ondo State.

Table 3: Two-way Analysis of Variance (ANOVA) for influence of marital status on level of women's participation in administrative leadership

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8720.836[a]	10	872.084	139.172	.000
Intercept	122158.545	1	122158.545	19494.776	.000
Marital Status	18.372	3	6.124	.977	.405
Level of Participation	2446.095	2	1223.047	195.181	.000
Marital Status * Level of Participation	30.138	5	6.028	.962	.443
Error	871.004	139	6.266		
Total	**432852.000**	**150**			
Corrected Total	**9591.840**	**149**			

a. R Squared = .909 (Adjusted R Squared = .903)

Table 3 shows that the F-cal value of 0.962 is not significant because the P value (0.443) is greater than 0.05 at 0.05 level of significance. This implies that the null hypothesis is not rejected. Hence, marital status has no significant influence on the level of women's participation in administrative leadership in universities in Ondo State.

Hypothesis 4: Household size will not significantly influence the level of women's participation in administrative leadership universities in Ondo State.

Table 4: Two-way Analysis of Variance (ANOVA) for influence of household size on level of women's participation in administrative leadership

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8804.880[a]	8	1100.610	197.197	.000
Intercept	233381.957	1	233381.957	41815.143	.000
Household size	4.269	2	2.135	.382	.683
Level of Participation	3345.560	2	1672.780	299.713	.000
Household size * Level of Participation	121.003	4	30.251	5.420	.002
Error	786.960	141	5.581		
Total	**432852.000**	**150**			
Corrected Total	**9591.840**	**149**			

a. R Squared = .918 (Adjusted R Squared = .913)

Result in Table 4 revealed that the F-cal value of 5.420 is significant because the P value (0.002) is less than 0.05 at 0.05 level of significance. This implies that the null hypothesis is rejected. Hence, household size significantly influenced the level of women's participation in .

administrative leadership in universities in Ondo State. In other to authenticate the household size interactive influence on women's participation in administrative leadership in universities, graphical representation is required and presented below
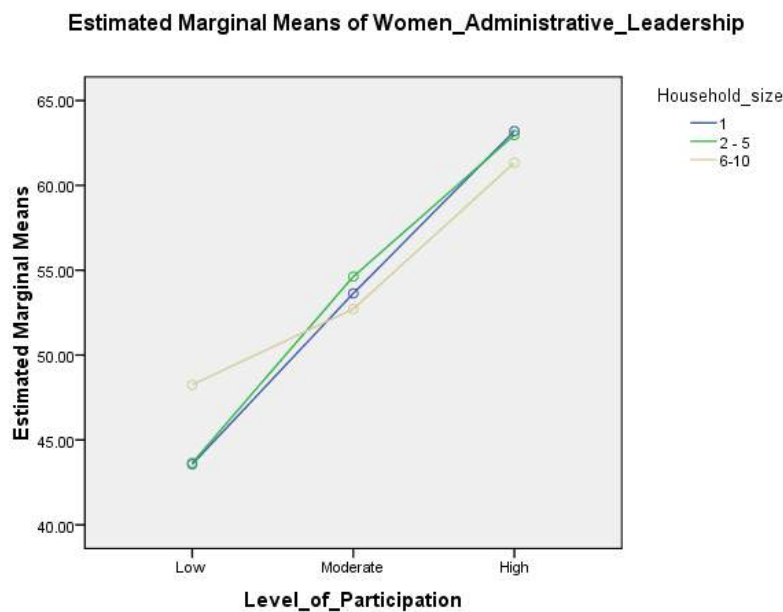

Figure ii: Interactive influence of household size on women's participation in administrative leadership in Universities

Hypothesis 5: There is no significant difference between women's participation in administrative leadership in private and public universities in Ondo State

Table 5: t-test analysis for women's participation in administrative leadership in private and public universities

Variations	N	Mean	SD	df	t-cal	t-tab
Private Universities	50	52.04	8.01	148	1.167	1.96
Public Universities	100	53.66	8.02			

$P > 0.05$

Table 5 shows that the t-cal value of 1.167 is less than t-tab value of 1.96 at 0.05 level of significant, this implies that the null hypothesis is not rejected at $\alpha = 0.05$. Hence, there is no significant difference

between women's participation in administrative leadership in private and public universities in Ondo State

Discussion

The study revealed that religion has no significant influence on the level of women's participation in administrative leadership in universities in Ondo State.The probable reason for this finding might be due to almost the same religious beliefs, that the major religions considered in this study, shared about women and leadership positions. Ondo State is dominated by the Christianity religion. Trailing after is the Islamic religion. The fact that religion has no significant influence whatsoever on women participation in leadership positions in universities in the State is an indication that both religions, especially, Islam preaches women emancipation unlike what obtains in some other Islamic dominated states in the country and across the globe. The findings of this study on religion contradicted the submission of with Anifowose (2004),Ugbogu (2016) and Osalusi&Ajibefun (2017) who concluded that religion has a very strong influenceon women's participation in leadership positions.

The study however revealed that educational status significantly influenced the level of women's participation in administrative leadership in the universities in the State. The probable reason for this findingis the important role of education in any society as education is said to be a vehicle that breaks the shackles of poverty thereby leading to transformation, development and progress. This finding is in consonance with Ikoni (2009) and Osalusi&Ajibefun(2017) who also found outthat the level of education has impact on women's attitude toward participation in leadership role.

The study also revealed that marital status has no significant influence on thelevel of women's participation in administrative leadership positions in universities in Ondo state. The probable reason for this finding might be because their roles as mothers and wives have been culturally influenced and predetermined. This finding contradicted Momoh (2008) who reported that there is a significant relationship between marital status and attitude towards participation in leadership positions.

The study further revealed that household size significantly influenced the level of women's participation in administrative leadership universities in Ondo State. This finding is in line with Ugbogu (2016) who concluded that as the household size increases, the females tend to be more preoccupied with household activities required by other members of the household. This becomes more intensive and negatively influenced the level of women's participation in administrative leadership. Conclusively, the study revealed that there is no significant

difference between women's participation in administrative leadership in private and public universities in Ondo State.

This result agrees with the findings of Igiebor and Ogbogu (2016) that women in leadership positions in university administration are faced with prejudice attitudes from their male and also their female counterparts. The need to also ensure balance in their family affairs and their career is also a factor to reckon with. Dealing with the male staff and the societal culture and beliefs on the superiority ofmen over women, also contribute to the challenges facing women in administrative leadership positions in the universities. Some of the women also experience emotional trauma and stress which also affect their participation in administrative position in the universities.

Conclusion

Based on the findings of this study, it can be concluded that educational status of women and their household size influenced women's participation in administrative leadership while religion and marital status had no influence on women's participation in administrative leadership in public and private universities in Ondo State. It also concluded that women's participation in administrative leadership in public and private universities in Ondo State do not differ.

Recommendations

Based on the findings of the study, the following recommendations were made.

1) Priority should be placed on women's education since it is the bedrock of any nation building.

2) The men should consider ceding administrative leadership positions to the women so that the women can vie for administrative leadership positions

3) Women should not be left alone with the burdens of their households as this will definitely bring relief and create interest in vying for administrative leadership positions in the universities.

4) Employers should give same opportunities given men to women in all strata of the universities as this will further boost the interests of women's participation in administrative leadership positions.

5) Religion leaders should also continue to encourage their female members to develop interest in taking administrative leadership positions in the society.

