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MANUSCRIPT GUIDE FOR AUTHORS

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PROXIMATE COMPOSITION AND SENSORY EVALUATION OF A CEREAL- LEGUME-CRAYFISH BASED COMPLEMENTARY PORRIDGE

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ABSTRACT

The study produced under-five porridge made from soya bean, white maize, groundnut and crayfish flour. The different flours were combined in three concentrations of 30:30:20:20, 35:35:15:15 and 40:40:10:10 of soyabean, white maize, groundnut and crayfish respectively. Porridge was prepared from the different samples of flour. The population of the study was 26 students. A 9-point hedonic scale was the instrument used for data collection. Mean, standard deviation and analysis of variance (ANOVA) were used for data analysis. Nutrient composition analysis showed that the different samples of porridge had appreciable values of protein, fats, and carbohydrate. The sensory evaluation result indicated that there was no significant difference in the mean responses of the students on the sensory evaluation of the porridge samples. However, Sample A had the highest value for colour, taste, flavour, mouth-feel and general acceptability. Among recommendations made is that mothers should be encouraged to produce porridge from soyabeans, white maize, groundnut and crayfish since it has high nutritional content.

Keywords: Complimentary Porridge, Sensory Evaluation, Nutrient Composition.

INTRODUCTION

Malnutrition is one of the major public health challenges in developing countries like Nigeria. Childhood malnutrition either in form of inadequate intake of nutrients due to lack of food, ignorance, socio-cultural factors and diseases, poor dietary intake, among other causes, resulting in underweight, overweight (obesity) and other nutrient deficiencies. Malnutrition can impair physical and brain development of young children most especially the under - fives. World Health Organization (WHO) (2020) reported that Nigeria had 11.8% severely wasted, 16.8% wasting, 2.1% overweight, 36.8% stunted and 21.6% underweight under-fives. WHO (2020) noted that in

many parts of the world, under five children diets contain insufficient micronutrients and deficiencies are widespread. Millions of children particularly from developing countries suffer from stunted growth, cognitive delays, weakened immunity and disease as a result of micronutrient deficiencies.

Presently, there is a growing food insecurity in developing countries including Nigeria. Children are the most vulnerable group affected by food insecurity. The micro and macronutrient deficiencies of under-five meal could be responsible for certain growth and development disorders. The researchers of this study believe that adequate processing and development of under-five meals from locally available food sources would lead to intake of improved meals among under-fives which would enhance nutrients and prevent nutritional diseases among under-fives.

Therefore, there is need to formulate and evaluate the nutrient constituents and acceptability of improved under-five meals from locally available staple foods. Most locally available foods such as soya beans, groundnut and crayfish are highly nutritious. FAO (2017) reported that the crude protein content of most legumes varies between 16.0% in bambara groundnut to 35.1% in soybeans. FAO (2017) further reported that soy protein is limiting in essential sulphur containing amino acids (methionine and cysteine), but rich in lysine and tryptophan. FAO/WHO/UNU, (2002) reported that crayfish is classified as an animal polypeptide source which accounts for 36% to 45% of crude protein. Crayfish is a freshwater crustacean resembling small lobster. FAO/WHO/UNU, (2002) reported that crayfish have high nutritive value with a superior biological value, true digestibility, net protein utilization, high content of essential amino acid, and protein efficiency which is favourable compared to casein. Nahid, Zaglol and Fayza (2009) highlighted the nutritional information of crayfish to contain total fat of 1g, saturated fat 0 g, cholesterol 0 g, protein 126 mg, compared to one egg of 200 mg, sodium 170mg, dietary fiber 0 mg, sugar 0 mg, calories of 80mg compared to beef 242 mg calories.

Groundnut on the other hand being an oil seed crop, contains **40 to 49% oil. In addition to protein, groundnuts are a good source of calcium, phosphorus, iron, zinc and boron.** Groundnut also contains vitamin E and small amounts of vitamin B complex (FAO, 2017). Maize will also be utilized in this study. Maize is a staple food crop for most sub-Saharan Africans of which Nigeria is inclusive (FAO, 2014). In Nigeria maize is the third most important cereal crop after sorghum and millet (Ojo, 2010). Major varieties of maize are white and yellow coloured. The study utilized white maize. Maize is an inexpensive type of starch and a source of carbohydrate. Ekpa (2020) noted that 100g of a freshly cultivated maize consists of 74 g of carbohydrates, 7.3 g of fibre and 0.64 g of sugar. Matured corn has more starch while un-matured corn contains more sugar.

Nutritionist, researchers and other stake holders are concerned about the development of nutritious foods for under-fives from staple foods available in the community. Samuel and Otegbayo (2006) determined chemical analysis and sensory evaluation of *Ogi* enriched with soybeans and crayfish. Akinola, Bashkayeva and Hammed (2014) determined the formulation of local ingredient-based

complementary food in South-west Nigeria. Akinola, *et. al.* (2014) formulated complementary foods using maize, soya bean, groundnut, guinea corn, millet and sorghum. None of the related empirical studies reviewed by the researchers utilized white maize, soyabean, ground nut and crayfish in the development of under-five porridge which is the focus of this study.

Objectives of the Study

The main objective of the study was to determine nutrient composition and sensory evaluation of under-five porridge produced from white maize, soyabean, ground nut and crayfish. Specifically, the study was carried out to:

1. Produce porridge from white maize, soyabean, groundnut and crayfish in different concentrations.
2. Assess the nutrient composition of the different concentrations of the under-five porridge.
3. Evaluate the sensory evaluation of the different concentrations of the under-five porridge.

Hypotheses

1. There is no significant difference on the nutrient composition (protein, carbohydrate, fats and oils, crude fiber, moisture and ash content) of the different ratios of the under-five porridge.
2. There is no significant difference on the sensory evaluation (colour, taste, flavour, mouth feel and general acceptability) of the different proportions of the under-five meal.

MATERIALS AND METHODOLOGY

The population of the study consisted of twenty-six (26) Home Economics students of Vocational Education Department, School of Technical Education, Yaba College of Technology, Yaba, Lagos State. No sampling was done since the population was a manageable size.

A 9-point hedonic scale was the instrument used for data collection in this study. The 9-point hedonic scale used for the study is a standard scale adopted from Peryam and Girardot (2013). The sensory attributes (texture or consistency, colour, flavor, aroma and general acceptability) of the under-five meal of white maize, soya bean, ground nut and crayfish were collected using the 9 - point hedonic scale. The 9-point hedonic scale was rated as like extremely 9 points while dislike extremely as rated 1 point. Sensory attributes of the processed forms of the under-five meal from white maize, soya bean, ground nut and crayfish were evaluated by the 26 members of panel.

For the food product preparation, the production method by Kuku, Etti and Ibironke (2014) was used. White maize was picked to remove impurities, and thereafter blended to fine consistency. Soyabean seeds were cleaned by picking to remove sand and other impurities. The seeds were washed and dried using a hydro extractor. Thereafter, the seeds were roasted using an electric roasting machine, then, milled into fine powder. The groundnut seeds were picked to remove impurities. Thereafter, they were washed and dried in a hydro extractor, then roasted in an electric roaster and then, milled into smooth powder. The crayfish was picked to remove impurities.

Thereafter, it was dried and milled to fine consistency. Each sample was packed separately.

Three samples were formulated in different concentrations from the packed flour of white maize, soyabean, groundnut and crayfish. The formulation ratio was Sample A: 30:30:20:20, Sample B: 35:35:15:15 and Sample C: 40:40:10:10 of white maize, soyabean, groundnut and crayfish respectively.

For the analytic procedure, after the sample processing and formulation, each sample was packed in an airtight polythene bag and taken to the laboratory for analysis. Each of the sample formulations were analyzed for moisture content, crude protein, ash, crude fibre, fats and oil using AOAC (2012) methods. Carbohydrate content was determined by difference. The laboratory analysis was conducted at the College Central Research Laboratory in Yaba College of Technology, Yaba, Lagos State.

In carrying out the sensory evaluation, each packed formulated sample powder was prepared into thin porridge (gruel). Adesanya, Eduzor, Samuel, Onuoha and Alao, (2020) method was utilized to make the gruel. The sample was dissolved in little water to form a slurry solution. Then, boiling water was added to it and stirred until a thick consistency was achieved. The gruel was presented for evaluation at a temperature of 40°C. According to FSAS (2012) ideal food serving temperature is between 40C to 63C. The evaluation was conducted in Home Economics Laboratory in Vocational Department, in Yaba College of Technology, Epe Campus, Lagos State. The gruel was presented to the judges in clean, odourless and tasteless containers. The 9-point hedonic scale was placed near the products such that each judge collected and used each for evaluation.

For the statistical analysis, mean, standard deviation and analysis of variance (ANOVA) were used for data analysis. All data analyses were done using the statistical package for social sciences (SPSS) version 25. Hypotheses were tested at 0.05 level of significance.

RESULTS AND DISCUSSION OF FINDINGS

Table I: Nutrient composition of the complimentary porridge at different concentrations.

S/N	Nutrient Composition	Sample A	Sample B	Sample C
1	Crude Protein %	28.48	31.22	35.04
2	Moisture Content %	6.16	5.18	4.71
3	Crude fibre %	0.01	0.03	0.04
4	Ash %	3.87	2.86	1.66
5	Fat %	34.81	36.08	38.32
6	Carbohydrate %	26.7	24.63	20.22

Note: Sample A: 30:30:20:20, Sample B: 35:35:15:15 and Sample C: 40:40:10:10 of Soyabeans, White maize, Groundnut and Crayfish

Table I showed the result of the nutrient composition of the three different samples of the complimentary porridge produced from soyabeans, white maize, groundnut and crayfish. The

results revealed that sample C ($P < 0.05$) had the highest crude fibre when compared with the other samples. The higher fat content of sample C can be attributed to the high proportion of groundnut in the sample when compared to other samples. According to FNB (2015) the recommended macro nutrient range for fats and oils for under five children of both genders is 25-35g. Hence, the developed porridge can serve as a rich source of fats and oil for the under five children. High crude protein results were found in the three samples. The high crude protein content of 28.48, 31.22 and 35.04 is above the recommended dietary intake of protein for under-five children as reported by WHO (2002). WHO (2002) recommended the nutrient intake of 14.5 - 19.7 for protein in gms/day for children between 1 to 5 years. FAO (2005) cited in FAO (2017) recommended 10-35% of protein for adults. The high protein content can be attributed to the legume (soyabeans) and groundnut used in the food sample. In line with the high protein content, researchers like Afolabi, Okache, Eke and Alakali (2018) had earlier established that crayfish contains 58.14% protein and is highly nutritious. The crude fibre and ash content of the porridge showed an insignificant increase in all the samples. This is due to the low cellulose content of soyabeans, groundnuts and crayfish. Thus, there was a significant difference in the nutrient composition (protein, carbohydrate, fats and oils, crude fiber, moisture and ash content) of the different ratios of the under-five porridge.

Table II: Sensory Evaluation of the different Samples of Porridge Produced from Soyabeans, White Maize, Groundnut and Crayfish.

S/N	Sensory Evaluation	Sample A	Sample B	Sample C	F	Decision
1	Colour	8.7 ± 2.03	7.9 ± 0.03	8.2 ± 1.31	0.07	NS
2	Taste	8.2 ± 1.17	8.1 ± 0.88	8.0 ± 0.78	1.01	NS
3	Flavour	7.7 ± 0.33	7.2 ± 1.19	7.5 ± 0.60	0.32	NS
4	Mouth Feel	8.4 ± 1.01	8.1 ± 0.01	8.0 ± 0.32	0.11	NS
5	General Acceptability	8.8 ± 5.6	8.1 ± 4.09	8.5 ± 7.8	0.62	NS

Note: Sample A: 30:30:20:20, Sample B: 35:35:15:15 and Sample C: 40:40:10:10 of Soyabeans, White maize, Groundnut and Soyabeans. N = 20, values are means \pm standard deviation. Scores are based on results from 9-point hedonic scale, F = calculated value of ANOVA using SPSS.

Results of the sensory evaluation were presented in Table II. The results indicated that there was no significant difference in the mean responses of the students on the sensory evaluation of the porridge samples. Their F values (ANOVA) ranged from 0.07 to 1.01 which is more than the 0.05 level of significance ($P > 0.05$). Therefore, the null hypothesis of no significant difference was retained for the sensory evaluation. Although, sample A, had the highest value for colour, taste, flavour, mouth-feel and general acceptability.

CONCLUSION

The study produced porridge for under-five children using different ratios of white maize, soyabeans, groundnut and crayfish. Nutrient composition analysis showed that the different samples of porridge had appreciable values of protein, fats, and carbohydrate. The formulated three samples had high crude protein content of 28.48, 31.22 and 35.04 which is above the recommended dietary intake of protein for under-five children as reported by WHO (2002). The sensory evaluation result indicated that there was no significant difference in the mean responses of the respondents on the sensory evaluation of the three porridge samples.

RECOMMENDATION

Based on the findings of the study, the following were recommended:

Mothers should be encouraged to produce porridge from soyabeans, white maize, groundnut and crayfish since it has high nutritional content. Nutritional status of under-five children can be enhanced through the provision of porridge made from soyabeans, white maize, groundnut and crayfish. Different proportion of soyabeans, white maize, groundnut and crayfish can be combined in producing flour for under-five children porridge. Unemployed graduates can venture into mass production of flour from soyabeans, white maize, groundnut and crayfish which will be commercialized.

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PROFILE OF WILDLIFE ANIMALS MEAT (BUSH MEAT) CONSUMERS IN SOUTHWEST, NIGERIA

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ABSTRACT

Bushmeat constitutes a significant proportion of human dietary animal protein intake. This study profiled bush meat consumers in Southwest, Nigeria. Specifically, the study described the socio-economic characteristics of respondents; examined respondents' knowledge and attitude to wildlife and established the pattern of bushmeat consumption among respondents. Using simple random and snow-ball sampling techniques, two hundred (200) respondents were selected as study sample. Relevant data were collected using questionnaires, and were analysed using descriptive and inferential statistics. Results showed that 59.5% of the respondents were males with mean age of 41.0 ± 18.9 years, most (85.0%) of whom attained tertiary education and were urban residents (69.5%). Some (26.0%) were government officials and professionals (35.0%) with an average monthly income of $\text{₦}200,746.52 \pm \text{₦}41,808.50$. Most (86.0%) of the sampled respondents knew that earthworms maintain soil fertility and that tigers and leopards are types of cat (80.5%) while 58.5% believed that wild animals meat should always be served on special occasions and that wild animals should not be protected at the expense of people making economic livelihood, off the land (57.5%). Results further revealed that in the last one year, 20.5% of the sampled respondents consumed bushmeat once, and twice (20.0%), mostly at the restaurants. Respondents had considerable knowledge of wildlife but cared less about its conservation. Hence, conservation education is imperative in the study area.

Keywords: Wildlife, bush meat consumers, sustainable environment, conservation education.

INTRODUCTION

Globally, wildlife serves as source of nutrition, medicine and is of spiritual values in many human cultures in tropical and subtropical areas (Ichikawa, Hattori & Yasuoka, 2017). Wild animal meat (hereafter bushmeat) serves as an essential source of animal protein, macro nutrients and fat for forest dwelling people (Golden, Fernald, Brashares, Rasolofoniana & Kremen, 2011;

Mendoca, Vasconcellos, Souto, Oliveira & Alves, 2016). Bushmeat includes all terrestrial wild animals, some amphibious or semi aquatic freshwater animals from snails, crocodile to elephants (Oduntan, Soaga, Shotuyo, Akintunde & Olanrewaju, 2016). Bushmeat has been reported as the safety net for rural dwellers as it reduced household expenditure and the likelihood of consuming purchased meat/fish (Schulte-Herbrüggen, Cowlshaw, Homewood & Rowcliffe, 2013). Consumption of bushmeat can be driven by various factors ranging from low cost, preference of taste, or perception of prestige (Nasi, Taber & Van Vliet, 2011; Ordaz-Nemeth *et al.*, 2017). Moreover, increase in human population influences the demand for bushmeat and other non-timber forest product in Africa (Nyaki, Gray, Lepczyk, Skibins & Rentsch, 2014). For instance, the population of Economic Community of West African States (ECOWAS) has been projected to double by 2050 (Sylla, 2017). Most of this population growth will occur due to rapid urbanization and migration (Allen & Heinrigs, 2018). Since 1950, West Africa has continuously experienced explosive urban growth and at present 43% of its population lives in the cities (Allen & Heinrigs, 2018). Population growth propels the demand for food which may have unprecedented environmental damage including overexploitation of targeted wild animals and the destruction of their habitat (Lucas *et al.* 2020). Despite the availability of choices for different types of animal protein in the urban centers, bushmeat has been noted as an important source of protein and special delicacy for the inhabitants (Brashares, Golden, Weinbaum, Barrett & Okello, 2011; van Vliet & Mbazza, 2011). Hence, the high demand for bushmeat by the urban population (van Vliet & Mbazza, 2011; Luiselli *et al.*, 2020). The increasing demand for bushmeat has led to unsustainable extraction of large animals. Mostly, those with low reproduction rate are targeted by the hunters (Luiselli *et al.*, 2020). Regardless of their declining population, wild animals are continuously targeted and hunted to the point of extirpation in many forested areas (Nasi *et al.*, 2011). These unsustainable hunting practices have led to the defaunation of most forests, leaving them to be devoid of wild animals and hence “empty forests”. Unsustainable extraction of wild animals has ecological implications to the wildlife population and ecosystem function and structure (Abernethy, Coad, Taylor, Lee & Maisels, 2013). For instance, past researchers have found significant difference in tree seedlings as protected areas have more trees than forest sites with reported cases of bushmeat hunting in Cross River, Nigeria (Effiom, Nunez-Iturri, Smith, Ottosson & Olsson, 2013). Generally, most people consume wild animals because they are not aware of the influence of their consumption attitude on wild population. Social acceptance in terms of motivation, satisfaction, norms and attitude towards bushmeat is on the increase. In order to meet the demand for bushmeat, wild animals are unsustainably harvested from their natural habitats. Despite the conservation interventions, hunting of animals has perpetually increased in the protected areas. Therefore, it is imperative to examine the profile of consumers of bushmeat in the urban centres as they constitute larger proportion of human population, while bushmeat demand from such areas will be a major threat to wildlife conservation. To this end, this paper described the socioeconomic characteristics of bush meat consumers examined their knowledge and attitude to wildlife conservation and established the pattern of bush meat consumption among respondents.