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PEDAGOGICAL PARADIGMS IN DYNAMICS: ATTENDING TO TEACHER EDUCATION NEEDS IN NIGERIA IN THE 21ST CENTURY

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Abstract

With developments in information and communication technology, teacher education cannot be said to be same as before. Unlike the teacher being the major repository of knowledge, he/she is now a facilitator of knowledge to which, unlike before, the students have access through information and communication technology. There is, therefore, the necessity for the teachers of the 21stCentury to present themselves not only as knowledgeable but also as models that students can look up to in this digitalera. To achieve this would warrant that the best entrants are ensured into the teaching profession and scholarships must be provided for education students of higher institutions. Moreover, teaching practice should be made a continuous six-month programme for pre-service teachers while adequate infrastructure should be provided for teacher-training institutions. This paper examines these issues in order to ensure that teacher education needs are met in Nigeria in this 21st Century.

Keywords: *Pedagogy,Paradigm, Teacher Education, Teaching Practice, Dynamics.*

Introduction

No doubt, the world is changing rapidly and this is inclusive of Nigeria. Change in itself can be in different directions, desirable or undesirable. Many years back, teachers in Nigeria were models to students and they were leaders in the community. They were consulted for many decisions and they were known for discipline, scholarship, confidence, morality, neatness and integrity. Their methodology was predominantly teacher-centered and they appeared as the repository of knowledge in their disciplines. Many of them were feared, as they carried canes aroundand their hands were always stained with chalk, ink or crayon. Most of these have changed now due to developments in information and communication technology and the standard requirements of quality education which is the fourth Sustainable

Development Goal and which demands the engagements of friendly and progressive teachers (Tata, 2017). Teachers are no more the repository of knowledge as the learners they teach are no more totally ignorant of the subject matter like before. These are changes in the positive and desirable direction and it has implications for teacher education.

But, there is another change which could be said to be undesirable. As teachers were known for discipline, scholarship, confidence and integrity, one cannot claim that today, beating the chest. In recent times, there have not only been instances where teachers were afraid of being tested for adequate knowledge in their subject areas, there have also been instances where they were so tested even with the examination questions of their students and they failed woefully (The Nation, 2012). The Silverbird Television News at Seven reported on the 4th June, 2019 that the National Examinations Council (NECO) complained that school Principals were aiding examination malpractice nationwide. That many teachers aid examination malpractice is no more news in Nigeria (Nnachi, 2017). These are also changes, though undesirable and these have implications for teacher education.

Why Teacher Education?

The teacher can be regarded as a trained person who helps others to acquire knowledge, skills, competencies and values. He/she is not only knowledgeable in his /her subject area but also skilled in imparting that knowledge in others. In the course of fulfilling his/her duties, the teacher is expected to possess certain qualities. He/she is expected to be prepared, set high expectations, instill confidence in students, manage the classroom effectively, use teaching strategies and practice self-reflection (Raudys, 2018). Moreover, he/she is supposed to be an engaging personality who has clear objectives for lessons and possesses effective discipline skills, passion for children and teaching and good communication with parents (Teaching. org, 2012).

These make the teacher a role model to the learners and when the teacher has a good rapport with learners, observations have shown especially at the basic education level that the learners tend to believe and trust the teacher's sayings than any other adult's. If the teacher is skillful in pedagogy, it is because he/she has undergone some training and it is this training that is referred to as teacher education. Predominantly, teacher education can be regarded as the policies,

processes and procedures that are put together and implemented to make those who have to lead others to acquire knowledge and skills adequately knowledgeable, skilled and experienced in the art of imparting the required knowledge and skills in others.

Teacher education therefore, generally focusses on upgrading the educational status and knowledge of pre-service teachers in general education principles and in their subject areas, exposing them to methods of teaching and good understanding of learning and learners as well as imparting in them the competencies necessary for good communication, human relations and evaluation while also presenting the opportunity for continuing professional development. What made teacher education more important in recent times is that quality education has been made the fourth Sustainable Development Goal (Bourne, 2015) and in explaining what constitutes quality education, scholars brainstormed and came with the holistic quality education eco-system which includes the quality of teachers (The Commonwealth Education Hub, 2016). In which case, quality education cannot be attained without competent teachers who are well remunerated and who have the required standard qualifications and work

in conducive environment. In which case, quality education can only be provided by dedicated teachers who can give what the learners need, moreso that teachers ability plays a vital role in students' achievement (Popoola, 2016; Ross, 2018).

Teacher education, therefore, needs to produce reflective teachers, who will be instrumental to the total development of students, who will be friendly with students, who will have a sound knowledge of the subject matter, who will possess excellent communication skills and who will not only be disciplined but be able to instill that discipline in their students. Teacher education must have to deal with pre-service and in-service training, new pedagogies and technologies, motivation, discipline, decency, integrity, communication skills and conditions of service. It must start with policy in relation to who and who are recruited from top performance, like in South Korea (Top 5%), Finland (Top 10%) and Singapore (Top 30%) (Patinos, Bustillo and Wang, 2014). With this ensured, backed up with satisfactory remuneration, one can rest assured that teachers would properly fit into the traits which their ethics functionally demands. These include probity, integrity. dignity, civility and a

high sense of accountability (Oladipo, Subair and Adebakin, 2010).

Necessity for Dynamism

Nothing appears static in most of human endeavours, not even the deployment of education. This is because most materials and strategies for human civilization and education are researched and reviewed time and again. The 21st Century teacher is no more the sole reservoir of knowledge but a facilitator of knowledge who first has to search out latest developments as reported and lead students into acquiring desired knowledge through them. Beyond this, information and communication technology has so much developed that it should no more be difficult to find instructional materials to use when delivering instruction.

Assessing teacher education in Nigeria with this orientation, one cannot but observe challenges which show that much is yet to be done to make teacher education compliant with the requirementsof the changing world. As Ogunsanwo and Salami (2010) observed, most of the teachers of early years programmes in Nigeria neither have the required training nor experience. This becomes a serious issue when one considers that what they do (rightly or

wrongly) forms the foundation on which the child's education is built. Teacher education in Nigeria would need to address this challenge.

To buttress the need for dynamism, Dada (2011) observed that knowledge is highly situated in contemporary contexts and it is rapidly changing and diverse than ever before. Since literacy has become multi-model, she opined that if teacher education is not repositioned, Nigerian children will attempt to move towards the future and the institutions responsible for educating them would be locked in the past. This cannot be far from the truth as today's children are digital natives who toy with devices and applications, many of which their teachers do not own or have never seen. In a study on teacher's use of information and communication technology, Adeoluwa and Adegbola (2011) found that only 15% of teachers had assess to the internet outside school and only 9.3% had access to the internet in school while only 25.5% accessed the internetto improve on their teaching. These are issues for teacher education, not only through in-service training but also for pre-service training.

But, entrants into the teacher education institutions must be easily trainable if they are to master the use of the developments in information and

communication technology to lead learners into acquiring adequate knowledge. The presentsituation in Nigeria does not appear positive in this direction. As, Eduwen and Osagie-Obazee observed, less competent students choose teaching as a career. In actual fact, less competent prospective teachers choose to study education. In Nigeria,prospective higher education candidates only make the College of Education where teachers are trained for basic education a third choice when completing admission request forms. In which case, only those who could not secure admission into the university or polytechnic are encouraged to proceed to the Colleges of Education.

Most of those who gain admission into the university also hardly opt to be trained as teachers as most of the students in the Faculties of Education in Nigerian Universities are reluctantly there. We, therefore, turn out teachers whose level of motivation is low and many of who are less competent than graduates of other disciplines. Although this is not peculiar to Nigeria as India has the same challenge (Himmat, 2017), it however needs to be addressed. This may not be far from the poor societal perception of teacher education in Nigeria (Akindutire and Ekundayo, 2012). This is why some students studying education in the

Universities are not always proud to mention their courses of study.

Funding is another vitalchallenge of teacher education in Nigeria. Most of the teacher training institutions are not adequately funded and when one visits them, there are always evidences of this experience in infrastructure. This is, however, not unconnected with the poor funding of education generally in Nigeria. It has been claimed that, of the ₦61.48 trillionon budget of the Federal Government of Nigeria in ten years education only got a pitiful sum of ₦4.57 trillion. The 2019 allocation was 5.23% of the budget. This is considered as the worst in nine years in terms of percentages (Ndujihe, 2019),going by the World Bank data on government expenditure to education (The World Bank Group, 2019).

This has led to many other challenges including inadequate instructional and digital facilities, obsolete textbooks and library books and poor motivation in the teachertraininginstitutions (Akpan, Ntukidem, Ekpiken and Efor, 2009; Akindutire and Ekundayo, 2012; Eduwen and Osagie-Obazee, 2016). These challenges must also have a snowball effect on course content delivery which Akpan et.al. (2009) and Himmat (2017) regard as part of the challenges of teacher

education. The conventional method is still very common in institutions training teachers whereas the developments in information and communication technology have brought in many strategies and devices which have engendered a paradigm shift in course content delivery.

The levity with which the teaching practice exercise appears to have been handled in many institutions cannot also be swept under the carpet. The teaching practice is not only an integral part of the training of pre-service teachers but also that very aspect which defines the very nature of their profession. It is very important and it is supposed to be so treated. But, due to poor funding and frequent strikes by teachers of tertiary and public secondary schools, the exercise is shoddily done many times. This does not accord the would-be teachers the necessary experience needed to commence their teaching career.

Strategies for Revitalization

There is the urgent need to reposition teacher education to meet the needs of knowledge acquisition in this dynamic age. One must, however, recognize that the government of Nigeria had made attempts before now to improve on teacher education. The four- year

Strategic Plan was prosecuted for the development of education between 2011 and 2015 in recognition of the fact that achieving the National Objectives of Nigeria would be dependent upon the development of education (Nasiru, 2013). Thousands of teachers had benefited from teacher professional development programmes, part of which had focused on the integration of information and communication technology tools in teaching and learning.

It is however, important that government must find a way of attracting the best into the education sector. Admission into the colleges and Faculties of Education must be made competitive and attractive. This is necessary because teachers provide the foundation for all other vital professions. If that foundation is faulty, it would reflect in the quality of the products of otherprofessions. Therefore, the selection procedures for admission into education courses must be thorough and without bias. This cannot be done when interested candidates are less that available spaces like in the current situation. Government must, therefore, put in place incentives that would attract the best into the teaching profession.

It is not out of place if scholarships and bursaries are provided for students studying education courses. This had been

done before as one of the authors was a beneficiary. Some have even advocated that teaching practice allowance be paid to all students and special allowances be paid to university education students (Oladunjoye and Omenu, 2013). These would attract good students into studying education and this cannot but positively reflect on the learning outcomes of students in public schools and eventually on the sustainable development of the country.

It is also pertinent that more teachers be trained to deploy early childhood education in Nigeria. Not only that, governments should ensure that such trained professionals are the ones employed by nursery schools in Nigeria, be they private or public. As it is now, the situation is different and if the proper foundation is not laid for the child, there is hardly anything to properly build on at the higher levels.

Nigerian government should endeavour to make institutions training teachers attractive to prospective teachers by providing adequate infrastructure in these institutions. Not only that, the schools must be tooled up with adequate state- of -the art instructional facilities which would not only make the delivery of course contents easy but would also be a source of motivation to students and

lecturers. This is a function of adequate funding of teacher training institutions. This must be prioritized if teacher education must be revitalized. Then will teacher trainers be happy and willing to update their methods of delivery to comply with the provisions of information and communication technology so that strategies like the flipped classroom, learner-generated content and mobile learning as well as the learning management system would easily be deployed to deliver course contents.

The teaching practice exercise should be made a continuous six-month programme like it is done with the students' industrial work experience scheme. This would reduce distractions and enable pre- service teachers to settle down in the schools and go through the intended experience for which they were sent there. Beyond this, teachers should be placed on a special salary structure and very well paid so that they can concentrate on the job and devise inspirational and creative means of making students achieve much more. This is also another way of attracting more students into the education programmes in teacher training institutions.

Conclusion

There is no doubt that the world is rapidly changing in all ramifications including the delivery of education. Conscious efforts need to be made to update teacher education not only to suit the dynamics of today but also to prepare for the innovations of tomorrow. With the readiness of government and other stakeholders in education, there is hope that teacher education can be revitalized in Nigeria so that quality education would be easily deployed to attain the national objectives of the country.

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IMPACT OF HEALTH BELIEFS CHANGE MODEL STRATEGY ON THE RISK FACTORS OF HYPERTENSION AMONG NIGERIAN ARMED FORCES PERSONNEL IN LAGOS STATE

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Abstract

Existing scholarly works on cardiovascular diseases failed to examine why some military personnel died of various heart related diseases and why some patients who died of high blood pressure were undiagnosed. Therefore, this study investigated the impact of health beliefs change model strategy on risk factors of hypertension among personnel of Nigerian Armed Forces. Two research questions and two hypotheses were formulated for the study. The methodology adopted is a pre-test and post-test quasi-experimental research design based on the Health Beliefs Model Hypertension Package. The data were elicited from the three branches of Nigerian Armed Forces, consisting of 180 participants whose blood pressure reading were 130/90mmHg and above. The participants were purposively selected for pre-test and post-test intervention study for the period of eight (8) weeks among Nigerian Armed Forces. Descriptive statistics of frequency count and percentage was used to present the demographic data while inferential statistics of t-test was used for hypotheses one and one way analysis of variance was used for hypotheses two at 0.05level of significance. Findings showed that health belief change model, had a significant impact on smoking, alcohol and dietary behaviours (t=3.832; 2.488, 5.201: P=0.000, 0.015; 0.000) in respect of smoking, alcohol and dietary behaviours of respondents before and after the health belief change model intervention. Significant differences were recorded among the impacts of health belief change model (F=0.17.43;p=0.000). Therefore, to improve health conditions of the personnel suffering from high blood pressure, they should be advised to reduce the intake of salt, increase intake of high fiber diet and low fat consumption.

Keywords: Health Behaviours, Health Belief, High Blood Pressure, Hypertension,

Introduction

Health behaviours are influenced by the social, cultural factors as well as physical environments in which people live and work. They are shaped by individual choices and external constraints. Positive attitude help promote health and prevent disease, while negative lead to risk behavours (Lavikainen, Lintonen & Kosunen, 2010). In the broadest sense, health behaviour refers to the actions of individuals, groups, and organisations, as well as their determinants, correlates, and consequences, including social change, policy development and implementation, improved coping skills, and enhanced quality of life (Hu, Jousilahti, Antikainen, Katzmarzyk and Toomilehto, 2010). According to the health belief model, an individual will change behaviour if they

perceive a personal threat or illness secondary to the behaviour and believe changing the behaviour will effectively avert this threat or illness. The model asserts that for people to adopt recommended physical activity behaviour, their perceived threat of disease and its severity and benefits of action must outweigh their perceived barriers to action (Raingruber, 2013).

Health belief model is useful in explaining health behaviours in hypertensive among Americans and should be used in designing culturally competent health promotion interventions in this population (Thalacker, (2011). Evidence of increased risk of Coronary Heart Diseases (CHD) and other clinical manifestations of cardiovascular disease (CVD) with the presence of specific risk factors has been documented, such as the Framingham heart study, the Standford three-community study and the multiple risk factors intervention trial (Park, 2011). CHD is one of the most common clinical manifestations of cardiovascular disease (American Heart Association (AHA, 2010). Behaviours that have consistently been shown to improve blood pressure control include taking prescribed medicines, monitoring blood pressure regularly, maintaining a low sodium diet,

exercising, maintaining a healthy weight, limiting alcohol use, and not smoking (Centre for Diseases Control, 2012).