MATERIALS AND METHOD

This study was conducted in Southwestern, Nigeria. During the design of this study, 3 states (Osun, Ondo and Ogun) were randomly selected. However, two states (Oyo and Osun) were conveniently sampled for the study. This is due to the imposed movement restriction occasioned by the COVID-19 lockdown in 2020 coinciding with the period of data collection. Hence, study sample were drawn mainly from the two states' capitals. The two states have an equatorial climate with dry and wet seasons and relatively high humidity. The wet season starts from April and ends in October while the dry season lasts from November to March.

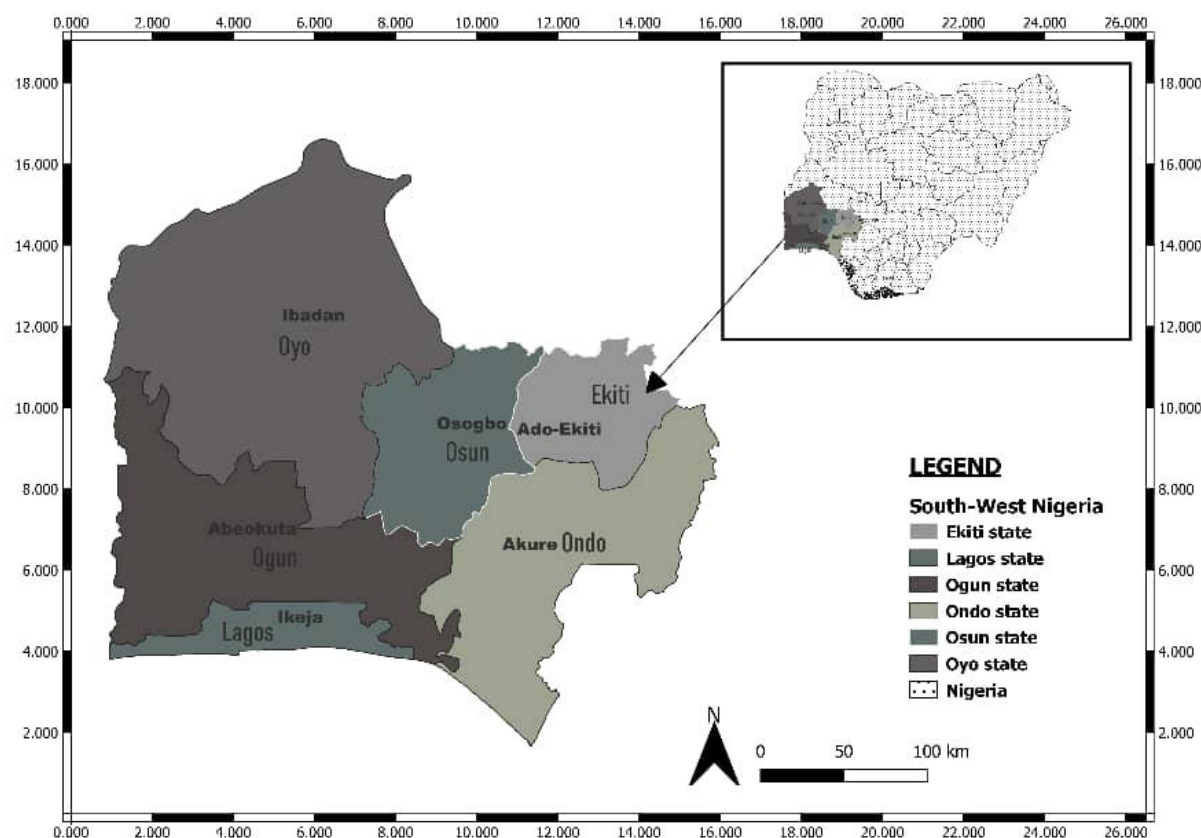


Figure 1: Map showing the States in South-west Nigeria and their capitals

A three-stage sampling procedure was used to select sample for the study. Stage one involved random selection of 2 (Osun and Oyo states) of the 6 Southwestern states. Stage two involved purposive sampling of major restaurants (Osun=2 and Oyo=3) where bush meat is served, ministries (Osun=4 and Oyo=4) and hospitals (one in each state, n=2). At the third and final stage, a total of two hundred (200) respondents were randomly selected based on some pre-determined characteristics including gender, age and status. Respondents' distribution is as follows: (restaurants = 97; ministries = 54 and hospitals = 38). Primary data were collected using semi structured questionnaires designed to obtain information on the respondents'

socioeconomic characteristics, knowledge and attitude to wildlife conservation and bushmeat consumption pattern. Questionnaires were self-administered across the two selected states by the three members of the research team. Each respondent spent about 15 minutes to 30 minutes in filling the questionnaire. The questionnaire used by Drury (2009) was adapted for this study. Coded data were analyzed using Statistical Package for Social Science version 23 to conduct descriptive statistics (Frequency counts, percentages, means, standard deviation & ranking) and inferential statistics (Cross Tabulation Analysis).

RESULTS AND DISCUSSION

Socioeconomic characteristics of bush meat consumers in the study area

Table I shows the results of the socioeconomic characteristics of bush meat consumers in the study area. More than half (59.5%) of the respondents were males. This was predetermined as men are believed to eat mostly in the restaurant especially while having lunch at work and they also like to consume bush meat. The majority (63.5%) of the respondents were above 30 years of age. This implies that most of the respondents were in their active ages and as such could take decisions that would be of great advantage to their lives including what to consume and not to consume. A higher proportion (70.5%) of the respondents indicated their birth place as an urban centre. Living in an urban area is expected to influence an individual's negative attitude and behaviour to wildlife conservation. Overall, 85% of the respondents had tertiary education, implying that most of the respondents were adequately educated. Less than half (35.0%) of the respondents were professionals in their fields of study showing that they have the opportunity to secure well paid job and earn enough money hence high purchasing power to support bush meat consumption. Most (85.5%) of the respondents earn more than ₦99,000.00 as their monthly income. This suggests that the respondents can afford to consume bush meat, despite its relatively high price compared to other meats.

Table I: Socio-economic Characteristics Respondents

VARIABLES	FREQUENCY	PERCENTAGE	Mean ± SD
Gender			
Male	119	59.5	
Female	81	41.5	
Age Group			40.5±27.3years
21-30 years	73	36.5	
31-40 years	45	22.5	
41-50 years	66	33.0	
51-60 years	13	6.5	
61 years and above	3	1.5	
Age group/sex			
Male			42.3±21.8 years
Female			38.8±18.5 years
Description of Birthplace			
Urban	139	69.5	
Rural	57	28.5	
Level of Education			
No formal education	4	2.0	
Primary	2	1.0	
Secondary	23	11.5	
Tertiary	155	77.5	
Masters/Ph.D	16	8.0	
Occupation			
Civil service	78	39.0	
Security agencies	6	3.0	
Professionals	70	35.0	
Skilled labourer	14	7.0	
Teaching	5	2.5	
Unemployed	3	1.5	
Student	22	11.0	
Retiree	1	0.5	
Others (trading)	1	0.5	
Monthly income			N200,746.52±41,808.50
Less than N50,000.00	29	14.5	
N50,000.00 – N99,000.00	42	21.5	
N100,000.00 – N149,000.00	58	29.0	
Above N150,000.00	70	35.0	

Source: Field survey; 2020.

Knowledge of Wildlife

Table II shows the frequency of the responses on all the 10 statements from which we gathered information on respondents' knowledge of wildlife. The data were transformed and knowledge scores were generated. The result reveals that most (89.5%) of the respondents have knowledge of wild animals (see Figure II). This implies that the respondents had a vast knowledge about wild animals. Information on people's knowledge about wildlife can influence their attitude and behaviour towards wildlife conservation programs and the environment (Kuriyan, 2002; White, Eberstein & Scott, 2018). Past researchers have reported a positive attitude to wildlife among the students and staffs of primary school after creating awareness and providing environmental knowledge (species identification) in East Sussex, United Kingdom. Furthermore, understanding and acknowledging residents' knowledge and perception of wildlife conservation is an important part of a process of engaging with local communities and building constructive relationships between residents and protected area management (Allendorf, Aung & Songer, 2012).

Table II: Respondents' Knowledge of Wildlife

Statements	True		False		Don't know	
	Freq.	(%)	Freq.	(%)	Freq.	(%)
A shark is a mammal	90	(45.0)	95	(47.5)	15	(7.5)
Lizard have backbone	146	(73.0)	36	(18.0)	18	(9.0)
All the following animals are venomous: scorpion, gecko, snakes	124	(62.0)	46	(23.0)	20	(10.0)
Earthworms are important in maintaining soil fertility	172	(86.0)	17	(8.5)	11	(5.5)
Elephants eat small mammals such as mice	51	(25.5)	117	(58.5)	26	(13.0)
Mammals lay eggs	65	(32.5)	120	(60.0)	15	(7.5)
Pangolins mainly eats ants and termites	91	(45.5)	21	(10.5)	88	(44.0)
Rhinos lay eggs	61	(30.5)	93	(46.5)	46	(23.0)
Some turtles can live longer than humans	158	(79.0)	21	(10.5)	21	(10.5)
Tigers and leopards are types of cats	161	(80.5)	32	(16.0)	7	(3.5)

Source: Field survey; 2020.

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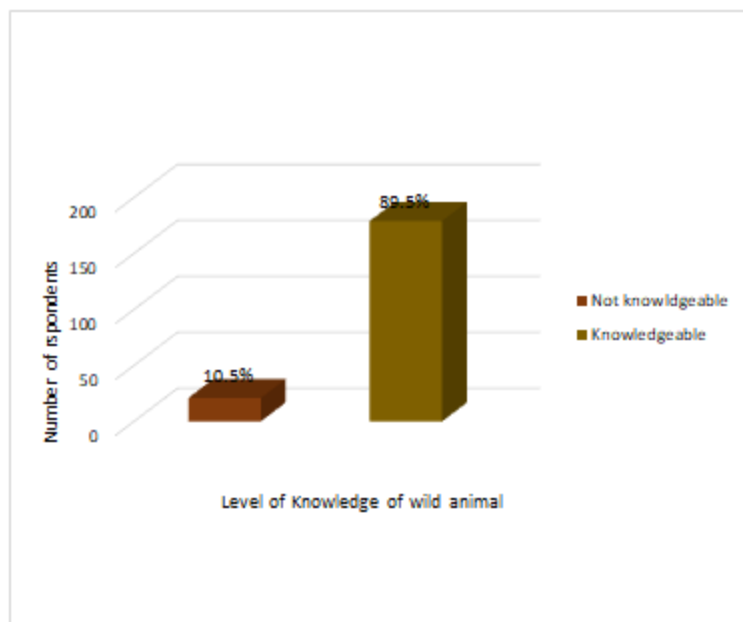


Figure II: Level of Respondents' Knowledge of Wild Animals

Attitudes towards Wildlife Conservation

Regarding attitude towards wildlife conservation, generally, findings from this study show that respondents have somewhat favourable attitude to wildlife conservation. (See Figure III). However, weighted mean scores (WMS) were calculated for the tested attitudinal statements for ranking them (see Table III) in their order of importance to wildlife conservation. Of the 12 attitudinal statements measured, the respondents disagree to the statement “Conserving wild animals is a waste of time and resources”. The statement has the highest weighted mean score (WMS) of 3.73 and was ranked (R) 1st. This result reveals that respondents’ level of education and their place of residence might have probably influenced their attitude towards wildlife conservation. Despite respondents’ favourable attitude to some statements, they were of the opinion that various species of wild animals should be served in the restaurants (WMS= 3.12 & R= 6th); not interested in learning about the ecological characteristics of species (WMS=2.95 & R=7th); prefer to see wild animals in a zoo rather than seeing them living wild in the forest (WMS=2.80 & R= 8th); felt dams can be built even if it will destroy wild animals habitat (WMS=2.72 & R=9th); forests should be cleared to boost economic growth (WMS=2.67 & R=10th); meat from wild animals such as antelope, grass cutter should be served on special occasions (WMS=2.66 & R=11th) and that animal should not be protected at the expense of the economic livelihood of those whose survival depends on it (WMS= 2.64 & R=12th). These findings suggest that respondents’ favourable attitude towards wildlife is not totally formed despite their level of education and knowledge of wildlife. In addition, cultural realities have played out in the statement on consumption of bushmeat. Culturally, the Yorubas have great affinity and preference for bushmeat consumption.

The result of the Chi-square analysis shows that occupation and monthly income are significantly associated with respondents’ attitude to wildlife (see Table IV). Similar studies on

drivers of bushmeat consumption in three African countries (Congo, Equatorial Guinea and Gabon) reported that there is an association between wealth and wildlife consumption (Wilkie *et al.*, 2005; Schenck *et al.*, 2006; Fa, Albrechtsen, Johnson & Madonald, 2009). This further reiterates that individuals with higher income tends to consume bushmeat.

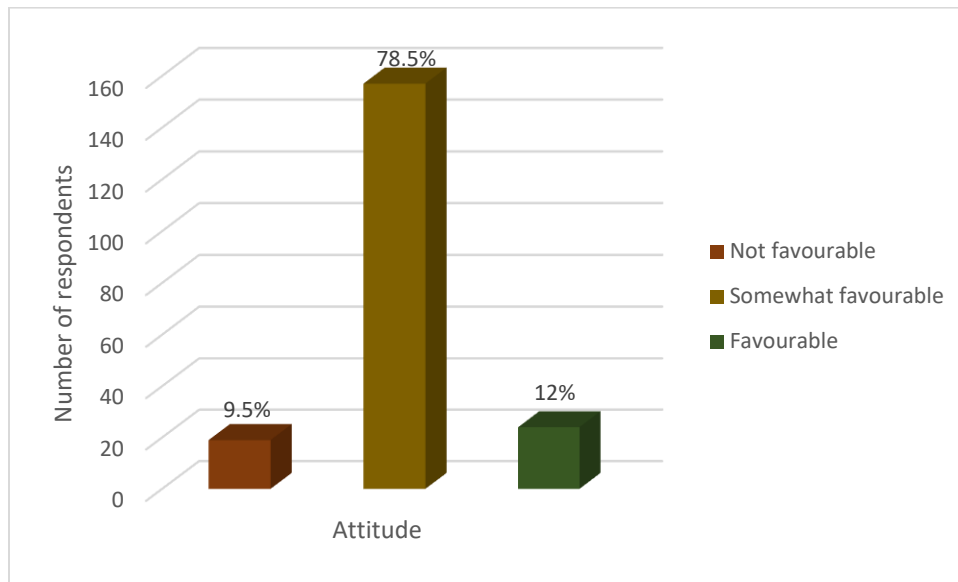


Figure III: Respondents' Attitude to Wildlife Conservation

Table III: Distribution Based on Respondents' Attitude to Wildlife Conservation

Attitudinal Statements	SA	A	U	D	SD	WMS	RANK
Conserving wild animals is a waste of time and resources	20 (10)	18 (9)	10 (5)	101 (50.5)	51 (25.5)	3.73	1 st
Capturing wild animals strikes me as an exciting and challenging activity	28 (14)	20 (10)	8 (4)	112 (56)	32 (16)	3.50	2 nd
I would like to try the meat from a wild forest species such as a hyena	18 (9)	43 (21.5)	19 (9.5)	69 (34.5)	51 (25.5)	3.46	3 rd
I generally prefer wild animals that have some practical value	45 (22.5)	17 (8.5)	4 (2)	97 (46.5)	37 (18.5)	3.32	4 th
The most important reason for protecting forests is because the animals there may produce bush meat	25 (12.5)	41 (20.5)	16 (8)	84 (42)	34 (17)	3.31	5 th
Restaurant should be permitted to serve any species of wild forest animals	33 (16.5)	62 (31)	12 (6)	47 (23.5)	46 (23)	3.12	6 th
Although I like animals, I am not particularly interested in learning about the ecological characteristics of species	23 (11.5)	65 (32.5)	23 (11.5)	77 (38.5)	12 (6)	2.95	7 th
I would prefer to see wild animals in a zoo rather than seeing them living wild in the forest	19 (9.5)	86 (43)	27 (13.5)	53 (26.5)	15 (7.5)	2.80	8 th
In order to produce more hydro- electricity it is sometimes necessary to build dams which damage the habitat of some wild animals' species	21 (10.5)	89 (44.5)	29 (14.5)	47 (23.5)	14 (7)	2.72	9 th
If more land is needed to maintain or boost economic growth it is sometimes necessary to clear forests or drain wetlands	28 (14)	81 (40.5)	36 (18)	40 (20)	15 (7.5)	2.67	10 th
On special occasions, it is nice to have meat from wild animals such as antelope, grass cutter	22 (11)	95 (47.5)	23 (11.5)	49 (24.5)	11 (5.5)	2.66	11 th
I don't approve of protecting wild animals if it hurts the economic livelihood of people who make a living off the land	39 (19.5)	76 (38)	23 (11.5)	43 (22.5)	19 (9.5)	2.64	12 th

Table IV: Association between the Socio-economic Characteristics and Attitude to Wildlife Conservation.

Variables	Chi-Sq value	df	P value.
Age	14.99	8	0.06
Place of birth	1.34	6	0.74
Level of education	12.08	12	0.45
Occupation	20.53	10	0.03*
Income	16.43	8	0.05*

Source: Field survey; 2020. * Significant at $P \leq 0.05$

Key: Chi-sq= Chi-Square value; df=degree of freedom.

Consumption Pattern of Bushmeat

More than half (59.5%) of the respondents indicated to have consumed bushmeat in the last 12 months (Table V). This result reveals that people in the urban areas consume bushmeat and hence there is demand and market for bushmeat. The rate of consumption of bushmeat in this study is more than 21.6% that was reported in a study conducted in large urban centres in West Africa (Luiselli *et al.*, 2020). The high rate of bushmeat consumption will invariably influence the rate of bushmeat hunting as many local hunters will engage more in hunting expenditure and hence drive wildlife species population decline. The findings from this study further reveal that bushmeat is not frequently consumed in the urban homes. Out of the 3 occasions, occasion 1 have the highest mean score of 2.0 (see Table VI). Restaurants remain the main source of bushmeat consumed as indicated by the respondents. This present findings corroborate other past study that reported 80% of bushmeat consumption in Vietnam is sourced for, from the restaurants in urban areas (Nguyen, 2003)

Table V: Distribution of Consumption Pattern of Bushmeat (12 months recall)

Pattern of consumption	Frequency	Percentage
Not consumed at all	87	40.5
Once	41	20.5
Twice	40	20.0
Three times	18	9.0
Four times	11	5.5
Five times	03	1.5

Total	200	100
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Source: Field survey, 2020.

Table VI: Sources of Bushmeat Consumed and Frequency of Consumption in the Last 12 Months

Occasion	Restaurant Freq. (%)	Colleague Freq. (%)	Relative Freq. (%)	Friends Freq. (%)	Personal house Freq. (%)	Mean Score
1	72 (36)	40 (20)	52 (26)	36 (18)	0 (0)	2.01
2	110 (55)	14 (17)	53 (26.5)	23 (11.5)	0 (0)	1.89
3	121(60.5)	17 (8.5)	36 (18)	26 (13)	0 (0)	1.84

Source: Field survey; 2020.

CONCLUSION AND RECOMMENDATIONS

In conclusion, the respondents' level of knowledge about wild animals, occupation type, having steady income and living in urban centres does not stop them from consuming bush meat. However, most of them have consumed bushmeat at least on one occasion (mostly in the restaurant). This study established that irrespective of occupation type and monthly income, people who have an affinity to consume bushmeat will surely do so. One can say that culture influence consumption of bushmeat in the Southern part of Nigeria. Based on the findings of the study, the following recommendations were made:

- i. Conservation education should be carried out for various people in different places as a means of teaching them about the importance of wildlife conservation and how to keep a sustainable environment, even while meeting the protein needs of the communities through the consumption of bush meats.
- ii. Also, governmental policies should be put in place to curb the unsustainable hunting and consumption of wild species.
- iii. Domestication of some of the preferred species of wild animal by the consumers should be encouraged as this will lower the threat on the wild populations

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STRATEGIES FOR CURBING THE IMPACT OF BELIEF SYSTEM ON THE ENTREPRENEURSHIP DEVELOPMENT OF WOMEN IN AFRICA

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ABSTRACT

Women play an important role in the economic development of their families and communities. In Africa, women's participation in economic activities has been identified to be of paramount importance, most especially in the area of entrepreneurship. However, they disproportionately experience barriers such as low income, household burdens, poverty, unemployment, lack of training, and discrimination due to the belief system in the continent. This paper reviewed relevant literature on culture as a contributor to economic activities of a nation in general and entrepreneurship in particular. The paper identified and explained cultural variables considered as obstacle to women's entrepreneurial development such as gender roles, domestic issues, and lack of access to resources, among others. It suggested among other things, the need for constant advocacy, including taking deliberate steps to build the capacity and develop relevant skills of women entrepreneurs. The traditional gendered role of women should never be a hindrance rather; equal opportunity is a necessary condition for achieving entrepreneurial development for women in Africa.

Keywords: Entrepreneurship, Belief System, Women, Africa, Impact

INTRODUCTION

Worldwide, women have contributed greatly to achieving sustainable development, promoting development and encouraging progress. Women, particularly those living in the rural areas of third world countries, play a key role in the development of their communities. They are in the agricultural and the informal sectors of the economy, accounting for about 60% of farm labour and producing over 90 percent of the domestic food supply. For instance, 80% of the food produced in Sub-Saharan Africa, 50% to 60 % in Asia, 26% in the Caribbean, 34% in the Middle East and North Africa, and more than 30% in Latin America, were manufactured by women (Iyiola & Azuh, 2014). Women contribution in economic development has been identified to be vital, especially in the area of entrepreneurship (Ahmed & Abubakar, 2019). Previous studies on entrepreneurship (such as Modi et al. (2010); Anggadwita et al. (2017) in Ahmed & Abubakar (2019), have clearly recognized the effort by women to become economically active and self-sufficient, and the major effects of their inputs on the labour market in economies of the world. According to Eijdenberg and Masurel (2013) cited in Ahmed and Abubakar (2019), people in developing economies are in most cases forced by poverty, survival and lack of jobs to become entrepreneurs, while in developed economies, entrepreneurial activities are as a result of utilization of an opportunity and innovation to start a business. There have been several accounts as to why some nations and ethnic groups are more entrepreneurial than others. One of the

justifications for the differences has been linked to cultural differences in values and beliefs (Ajekwe, 2017). This paper therefore contributes to the existing body of knowledge by suggesting the strategies for curbing the impact of belief system on the entrepreneurship development of women in Africa.

It has been observed that several hurdles affect all women-related ventures (Bosse & Taylor, 2012). For instance, most Nigerian women have the strong capabilities needed to speed up the growth and development of any society; nevertheless, their capabilities have not been fully employed due to various obstacles among which cultural perception is the most crucial (Tajudeen & Adebayo, 2013).

Statement of Problem

Despite the fact that women entrepreneurs play an important role in the development of their families and communities economically, recent studies have shown that business environmental factors such as economic, financial and socio-cultural beliefs, play a greater role in their utilization of entrepreneurial opportunities (Kuzilwa, 2005; Shastri & Sinha, 2010; Vob & Muller, 2009 in Amodu, Abeh & Yakubu, 2015). Women are incapable to execute their entrepreneurial desires due to a culturally enforced reliance on their husbands, partners, or relatives for financial support (Ekpe et al., 2014). In the views of Kuzilwa, (2005) and Shastri & Sinha (2010), as cited in Amodu et al, (2015), other conditions for utilizing entrepreneurial opportunities such as education, experience and energy may exist, but the environmental restrictions such as credit, societal prejudice and religious believes (particularly in budding economies), may deter the entrepreneur. This means that in societies where the socio-cultural system is gender biased, the overriding culture, attitudes, values and beliefs of the population at one particular time will result in a particular common mindset relative to the extent to which entrepreneurship is supported by society (Gilder, 1971; in Ajekwe, 2017). Thus, the traditional belief about the position and role of women in Africa do not allow women to engage in significant economic activities and as a result place a boundary on their commercial engagement (Amodu et al, 2015). There is inadequate information in the existing literature on strategies for curbing the impact of belief system on the entrepreneurship development of women in Africa. As such, this study is focusing on how cultural beliefs in Africa in relation to the role of women as dependents of their husbands, weaker vessels, or house wives, are influencing the business and economic development of women entrepreneurs on the continent.

METHODOLOGY

The paper is qualitative in nature. It uses analytical approach of secondary sources to draw insights from scholarly articles. The paper is presented under the following select themes.

Conceptual Review

Entrepreneur

By way of definition, an entrepreneur is someone who builds a business (Ihugba Odii & Njoku,

2013 cited in Amaechi, 2016). An entrepreneur could also be an integrated person who has the foresight, is exceptional, resourceful, and possesses leadership qualities (Ihugba et al., 2013). It is important to note that owning and running a small firm is not the same as starting an entrepreneurial venture (Amaechi, 2016). An entrepreneurial venture is an effort that leads to the creation of small and medium enterprises (SMEs) and business ventures (Lucky & Olusegun, 2012).

Women Entrepreneurs

Entrepreneurship is one of the main catalysts of economic growth, productivity, and expansion in both advanced and up-and-coming nations. Women entrepreneurs are women who start, establish, and operate business enterprises (Belwal, Belwal, & Al Saidi, 2014). Women entrepreneurs also offer ideas, energies, and capital resources to their diverse communities in addition to job creation and input to related businesses (Iyiola & Azuh, 2014).

There are three types of women entrepreneurs: conventional, innovative, and domestic (Ukonu & Tafamel, 2011). Conventional women entrepreneurs are those who are dedicated to both entrepreneurial ideas and customary gender roles (Ukonu & Tafamel, 2011). Innovative women entrepreneurs are individuals with strong beliefs concerning entrepreneurial ideas but have a low connection to conventional gender roles (Ukonu & Tafamel, 2011). Women entrepreneurs whose lives are organized around their businesses are largely domestic entrepreneurs; these are women who have strong beliefs in traditional female roles and have low connection to entrepreneurial ideas. Some women entrepreneurs in Africa fall within this category (Ukonu & Tafamel, 2011). Other women have dual features, as they are both women and entrepreneurs, and thus have attributes such as innovativeness, adaptability, creativity, strength, as well as the ability to quickly think and reason (Adeola, 2014).

Entrepreneurs initiate new businesses that create employment and offer services and products that increase the wealth of both the local and national economies (Boateng, 2014). Before now, men formed most of these new businesses because the notion of women as business owners is a new occurrence (Boateng, 2014; Kuckertz, Berger, & Allmendinger, 2015). Empowering women to become entrepreneurs gained reputation in the 1980s when it was known that women empowerment is one of the ways to attain poverty reduction, as well as economic growth and development (Ascher, 2012; Boateng, 2014). Most women have since become entrepreneurs; nevertheless, most are in the small and medium enterprises as they end up playing a restricted roles as co-owners and co-managers in the formal entrepreneurship segment as opposed to the informal entrepreneurship division where women entrepreneurs are likely to play an active role (Atef & AlBalushi, 2015; Boateng, 2014). There is a need for emerging nations to recognize that by creating a sufficient environment for entrepreneurship, entrepreneurs will serve the nations through jobs and wealth creation (Adeelanjum, Khan, Naz, Raza & Fatima, 2012). It is essential to understand that entrepreneurship membership should not be reliant on gender because economic contribution requires equal involvement (Adeelanjum et al., 2012). Most of the women

that are involved in entrepreneurship in some African countries are involved in small income generating ventures mainly, farming activities (Boateng, 2014). Without the active involvement of women, it can be difficult to achieve economic development because women play a crucial role in the entrepreneurship (Boateng, 2014; Sarfaraz, Nezameddin, &Majd, 2014). Nevertheless, women's ability to make input depends on the encouragement of gender equality within each of their individual societies (Atef & Al-Balushi, 2015; Boateng, 2014). When women are treated as a second-class citizen; their potential human resources are underrated and neglected (Boateng, 2014; Panigrahi & Satapathy, 2014). This is more prevalent in emerging nations where unemployment among women is high; whereas, becoming an entrepreneur could help women work at home and earn money to lessen poverty (Bajpai, 2014; Boateng, 2014). Although several women around the world are either beginning a new business or are proprietors of established business, this is not the situation in all places as only 27% of women in Sub Saharan Africa are entrepreneurs and only 4% of the women in the Middle East and North Africa and Mid-Asia region are entrepreneurs (Boateng, 2014; Idris & Agbim, 2015). Some women entrepreneurs tend to be overrepresented in service and retail sectors, also known as the informal sector, as nearly 84% of women are employed in the informal sector in countries in South Asia, Sub-Saharan Africa, Latin America and the Caribbean (Boateng, 2014). The women, who made it to some formal sectors, appear to be playing the supporting role (Boateng, 2014). Women entrepreneurs in Ghana, for example, make up half of the entire labor force; still, they mostly operate in the informal economy where they do not only outnumber the men but also make a contribution to the national growth, which may not be measured (Ascher, 2012).

Belief System (Culture)

Culture according to Hofstede (1980) in Ahmed and Abubakar (2019) can be defined as “the collective programming of the mind, which differentiates the members of one human group from another. Culture therefore refers to an organization of values. The effect of belief system on economic activities of different societies has been examined by several researchers. Inglehart (2000 cited in Ahmed &Abubakar, 2019) explored the influence of the various factors that form the world value system in sixty five (65) communities and discovered that economic differences are connected with large and persistent cultural disparities, and also, that culture districts are constant and long lasting. The cultural direction of a society replicates the intricate interaction of values, attitudes and behaviours displayed by its members (Adler, 1977cited in Ahmed &Abubakar, 2019). These values, in turn, affect the stance of individuals, which as always determines their behaviour choices in any given situation. The recurrently changing patterns of individual and group behaviour ultimately influence the society’s culture, and the cycle begins again.

Impact of Belief System on the Entrepreneurship Development of Women in Africa

There are suggestions that women have a lesser tendency to entrepreneurship when compared to their male counterparts (Garba, 2011 cited in Amaechi, 2016). This gap is as a result of the cultural beliefs in Africa that a woman’s function is to raise children rather than pursue other

opportunities such as entrepreneurship, education, or other forms of training (Ihugba et al., 2013). Even where women make effort to build an economic venture, several factors control the success of women entrepreneurs including socioeconomic challenges like domestic issues, financial constraints, lack of access to proper business development resources, and cultural beliefs about proper gender roles (Adeola, 2014). According to World Bank (2017), Africa is the only region in the world where more women than men choose to become entrepreneurs, and while both face drawbacks like lack of capital, women are specifically affected by factors such as discrimination and lack of collateral. As a result, female-owned businesses realize monthly profits that are on average of 38 percent lesser than those of male-owned businesses. Three factors are partly responsible for this under-performance namely; the lack of capital, the choice of business sector, and commercial practices. Equally, women's roles as mothers and wives, specifically does not allow for extra time that could be devoted to training and skills acquisition (Ukonu & Tafamel, 2011). Other obstacles include lack of self confidence, male controlled homes that discourage female empowerment, and nontraditional roles (Ademokun & Ajayi, 2012; Garba, 2011). Additionally, lack of crucial personal skills and attributes required to start a business, which are perceived to be masculine, are influencing the economic development of women entrepreneurs in Africa (Ademokun & Ajayi, 2012; Garba, 2011).

Ademokun and Ajayi (2012) note that the three primary economic activities women entrepreneurs appear to be engaged in include services (57%), trading (28%), and agriculture (15%). Researchers have focused on women entrepreneurs in Africa, as well as the cultural and socioeconomic challenges they face varying from inadequate provision of infrastructure, lack of electricity, inadequate transportation system, to inappropriate solid waste disposal system (Ukonu & Tafamel, 2011), as well as the opinion by many Africans that men have better managerial abilities while women on the other hand, are seen as more money-oriented and fashion conscious (Ukonu & Tafamel, 2011). While there is an ample range of financial institutions that provide business loans, these financial institutions demand high interest rates from prospective entrepreneurs, as high as 28%, thus discouraging would-be entrepreneurs (Ihugba et al., 2013). This approach can be more complicated for women entrepreneurs as they either cannot access a loan from the bank due to a low or the absence of credit rating or they are often forced by situation to use the accessed loan for other family needs (Ekpe, 2011). Thus, the absence of empowerment training, insufficient support structures, lack of career guidance, and information on business growth are all part of the challenges for women entrepreneurs (Agboola et al., 2015; Ajani & Igbokwe, 2015).

Despite a great deal of legislation surrounding women's rights in multiple African countries and a push to support women in business, women still face societal constraints that hinder their business potential. For example, Yusuf (2013) examined gender bias and sub culture like regional, ethnicity and religious practices within the context of national culture that affect women entrepreneurs in developing countries and found that gender, ethnicity and religion play important role in entrepreneurship development and how women entrepreneurs are perceived and

valued. In support of this view, Halkias, Nwajiuba, Harkiolakis&Caracatsanis (2011) opined that gender bias and cultural beliefs hamper economic potentials of women as entrepreneurs and impact negatively on development of enterprise, productivity, competitiveness and reduced economic growth. Furthermore, Ahmed & Abubakar (2019), observethat in the Northern part of Nigeria for instance, the traditional belief about the status and role of women do not allow women to engage in serious economic activities and therefore put a limit on their entrepreneurial engagement and involvement, thus creating a situation where majority of married women in the North largelydepend on their husbands for financial intervention and assistance. This cultural practice therefore, prohibits women from most parts of Northern Nigeria from participating in entrepreneurial activities, which has to a large extent affected women entrepreneurship in thearea. Abimbola &Agboola (2011) added that an enforcement of seclusion rules upon married women (Pudah) in Muslim states of Nigeria and South East Asia countries(Hugo,2012) affect women entrepreneurial engagement. In support of this view, Harkiolakis&Caracatsanis (2011) asserted that gender bias and cultural beliefs hamper economic potentials of women entrepreneurs and impact negatively on enterprise development, productivity competitiveness and reduce economic growth. Hence, issues of gender discrimination, particularly in developing economies, occasioned by socio-cultural factors have significant influence on entrepreneurial engagement of women (Otero, 1999 cited in Amodu, Abeh and Yakubu, 2015). In another study, Atela, Gannon and Crick (2018) examined Climate change adaptation among female-led micro, small and medium enterprises in semiarid areas in Kenya and found that women's access to entrepreneurship and adaptation resources, such as land, capital and new technologies, is widely restricted by traditional governance systems in Kenya. This as a matter of fact, reflects broader trends in social barriers faced by women entrepreneurs as most women lack ownership rights to land or legally secured entitlements, as these resources are still largely under traditional customary tenure, where men have exclusive right to land inheritance and subsequent ownership. As such, women generally depend on their husbands' land entitlements. This has several notable implications for women entrepreneurs as without land tenure, women are often restricted in their ability to make decisions about the management and development of their business assets.

Thus, while Africa boasts of the highest growth rate of female-run businesses in the world, according to the World Bank, women continue to face challenges that are unique to them (Africa.com, 2017). A study by the African Development Bank found that the financing gap for women in Sub-Saharan Africa is estimated at above US \$20 billion, and younger women struggle the most. According to the 2014 Findex report (cited in Africa.com, 2017)), only 30% of women in sub-Saharan Africa have access to bank accounts. This statistic shows the importance of empowering women through financial inclusion. Unfortunately, like most marginalised groups, women get funded based on track records, rather than on their potential. Often, in order to get the attention of funders, the burden is on women to prove their concepts beyond a shadow of doubt. According to africa.com (2017), Janine Jellars, Founder of TRUE Content, a South African content and social media marketing startup reveals that women most times struggle to

break the ‘old boys’ network’ and convince funders that their ideas’ are worth the investment. The question then becomes - why is it that women are painfully underserved by banks, venture capitalists, in addition to other creditors and investors? The answer may lie in the simple fact that the top offices of decision makers are still largely occupied by men, some who may have unconscious bias towards women owing to cultural beliefs (africa.com, 2017). Similarly, as an entrepreneur, the importance of having a mentor or advisor can’t be overstated. Growing a business requires constant decision-making, and a mentor serves as the savvy guide that one needs in order to make wise decisions and avoid mistakes. Finding the right support is another closed door for women business owners on the continent (africa.com, 2017). It’s a lot easier for up-and-coming male entrepreneurs to find a male business leader in almost any field, as men have dominated most fields. It’s also easier for an established male leader to ‘see himself in’ a young male entrepreneur. As a woman, it is hard to access those relationships.” However, Africa.com (2017) reports that Brenda Katwesigye from Uganda and the founder of InstaHealth, a Ugandan app that connects users to health centres, medical specialists, and ambulance services, notes that “lately, it’s becoming easier for women in the field because of corporate initiatives such as the Deloitte Women Mentorship Programme, the MTN in Business Programme, among others. Nonetheless, women often have to fight for equal opportunity in the face of gender discrimination. Because of the high level of gender inequality in the business world, sometimes women are regarded as being inexperienced and taken a little less seriously than their male counterparts in the same positions. There’s also the challenge of being seen as the boss, and being seen as a subject matter expert. In the same vein, a large number of women entrepreneurs have yet to fully comprehend their own greatness. According to the Global Entrepreneurship Monitor Women’s Report, as cited in africa.com (2017), women are generally more afraid of failure than their male counterparts; this inhibits their chances of starting or running their own businesses. This limiting fear of failure however, has a lot to do with how women are raised and socialized. Often, women are not raised to be leaders, to be assertive, to ask for what they want, to understand their value, or to understand the kind of impact they can make.