Occupation-related stress has been considered to be a potentially important cardiovascular risk factor and consequently a bulk of recent investigations has focused on the detection of cardiovascular risk factors in certain jobs (Hackam, Quinn, Ravani, Rabi, Dasgupta, and Daskalopoulou, 2013); Mittal & Singh, 2010). Hypertension is the commonest cardiovascular disorder affecting at least 20% of adult population in several countries (World Health Organisation, 2012). The prevalence of hypertension has been attributed to numerous risk factors, such as population growth, aging, and behavioral factors, including poor nutrition, the disadvantages of drinking alcohol, cigarette smoking, physical inactivity, overweight, and being exposed to ongoing stress (Hu, Jousilahti, Antikainen, Katzmarzyk and Toomilehto, 2010). On the other hand, investigations revealed that military personnel are generally under high pressure of duty related stress with its biological ill effect and mental strain on their health (Thalacker, 2011). Whereas members of armed forces with their favourable physical conditions, lifestyles generally increasing cardiovascular risk factors

among military personnel (Altorf-van der Kuil, 2010).

The Nigeria military implies a combat force of men and women take up the challenge of voluntarily being trained as officers and soldiers to perform the military duty of defending the nation from external and internal aggression and military organizations are anchors of national security, nation building, and good governance, and are indispensable in national and international peace and humanitarian relief operations. Knowledge and awareness of risk factors of CVDs are essential for behavioural change (Abdullahi and Amzat, 2011). Prevalence of hypertension has reached epidemic proportion globally with data from the developing countries like Nigeria scarcely available. This gap in knowledge of risk factors of hypertension, high prevalence of hypertension and associated complications among Nigerian military necessitated this study. The present study, therefore, examined the impact of health belief change model strategy on the risk factors of hypertension among personnel in Nigerian Armed forces in Lagos state. This study investigated the impact of health beliefs change model strategy on the risk factors of hypertension among Nigerian Armed Forces personnel in Lagos State.

Specific objectives of the study were:

1. assess the prevalence of risk factors of hypertension within the three Nigerian Armed Forces;

2. assess the impact of Health belief model strategy on management of hypertension among Nigerian Armed Forces.s

The two research questions generated for the study

1. Will health belief change model have any impact on the risk factors of hypertension among Nigerian Armed Forces Personnel?

2. Will there be any difference among the impacts of Health belief change model on risk factors of hypertension among Nigerian Armed Forces Personnel?

The two hypotheses were tested:

1. Health belief change model will have no significant impact on risk factors ofhypertension among Nigerian Armed Forces Personnel.

2. There is no significant difference between the impacts of Health belief change model on risk factors of hypertension among Nigerian Armed Forces Personnel.

Methods

A quasi-experimental design of non-randomized pre-test and post-test using health education intervention as treatment was adopted for the study. The population consists of all personnel of Nigerian Armed forces resettlement centre, Oshodi, Lagos State which comprised of Nigerian Army, Nigerian Navy and Nigerian Air force. The purposive sampling technique was employed to select one hundred and eighty (180) participants among Nigerian Armed Forces who have been screened high blood pressure for the health education intervention. Health Belief Model Questionnaire (HBMQ) The construct of Health Belief Model Questionnaire which was developed by Brown and Segal (1996) for the four perception elements of the Health Belief Model (HBM) were measured on a 4-point Likert-type scale anchored by Strongly Disagree (SD), Disagree (D), Agree (A) and Strongly Agree (SA). Points were assigned to the options from 1–4 for positive items and from 4-1 for negative items. The four components of the HBM are as follows:

Perceived threat and consequences of hypertension six (6) items were measured in terms of the seriousness and degree to which an individual perceives her/himself to be vulnerable to consequences of uncontrolled hypertension, the fear of having hypertension and the limitation that hypertension imposes on social activities and individuals believed it is probable that they would experience a stroke, heart attack with Cronbach alpha for these items was 0.72. Perceived benefits of Normal Blood Pressure six (6) items were measure on benefits of complying with health education treatment on management of hypertension. Perceived benefits of health education treatment (Rx) represented the degree to which respondents believed their health education treatment to be effective in controlling high blood pressure and preventing adverse consequences. Perceived benefits of Rx were measure in terms of the health education treatment ability to control high blood pressure, to prevent strokes, heart attacks and kidney disease, and to ease one's mind about having high blood pressure with Cronbach alpha for these items was 0.82. Perceived barrier to lifestyles modification as it's related to hypertension management. Four (4) items were measure on perceived barriers of not complying with health education treatment (Rx). Perceived barriers of Rx were measure in terms of motivation to stop smoking, alcohol and unhealthy dietary intakes with Cronbach alpha for these items was 0.68 and Cues for Action and Self Efficacy in

Hypertension Management, six (6) items were measure on precipitating force that make person feels the need to take action, cue to action can be internal and external factors with Cronbach alpha for these items was 0.73.

The data collection process was carried out at Nigerian Armed Forces Resettlement Centre, Oshodi, Lagos State. The exercise lasted for eight (8) weeks among Nigerian armed forces who consented to be involved in the study. Selection were based on outcome of the blood pressure screening and those with blood pressure of 130/90mmHg and above were selected for the health education treatment. This process was used to recruit and select 180 respondents among Nigerian armed forces. All the participants were subjected to Health Belief Model Hypertension Package (HBMHP) which consisted of ninety minutes health education talks of one module per day in each unit of Armed forces. The descriptive statistics of frequency counts and percentages were used to describedemographic data while the inferential statistics of t-test and One Way Analysis ofVariance (ANOVA) was used to test hypotheses. The post-hoc test (Scheffe) was usedwhere there were significant differences in the *f* ratios among the means of risk factorsand

determine the area where the most significant differences is occurring among therisk factors. All tests were carried out at 0.05 level of significance.

Results

Data Presentation

Table 1: Distribution of respondents by Age

Age	Frequency	Percent
18-29 years	13	7.2
30-39 years	25	13.9
40-49 years	31	17.2
50-59 years	111	61.7
Total	180	100.0

From table 1 above, it could be observed that 7.2% of the total respondents were aged 18-29 years, 13.9% of them were aged 30-39 years, 17.2% were aged 40-49 years, while the remaining 61.7% being the majority were aged 50-59 years.

Table 2: Distribution of respondents by gender

Gender	Frequency	Percent
Female	14	7.8
Male	166	92.2
Total	180	100.0

Table 2 above shows the distribution of respondents by gender indicated that 166(92.2) % of the total

respondents being the majority were males, while the other 14(7.8) % were females representing the minority group.

Table 3: Distribution of respondents by marital status

Marital Status	Frequency	Percent
Single	8	4.4
Married	166	92.2
Widow	3	1.7
Divorced	3	1.7
Total	180	100.0

The distribution of respondents by marital status as shown in table 3 above, revealed that widows 3(1.7)%, divorced 3(1.7)% respondents of the total respondents respectively, single respondents were 8(4.4)%, while the remaining 166(92.2)% of the total respondents were married.

Table 4: Distribution of respondents by highest level of education

Highest Level of Educ.	Frequency	Percent
Primary Education	23	12.8
Secondary Education	80	44.4
Tertiary Education	74	41.1
Others	3	1.7
Total	180	100.0

According to table 4 above, it could be ascertained that 12.8% of the total respondents had only primary education, 44.4% of them had only secondary education and 41.1% of the respondents were certificate holders at various levels of tertiary education, while a minute 1.7% of the total respondents had other forms of education.