Strategies for Curbing the Impact of Belief System on the Entrepreneurship Development of Women in Africa

In a highly patriarchal African society where men have always dominated the core decision-making organs, there is an obvious and pressing need for the empowerment of women to enable them participate meaningfully in processes whose outcomes will better their lives. This is necessary, since the interests of men and of women is very likely to diverge. During conflict, women empowerment may be the only protection against attempts to subordinate their interests. This paper therefore maintains that the enhancement of women's capacity to influence and participate in decisions that directly or indirectly affect their lives, is a key issue in raising their standard of living and protecting their rights to full participation in the processes of development. In other words, empowering women is a means to an end, the end being to improve their lives and protect their rights to participate in decisions that affect them. The strategies for curbing the

impact of belief system on the entrepreneurship development of women in Africa will therefore include among others:

- i. Advocacy: It is extremely important for successful women entrepreneurs, women groups, non-governmental organizations as well as the government to put up a united front through initiating and supporting programmes and policies that empower women and discourage discrimination against women. This is because it is easy to accept a situation if one does not have access to better options. Consequently, building awareness about discriminatory practices against women, about laws that undermine their interests, and cultural and traditional norms that perpetuate their subjugation and subordination, are necessary building-blocks of entrepreneurship development.
- ii. The second strategy involves taking deliberate steps to build capacity and develop relevant skills of women entrepreneurs. Businesses are more likely to grow and increase if owners and managers are adequately trained and educated because the educational level of an entrepreneur will significantly determine a business survival and growth as higher education contributes to higher business growth (Brijlal, Naicker, & Peters, 2013). Hence, building capacity for planning, organising, coordination, and resource and personnel management, as well as other relevant skills and capacities can have positive impact on women entrepreneurs. This can also be majorly championed by female entrepreneurs with impeccable records of entrepreneurial success.
- iii. The third strategy involves the use of the skills and capacities that have been acquired to participate in critical decision-making and to exert a greater control over what happens in the home, the workplace, and in the wider society. Acquiring skills and developing capacities is meaningless if these remain unused. Consequently, such skills and capacities should enable women improve their bargaining power especially on entrepreneurial development.
- iv. Lastly, there must be a deliberate action on the part of the empowered women entrepreneurs to bring about change to redress belief system that hinders the entrepreneurship development of women in Africa. Women entrepreneurs can be successful only if the acquired skills and capacity are used to bring about changes in the lives of other African women. Thus, because there is an understanding that some beliefs women hold about their own potential stems from historical and cultural taboos, a force of African female entrepreneurs that lead with deep insight and high level of self-awareness has risen up. For example, Nigeria's Folorunsho Alakija, Zimbabwe's Divine Ndhlukula, and Kenya's Njeri Rionge are setting the tone for the young and upcoming generations of female business leaders (africa.com, 2017). Therefore, women need to be encouraged to celebrate their little victories; every sale, every win, every positive contact.

CONCLUSION/RECOMMENDATIONS

There are indications that the women entrepreneurial development is associated with several factors one of which is the belief system of a particular society. In Africa, certain beliefs and practices against women have continuously inhibited the evolution of an entrepreneurial culture among women, hence, the need to change these beliefs and practices. This paper reviewed belief systems that limit African women entrepreneurial development to include cultural beliefs about gender roles, low education, financial constraints, and lack of collateral, among others. The strategies to curb these negative impacts span massive awareness creation, capacity development, encouraging women entrepreneurs to put their acquired skills to use and also bring about change. There is need therefore to identify and encourage role models; people whose exemplary and wise entrepreneurial behaviour can be emulated. The traditional gendered role of women should never be a hindrance rather; programmes for the development of women entrepreneurship should recognize these traditional roles that contribute to the double burden of responsibilities that women bear while governments are encouraged to ensure that capacity building in entrepreneurship is complemented by access to social programmes to relieve the burden.

Also, African governments should improve governmental and societal encouragement of women's participation in economic issues, nation building, innovation and productivity. This will provide opportunities for women entrepreneurs to shape more gender responsive policy making and a more supportive enabling environment for women entrepreneurs to thrive.

Finally, women should follow their dreams and pay a deaf ear to pessimists. In due course, once the society sees the impact that women entrepreneurs are making, slowly the discouragement will begin to wane.

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DIETARY HABITS AND ANTHROPOMETRIC STATUS OF SCHOOL-AGED CHILDREN IN ENUGU EAST LOCAL GOVERNMENT AREA OF ENUGU STATE

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ABSTRACT

This cross-sectional study assessed the dietary habits and anthropometric status of school-aged children in Enugu East Local Government Area of Enugu State. A multi-stage sampling technique was used to sample 382 children from both public and private schools. Data were gathered with the use of structured questionnaire while height and weight were measured with anthropometric equipment. Descriptive statistics and WHO anthro were used to analyze the collected data while Chi-square was used to determine association between dietary habits of the children and their anthropometric status. The result on personal data of the children showed that 55.0% were females, 45.0% were males and their age ranges were 6-8years (36.1%), 9-10years (34.0%) and 29.9% were of ages 11-12years. The educational and occupation status of their parents showed that 49.7% and 57.1% of their fathers and mothers attained secondary level, respectively, 31.7% and 24.1% of their fathers and mothers were civil servants, respectively. The dietary habits of the children indicated that 26.7% of them skipped meals especially lunch (11.1%) or dinner (11.0%). The main reason for skipping meal was non-availability of food (12.0%). Majority (77.2%) of the children had normal weight-for-height, and 76.4% had normal weight-for-age. Height-for-age index indicated that 82.2% were normal. Positive associations were noted between dietary habits of the children and parents' level of education. Dietary habits of the children showed significant positive associations with all the anthropometric indices. This shows that good dietary habits as well as improved economic status contributes to good nutritional status.

Keywords: Dietary habits, school-aged children, anthropometric status.

INTRODUCTION

Sustainable development of any country or region can be achieved when poverty, health, education, food security and nutrition are addressed. Education of the children is paramount in ensuring that, hence schools contribute immensely and can have long-lasting impacts on those determinants of sustainable development through various ways and opportunities (Faber, Lauries, Maduna, Magudulela, & Muehlhoff, 2013; Global Panel on Agriculture and Food Systems for Nutrition (GLOPAN), 2015). Primary school age is a dynamic period of physical growth as well as of mental development of the child. Schools are considered as perfect settings for health promotion for children. However, regular provision of adequate and nutritious meals at homes contributes to that as well as complements any that the government may implement at school. This can improve

vulnerable children's attendance levels at school, attention capability and parent motivation thus potentially affecting academic performance and future enrolment (World Bank/World Food Programme, 2016). The United Nations Educational, Scientific and Cultural Organization (UNESCO), (2016) defines school-age children as persons within the age group of 6-12years. It is the period of life between infancy/preschool and adolescence. It further groups childhood into middle childhood (5-10years) and pre-adolescence (9-11years for girls and 10-12years for boys).

Malnutrition is a global problem with many forms and affects majority of the world's population. Young children are especially vulnerable. Poor diets is one of the major causes of malnutrition which subsequently have devastating effects on children's health, school performance and ability to learn which thus damages their future productivity and earning potential (Victora, Adair, Fall, Hallal, Marell, Richter, & Singh, 2008; Black, Victora, Walker, Bhutta, Christian, de Onis, Ezzati, Grantham-McGregor, Katz, Martorell, & Uauy, 2013). Conversely, good nutrition can promote optimal growth and development, better learning and overall health and well-being.

The period of school years up to adolescence represent another window of opportunity to promote healthy diets and practices and to support catch-up growth and the prevention of all forms of malnutrition (FAO, 2019). During the school years, there is dynamic period of growth and development leading to major physical, mental, emotional and social changes of the children.

According to Srivastava, Mahmood, Srivastava, Shrotriya, & Kumar (2012), foundations of good health and sound mind are laid during the school-age period. In spite of that, school children are still vulnerable to malnutrition due to inadequate availability and access to a nutritious and varied diet, poor household distribution, management and preparation of food, exposure to influences that promote low nutritional value foods, reduced care giver attention and higher susceptibility to infectious disease (Mispireta, 2012; Mwaniki & Makokha, 2013; Degarage, Degarage, & Animut, 2015). Therefore, urgent attention is needed to improve diets to end malnutrition in all its forms.

All forms of malnutrition are associated with various forms of ill health and higher levels of mortality (Development Initiatives, 2018). Globally, 150.8m children or 22.2% under age five are stunted while 38.3m are overweight (GLOPAN, 2016). The report further stated that India, Nigeria and Pakistan have the largest number of children who are stunted with 46.6m, 13.9m and 10.7m, respectively while 25.5m, 3.4m and 3.3m were wasted. The prevalence of anaemia among school-aged children in Northwestern Nigeria was 37.7% (Bello-Manga, Awwalu, Ijei, Hassan, & Mamman, 2018). Eltayeb, Elsaed, Mohamedani, & Assayed (2016) reported a prevalence of 88.3% in Sudan while Salama and Labib (2016) reported 59.3% in Egypt.

Poor dietary habits has contributed to the increase in the different forms of malnutrition. According to Development Initiatives (2018), regardless of wealth, school-aged children, adolescents and adults are eating too many refined grains and sugary foods and drinks and few fruit, vegetables, legumes and whole grains. Specifically, 30.3% and 13.9% of school-aged children do not eat any fruit or vegetable daily yet 43.7% consume soda every day. Worse still, around 1 in 20 children

reported feeling hungry with more hunger among school-age children in Africa and Oceania. Prior to that report, Bogin *et al.* (2014) observed that children are most widely influenced by food globalization. This according to earlier observations, has negative impacts on their nutrition status often assessed by anthropometric measurements. Anthropometry is the science of obtaining systematic measurements of the human body. Anthropometric measurements involve the size and composition of humans (Utkualp & Ercan, 2015). Weight and height measurements are used to obtain indices such as weight-for-height, weight-for-age and height-for-age which are used to describe different levels of wasting, underweight and stunting in children and adolescents.

The school-age child who survives in an environment of high under five morbidity and mortality is often most times not regarded as vulnerable and therefore not targeted for many nutrition and health programmes. However, most countries have programmes that involve provision of school meals to complement what those children receive at homes. When such programmes lay emphasis on nutrition especially by integrating school food and nutrition education and focusses on quality, adequacy and nutrient composition, they support development and prevent all forms of malnutrition (FAO/WHO, 2014; Kristgansson *et al.*, 2016).

Therefore, better understanding of the nutritional status of school-aged children will only be possible when more studies are carried out among this age category. The study is designed to assess the dietary habits and anthropometric status of school-age children in the study location.

MATERIALS AND METHODS

Study Design and Location: The cross-sectional study was carried out in Enugu East Local Government Area of Enugu State, Nigeria. The place covers an area of 383km² with a population of 279089. The Local Government Area shares borders with Ebonyi State to the east, Benue State to the northeast, Kogi State to the northwest and Anambra State to the west. According to the Annual School Census Report (ASCR) (2017), there are thirteen primary schools in Enugu East Local Government Area.

Sample Size and Sampling Procedure: The sample size was calculated with the use of the formula by Winn, Naing, & Rusli (2006), which is $N = Z^2 * P(100-P)/X^2$, where N= sample size; Z=confidence interval represented as 1.96; P=percentage of school-aged children suffering from malnutrition in Nigeria which is 32% (United Nations International Children's Emergency Fund (UNICEF) (2016); 100-P= percentage of children assumed not to be malnourished in Nigeria and X=width of confidence interval or required precision level taken to be 5%. Substituting the values in the equation: $N = 2^2 * 32 (100-32)/5^2 = 348$. Ten (10%) of 348 was added as drop out to the sample size which made it to be 382.

The multi-stage sampling method used involved four stages. Stage one, Enugu State was purposively selected from the five South Eastern Nigeria because of limited study of such nature in the state. In the second stage, Enugu East Local Government Area was also purposively selected

from the 17 Local Government Areas in the state because there are many public and private primary schools for the study. In the third stage, six primary schools were randomly chosen out of the thirteen. Finally, ten pupils were selected by balloting from each class of the chosen schools while the remaining 22 pupils were drawn from the first two public and private primary schools to complete the required sample size.

Method of Data Collection: A structured questionnaire made up of three sections was used to gather information on the personal data of the children and their parents' socio-economic status, their feeding patterns and anthropometric measurements. A portable bathroom scale and stadiometer were used to measure the children's weight and height. Weights of the pupils were measured while they wore light cloths, bare-footed and standing on a scale with head pointing straight to the nearest 0.1kg. For the height measurements, the pupils wore no foot wears and were positioned straight, knees together, buttocks and heels touched the wall. The headpiece was then lowered gently to rest on the crowns of their heads. The reading was then taken to the nearest 0.1cm (WHO, 2005). All the measurements were done twice and the average used for analysis.

Data Analysis: Data obtained from the anthropometric measurements were analyzed using the WHO Anthro survey analyzer based on weight-for-age, height-for-age and weight-for height.

Statistical Analysis: The personal data of the pupils and the socio-economic status of their parents, dietary habits and anthropometric status of the pupils were analyzed using frequencies and percentages. Chi-square was used to associate between dietary habits/anthropometric status and socio-economic status of parents of the pupils.

RESULTS

The personal data of the pupils and the socio-economic status of their parents are shown in Table I. The result revealed that 55.0% of the pupils were females while 45.0% were males. Their age ranges showed that 36.1% were of 6-8years, 34.0% were 9-10years and the rest (29.9%) were 11-12years. The highest educational attainment of their parents indicated that more of their mothers (57.1%) than fathers (49.7%) attained secondary education. In contrast, more of their fathers (31.4%) than mothers (27.7%) stopped at primary level. On occupation of their parents, 31.7% of their fathers were civil servants as against 24.1% of their mothers. There were more mothers (36.6%) than fathers (27.0%) who were artisans and more mothers (25.9%) than fathers (3.1%) were unemployed while few mothers (2.6%) than fathers (28.0%) were self-employed.

Table I. Personal Data of the Pupils and Socio-economic Status of their Parents

	School type				Total	
	Private schools		Public Schools		Frequency	%
Characteristics	Frequency	%	Frequency	%		
Sex						
Male	88	46.1	86	45.0	174	
Female	103	53.9	105	55.0	208	

Total	191	100.0	191	100.0	382	100.0
Age (years)						
6-8	72	37.7	69	36.1	141	
9-10	67	35.1	65	34.0	132	
11-12	59	27.2	50	29.0	109	
Total	191	100.0	191	100.0	382	100.0
Educational level						
Father						
No formal	10	5.2	10	5.2	20	5.2
Primary	39	20.4	81	42.5	120	31.4
Secondary	105	55.0	85	44.5	190	49.8
Tertiary	37	19.4	15	7.8	52	13.6
Total	191	100.0	191	100.0	382	100.0
Mother						
No formal	8	4.2	11	5.8	19	5.0
Primary	66	34.5	40	20.9	106	27.7
Secondary	107	56.1	111	58.1	218	57.1
Tertiary	10	5.2	29	15.2	39	10.2
Total	191	100	191	100	382	100.0
Occupation						
Father						
Civil servant	61	31.9	60	31.4	121	31.7
Businessman	19	9.9	20	10.4	39	10.2
Artisan	54	28.3	51	26.7	103	27.0
Self-employed	52	27.2	53	27.7	107	28.0
Unemployed	5	2.7	7	3.8	12	3.1
Mother	191	100	191	100	382	100.0
Civil servant	47	24.6	45	23.5	92	24.1
Businesswoman	3	1.6	3	1.6	4	1.0
Artisan	68	35.6	72	37.7	140	36.6
Self-employed	4	2.1	6	3.1	10	2.6
Unemployed	50	26.2	49	25.6	99	25.9
Housewife	19	9.9	18	9.4	367	9.7
Total	191	100	191	100	382	100.0

Table II presents the dietary habits of the pupils. In Table II, 26.7% comprising of 29.9% and 23.6% private and public schools' pupils skipped meals. Meals they usually skip were lunch (11.1%) or dinner (11.0%) and the major reason for skipping those meals was unavailability of food (12.0%). In their households, 50.3% of them reported boys eating together, 31.9% individually while 17.8% of them said that girls ate together. The frequency of fruit intakes by the pupils indicated that 85.1% of them took occasionally and a few (14.9%) ate frequently.

Unavailability of food (40.3%) and improper meal planning (30.9%) were the major challenges encountered in feeding the pupils.

Table II: Dietary Habits of the Pupils

Variables	School type				Total	
	Private schools		Public Schools		Frequency	%
	Frequency	%	Frequency	%		
Meal skipping						
Yes	57	29.9	45	23.6	102	26.7
No	134	70.2	146	76.4	280	73.3
Total	191	100	191	100	382	100.0
Meal usually skipped						
Breakfast	13	21.7	4	8.9	17	4.4
Lunch	25	41.7	20	44	45	11.8
Dinner	22	36.7	21	46.7	40	10.5
Total	60	100	45	100	102	26.7
Reasons for missing the meal						
No one to cook it	9	15.0	5	11.1	14	3.7
Food not available	23	38.3	26	57.8	46	12.0
Does not like it	28	46.7	12	31.1	42	11.0
Total	60	100	45	100	102	26.7
How food is shared						
Individually	64	33.5	58	30.4	122	31.9
Boys eat together	97	50.8	95	49.7	192	50.3
Girls eat together	30	15.7	38	19.9	68	17.8
Total	191	100	191	100	382	100.0
How often the children take fruit						
Occasionally	158	82.7	167	87.5	325	85.1
Frequently	33	17.3	24	12.6	57	14.9
Total	191	100	191	100	382	100.0
Major challenge encountered in feeding children						
High cost of food stuff	44	23.0	48	25.1	92	24.1
Constant skipping of meals due to playing	12	6.3	6	3.1	18	4.7
Unavailability of food	75	39.3	79	41.4	154	40.3
Improper meal planning	56	29.3	62	32.5	118	30.9
Total	191	100	191	100	382	100.0

Table III presents the anthropometric status of the pupils. Weight-for-height index showed that 77.2%, 15.4% and 7.3% were normal, wasted and severely wasted, respectively. Similarly, weight-for-age index revealed that 76.4% were normal, 12.6% were severely underweight and a few (7.6% and 3.4%) were underweight and overweight, respectively. Prevalence of stunting showed that only (17.8%) of the pupils were stunted while majority (82.2%) were of normal height-for-age.

Table III: Anthropometric Status of the Pupils

Anthropometric status indicators	Public schools		Private schools		Total(n=382)
	Girls F (%)	Boys F (%)	Girls F (%)	Boys F (%)	F(%)
Weight-for-height					
Severely wasted (<-3SD)	5(2.4%)	9(4.5%)	0(0%)	14(7.1%)	28(7.3%)
Wasted (\geq -3SD <-2SD)	16(8.2%)	18(9.7%)	12(6.1%)	13(7.0%)	59(15.4%)
Normal	64(60.9)	59(68.6%)	91(86.7%)	61(70.9%)	295(77.2%)
Weight-for-age					
Overweight(<+2SD)	0(0%)	0(0%)	13(7.0%)	0(0%)	13(3.4%)
Normal	83(79.0%)	46(53.5%)	90(87.4%)	73(82.9%)	292(76.4%)
Underweight(<-2SD)	0(0%)	14(7.6%)	0(0%)	15(8.0%)	29(7.6%)
Severely Underweight (<-3SD)	22(11.5%)	26(13.5%)	0(0%)	0(0%)	48(12.6%)
Height-for-age					
Severely stunted (<-3SD)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Stunted (<-2SD)	19(10.2%)	15(7.6%)	15(8.0%)	19(10.0%)	68(17.8%)
Normal	86(81.9%)	71(82.5%)	88(85.4%)	69(78.4%)	314(82.2%)

The associations between dietary habits of the pupils and socio-economic status of their parents on the one hand and the anthropometric status of the pupils on the other hand are presented in Tables IV and V. In Table IV, there were significant positive associations between dietary habits (meal skipping, determinants of child food consumption and fruit consumption) and their parents' level of education as well as occupation of the mother but not that of the father ($X^2=28.09$, 67.309 and 44.34; $P=0.045$, 0.005 and 0.029, respectively). The association between dietary habits of the pupils and their anthropometric status all showed significant positive associations. That is weight-for-height, weight-for-age and height-for-age against meal skipping, determinants of child food consumption and fruit consumption. ($X^2=72.305$, 56.94 and 27.90; $P=0.001$, 0.007 and 0.021, respectively).

Table IV Association between Dietary Habit and Anthropometric Status of Parents of the Pupils

Variable	Dietary habit category			Total (%)	X ² – value	P- value
	MS (%)	DCF (%)	FC (%)			
Fathers occupation						
Civil service	22(18.2)	39(32.2)	60(49.6)	121(31.7)	60.154	0.008
Trading/Business	8(20.5)	11(28.2)	20(51.3)	39(10.2)		
Artisan	15(14.6)	45(43.7)	43(41.7)	103(27.0)		
Unemployed	3(25.0)	5(41.7)	4(33.3)	12(3.1)		
Mothers occupation						
Civil service	16(17.4)	26(28.3)	50(54.3)	92(24.1)	44.34	0.029
Trading/Business	0(0)	0(0)	4(100)	4(1.0)		
Artisan	20(14.3)	34(24.3)	86(61.4)	140(36.6)		
Unemployed	12(12.1)	18(18.2)	69(69.7)	99(25.9)		
Fathers level of education						
No formal education	3(15.0)	6(30.0)	11(55.0)	20(5.2)	67.309	0.005
Primary education	10(8.3)	30(25.0)	80(66.7)	120(31.4)		
Secondary education	37(19.5)	46(24.2)	107(56.3)	190(49.7)		
Tertiary education	12(23.1)	23(44.2)	17(32.7)	52(13.6)		
Mothers level of education						
No formal education	3(15.7)	4(21.1)	12(63.2)	19(5.0)	28.09	0.045
Primary education	16(15.1)	27(25.5)	63(59.4)	106(27.7)		
Secondary education	34(15.6)	78(35.8)	106(48.6)	218(57.1)		
Tertiary education	7(17.9)	18(46.2)	14(35.9)	39(10.2)		

MS = Meal Skipping

DCF = Determinants of child food consumption

FC = Food consumption

Table V: Association between Dietary Habits and Anthropometric Status of the Pupils

Variable	Dietary habit category			Total (%)	X ² – value	P-value
	MS (%)	DCF (%)	FC (%)			
Weight-for-height						
Severely wasted (<-3SD)	18(64.3)	7(25.0)	3(10.7)	28(7.3)	72.305	0.001
Wasted (≥ -3SD <-2SD)	36(61.0)	13(22.0)	10(16.9)	59(15.4)		
Normal	10(3.4)	29(9.8)	256(86.8)	295(77.2)		
Weight-for-age						
Overweight(<+2SD)	7(58.7)	4(30.8)	2(15.4)	13(3.4)	56.94	0.007
Normal	23(7.9)	35(12.0)	234(80.1)	292(76.4)		

Underweight(<-2SD)	19(65.5)	6(20.7)	4(13.8)	29(7.6)
Severely Underweight (<-3SD)	22(11.5)	26(13.5)	0(0)	48(12.6)

Height-for-age

Severely stunted (<-3SD)	0(0)	0(0)	0(0)	0(0)	27.90	0.021
Stunted (<-2SD)	42(61.8)	19(27.6)	7(10.3)	68(17.8)		
Normal	17(5.4)	37(11.8)	260(82.8)	314(82.2)		

MS = Meal Skipping

DCF = Determinants of child food consumption

FC = Food consumption

DISCUSSION

There is improvement in girl-child education as shown in the study where more females were studied. If the trend is sustained everywhere, it will contribute to the achievement of sustainable development goals 4 and 5 which concern quality education and gender equality. Specifically, they state “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all and achieve gender equality and empower all women and girls”. The ages of the children studied indicated that they fell within the school age period of 6-12 years. The educational attainment of the parents of the children was different from the current trend where more females were enrolled in school. More of their fathers attained tertiary and primary education. This could be due to the fact that education of the female child in the past was considered unimportant. However, education and empowerment of women and girls help them involve in decision making and contribute to their nutrition as well as that of their family members as primary caregivers. It also enables them to take up paid employment to enhance their income generation capacity. The study found that more of the mothers of the school children were artisans, unemployed and housewives while the reverse was the case for their fathers. This could be due to the fact that the primary roles of women are mothers and caregivers.

School age is a time of transition when lifelong dietary patterns continue to be developed and the period is crucial for establishing healthy eating patterns. According to Non-Communicable Disease Risk Factor Collaboration (2017), appetite and food intakes can increase before growth spurts and decrease during slower growth periods. Therefore, it is imperative for healthy and good dietary patterns to be established at this time and continued to be built upon later. Meal skipping was noted among the children but more of the private school children skipped meals especially lunch and dinner. However, few of the children skipped breakfast and this agrees with the assertion of Khara & Dolan (2014) that school age children around the world commonly skip breakfast thus depriving them of the meal that supports cognition. For such children, it could be that their families are poor, hence they lack the resources to feed them in the morning. For those children who usually skip lunch, probably they stayed longer in school and did not go to school with lunch. Others may have

preferred eating snacks in place of a meal. For those children, it could be that their parents or caregivers are not at home to prepare lunch for them. Nature of work or busy schedule of most parents may hinder them from preparing lunch. For those children, food insecurity may be a contributory factor where missing food serves as a way of coping for family members. Dinner time is usually an ideal time for most families to eat meals together but if food is not available, family members including children may go to bed hungry. In London, almost 1 in 10 children reported going to bed hungry (Smith, Thompson, Harland, Parker, & Shelton, 2018). The situation may even be worse in developing countries, so it is not unusual that the children reported skipping dinner.

Unavailability of food was the main reason noted for skipping meals. Poverty which limits the resources available for households has been identified as the main reason for skipping meals (UNICEF, 2019). Social norms still affect how food is shared in families as the study noted. Sharing food according to sexes can lead to discrimination and deprivation especially the girl child. In the state of the world's children, UNICEF noted that women and girls are still being discriminated against in terms of household food sharing by serving them food last making them even more vulnerable to malnutrition.

Fruit and vegetables are important dietary components which deliver micro-nutrients that combat hidden hunger. However, they were consumed less frequently by the children especially those from public schools. Many school aged children around the world are eating too little fruit and vegetables and low consumption of fruit and vegetables is worrisome because according to Department of Health and Human Services (DHHS) (2018), children who consume fruit and vegetables are more likely to continue doing so into adulthood. Unavailability of food due to poverty was the major challenge encountered by their mothers/caregivers in feeding them. Poor children are likely to be underfed and malnourished but when women are empowered their nutrition and that of their children will improve.

The study assessed the anthropometric status of the children which both in the short and long terms is a reflection of their diets. More children are surviving but far too few are thriving because they are not getting the diets they need which undermines their capacity to grow, develop and learn to their full potential. Double burden of malnutrition was identified when the anthropometric status of the children was assessed in the forms of under nutrition (wasting and stunting) and over nutrition (overweight). The study identified children who were too thin for their height and they were more in boys than in girls. This shows a recent loss in weight probably due to poor nutrient intake, illness or both. Globally over 10% of children aged 5-19 years were thin and in Africa, 5.7% and 8.8% of female and male school age children respectively, were thin (WHO, 2018).

Conversely, more of the girls were stunted in public and private schools put together than their male counterparts. Those stunted children were too short for their ages and generally shows that they were not developing well both physically and mentally. According to Ashkan (2017), it is an accurate reflection of inequalities in societies. On the other hand, improved nutrition leads to better growth, development and educational achievements in school- aged children (Jukes, Drake, &

Bundy, 2007). Simply put, wasting is a chronic condition while stunting is an acute condition and both leads to poor growth, infection and death, poor cognition, school readiness and performance, and poor earning potential later in life (UNICEF, 2019). Overweight was more prevalent among girls than boys and in private than public schools. The global prevalence among girls and boys between the ages of 5-19 have soared globally (Non-Communicable Disease Risk Factor, 2017).

Manies (2018) opined that in wealthy countries, poor children are often the most likely to be overweight or obese. This is probably due to the fact that globally, more children satisfy their energy needs opting for diets high in saturated fats, trans-fats, sugar and salt. Also more children are less physically active particularly due to urbanization where play grounds are no longer available and young children and adolescents often meet together in fast foods outlets instead of play grounds.

The positive association reported in this study was in line with the findings of Onwumere (2016), who reported a positive and significant association between parents' socio-economic status and their children's dietary habits. Specifically, in this study, dietary habits of the children positively associated with the occupation of their mothers. This implies that mothers who are gainfully employed are able to contribute to the nutrition and well fare of their children. Therefore, empowering women is associated with better nutrition for them and their children. This is because it is likely for women to use their income for the families' food expenditure. Eating an adequate diet regularly especially breakfast have been associated with higher academic achievement (Development Initiatives 2017). In this study, the children who skipped meals and failed to consume fruit and vegetables regularly may be among those who were wasted, overweight and stunted. They fail to get the important nutrients for proper growth and development as well as energy which is important as it delivers glucose, an important fuel for the brain. Overall, those children fail to concentrate and take part in school activities, they constantly feel hungry because of skipping food, hence struggle to pay attention and complete school work.

Hruby & Hu (2015) observed that stunting is a predictor of poor educational outcomes throughout childhood. Just like the present study identified overweight children who may have missed meals, De Luca Rolfe (2018) noted that children who missed breakfast have higher body mass index than their peers who did not. This according to the author could be due to the fact that children ate snacks such as cookies, sweets, sweetened drinks etc. that are energy dense but less in nutrient density. Fruit consumption which was found to be less frequently consumed by the children was positively associated with the various forms of malnutrition noted. The study area, Enugu East Local Government Area is predominantly rural with few urban areas, hence urbanization may have affected some parts. This could pose challenges to most families resident in such areas with little or no access to healthy food. It could also be that lack of knowledge of the nutritional benefits of fruit and vegetables consumption limits their intakes and many people in such rural areas take those fruit and vegetables to urban areas to sell for income or retailers come and buy from them. This have left those rural areas where fruit and vegetables ought to be available and affordable look like food deserts. Food deserts are obesogenic environment with abundance of high calorie, low nutrient, processed foods and have been found to strongly predict obesity rates (Organization for Economic

Cooperation and Development (OECD), 2017).

According to UNICEF (2019), food deserts are now common in low and middle income countries experiencing rapid urbanization. This predisposes families and children with less access to fruit and vegetables, making them to opt for diets lacking in diversity which are often easily accessible and affordable.

CONCLUSION AND RECOMMENDATIONS

The study investigated more of the female school aged children whose parents mainly attained secondary education and were predominantly artisans. Dietary patterns of the children were marked with meal skipping especially lunch mainly due to food unavailability. Fruit and vegetables were less frequently taken and unavailability of food was the major challenge encountered in feeding the children. Wasting, stunting and overweight were prevalent among the children. However, majority of the children did not suffer any of the above conditions. There were positive associations between the children's dietary habits and socio-economic status of their parents, particularly their mother's occupation. Dietary habits of the children also associated with their anthropometric status. Therefore, improvements in dietary habits by not missing meals, frequent intakes of fruit and vegetables will both in the short and long terms improve nutritional status of the children.

There is need for effective and sustainable food and nutrition interventions aimed at improving dietary intake and food diversity. Strategies aimed at empowering women will enable them contribute to nutrition and wellbeing of their children. Also, nutrition education should be targeted at school aged children because dietary habits are formed at that age so that they will build on them later in life. School food environment should be encouraged to sale wholesome and affordable snacks to pupils. Finally, government should implement and build upon the existing school meal program to complement the diets the children receive at home because majority often skip lunch.

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MANAGING THE EFFECT OF ENVIRONMENTAL DEGRADATION ON THE AGRICULTURAL ACTIVITIES OF FEMALE ENTREPRENEURS IN AFRICA

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ABSTRACT

This paper explored the effect of environmental degradation on the entrepreneurial growth of rural women in Africa occasioned by biodiversity loss, deforestation, desertification, global warming, flooding, among others. This paper is qualitative in nature, having adopted descriptive analysis of secondary data. Unarguably, rural women increasingly face the challenge of having to adapt to the negative impacts of a fragile ecosystem and other natural disasters. More so, the large differences between men and women in terms of impacts, vulnerabilities, responses and capacity to adapt to environmental degradation largely depends on individuals' access to resources, assets, information, services and decision-making power. Unfortunately, majority of the rural women in Africa are poor, and the gender discriminatory practices which is rife on the continent affects the distribution of social wealth such as land, finance, education, and health; this in turn impedes the development of African women entrepreneurs involved in agricultural activities like cultivation and growing of crops, rearing of livestock, fish farming, among others. This paper therefore maintained that women play an important role in managing the environment given their wide-ranging functions especially in the agricultural sector. Consequently, it concluded that ensuring equal access for women to productive resources, introducing policies that support entrepreneurship and developing action plans to enhance the resilience of women to the effects of environmental degradation is crucial to the entrepreneurial growth of rural women in Africa.

Keywords: Rural Women, Africa, Environmental Degradation, Entrepreneurship, Development

INTRODUCTION

Environmental degradation is a great threat to poverty reduction and achieving sustainable development because it affects people's health, food security, nutrition, production, and earnings. Considering the traditional roles of women in agricultural production, ensuring the availability of water, cooking fuel, and other household resources, they are not only suitable for finding solutions to prevention of further degradation, but also need support to manage the effect of environmental degradation on their entrepreneurial activities. Hence, the first step towards tackling the challenges of environmental degradation is empowering women to safeguard the environment (Wedeman & Petruney, 2015). Undoubtedly, human interactions with the environment have brought about global warming and climate change impacts such as growing unpredictable rainfall patterns, and extreme weather events which have had various effects on the inhabitants, most especially, the most vulnerable. Worldwide, such effects contribute to food

insecurity, water scarcity, droughts, induced alterations of agricultural activities and other livelihood practices, flooding, rise in sea level, among others (Akinbami, Olawoye, Adesinan & Nelson, 2019). Terry (2009) cited in Akinbami et al (2019), notes that deforestation for example affects the environment negatively because people have depended on forests for domestic energy supply, especially, in rural areas. In West Africa, particularly in Nigeria, forests have nearly disappeared, because of increased demand for wood, weak protection mechanisms and viable energy and income generating alternatives. Terry further explains that the quality of the water becomes poor as the deforested hills are severely eroded and the adjoining low land heavily silted with large sediments from higher altitudes. This decline in the quantity and quality of water available for agriculture reduces food production further, even as devastating floods and crop destruction have become common events in most rural areas. The outcome is poor nutrition, low-income generation and poor health for people, especially, the children and women.

Women are disproportionately affected by this change compared to men (New Course, 2010), because they are responsible for 60 to 80% of food production activities around the globe, and are more affected by any strain on agricultural production (wecaninternational.org, 2016). During periods of drought and erratic rainfall, women always work harder to secure food and water for their families (Action Aid, 2016 cited in Wedeman & Petruney, 2015). In some parts of Africa, girls and women spend up to eight hours per day collecting water (WECANInternational, 2016). This undermines productivity and fuels a cycle of poverty that limits the economic and social capacity of women (Alam, Bhatia, & Mawby, 2016). The United Nations Development Programme (UNDP) (2016), states women who are dependent on the natural environment for food and income constitute 60% of the world's poorest and most vulnerable people. On the average, in the developing world, women constitute about 43% of the agricultural labor force (United Nations Women, 2014; Wedeman & Petruney, 2015) and are extremely vulnerable to failing agricultural production (Chakrabart, 2014). Additionally, a drop in production aggravates vulnerabilities, as women do not have the same access to financial and other resources as their men counterparts to cope with the impacts of weather induced natural resource depletion (WECANInternational, 2014).

Recognizing the burdens environmental challenges impose on them, women have a key role to play in managing the impact of environmental degradation. However, women experience barriers ranging from social, political, and economic — that restrict their ability to take active part in managing the environment, further limiting their coping capabilities when it comes to mitigating, adapting, and coping with the effects of an exhausted ecological unit (UNFCCC, 2016). As such, policy makers need to prioritize safeguarding the rights of people, whose lives are affected by a dilapidated ecosystem, recognizing the direct role the environment plays in shaping the economic and social rights of so many individuals especially women.