Table 5: Distribution of respondents by arms of service

Arm of Service	Frequency	Percent
Nigerian Airforce	60	33.3
Nigerian Army	60	33.3
Nigerian Navy	60	33.3
Total	180	100.0

Going by table 5 above, it could be observed that a total of 60 respondents, representing 33.3% of the total respondents were drawn each from the three components of the Nigerian military, namely the Nigerian Army, the Air force and the Navy.

Table 6: Distribution of respondents' by hypertension stages before and after treatment

Blood Pressure (BP)	Normal BP Pre-Hypertension	Stage 1 Hypertension	Stage 2 Hypertension	Total
BP Before Treatment	-	27 (15.0%)	90 (50.0%)	63 (35.0%)	180 (100.0%)
BP After Treatment	39 (21.7%)	58 (32.2%)	75 (41.7%)	8 (4.4%)	180 (100.0%)

It could be observed from table 6 above that before treatment, no respondent had normal BP, 15% of them were in pre-hypertension stage, 50% were in stage 1 hypertension, while the remaining 35% were in stage 2 hypertension. The table further revealed that after treatment, 21.7% 35%.

Hypothesis 1

Hypothesis one states that health belief change model will have no significant impact on risk factors of

of the total respondents migrated to normal BP, 32.2% of them remained in pre-hypertension stage, 41.7% of them remained in stage 1 hypertension, while the number of respondents remaining in stage 2 hypertension reduced to 4.4% from

hypertension among Nigerian Armed Forces Personnel. The stated hypothesis was tested using the t-test statistical tool at 0.05 level of significance. The result is presented on the table below.

Table 7: t-test result of health belief change model impact on risk factors of hypertension

Risk Factors of Hypertension	N	Mean	SD	SEM	Df	T	Sig.
Smoking Behaviour Before	90	19.8444	3.35841	0.35401	89	3.832	0.000*
Smoking Behaviour After	90	21.6889	3.25557	0.34317			
Alcohol Behaviour Before	90	23.1333	4.05911	0.42787	89	2.488	0.015*
Alcohol Behaviour After	90	24.7111	3.75737	0.39606			
Dietary Behaviour Before	90	20.1444	3.39716	0.35809	89	5.201	0.000*
Dietary Behaviour After	90	22.9333	3.34126	0.35220			

It could be observed from table 7 above that significant t-values were recorded (t=3.832, 2.488, 5.201; P=0.000, 0.015, 0.000) in respect of smoking, alcohol and dietary behaviours of

respondents before and after the health belief change model intervention. Thus, hypothesis two stated above is hereby rejected in respect of all the risk behaviours of hypertension. It thus implies

that health belief change model had a significant impact on smoking, alcohol and dietary behaviours as risk factors of hypertension among Nigerian Armed Forces Personnel.

Hypothesis 2

Hypothesis two stated that there will be no significant difference between the impacts of Health belief change model on risk factors of hypertension among Nigerian Armed Forces Personnel. The above stated hypothesis was tested using the one way ANOVA at 0.05 level of significance. The result is presented on the tables below.

Table 8: ANOVA result of difference between the impacts of health belief change model on risk factors of hypertension

Risk Factors of Hypertension	N	Mean	SD	Source	SS	Df	MS	F	Sig.
Smoking Behaviour	90	21.6889	3.25557	Between Groups	413.696	2	206.85	17.43	0.000
Alcohol Behaviour	90	24.7111	3.75737	Within Groups	3168.767	267	11.868		
Dietary Behaviour	90	22.9889	3.29962	Total	3582.463	269			
Total	270	23.1296	3.64934						

Table 8.1: Post-Hoc Test on the difference between the impacts of health belief change model on risk factors of hypertension

Risk Factors of Hypertension	Means	Mean Difference	Std. Error	Sig.
Smoking Behaviour/Alcohol Behaviour	21.6889/24.7111	-3.02222*	0.51355	0.000*
Smoking Behaviour/Dietary Behaviour	21.6889/22.9889	-1.30000*	0.51355	0.042
Alcohol Behaviour/Dietary Behaviour	24.7111/22.9889	1.72222*	0.51355	0.004*

In view of the result presented on table 8 of which a significant F-value was recorded at 0.05 level of significance (F-=17.43, P=0.000), thus, hypothesis four stated above is hereby rejected. This implies that significant differences were recorded between the impacts of health belief change model on risk factors of hypertension among Nigerian Armed Forces Personnel. In addition, the significance of the F-value signifies that the impact of health belief change model was higher in one risk factor of hypertension than the other. Furthermore This implies that health belief change model had higher impact on alcohol

behaviour as a risk factor of hypertension as compared with smoking and dietary behaviours. On the other hand, the impact is greater in dietary behaviour when compared with smoking behaviour., the post-hoc test (Scheffe) on the difference among the means of the risk factors on table 8.1 shows that the mean of alcohol behaviour was significantly higher than that of smoking and dietary behaviours (24.7111 > 22.9889 & 21.6889), while the mean of dietary behaviour was observed to be higher than smoking behaviour.

Discussion

Hypothesis one was tested using the t-test statistical tool at 0.05 level of significance. The significant t-values recorded in respect of smoking, alcohol and dietary behaviours of respondents before and after the health belief change model intervention, led to the rejection of the stated hypothesis. It thus implies that health belief change model had a significant impact on smoking, alcohol and dietary behaviours as risk factors of hypertension among Nigerian Armed Forces Personnel. This findings are not different from those of World Health Organisation, (2012) agreed that, the intervention had beneficial effects on the smoking, alcohol and dietary intake of the subjects, especially on nutrients related to

their bone health. Hackam, Quinn, Ravani, Rabi, Dasgupta, and Daskalopoulou, (2013) agreed that, scientific findings and clinical guidelines recommend dietary sodium reduction among people with and without hypertension in order to treat hypertension prior to any pharmaceutical interventions.   Centre for Disease Control, (2012) asserted that, dietary sodium reduction has suggested a voluntary sodium reduction approach along with other strategies.

In testing hypothesis two, one way ANOVA statistical tool was employed at 0.05 level of significance. The result obtained indicated a significant F-value which led to the rejection of hypothesis four as stated, indicating that significant differences were recorded among the impacts of health belief change model on risk factors of hypertension among Nigerian Armed Forces Personnel. The post-hoc test conducted on the difference among the means of the risk factors of hypertension using the Scheffe procedure showed that the mean of alcohol behaviour was significantly higher than that of on risk factors of hypertension, while the mean of dietary behaviour was observed to be higher than that of smoking behaviour. It therefore indicated that health belief change model had higher impact on alcohol behaviour as a risk factor of

hypertension as compared with smoking and dietary behaviours. On the other hand, the impact is greater in dietary behaviour when compared with smoking behaviour.

This finding corroborate with that of Altorf-van der Kuil, (2010) that a number of different dietary factors have been shown to be positively related to hypertension, including intake of animal protein, low potassium, low magnesium, inadequate calcium, low fish fatty acid, high alcohol and high coffee consumption. Thalacker, (2011) opined that, increased intake of fruits, vegetables, legumes and whole grain and restriction of added sugar and saturated fat have been recommended for their beneficial effect to control hypertension. Hackam et al, (2013) agreed that, scientific findings and clinical guidelines recommend dietary sodium reduction among people with and without hypertension in order to treat hypertension prior to any pharmaceutical interventions. Abdulahi and Amzat, (2011) asserted that, dietary sodium reduction has suggested a voluntary sodium reduction approach along with other strategies.