Consequently, there are indications that a number of policy-oriented publications have examined the adverse effects of environmental degradation on women, particularly women entrepreneurs in Africa. These studies have also proposed strategies for incorporating women's concerns into

environmental policies as well as for ensuring their participation at all levels of development (Steady, 1998). Thus, a report by the African Development bank (2017) reveals that unlocking investment in African women holds incredible return and transformational impact potential. Women make up the backbone of African economies, accounting for a majority of small- and medium-sized businesses, dominating the agriculture sector as primary producers and food processors, as well as in many service sectors. Their full economic empowerment is therefore crucial to increase in productivity levels, enhance economic efficiency, and improve overall development outcomes to achieve inclusive growth. This paper therefore sought for ways to manage the effect of environmental degradation on women entrepreneurial capacity in Africa in order to enhance sustainable development.

Theoretical framework

This study is based on Human Ecology theory, propounded by Gerald L. Young. The theory explains the relationship between the environment and human activities and how such activities impact the environment. According to Marten (2001), human ecology is about relationships between people and their environment. In human ecology, the environment is perceived as an ecosystem and an ecosystem comprises of every element in a specified area - the air, soil, water, living organisms, economic and physical structures, including everything built by humans. The theory therefore advocates for ecological sustainability and development, which makes it suitable for this topic. As a matter of fact, human sought to interrelate with the environment in ways that allow the ecosystem to preserve sufficient functional integrity to continue to provide humans and all other creatures in the system with the food, water, shelter and other resources that they need. One major framework upon which this theory is based, is interaction. Hence, Young's emphasis on linkages and processes set his approach apart from other synthetic attempts in human ecology, which were largely described as complicated.

METHODOLOGY

This paper considered its subject matter within the purview of the on-going effort to empower women and reduce the gap between men and women in terms of vulnerabilities and capacity to adapt to extreme weather factors especially in places like Africa. In this context, the paper applied itself to analyzing the characteristics of women entrepreneurs in Africa with a view to underscoring the effect of environmental degradation on them. The paper is qualitative in nature and employs descriptive analysis of secondary data obtained in the form of reports from the World Bank, International Labour Organisation, African Development Bank, and the United Nations Framework Convention on Climate Change. The paper is presented under a number of select themes below.

Environmental Degradation

Environmental degradation is one of most urgent of environmental issues. Conceptually, environmental degradation covers a range of issues such as pollution, biodiversity loss & animal

extinction, deforestation & desertification, global warming, flooding and a lot more. According to Choudhary, Chauhan & Kushwah (2015), environmental degradation is the deterioration of the environment through depletion of resources such as air, water and soil; the destruction of ecosystems and the extinction of wildlife. It can be perceived as any change or disturbance to the environment believed to be harmful or undesirable. Environmental degradation is one of the ten threats officially cautioned by the High-level Panel on Threats, Challenges and Change of the United Nations (Choudhary et al., 2015). The United Nations International Strategy for Disaster Reduction states that environmental degradation is "the reduction of the capacity of the environment to meet social and ecological objectives, and needs". When natural habitats are destroyed or natural resources are depleted, the environment is degraded and the way to manage it is by protecting the environment from harmful practices. The primary cause of environmental degradation is human disturbance (Choudhary et al., 2015). Basically, the degree of the environmental impact varies with the cause, the habitat, and the plants and animals that inhabit it. Also, air, water, and soil are resources vulnerable to depletion through overuse, as are natural resources like minerals and oil deposits. Pollution is another cause of environmental degradation. When the environment becomes polluted, it means that toxic substances have rendered it unhealthy. Pollution can come from a variety of sources, including vehicle emissions, agricultural runoff, accidental chemical release from factories, and poorly-managed harvesting of natural resources.

Concept of Entrepreneurship

Entrepreneurship is usually associated with risk taking, innovation, creativity, as well as search for investment (Ezibe et al., 2013). Entrepreneurship is an activity that can be operated in different markets, and locations, as well as by individuals with different skill levels. Entrepreneurial actions can be carried out in either a formal or an informal economy (Ezibe et al., 2013), and it's gender neutral; meaning that both men and women can represent it.

Entrepreneur

The United Nations Framework Convention on Climate Change (UNFCCC) (2018), defines an entrepreneur as a person who changes an idea into a product that is of practical use. An entrepreneur may devise and implement a new business model that uses existing technologies in innovative ways; he/she can adapt an idea to the needs of a new market or community. Entrepreneurs are individuals who convert an invention into a product that meets the needs of certain users. Entrepreneurs develop a product they hope will prove attractive to investors and, as a result, secure their financial support. There are numerous reasons why individuals engage in entrepreneurial activities. Entrepreneurs generally seek to generate an income from the activities they undertake. For instance, the International Labour Organisation (ILO) (2016), report shows that the Women Entrepreneurs Survey (WES) assessment indicates that the majority of women entrepreneurs are motivated by the necessity to have income rather than the opportunity to start their own business. However, entrepreneurs are often motivated by reasons beyond financial

gain. For instance, recognition of their efforts and the prestige derived from this may be just as important, if not more, as the economic benefits. Furthermore, entrepreneurs usually tackle specific social or environmental problems, such as creating jobs, lifting people out of poverty and responding to the challenge of the ecosystem (International Labour Organisation, 2016).

Women Entrepreneurs in Africa

According to Clappaert (2012) cited in Welsh, Memili, Kaciak & Ahmed (2013), the rate of women's entrepreneurship in Africa is higher than in any other region of the world, with an estimated two-thirds of women participating in the labour force. Although women-owned businesses are smaller in size relative to those owned by men in Africa, (Amin, 2010), many of these businesses are necessity-based and support extended families. In Nigeria, for instance, even though women provide the majority of labour, their productivity is severely lowered by overall inequality in education and unequal access to land and productivity inputs, and it has been found that women make larger contributions to economic life than men in Nigeria (Bardasi et al., 2007 cited in Welsh, et al., 2013). Similarly, in Niger, Otoo and Fulton (2011) found that women earned four times more than the legal minimum wage and sixteen times higher in Ghana. The researchers found that religious beliefs, stable locations and lack of financial resources all contributed to these women's success. In parts of East Africa, Cohen and Sebstad (2005) cited in Welsh, et al. (2013), writes that in Kenya, Tanzania and Uganda, access to microfinance services enhanced risk management, empowered women and lowered their vulnerability to risk. It also led to more proactive behavior that reduces stress from deleting savings and borrowing or selling of the assets, and enabled women to deal with financial tough times. Also in Central Africa, in a study based on institutional theory (Welsh et al, 2013), a number of environmental barriers were examined, including socio-cultural, legal, economic, political and technological barriers (Amine & Staub, 2009 cited in Welsh et al, 2013). The study also found that negative conditions in the local regulatory environment affected women who desired to become entrepreneurs and start their own businesses in sub-Saharan Africa. In North Africa, Welsh et al (2013), report that while Sudanese female entrepreneurs face many challenges; the most pressing concern is the lack of training, difficulties obtaining funding, the lack of government support and the balance between business and family responsibilities. A study by Hattab (2012), in examining the Global Entrepreneurship Monitor (GEM) data on Algeria, Egypt, Lebanon, Morocco, Syria, West Bank and Gaza Strip, and Yemen from 2008-2009, concluded that more Arab women are starting businesses, but the percentage is low compared to men.

Women Entrepreneurs and the Effects of Environmental Degradation

The Food and Agricultural Organisation (2018) states that, rural women constantly face the challenge of having to acclimatize their production systems to the effects of weather changes, and natural disasters. Thus, Oshwofasa, Anuta and Aiyedogbon (2012) note that since the discovery of petroleum oil by Shell in Oloibiri in 1958, the food chain has been partially truncated by hybrid crops that are a caricature of their former selves. According to Ibaba (2010),

yam tubers have become unusually small and even sweet varieties of yam have lost their natural sweetness. Aquatic life has also been affected as some species of fish have migrated and others have become virtually extinct as a result of oil spillage and industrial waste that are wantonly disposed in mangrove swamps and fresh waters across the Niger-Delta (Oshwofasa et al., 2012). In sub-Saharan Africa, women and girls collectively spend a total of 40 billion hours per year collecting water for their households (Levtov, Van der Gaag, Greene, Kaufman, & Barker, 2015).

This is time, not spent working at income-generating jobs, caring for family members, or attending school (UNICEF, 2015). In Kenya, fetching water may use up to 85% of a woman's daily energy intake while in times of drought women spend up to eight hours a day in search of water. Thus, Skinner (2011) notes that because women and girls are predominantly in charge of unpaid household chores and care-giving in less economically developed countries and especially in rural communities, there is less time, is available for schooling or entrepreneurial ventures. For instance, Atela & Jones (2017) report that in Kenya, water shortage causes tomato farmers to cut production in half, in order to limit the area of land that needs to be watered.

In the same vein, flooding and sea level rise destroy crop production and cause sanitation problems, which seriously affect women's ability to provide resources for themselves and their families (Alam, et al, 2015). In Cotonou, Benin, in West Africa, for instance, sea level rise has resulted in increase in the risk of the resurgence of endemic tropical diseases (Khan, 2014). In their study of women in Bangladesh impacted by floods, Abu & Azad (2013) found that nearly 61 percent of those surveyed were evicted from their normal dwellings in times of severe floods, and the sanitation facilities of 21 percent were damaged. They also found that 89 percent of the women surveyed became ill from wearing wet clothing, since they did not have adequate spare clothing. Women are also susceptible to sexual and other harassment - such as mental torture, verbal abuse, and domestic violence - in the wake of a flood. Abu and Azad (2013) also found that 35 percent of the women surveyed were harassed by a male relative or acquaintance in the aftermath of flooding due to increased stress and social disruption.

Also, deforestation occurs as a result of land-use change and can be prompted by heat, drought, illegal logging, resources extraction, agricultural production, or as communities begin to cut down trees when other resources have been depleted (Alam, et al, 2015). These processes reduce the productivity of the land, leading to declining food production and crop yields (UNFCCC, 2012). Unfortunately, many people in rural areas depend on forests for food, firewood, fiber timber, material for crafts, animal fodder, and medicinal herbs, and it is often women who collect these resources. Deforestation is currently affecting livelihoods across Africa, especially in Tanzania, Sudan, Cameroon, Kenya, and Mali, where women and children collect 60 to 80 percent of all domestic firewood supplies in Africa (Steady, 2014).

Furthermore, desertification of pastoral lands causes the death of livestock used to till the fields

and forces those communities to find other mechanisms for tilling their land, which inevitably affects farming outputs. (Alam, et al, 2015). Atela& Jones (2017) report that women in Semi-arid lands in Kenya who own agriculture-based Micro, Small and Medium Enterprises (MSMEs) like small scale trade in cereal, milk, and poultry products are directly affected by issues such as drought and climate-related livestock disease which leads to losses in their businesses and reduced growth.

Reasons for the Vulnerability of Women Entrepreneurs to Environmental Degradation in Africa

According to a report by the Georgetown Institute for Women, Peace and Security (2015), women represent half of the world's population, and they bear severe gendered impacts of change in weather patterns without equal representation in decision-making or policy and programmatic design. The differential impacts of such environmental changes on men and women are, demonstrably, more pronounced in settings that are also affected by violent conflict, political instability, and economic strife. For instance, ILO (2016) reports that female and male-owned enterprises operate in the same business environment, but the challenges they face differ.

Undoubtedly, women and men are shaped by the societies in which they live, and societal expectations affect the roles both women and men play in the political, economic, and social spheres. This means that women and men often do different work, have differentiated access to resources and information, and experience natural disasters differently (ILO, 2016). Cultural beliefs in some parts of Africa diminish women's economic roles, while other key challenges facing women entrepreneurs are: lack of government strategy for women entrepreneurship development; disadvantaged in access to labour markets (in terms of being able to gain know-how, experience, and develop networks), financial services that meet the needs of women entrepreneurs at different stages of the business cycle (start-up to growth) and business development support services, as well as inability to meet lender collateral conditions. Markets and technology, business related information, networks of women entrepreneurs, concentration of women entrepreneurs in certain sectors such as agriculture, informality, social responsibilities, and mobility are among the constraints faced by women entrepreneurs (ILO, 2016).

Around the world, women tend to be marginalized from political and economic power and have limited access to financial and material resources, particularly in conflict-affected, post-conflict, or less economically developed settings, which can worsen their vulnerability to the impacts of environmental degradation. A report by the African Development Bank (2018) shows that sub-Saharan Africa hosts close to 13 million formal and informal small and medium sized enterprises with one or more women owners. Yet, more than half lack access to finance. Women can play a key role when efforts are directed at closing the financing gap for women in Africa because, despite their dominance, women's economic potential is dwarfed by multiple challenges to access finance. They find it difficult to secure financing from banks and other financial

institutions due to inherent biases in the system, such as the lack of appropriately designed financial products, weak institutional capacity and lack of incentives within banks to target and lend to women. In Africa, these systemic challenges result in an estimated \$42 billion financing gap for women entrepreneurs across business value chains. Evidence suggests that closing this financing gap for women will lead to growth in GDP for African economies (AFDB, 2018).

In the same vein, women often lack access to productive resources, including land, property rights, markets and networks to grow their businesses. African women are the custodians of food security and nutrition and a crucial force within the agricultural sector. African women represent 52 percent of the total population in agriculture, are responsible for approximately 75 percent of the agricultural labor force, and produce 60 to 80 percent of the food, yet women's productivity is 30 percent lower than men's because women lack access to vital inputs such as lands (FAO, 2011). Furthermore, they are often excluded from the business side of agriculture and are excluded from the most profitable segments of value chains. Their minimal access to resources such as land, credit and technology hamper their capacity to leverage agricultural production into business opportunities, and this has left women within the realm of subsistence farming. Focus on women is of even greater significance given that micro and small enterprise sector is highly dominated by women and contribute to almost half of productive output. In addition, women typically lack access to reliable sources of electricity and the capital to buy efficient, modern processing equipment, resulting in high levels of waste in processing and low-quality of produce. Most women-owned businesses are too small to qualify for financial assistance from the government or loans from banks and majority are unaware that these resources exist. While there are a few African firms managed by women, studies have shown that those that survive are of high quality.

Managing the Effects of Environmental Degradation on Women Entrepreneurs in Africa

In order to control the impacts of environmental degradation and promote entrepreneurship among rural women in Africa, there is need for governments across the African continent to:

- Encourage women entrepreneurs by introducing policies that support entrepreneurship and job creation (UNFCCC, 2018). The Green economy strategies as practiced in countries like South Africa and Nigeria, which involves activities like bee-keeping, snail rearing, growing of mushrooms, etc, is one of such policies that improve human well-being and social equity, while significantly reducing environmental risks and ecological scarcities (UN, 2011 cited in Akinbami et al, 2019). Others may include tax cuts for small businesses, micro-financing, social protection programmes and regulatory reforms that make it easier to do business. As a way to reduce the likelihood of reinforcing existing inequalities, it is important that policies and programmes targeted at alleviating the impact of environmental degradation take into account the differences between men and women at national and international levels, as well as their differential access to resources within communities.

- Collaborate to develop action plans to enhance the resilience of women entrepreneurs to the effects of environmental degradation. Each country can proceed to implement such adaption and mitigation plans respectively. However, it is vital to state that there already exist a lot of strategies designed to manage weather conditions and environmental issues; such policies should be deployed as expected.
- Promote opportunities for women entrepreneurship through massive communication and awareness programmes targeted at women especially (UNFCCC, 2018). Such awareness programmes must also be geared toward changing the prevailing assumptions about women entrepreneurs that are derived largely from information on poorer, uneducated women operating informal sector microenterprises. This is because such assumptions are capable of generating or reinforcing stereotyped profiles of women entrepreneurs, and these are not consistent with the reality of a varied picture of women's entrepreneurship (Richardson, Howarth & Finnegan, 2004). These stereotypes also work to maintain the status quo as regards discriminatory beliefs, attitudes and practices. Such traditional and largely negative views about women entrepreneurs have adverse implications. In the same vein, massive awareness creation should be used to address the cultural and social barriers that hinder women from becoming successful entrepreneurs.
- Enable women's equal access to land ownership and other productive resources needed for effective socio-economic participation, such as capital, technical assistance, technology, tools, equipment, markets, and time. Also, as a way of tackling water scarcity, the development of irrigation schemes and lining canals can contribute to the availability of water not only for agriculture but also for domestic use by rural households (Meijer, et al., 2006, cited in Akinbami, et al., 2019).
- Build the capacity of women entrepreneurs by implementing suitable education and training programmes. By focusing on capacity-building to augment women's opportunities, initiatives on managing environmental degradation can also boost women's economic participation and bolster growth. Capacity-building efforts can promote women's knowledge of issues and ability to take leadership or decision-making positions, which in turn leads to changing social norms and outcomes especially.
- Female entrepreneurs should endeavour to support each other by introducing support services such as soft loans which can stimulate enterprise development activity and business growth. Rural women can be encouraged to organise themselves into groups and have such loans revolve among them, helping to build up financial capital and boosting livelihood and entrepreneurial activities.

CONCLUSION

This study explored the several ways by which the effect of environmental degradation on the entrepreneurial growth of rural women in Africa can be managed. Basically, the paper established that though the rate of women's entrepreneurship in Africa is higher than in any other region of the world rural women increasingly face the challenge of having to adapt their

productive abilities to the effects environmental degradation. The environment has been deteriorating for the last two centuries and almost every part of the planet has been touched by it in one way or the other (Choudhary, et al. 2015). Environmental degradation is a result of socio-economical, technological and institutional activities, and occurs when earth's natural resources are depleted. The resources which are affected include water, air and soil. Environmental degradation largely affects wildlife, plants, animals and micro-organisms, as well as humans, particularly women. In this case, investing in women is one of the most effective means of managing the impact of environmental problems and promoting inclusive and sustainable economic growth. Specifically, when women enterprises are supported, they contribute to gender equality, employment creation, expanding the pool of human resources and talents, economic growth and poverty reduction. However, large gender gaps still exist in business ownership and entrepreneurial activity that have major opportunity costs for sustainable development in Africa (ILO, 2016). Thus, given their wide-ranging functions in the agricultural sector and in livestock, fisheries, energy, forestry, water and land management sectors, ensuring equal access for women to productive resources, labour-saving technologies and practices is crucial to enhance the sustainability of agriculture, achieve food security and nutrition, eradicate poverty and build the resilience of rural women to entrepreneurial degradation.

RECOMMENDATION

The Africa Economic Outlook 2017 reveals that women in Africa are twice more likely to start a business than women elsewhere in the world. Thus, in addressing the environmental barriers that reduce the participation of rural women in entrepreneurial endeavours, it is pertinent to deploy gender-sensitive strategies that would facilitate more entrepreneurship by increasing the livelihood assets of a household, and also arrest the declining trends of environmental degradation. More importantly, there is need to re-examine social systems and ensure the maintenance of a balance in production, reproduction and consumption patterns, while making certain that people develop environmental consciousness. This however calls for a re-conceptualization of our relationship with the environment and an ecological perspective in which women are central to the search for ecological sustainability, considering the fact that women especially in developing countries tend to maintain strong and close daily interaction with their environment.

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QUALITY, PERCEPTION AND SUSTAINABILITY OF OSUN STATE SCHOOL UNIFORM

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ABSTRACT

The similar uniform adopted by the Osun State government, O-uniform, showed no distinction between one public school and another, like the former uniforms. The study assessed the quality, perception and sustainability of O-uniforms. Fabric samples were analysed. Two hundred students in public schools and ten supervisors/directors participated in the study. A set of questionnaires and key informant interviews were used to collect data. The data collected were analysed using descriptive statistics such as frequency and percentage. The result of fabric analysis showed that the dark brown (DB) fabric was 100% polyester woven with 758 denier warp yarns and 356 denier weft yarns, while the Kampala sample (KD) is 100% cotton with 16 Tex warp yarns and 2 Tex weft yarns. They had very high light fastness among other qualities. Students had a positive perception of the uniforms. They agreed that the uniform helped in identity ($\bar{x} = 2.70$) and reduced the financial burden of purchasing new uniforms ($\bar{x} = 2.54$). However, they preferred the colour and design of former uniforms which included ties, caps and cardigans. The directors submitted that O-uniform was not sustainable because it promoted crimes among students. The study recommends that policymakers and educators should consider sustainability factors in selecting uniforms. Students should be allowed to express themselves in their appearance.

Keywords: *Quality, O-uniform, perception, public schools, sustainability*

BACKGROUND TO THE STUDY

Varieties of school uniforms are usually adopted among elementary and high schools to make it easy to recognise students belonging to particular schools. Some states enforce students to use a single, standardized uniform in all schools for identity (Woo, Tam, Bonn, & Tagg, 2020).

Nigeria has not had any record of such single uniform since independence. However, in 2012, Osun State adopted a single uniform called O-Uniform. The uniform went into obsolescence in 2018 when a new administration took over the state.

Before the inception of the O-uniform in the state, each school had a particular uniform. The O-uniform however made it difficult to differentiate students. One of the objectives of the O-uniform was to revamp the entire educational system in the state, support poor parents and stimulate the local economy (State of Osun, 2020).

A uniform is any outfit in specified colour made of tops and bottoms and used in educational

institutions (Zhang & Wang, 2015). It could be formal or informal (Kelly, 2018). Uniforms are used to identify people in various occupations, differentiate groups, classify status, and celebrate social and cultural events (Diyaolu & Omisakin, 2018; Diyaolu, 2010).

O-uniforms consist of brown shorts on brown shirts for boys and brown pinafore for girls in the elementary section. The middle school has brown pinafore with a *Kampala* blouse or shirt while the high school is a yellow shirt or blouse with a brown skirt or shorts.

Varieties of uniforms contribute to better discipline in school operations. Drew (2021) opined that students in uniform are better listeners. It decreases violence and theft, helps students concentrate on their school work, and aids school officials recognise intruders who come to the school (DeMitchell, 2015).

However, the introduction of O-uniform generated issues regarding its quality, perception and sustainability. Previous studies on O-uniform by Arowosegbe (2019) and Atolagbe, Umaru, Oyedeji, & Oparinde (2018) did not document the technical quality of the fabrics and their sustainability. What are the technical qualities of the materials used for the O-Uniform? How do the students perceive the new uniform compared with previous ones? What sustainability factors led to the obsolescence of O-uniform?

Therefore, the study examined the technical qualities of O-uniform, the perception of students about the uniform and the sustainability of the uniform. The study bridges the gap of information on O-uniform and reveals its technical qualities. It can guide the government and school owners on requirements for future policies on school uniforms.

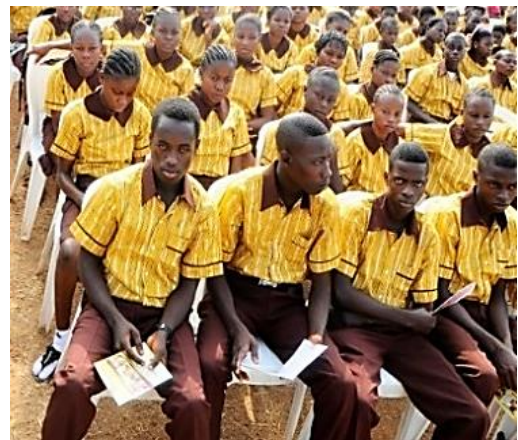


Plate 1: Public primary and secondary school students wearing O-uniform

METHODOLOGY

Osun State is situated in South-west Nigeria. It is located at 7°30'0"N 4°30'0"E (State of Osun 2020). The study employed laboratory analysis and survey.

Laboratory analysis: The three major fabrics used in the production of O-uniform were collected from the government-approved agency and analysed at the Textile Testing and Quality Control Laboratory, Yaba College of Technology, Lagos State, Nigeria. The analysis included descriptive analysis, wash fastness, rubbing stain test and light fastness. The tests were carried out according to the British Standard Handbook 1974, under standard atmospheric conditions.

Survey: A survey was conducted among middle and high school students in Ile-Ife, Osun State. Two educational zones were stratified and four secondary schools were randomly selected. 50 students in mid/high classes were randomly selected to make a total of two hundred students. A questionnaire was used to collect information on their perception and preference for O-uniform. In addition, ten supervisors/directors of education were purposively selected from ten educational districts. Key informant interview was used to collect information on sustainability issues surrounding the O-uniform and factors that led to its extinction.

Data were analysed using descriptive statistics such as frequency, percentages and means.

RESULTS AND DISCUSSION

Technical Report on the Fabrics

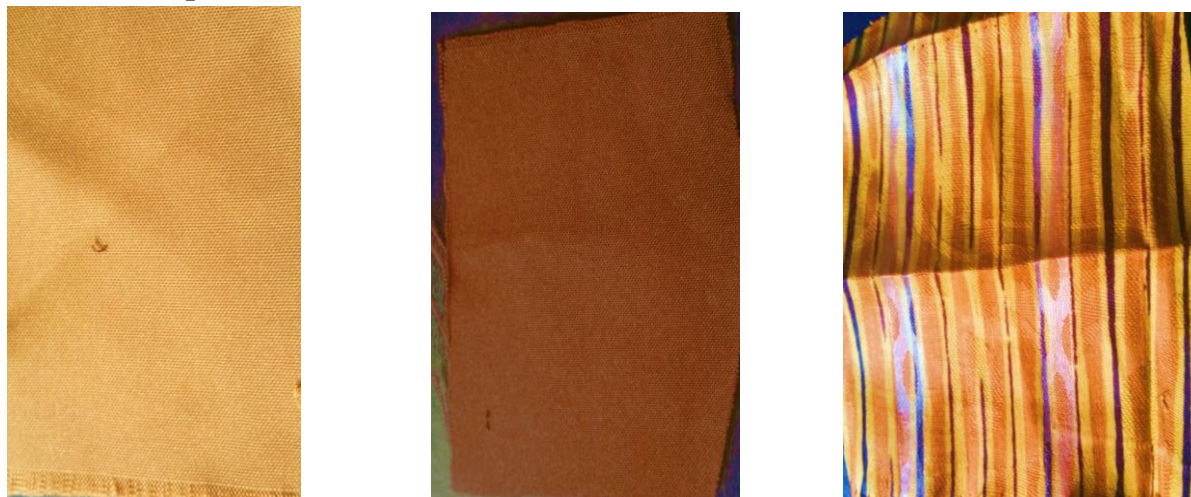


Plate 2: Brown fabric sample, Dark brown fabric and *Kampala* design

Table I: Analytical Description of O-Uniform fabrics

	Fabric type	Sample code	Fibre type	Weave structure	Fabric set/ cm		linear density Tex/Denier	
1	Dark brown	DB	100% PE	Plain Weave	Warp 20	Weft 20	Warp 758 denier	Weft 356 denier
2	Brown	B	100% PE	-	20	20	349D	324D
3	Kampala Design	KD	100% Cotton	Dobby weave	140	60	16Tex	2 Tex

Descriptive analysis

Table I shows the analytical description of O-uniform fabrics. The sampled fabrics (DB and B) are 100% polyester. While DB has 758 deniers for warp yarns and 356 deniers for the weft yarns, sample B has 349 deniers warp yarns and 324 denier weft yarn. Sample KD is a 100% cotton fabric with 16 Tex warp yarns and 2 Tex weft yarns. These fabric parameters, along with weight and dimensional stability are important in selecting school uniforms (Danquah, 2018). Cotton and polyester are usually produced in Nigerian textile mills, making them readily available for uniforms (Diyaolu, 2018). Cotton is comfortable to wear and absorbs heat, making it conducive for school uniforms.

Table II: Fabric Qualities

Tests	Gray scale Results		
	B	DB	KD
Washfastness	5	5	5
Washfast Change in shade	5	5	3
Rubbing stain/wet	5	4	4
Rubbing stain/dry	4	4/5	3/4
Lightfast rating	4	4	3
Lightfast Change in shade	5	5	4

Remarks: 3=Good; 4=Very Good; 5=Excellent

Wash-fastness test

Table II shows the wash fastness standard rating test of the fabrics. Samples DB and B have a Greyscale fastness rating of 5 (excellent) and the change in shade test was also rated 5. This indicated excellent results, meaning that the fabrics were able to retain the colour without fading. Similar result was obtained in the analysis of Diyaolu (2018). Musa, Yakubu & Danfulani (2010) submitted that fabrics from Nigerian mills used in the production of uniforms exhibit good colorfastness. The quality of washfastness is desirable in school uniforms owing to constant washing.

Rubbing stain test

The grey scale rating for sample DB (wet) was 4 while the dry condition was between 4 and 5 (very good). The samples have a very high resistance to stains. The study of Raji, Chima, & Adamu (2007) corroborates this assertion on the property of some fabrics with grayscale 4 to 5.

Light fastness test

Lightfastness is the degree to which a printed or dyed material resists exposure to sunlight. The results of the light fastness test using the blue wool standard rating showed that fabrics DB, B and KD have the following blue wool standard rating: DB (4 = Very Good), B (4 = Very Good) and KD (3 = Good). The change in the shade of the fabrics (DB and B) when exposed to light was excellent while KD was very good. A fabric that cannot retain its colour when dried in the sun is of low quality (Teli & Vilia, 2015).

From the foregoing, the fabrics used for the O-uniform met minimum standard of lightfastness, and rubbing stain tests.

Table III: Students' perception of O-uniform

Perception	Strongly agree	Agree	Disagree	Strongly disagree	Mean Score
O-uniform helps in identity	62 (31%)	64 (32%)	26 (13%)	48 (24%)	2.70
I wear it because it is mandatory	30 (15%)	42 (21%)	61 (30.5%)	67 (37.5%)	2.17
It improves my academic performance	45 (22.5%)	84 (42%)	34 (17%)	37 (18.5%)	2.68
Wearing O-uniform makes me feel proud	63 (31.5%)	65 (32.5%)	34 (17%)	38 (19%)	2.76
It promotes the standard of my school	52 (26%)	80 (40%)	33 (16.5%)	35 (17.5%)	2.74
It helps to reduce financial burden	43 (21.5%)	71 (35.5%)	37 (18.5%)	49 (24.5%)	2.54
The uniform is very durable	46 (23%)	85 (42.5%)	26 (13%)	43 (21.5%)	2.67
It increases social crime	48 (24%)	55 (27.5%)	41 (20.5%)	56 (28%)	2.47
I am always eager to remove my uniform	69 (34.5%)	61 (30.5%)	31 (15.5%)	39 (19.5%)	2.80
I look smart in O- uniform	82 (41%)	70 (35%)	20 (10%)	28 (14%)	3.03
People appreciate it when I put it on	61 (30.5%)	74 (37%)	32 (16%)	33 (16.5%)	2.81
It fades in the sun	49 (24.5%)	60 (30%)	41 (20.5%)	50 (25%)	2.54

O-uniform bleaches when washed	45 (22.5%)	38 (19%)	54 (27%)	63 (31.5%)	2.32
It tears easily	42 (21%)	46 (23%)	52 (26%)	60 (30%)	2.35
It easily gets burnt when ironed	39 (19.5%)	57 (28.5%)	53 (26.5%)	51 (25.5%)	2.42
It has a poor abrasive quality	46 (23%)	49 (24.5%)	55 (27.5%)	50 (25%)	2.45

Table III shows the result of the student's perception of O-uniform. There was a generally positive perception in favour of the uniform. Students agreed that the uniform helped in identity (\bar{x} =2.70), contributed to academic performance (\bar{x} =2.68), and made them feel good (\bar{x} =3.00). They supported the fact that O-uniform reduced the financial burden of purchasing new uniforms (\bar{x} =2.54) and that they looked smart on them (\bar{x} =3.03). They attested to the fact that people appreciated their uniform on them (\bar{x} =2.81). However, 51.5% agreed that it increased social crime, faded in the sun after drying (54.5%), bleached after washing (41.5%) and had poor abrasion (47.5%). Dulin (2016) submitted that uniforms alone cannot be used to determine students' academic performance. It has been debated that school uniforms make it easy to identify students who engage in social crime (Roguski, 1997). However, similar uniforms among all public schools have made it difficult to trace and identify students who commit crimes at a particular school. According to Sowell (2012), school uniform affects performance in subjects such as English Language, Mathematics and Arts as the majority asserted that O-uniform improves their academic performance. Atolagbe *et al.*, (2018) mentioned that the O-Uniform helped students perform better in the West African Examination Council. The perception of the students on the quality characteristics is subjective to the laboratory analysis established in this study. Previous studies also showed that while 50.7% of the students in Osun state had a negative perception of O-uniform, 49.3% had a positive perception (Olukayode, 2019).

Table IV: Distribution of respondents' preference between the former uniform and o-uniform

S/N	Satisfaction	Former uniform	O-uniform
1	Colour	150 (75%)	50 (25%)
2	Style	148 (74%)	52 (26%)
3	Aesthetic	151 (75.5%)	49 (24.5%)
4	Colors	141 (70.5%)	59 (29.5%)
5	Hand/shoe	144 (72%)	56 (28%)
6	Cap	149 (74.5%)	51 (25.5%)
7	Cap/beret	149 (74.5%)	51 (25.5%)

Table IV shows the preference between the former uniform and the O-uniform. The majority (75%) preferred the colour of the former uniform while (74%) preferred the style of the former

uniform. The tie of the former uniform, socks and cap/beret were preferred by 74.5%, 70.5% and 74.5% respectively. It is evidenced that although students accepted the mandatory O-uniform, they preferred the former ones they were using. The former uniforms were in different colours and styles, especially among model schools in the state. The single uniform was reported to be unattractive (Woo *et al.*, 2020). Also, improper styles, monotonous colours and unsafe fabrics were complaints of students in elementary schools (Li, 2019). Zhang & Wang (2015) opined that school uniforms should enhance a sense of belonging and improve the aesthetic appearance of students. It can be inferred that students preferred the self-expressions in their former uniform probably due to its comfort, attractiveness and tidiness.

Sustainability of O-uniform

To enhance sustainability in school uniforms, indicators such as punctuality, discipline, and school safety are necessary for effectiveness (Dulin, 2016). All the directors mentioned that O-uniform was not sustainable. Olukayode (2019) opined that 61.1% of teachers in public schools viewed the uniform to be unsustainable. The sustainability issue was viewed from social, economic and environmental perspectives. Social issues have to do with crime, violence, theft, indiscipline and gangsterism. The following responses were recorded:

- i. Increase in crime among students: There was a high rate of crime among the students because there was no means of distinguishing one school from another. When a particular student commits a crime, it was difficult to trace the school of the student and apply necessary punitive measures. Cultism also crept in. Misidentification and gangsterism were reported to be prevalent among the students since the introduction of O-uniform (Olukayode, 2019). In contrast, Ramlee, Ahmed, & Muhammad, (2022) reported that the introduction of a mandatory uniform policy in Malaysia led to a significant decrease in the assault, fighting incidences and sex offences.
- ii. Lawlessness in schools: Students were noticed to abscond from schools. There were reports of students beating teachers and disappearing into the thin air because they could not be attached to a particular school uniform. A major reason for introducing uniforms as dress codes in public schools is to prevent violence and improve student behaviour. This was not the case with O-uniform (Dulin, 2016).
- iii. Loss of prestige of Model schools: Some schools that were model schools in the state lost their dignity and prestige. Richard, Olumide, & Adnan (2021) observed retrogression in the Osun state education system and pointed out that a single uniform policy disrupted the peaceful process of existing policy.
- iv. Single factory system: A regional centre for mass production of uniforms could be created using modern manufacturing infrastructure (Namba, 2018). This would allow more people to be involved in the production of O-uniform. Unfortunately, the production of O-uniform was limited to a single business entity, the Omoluwabi Garment Factory. The implication of producing O-uniform through one factory is that textile merchants and fashion designers who were benefitting from the production and

- design of the former uniform lost patronage. This is the economic aspect of sustainability that displeased other designers. Namba (2018) further established that “primary schools’ uniforms became available at affordable prices in Japan, while secondary schools used designated tailoring shops for their custom-made uniforms with school emblems and accessories.”
- v. Religious perspective: Religious crisis emanated from the O-uniform as Muslim students were mandated to use hijab in school. Others non-Muslims were also dressing to conform to their religion.
 - vi. Alumnus of schools lost interest in assisting the schools because the uniform was not distinctive as it used to be.

CONCLUSION

Students had a positive perception of O-uniform. The identity of the uniform is in the area of a singular uniform for the state. The study has established the fact that the students in public schools in Osun State preferred their former uniforms with different styles.