Conclusion and Recommendation

Based on the findings of this study, it was concluded that:

The prevalence of hypertension among the study population was very high

and unhealthy dietary behaviours. The study showed significant impacts of health belief change model on smoking, alcohol and dietary behaviours as risk factors of hypertension among Nigerian Armed Forces Personnel. Thus there were differences recorded on the impacts of health belief change model on the risk factors of hypertension among Nigerian Armed Forces Personnel as regard to their lifestyles modification. Based on the findings of the study, the following recommendations were suggested:

1.   Military authority should place a ban on tobacco smoking and alcohol consumption among the military personnel who live in the military barrack, to curtail unhealthy practices which can lead to healthy behaviour among those who are hypertensive.

2.   Personnel should be encouraged on weekly checking of blood pressure and record of their own blood pressure readings performed on them in the hospital or home checks.

3.   The Nigerian armed forces should organize seminars and workshop on the effects of smoking, alcohol and unhealthy diet among their personnel.

4.   Good management of stress, more relaxation and eating more fiber diet and low cholesterol.

5.   Hypertensive patients should be encouraged to change their lifestyle practices to prevent complications by eating low salt diets and not adding salt to food since this is significantly associated with occurrence of hypertension complications.

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PSYCHOLOGICAL FACTORS AS CORRELATES OF ACCIDENT RISK BEHAVIOUR AMONG COMMERCIAL DRIVERS IN ONDO STATE, NIGERIA

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Abstract
Road traffic accident is one of the leading causes of death in Nigeria as human factors seem to occupy a very high rate in the causative index of road traffic crashes. It is against this background that this study investigated psychological factors as correlates of accident risk behaviour among commercial drivers in Ondo State, Nigeria. It examined the psychological factors as well as the accident risk behaviour. The study determined the relationship between psychological factors and accident risk behaviour. The study adopted the descriptive research design of survey type. The population for the study consisted of commercial drivers who were domiciled in Ondo State, Nigeria. A total of three hundred and sixty (360) respondents were sampled using the multistage sampling procedures. Data were collected with the use of a validated self-developed questionnaire. Test-retest reliability was carried out on the instrument and a coefficient of 0.81 was obtained. Data collected were analysed using frequency count, simple percentages and mean scores to answer the research questions raised while Pearson Product Moment Correlation (PPMC) analysis was used to test the hypotheses at 0.05 level of significance. The findings revealed that anxiety, anger, impatience and sensation seeking are psychological factors that can lead to accident risk behaviour. The results showed that alcohol consumption, excessive speed, dangerous overtaking, use of cell phones and driving without head light at night are risks behaviour that could lead to the occurrence of road traffic accidents. The findings further revealed a significant relationship between psychological factors and accident risk behaviour among the commercial drivers. Based on these findings it was therefore recommended that Ondo State government in collaboration with the Federal Road Safety Corps and health educators should organize seminars, workshops, and motor park rallies on road safety for commercial drivers in Ondo State.

Keywords: Accident, Risk behaviour, Touting, Tailgating, Drinking-driving.

Introduction

Traveling by road is one of the most appealing means of transportation today. It is convenient and more flexible when compared with other means of transportation. Road transportation facilitates movement and other activities but, in terms of vehicle crashes, it causes pains, destruction, injury, loss of lives and valuable properties. For instance, World Health Organization (2018) asserted that 70% of deaths occurring from vehicle

crashes are caused by commercial vehicle drivers who travel by roads. Similarly, it has been found that traffic injuries account for over 85% of deaths in developing countries and over 50% of road traffic fatalities worldwide occur in developing nations involving young adult aged 15-44years (World Health Organization, 2018).

It has been observed that automobile accidents usually occur whether in a developing or developed nations because several road users especially, commercial vehicle drivers exhibit risky behaviour and fail to observe traffic rules and regulations, perhaps due to some factors that impact human behaviour (World Health Organization, 2015). In Ondo State, Nigeria, a large number of movement of persons and goods are by road and most of the commercial drivers appear to exhibit accident risk behaviour and the outcome of which seems to be the rate of traffic accidents and the attendant causalities on the highway which is alarming with a high percentage involving the youths in the productive age who are frequently mobile (Gidado, 2010).Some of the human factors that may cause accidents according to WHO (2015) are psychological in nature. Among the psychological factors that may predispose accident risk behaviour are anxiety, sensation seeking, anger and impatience.

Risk behaviour is a lifestyle activity that places a person at a risk of suffering a particular condition such as injury, loss of property or incapacitation (Robert, 2004). Risk behaviour are those that potentially expose people to harm, or significant risk of harm which will prevent them from reaching their potential. It is also described as ill-advised practices and actions that are potentially detrimental to a person's health or general wellbeing (Keyes & Ryff, 2010). For instance, a driver who drives in the night without the use of head lamps is displaying an accident risk behaviour, the consequence of which

may be head-on-collision with another vehicle, running into a ditch or bumping into a stationary vehicle or a pedestrian crossing the road. Other driving risk behaviour that appear to be more common among commercial vehicle drivers and which are the focus of this study are the use of cell phones while driving, indiscriminate overtaking, alcohol/drug consumption and over speeding.

The seeming impact of psychological factors on accident risk behaviour cannot be over emphasized. Certain psychological factors like anxiety, anger, impatience, and sensation seeking, are seemingly associated with driving risk behaviour (Ergstrom, Gregerson, Hernetkoski, Kesikine& Nyberg, 2013).Anxiety is a psychological factor which is a feeling of being too much worried about some things such as events, occurrences, actions or even skills. Anxiety is an emotion characterized by an unpleasant state of inner turmoil, often accompanied by nervous behaviour, such as pacing back and forth, somatic complaints and rumination. It is a feeling of uneasiness and worry, usually generalized and unfocused as an overreaction to a situation that is only subjectively menacing. It is often accompanied by muscular tension, restlessness, fatigue and problems of concentration. It may have impact on driving performance of a driver (Adaramaja, 2012).

Another relevant human factor relating to traffic accidents is anger while driving. This human element has been found to have a negative impact on cognitive variables such as attention, information processing and perceptions; cognitive variables such as these are essential to driving (Herrero-Fernandez, 2018; Chan, Wang, Lacka & Zhang, 2016). Anger is a powerful emotion, which is associated with negative feelings directed towards the cause of the anger; muscle tension and arousal of the nervous system accompanies this emotional state

(Chan, Wang, Lacka & Zhang, 2016). They found that anger mostly occurs in response to a disruption in behaviour or as a response to an actual or perceived threat. This emotional state has been found to be more frequently experienced in the driving environment than in non-driving environments (Chan, Wang, Lacka & Zhang, 2016). Anger on the road constitutes a very complex problem, considering that it is influenced by a large number of variables, including, stress, hot arguments, fighting, and disagreement with commuters or union leaders.

Impatience appears to be one of the factors responsible for risk behaviour among commercial vehicle drivers. One common reason for road traffic accidents has been described as impatience (Jonanovic, Lipovac Stanojevic & Stanojevic, 2011). Being impatient can cause drivers to take unnecessary risks and act aggressively. Often times, these behaviour results in serious accidents. In fact, a National Highway Traffic Safety Administration (2010) found that researchers reviewed impatient and aggressive drivers as number one danger on the road. Impatient drivers might more likely engage in dangerous maneuvers such as in tailgating and overtaking, thereby increasing the likelihood of causing road traffic accidents. It has been observed that impatience results in road rage most often from which aggressive driving ensues.

Impatience can cause a distraction, making the driver so upset with getting to his destination that he may fail to notice the actions of other motorists around him. According to Hauer (2010) impatience behind the wheel can also lead to over speeding, weaving in and out of traffics and overtaking vehicles that have stopped for pedestrians and cyclists. Driving with impatience or in haste appear to be very prominent amongst commercial vehicle drivers in Ondo State, Nigeria. The hustling to catch up with intending commuters and the number of trips they hope to make per day are some of the reasons for being impatient. Seasons of the year and events such as a particular celebration sometimes seem to determine how commercial drivers perform their driving tasks. On weekends, and festive periods such as Christmas and some particular months of the year like April and December, commercial drivers drive with impatience.

Impairment by alcohol is an important factor influencing both the risk of a road crash as well as the severity of the injuries that result from crashes (Mishra, Sinha, Sukla & Sinha, 2010). Drinking alcohol and driving has been found to be number one contributor as factors in approximately 30% of fatal crashes in Queensland (Australian Transport Safety Bureau, 2005). The case in Ondo State, Nigeria might not be different. Alcohol depresses the central nervous system and therefore increases the response time of the user, making less responsive to the challenges of driving particularly to coping with emergencies on the road (Akongbota, 2011). It also causes inhibition, impulsiveness and increased tendency to risk taking behaviour. A study which assessed alcohol and fitness to drive in Spanish medical driving test Centre found a significant association between use of alcohol and traffic infractions (Carman del Rio & Alvarez, 2001).

The use of mobile telephones can adversely affect driver behaviour-as regards physical tasks as well as perception and decision-making. The process of dialing influences a driver's ability to keep to the course on the road. From the results of studies on distraction and mental load, Farmer, Bratiman and Lind (2016) showed that driver's reaction times are increased by 0.5-1.5 seconds when talking into a mobile telephone. Earlier studies by Wilson and Stimpson (2010) have shown that drivers' performance is particularly affected in maintaining the correct lane position and the headway between two vehicles

travelling one behind the other, in keeping to an appropriate speed, and in judging and accepting safe gaps in the traffic. There are some evidences from studies that drivers who use mobile telephones while driving face a risk of a crash four times higher than the risk for drivers who do not use mobile telephones (Federal Road Safety Corps, 2012).

Despite the recommendation of several road safety agencies that drivers should put on their head lights from sunset until sunrise, some commercial drivers would not put on their headlight until thick darkness appears (Neumann, 2014). According to Salawu, (2008), driving at night is a lot more difficult than driving during the daytime. It is darker, and the driver may not be able to see the road ahead clearly well. Headlights make driving at night easier and safer, and nearly every driver use them but some psychologically risk-prone drivers still disobey the rule of "don't drive at night without headlight on."

Majority of traffic roads in Nigeria are one-track two-lane road that are not always conducive for smooth overtaking of vehicle ahead while driving on dangerous roadway curves. Accidents involving passing maneuvers are important problems on rural two-lane roads where one vehicle wants to overtake a slower vehicle moving ahead in the same direction. The danger occurs when passing vehicle traveling in the opposing lane does not have enough sight distance in such passing situation (Jeon and Kim, 2016). In most of this kind of driving circumstance, the driver who is overtaking the vehicle ahead without a good distance sight of the vehicle coming from the opposite direction may either end in a head-on collision with the on-coming vehicle, crash into the vehicle being overtaken or run-over the edge into the edge into the ditch in other direction. An impatient angry driver will risk overtaking indiscriminately even on this kind of roads.

The speed of motor vehicle is at the core of the road traffic injury problem. Speed influences both crash risk and crash consequences. The physical layout of the road and its surroundings can both encourage and discourage speed. Crash risk increases as speed increases, especially at road junctions and while overtaking- as road users underestimate the speed and overestimate the distance of an approaching vehicle. Driver's speed choice as reported by (Afolabi & Gbadamosi, 2017) is influenced by a number of factors which included anxiety, anger, impatience and over excitement.

It appears that psychological factors which are mostly human factors have relationship with driving behaviour which often may result in road traffic accidents. Few studies undertaken on road traffic accidents in Nigeria have generally limited their scope to focusing on causes and prevention. None of the few studies carried out in Ondo State covers the relationship between psychological factors and accident risk behaviour among commercial drivers. It is against this background that this study investigated psychological factors as correlates of accident risk behaviour among commercial drivers in Ondo State, Nigeria.

Research Questions

The following research questions were raised to guide the study:

1. What are the psychological factors that can lead to accident-risk behaviour among commercial drivers in Ondo State?
2. What are the risk behaviour that can lead to the occurrence of road traffic accidents among commercial drivers?

Research Hypotheses

1. There is no significant relationship between anxiety and accident risk behaviour among commercial drivers in Ondo State.

2.   There is no significant relationship between anger and accident risk behaviour among commercial drivers.
3.   There is no significant relationship between impatience and accident risk behaviour among commercial drivers.
4.   There is no significant relationship between sensation seeking and accident risk behaviour among commercial drivers.

Methods

The descriptive research design of survey type was used for this study. This design was considered appropriate as it enabled the researchers to describe the existing situation regarding psychological factors and accident risk behaviour among commercial vehicle drivers in Ondo state, Nigeria.

The population for this study consisted of commercial drivers who make use of motor parks for their loading and offloading in Ondo state, Nigeria. The sample for the study consisted of three hundred and sixty (360) respondents who were commercial vehicle drivers from Ondo state making use of multistage sampling procedures. The first stage involved a simple random sampling technique of the fishbowl type to select three Local Government Areas from the three senatorial districts. At the second stage, simple random sampling technique was used to select four motor parks from each of the three Local Government Areas. The third stage involved the use of simple random sampling technique of the balloting type to select 30 respondents from each motor park. A total of 360 respondents participated in the study.

The instrument used for this study was a self-developed questionnaire by the researchers. The questionnaire was in three (3) sections. Section A was designed to elicit information on the demographic characteristics of the respondents such as age, level of education, marital status and driving experience with options for respondents to tick. Section B items was designed to elicit information on psychological factors of accident risk behaviour. The items were rated using Always (3), Occasionally (2), Never (1). Section C was structured to gather information on accident risk behaviour which appear common among commercial drivers. It was rated with scales of: Always (3), Sometimes (2), Not at all (1).

The instrument was administered to commercial vehicle drivers at the sampled motor parks with the assistance of 2 research assistants. Administration was done on the drivers' meeting days which gave them ample opportunity to patiently attend to the researchers and responded appropriately. Copies of the questionnaire were retrieved, coded and analyzed making use of descriptive statistics of percentages and mean scores to answer the research questions. The criterion means are set for the study was 2.0. The hypotheses were tested using Pearson Product Moment Correlation analysis at 0.05 level of significance.

Results

Research Question 1: What are the psychological factors that can lead to accident-risk behaviour among commercial drivers in Ondo State?

Table 1 presents the psychological factors which could lead to accident risk behaviour. The results are presented in table 1.

Table 1: Psychological factors associated with accident risk behaviour

Psychological factors	Always		Occasionally		Never		$\overline{X}$
	N	%	N	%	N	%	
Anxiety	155	43.1	119	33.0	86	23.8	2.20
Anger	186	51.6	106	29.6	67	18.8	2.33
Sensation Seeking	193	53.5	99	27.7	67	18.8	2.35
Impatience	153	42.4	216	30.0	99	27.6	2.15

Table 1 showed the responses on psychological factors are above the criterion mean of 2.0. This is a clear indication that anxiety ($\overline{X}$ = 2.20), anger ($\overline{X}$ = 2.33), sensation seeking ($\overline{X}$ = 2.35) and impatience ($\overline{X}$ = 2.15) are factors that can lead to accident risk behaviour among the respondents.

Research Question 2: What are the risks behaviour that can lead to the occurrence of road traffic accidents among commercial drivers?

Table 2 presents the accident risk behaviour among commercial drivers

Table 2: Accident risk behaviour among commercial drivers

Accident Risk Behaviour	Always		Occasionally		Never		*X*
	N	%	N	%	N	%	
Alcohol Consumption	168	46.7	129	35.8	63	17.5	2.29
Excessive Speed	138	38.4	127	35.4	94	26.2	2.12
Dangerous Overtaking	159	44.1	116	32.3	85	23.7	2.21
Use of cell Phones	194	54	103	28.8	62	17.2	2.37
Driving without headlamp at night	212	59	88	24.6	59	16.4	2.43

Table 2 showed the risk behaviour that can lead to the occurrence of road traffic accidents among the respondents. Using a cut-off $\bar{X}$ = 2.00 as a criterion, all the items had $\overline{X}$ scores above the cut-off point. Thus, alcohol consumption ($\bar{X}$ = 2.29), excessive speed ($\bar{X}$ = 2.12), dangerous overtaking ($\bar{X}$ = 2.21), use of cell phones ($\bar{X}$ = 2.37), driving without headlight at night ($\bar{X}$ = 2.43). This implies that alcohol consumption, excessive speed, dangerous overtaking, use of cell phones and driving without headlamp at nights are risks behaviour that can lead to the occurrence of road traffic accidents among the respondents.

Hypotheses Testing

Hypothesis 1: There is no significant relationship between anxiety and accident risk behaviour among commercial drivers in Ondo State.

Table 3: Pearson Product Moment Correlation on anxiety and accident risk behaviour

Variables	N	Mean	SD	r_{cal}	P
Anxiety	360	5.420	1.275	0.316	0.000
Accident risk behaviour	360	18.113	8.90		

*p<0.05

Table 5 showed that anxiety has significant relationship with accident risk behaviour(r = 0.316, P<0.005) at 0.05 level of significance. The null hypothesis is thereby rejected. Thus, there was a significant positive relationship between anxiety and accident risk behaviour among the respondents. This implies that as the anxiety increases, the accident risk behaviour also increases.

Hypothesis 2: There is no significant relationship between anger and accident risk behaviour among commercial drivers.

Table 4 presents anger and accident risk behaviour among vehicle commercial drivers.

Table 4: **Pearson Product Moment Correlation on anger and accident risk behaviour among commercial drivers**

Variables	N	Mean	SD	r_{cal}	P
Anger	360	4.179	1.305	0.356	0.000
Accident risk behaviour	360	18.113	4.45		

*p<0.05

Table 4 showed a significant positive relationship between anger and accident risk behaviour and anger (r = 0.356, p<0.005). The hypothesis is therefore rejected. Thus, there was a significant relationship between anger and accident risk behaviour among the respondents. This implies that as the anger demonstrated by driver increases, the accident risk behaviour increases.

Hypothesis 3: There is no significant relationship between impatience and accident risk behaviour among commercial drivers in Ondo State.

Table 5 presents impatience and accident risk behaviour.

Table 5: Pearson Product Moment Correlation Analysis on impatience and accident risk behaviour among commercial vehicle drivers

Variables	N	Mean	SD	r$_{cal}$	P
Impatience	360	4.628	1.55	0.337	0.000
Accident risk behaviour	360	18.113	4.45		

*p<0.05

Table 5 showed a significant positive relationship between the impatience and accident risk behaviour (r = 0.337, p<0.005). Hence the null hypothesis is rejected. Thus, there was a significant relationship between impatience and accident risk behaviour. This implies that as the impatience by the driver increases, the level of accident risk behaviour increases.

Hypothesis 4: There is no significant relationship between sensation seeking and accident risk behaviour among commercial drivers in Ondo State.

Table 6 presents sensation seeking and accident risk behaviour.

Table 6: Pearson Product Moment Correlation Analysis on sensation seeking and accident risk behaviour among commercial drivers

Variables	N	Mean	SD	r$_{cal}$	P
Sensation seeking	360	3.305	1.8	0.363	0.000
Accident risk behaviour	360	18.113	4.45		

*p<0.05

Table 6 showed a significant positive relationship between sensation seeking and accident risk behaviour (r = 0.363, p<0.005). The null hypothesis is rejected. Thus, there was a significant relationship between sensation seeking and accident risk behaviour among the respondent. This implies that as sensation seeking by the driver increases, the accident risk behaviour increases.

Discussion

The findings of the study corroborate the discoveries of some previous studies. The findings of this study showed that there was a significant relationship between anxiety and accidents risk behaviour among commercial vehicle drivers. This finding is in consonance with the opinion of Drews, Pasuphati and Strayer (2008) who found out that anxious drivers do engage in variety of fear-related

behaviour that may be considered reckless, inappropriate or dangerous. The findings also conformed with earlier study of Ulleberg (2002) who found out in his study of exploring driving outcomes among Norwegian motorists, that anxiety related driving is functionally detrimental. Individuals identified in his research showed evidence of low ratings of perceived driving skill, greater endorsement of risky driving behaviour and high levels of accident involvement. However, the findings of this study is in contrast to that of Deffenbacher, Huff, Lynch, Oeting and Salvatore (2000) who in their model of anxiety postulated that elevated anxiety may decrease the threshold for aggressive response to dangerous traffic condition.

The findings of this present study showed that there was a significant relationship between anger and accident-risk behaviour among commercial vehicle drivers. This finding is in line with the works of Zhang and Chan (2019) who postulated that anger is positively associated with the possibility of causing traffic accidents, making such behaviour relevant to road safety and of course to the study of road crashes explained by human factors. These authors also agreed that anger has been found to have a negative impact on cognitive variables such as attention, information processing and perceptions which are all essential to safe driving.

The findings of this study also showed that sensation seeking is significantly related to accident-risk behaviour. In agreement with this, Jonah (2007) found out that there was a very close relationship between sensation seeking and driving risk behaviour as sensation seekers may involve in alcoholism, speeding and dangerous overtaking. In conformity with the findings of this study, Arnett (2009) reported that persons with high level of sensation seeking had an acute aversion to routine and tend to enjoy experiences that are intense, unpredictable or that have an edge of danger to them. In the same vein, Ulleberg (2002) had previously shown that drivers with a tendency to violate traffic laws or those who are error-prone possess higher levels of monotonous, selective attention and sensation seeking than those who have low level of violations and errors.

The findings of this study further revealed that impatience was significantly related to accident risk behaviour among commercial drivers. In concordance with this findings, Haver (2010) and Janick and Lisa (2013) revealed that impatience and time pressure are determining factors for

traffic rule violations and risky behaviour exhibited by commercial drivers. Similarly, Afolabi and Gbadamosi (2017) agreed that impatience and emotional situations are contributory factors to driving risk behaviour in Nigerian traffic roads. These findings also juxtapose the findings of the present study that impatience is a psychological factor which induces risky driving behaviour among commercial drivers.

Conclusion

Based on the findings of this study, it was concluded that anxiety, impatience, anger and sensation seeking have significant relationship with accident-risk behaviour among commercial drivers in Ondo State, Nigeria. In addition, alcohol consumption, excessive speed, dangerous overtaking, use of cell phones, and driving at night without headlamp are accident risk behaviour exhibited commercial drivers in Ondo State.

Recommendations

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

1. Anxiety disorder and emotional tests should be conducted on commercial drivers before drivers licenses are issued to them and such tests should be administered to commercial drivers on quarterly basis.

2. The use of the Global Positioning System, a satellite navigation monitoring system; and telematics should be enforced to monitor the actions of drivers while in motion. This could be enforced by the joint effort of the Ministry of Transportation and the Traffic Law Enforcement Agents.

3. Road Safety Corps and the Traffic Division of the Nigeria Police Force in conjunction with the Federal Ministry of Transport should organize from time to time, seminars and workshops for commercial drivers on driving code of conduct, adverse effects of alcohol consumption between driving, consequences of over-speeding and traffic rules violations. This will assist in the reduction of driving risk behaviour that emanate from the psychological factors identified in the study.

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