Also, the fabrics had excellent light fastness properties. The directors/supervisors affirmed that O-uniform was not sustainable in that it promoted crime, cultism and increased indiscipline among students. The economic benefits of other textile merchants were limited because the production, construction and distribution of O-uniform were carried out by a single firm, the Omoluwabi factory.

RECOMMENDATIONS

The study recommends that sustainability issues should be incorporated in selecting uniforms. This includes social, economic and environmental factors. Government should restrain from forcing a single uniform policy on students without considering the long-term implications. Environmental pollution can set in due to changing uniforms over and over again. When more textile materials are not well disposed of, they constitute pollution. Therefore, durable and appealing fabrics should be selected as uniform. Also, to allow for self-expression, dress items like caps and ties that are desirable to students should be incorporated. Sportswear can also be introduced as some private schools practice in Osun State.

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FOOD AND NUTRITION SECURITY AND ANTHROPOMETRIC STATUS OF FARMERS IN OBOWO LOCAL GOVERNMENT AREA, IMO STATE, NIGERIA

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ABSTRACT

The cross-sectional study assessed the food and nutrition security and anthropometric status of 355 farmers from 5 randomly selected communities out of the 14 in the Local Government Area. A structured questionnaire was used to elicit their personal data, food and nutrition security status and anthropometry. Descriptive statistics was used to analyze data collected while chi-square and Pearson's correlation were used to associate food and nutrition security status of the farmers and anthropometric status. Food security indicators showed that 54.4% were food secure while the rest (40.4% and 5.2%) were food insecure without hunger and with hunger, respectively. The nutrition security indicators showed that 60.2% of the farmers were nutrition secure while 31.9% and 7.9% were moderate and severe nutrition insecure, respectively. The anthropometric status by BMI of farmers revealed that 47.1% were overweight while 13.5% were normal. Waist-hip ratio showed that 52.7% and 30.4% were of moderate and high risks, respectively. Negative but significant relationship was noted between food security status and anthropometric status. The association between some nutrition security indicators and their BMI was positive and significant. This shows that improved food and nutrition security status is very crucial for maintenance of good health.

Keywords: Food security, Nutrition security, Anthropometry

INTRODUCTION

The persistence of hunger in a world with abundant natural resources has led to food and nutrition insecurity across all populations. This is evident among the rural poor whose means of livelihood is primarily dependent on subsistence agriculture. Food insecurity remains a global concern and it can be transient or chronic. According to Agarwal & Udipi (2014), transitory or short term food insecurity is usually caused by problems with access or availability like during times of crop failure, inflation or during off-season, unemployment or illness of the person who supports the household while chronic food insecurity occurs over a long period of time, hence

the household cannot meet its requirements due to lack of money or poverty.

Globally, an estimated 820million people did not have enough food to eat in 2018 while the number of moderately or severely food insecure is 2billion or 26.4%. Of this, 29.8% was in Africa while Asia accounted for 6.9% (Food and Agriculture Organization (FAO) (2018a). The same source further stated that income inequality is rising in many of the countries where hunger is on the rise making it even more difficult for the poor and vulnerable to cope with economic downturns and the situation is worse in Africa where 256.1million persons are hungry. In Nigeria, 79.2% of households studied in two states were food insecure (Asomugha, Uwaegbute, & Obeagu, 2017). Preceding that report was the fact that not less than 70% of the Nigerian population was surviving on less than a dollar per day while food insecurity prevalence in the low income urban and rural households stood at 79% and 71%, respectively (Akerlele, Momoh, Aromolaran, Oguntona & Shittu, 2013).

Threats to food security according to Agarwal & Udipi (2014) are declining productivity, increasing population, increasing incidence of pockets of poverty, declining income from traditional crops, high dependence on imports and growing incidence of food-related diseases. However, Ilaboya, Atikpo, Omofuma, Asekheme & Umukoro (2012), Otaha (2013), Behnassi, Drajan & Yaya (2011), Adeagbo (2012), and Nwajiuba (2013) identified insufficient production, gender inequality, inefficient policies and corruption, conflicts and civil unrest, climate change and natural disasters and low technology for processing and storage as factors affecting food security. Therefore, ensuring food security involves addressing those factors and threats as well as investing on agriculture because it is the largest source of income and employment for poor rural households. Food security can be improved by helping the small farmers and their households have more resilient and sustainable farming systems (Agarwal & Udipi, 2014).

Nutrition security is more than food security because it focuses on adequate nutritional status in terms of macro and micronutrient intakes for all household members at all times as well as caring, health services and a healthy environment. Several aspects are involved in food utilization or use for nutrition and health outcome and they include safe portable water, sanitation and hygiene practices, health facilities, feeding, caring and sharing practices within households as well as contributions by women which include their decision making power, education, nutrition knowledge and behavior, health, workload and availability of time and technology (FAO, 2018b).

The problem of food and nutrition security has led to multiple forms of malnutrition which can be under or over nutrition. According to Development Initiatives (2018), the multiple forms of malnutrition can exist in the same person at the same time. It is also more prevalent in low, lower-middle and middle –income countries and concentrated among the poor. Also, obesity in

high income countries is more among the poor (FAO, 2018b). Additionally, overweight/obesity and household food insecurity also co-exist (Tabibian, Daneshazad, & Bellissimo, 2018). For instance, a household may have both a stunted child and an overweight or obese mother while a child could be stunted and overweight. Globally, adults who are obese are 672million which is 13% or 1 in 8 adults (FAO, 2018b). According to World Health Organization (WHO) (2018), overweight prevalence among adults increased from 35.7% in 2010 to 38.9% in 2016 and on the average, it is greater among women (39.2%) than men (38.5%).

Improvements in nutrition are critical to ensuring healthy lives and also plays a role in ending poverty. But the challenge lies on assessing the situation and collecting reliable data. Anthropometry is one way of assessing nutritional status through series of quantitative measurements. The core elements of anthropometric measurements are height, weight, body circumferences (waist and hip) and skinfold thickness. Casadei & Kiel (2020) opine that the measurements are important because they represent diagnostic criteria for obesity and are used to assess nutritional status among children and adults. Therefore, the study was designed to assess the food and nutrition security and anthropometric status of farmers in Obowo Local Government Area, Imo State, Nigeria.

Objectives of the study

The general objective of the study is to assess the food, nutrition security and anthropometric status of farmers in Obowo L.G.A of Imo stare. The specific objectives are to:

- i. Assess the food and nutrition security status of the farmers.
- ii. Assess their anthropometric status.
- iii. Determine the association between nutrition security status and their body mass indices.

Research questions

The under-listed questions guided the study:

- i. What is the food and nutrition security status of farmers in Obowo Local Government Area?
- ii. What is their current anthropometric status?
- iii. Is there any relationship/association between their food and nutrition security status and their body mass indices?

METHODOLOGY

Study design: A cross-sectional study design was used.

Area of study: The study was carried out in Obowo Local Government Area of Imo State. The area is right across the Imo River. The major occupations of the people are farming and fishing. Some agricultural products of the area are palm oil, rice, yam etc. The estimated population of the Local Government Area is 64000 (National Population Commission (NPC) (2006).

Sample size and sampling procedure: The sample size was calculated using the formula, $N = Z^2 * P (100-P) / X^2$ by Winn, Naing, & Rusli, (2006), where N= sample size; Z= confidence interval represented as 1.96; P= percentage of farmers in Nigeria (FAO, 2017), put at 70%; 100-P= percentage of persons assumed not to be farmers in Nigeria and X= width of confidence interval or required precision level taken to be 5%. Substituting the values in the equation: sample size (N)= $1.96^2 * 70 (100-70) / 5^2 = 323$ approximately. Then, 10% of 323 was added as drop out making the sample size to be 355.

Imo State and Obowo Local Government Area were purposively selected from the 5 South Eastern States and 27 Local Government Area of Nigeria and Imo State, respectively. The Local Government Area was purposively selected because most of the communities were rural. Out of the 14 communities there, 5 were randomly chosen by balloting and 71 farmers were also randomly chosen from each of the selected community.

Method of data collection: A structured and validated questionnaire which consists of three sections: personal data, food and nutrition security and anthropometric status was used to elicit information from the farmers. Three trained research assistants administered the questionnaires using both interview and self-administration methods after obtaining oral informed consents from the farmers. The anthropometric measurements of weight, height, waist and hip circumferences were carried out using portable bathroom scale, stadiometer and non-stretchable tape. Prior to data collection, the questionnaires were validated for pre-test on twenty five farmers who were not part of the final study.

Weight of the farmers were measured by first setting the scale at zero and then they were asked to stand on the scale without shoes, heavy clothes and jewelries. The weights were taken to the nearest 0.1kg while standing in an upright position. Heights of the farmers were measured while they stood with their heels together and weight evenly distributed. Their shoulder blades, buttocks and heels placed on or touching the stadiometer vertical backboard. Their arms hanged loosely at their sides while their palms faced their thighs and then the horizontal bar of the stadiometer was lowered until the hair was compressed at the crown of the head. Thereafter, their heights were measured to the nearest 0.1cm (Casadei & Kiel, 2020). The weight and height measurements of the farmers were used to calculate their body mass indices using the formula $BMI = \text{weight (kg)} / \text{height (m)}^2$.

Waist and hip circumferences were measured according to the standard procedures outlined by WHO (2008b). Prior to the measurements, the farmers stood with arms at their sides, feet positioned close together and weights evenly distributed across their feet. Then, a stretch-resistant tape was snug around each of them and slightly pulled so that it was not constricting. Thereafter, each farmer was advised to relax, take a few deep breaths and the measurements were taken at the end of normal expiration when the lungs are at their functional residual

capacity. Waist circumference measurements was done approximately at the midpoint between the lower margin of the last palpable rib and the top of the iliac crest while the hip measurement was taken around the widest portion of the buttocks. All the measurements were done twice and the average used for calculating the waist-hip-ratios which were obtained as waist circumferences divided by the hip circumferences.

Data analysis: The calculated body mass indices and waist hip ratios of the farmers were classified according to the reference values outlined by WHO (2005) and WHO (2008a), respectively.

Food security was assessed using the core food security module with four response options (never=0, rarely=1, sometimes=2 and often=3) which were used to categorize the farmers as food secure with score of less than 3, food insecure without hunger with a score of 4-6 and food insecure with hunger with a score of greater than 7.

Nutrition security was assessed using questions that covered food preparation, proper food combination, water, sanitation and hygiene and access to health care facilities. The nutrition security status was graded into nutrition secure (0-19 points), moderate nutrition insecure (20-39 points) and severe nutrition insecure (40-60 points).

Statistical analysis: The data obtained from the personal data, food and nutrition security status and anthropometric status of the farmers were analyzed using frequencies and percentages. The relation/ association between food and nutrition security status and anthropometric status of the farmers was done using Pearson's correlation and chi-square.

RESULTS

Table I: Personal Characteristics of the Farmers

Variables	Frequency (F)	Percentage (%)
Sex		
Male	174	49.0
Female	181	51.0
Total	355	100.0
Age range (years)		
18-35	190	53.5
36-45and above	165	46.5
Total	355	100.0
Highest educational level		
No formal education	12	3.4
Primary education	170	47.9
Secondary education	104	29.3
Tertiary education	69	19.4
Total	355	100.0

Occupation		
Civil/public servant	144	40.6
Businessman/woman	26	7.3
Farmer	147	41.4
Artisan	32	9.0
Not employed	6	1.7
Total	355	100.0
Range of monthly income (N)		
<18000	136	38.3
18000-30000	119	33.5
>30000	100	28.2
Total	355	100.0
Toilet facility		
Bush	6	1.7
Water closet	17	4.8
Bucket	123	34.6
Pit latrine	209	58.9
Total	355	100.0
Shared toilet facility		
Yes	147	41.4
No	208	58.6
Total	355	100.0
Sources of drinking water		
River/stream/pond	73	20.6
Well	37	10.4
Borehole	190	53.5
Piped borne water	55	15.5
Total	355	100.0
Sources of cooking fuel		
Kerosene	116	32.7
Gas	30	8.5
Charcoal	70	19.7
Firewood	130	36.6
Electricity	9	2.5
Total	355	100.0

The personal data of the farmers is presented in Table I. The result showed that 51.0% of them were females while the rest (49.0%) were males. Of those proportions, 46.5% were between the age ranges of 36-above 45years while 53.5% were of age 18-35years. Highest educational level

of the farmers indicated that 47.9% had primary education, 29.35% had secondary education while the rest (19.4% and 3.4%) had tertiary and no formal education, respectively. On their occupation, 41.4% were farmers and 40.6% were civil/public servants. Their range of monthly income revealed that 38.3% earned less than N18000 while 33.5% earned between N18000-30000. The toilet facilities commonly used by the farmers were pit latrine (58.9%), bucket (34.6%) and water closet (4.8%) and 41.4% shared those toilet facilities with others. More than half (53.5%) of the farmers main source of drinking water was borehole while 20.6% indicated rivers/stream/pond. Firewood (36.6%) was the main source of cooking fuel while 32.7% used kerosene.

Table II. Food Security Indicators of the Farmers

Variables	Never F (%)	Rarely F (%)	Sometimes F (%)	Often F (%)
Were you ever worried that your household would not have enough food?	161 (45.3%)	61 (17.2%)	127 (35.8%)	
Were you or any household member not able to eat the kinds of foods you preferred because of lack of resources?	124 (34.9%)	131 (36.9%)	90 (25.4%)	6 (1.7%)
Did you or any household member have to eat a limited variety of foods due to lack of resources?	149 (42.0%)	91 (25.6%)	105 (29.6%)	10 (2.8%)
Were you or any member or your household not able to feed on nutritious animal-source foods like eggs and meat because you could not afford them?	147 (41.4%)	57 (16.1%)	104 (29.3%)	47 (13.2%)
Did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	144 (40.6%)	78 (22.0%)	83 (23.4%)	50 (14.1%)

Was there a time when you had no food of any kind to eat in your household because of lack of resources to get food?	140 (39.4%)	81 (22.8%)	120 (33.8%)	14 (3.9%)
Did you or any household member go to sleep at night hungry because there was not enough food?	117 (33.0%)	129 (36.3%)	103 (29.0%)	6 (1.7%)
Did you or any household member go a whole day and night without eating anything because there was not enough food?	137 (38.6%)	101 (28.5%)	114 (32.1%)	3 (0.8%)
Have food stored in your home ever run out and there was no money to buy more?	141 (39.7%)	67 (18.9%)	126 (35.5%)	21 (5.9%)

Table III. Overall Mean of Food Security Status

Dimension of food security	Frequency (F)	Percentage (%)
Food secure	193	54.4
Food insecure without hunger	144	40.4
Food insecure with hunger	18	5.2
Total	355	100.0

Tables II and III present the food security indicators of the farmers and their status. In Table II, 45.3% of the farmers never worried that their households would not have enough food while 35.8% sometimes worried. Lack of resources caused 25.4% of the farmers sometimes not to eat their preferred foods while 34.9% never did that. Sometimes, 29.6% of the farmers ate foods of limited variety but 41.4% never did that. Nutritious animal- source foods were sometimes or often not part of the diets of 42.5% of the farmers because they could not afford them, however, it never or rarely was the case for 57.5% of them. Limited meals were eaten because of inadequate food sometimes for 23.4% of the farmers and 40.6% never reduced the quantity of their meals. Food was not available sometimes for 33.8% of the farmers. Going to sleep at night hungry was never and rarely an option for 33.6% and 36.3% of the farmers, respectively, but it was sometimes the situation for 29.0% of them. Sometimes, 32.1% of the farmers skipped meals a whole day and 35.5% sometimes ran out of food in the home and had no money to buy more.

Overall, 54.4% of the farmers were food secure while 40.4% and 5.2% were food insecure without hunger and with hunger, respectively.

Table IV: Nutrition Security Indicators of the Farmers

Variables	Frequency (F)	Percentage (%)
Water for meal preparation		
River/stream/pond	140	39.5
Well	18	5.1
Borehole	165	46.5
Pipe-borne water	32	9.0
Total	355	100.0
Storage of leftover food		
Refrigeration	109	30.7
Reheating	162	45.6
Others	84	23.7
Total	355	100.0
Foods to be preserved		
Meat/offal/poultry/fish	292	82.3
Beans/rice/corn/yam	27	7.6
Dried milk/dairy product	36	10.1
Total	355	100.0
Consumption of animal foods		
Fish	177	49.9
Meat	47	13.2
Chicken	94	26.5
Eggs	37	10.4
Total	355	100.0
Daily vegetable inclusion		
Once	179	50.4
Twice	84	23.7
Three times	72	25.9
Total	355	100.0
Vegetable preparation		
Wash before cutting	292	82.3
Wash after cutting	63	17.7
Total	355	100.0
Daily fruit intake		
Once	258	72.7
Twice	24	6.8
Three times	53	20.5
Total	355	100.0
Prevention of sickness		

Wash hand after going to toilet or cleaning baby bottom	142	41.1
Remove faeces from home and surroundings	43	12.1
Wash hand before preparing and eating foods	25	7.0
All of the above	141	39.7
Total	355	100.0
Visit to health facilities		
Yes	237	66.8
No	118	33.2
Total	355	100.0
If no, reasons		
No money to pay bills	55	46.6
Lack of health facilities	43	36.4
Use patent medicine stores	20	17.0
Total	118	100.0
Types of health facilities		
Primary health centre	105	44.3
General hospital	45	19.0
Teaching hospital	22	9.3
Private clinics	65	27.4
Total	237	100.0

Table V: Overall Nutrition Security Status of the Farmers

Nutrition security status	Frequency (F)	Percentage (%)
Nutrition secure	214	60.2
Moderate nutrition insecure	113	31.9
Severe nutrition insecure	28	7.9
Total	355	100.0

The nutrition security indicators identified and the nutrition security status of the farmers are presented in Tables IV and V. The result showed that 46.5% of the farmers used borehole water for meal preparation while 39.55 used water fetched from river/ stream/ pond. On storage of leftover foods, 45.6% reheated while 30.7% stored in the refrigerator. Majority (82.3%) of the farmers identified meat, offal, poultry and fish as foods to be preserved and the rest (17.7%) opted for non-perishable food items like cereals and dried milk. The pattern of consumption of animal-source foods showed that 49.9% of the farmers ate fish, 26.5% chicken while 13.2% and 10.4% ate red meat and eggs, respectively. A little above half (50.4%) included vegetables in their meals once a day, while 23.7% and 25.9% did that twice and three times, respectively.

Those vegetables were washed before cutting by 82.3% of them while 17.7% washed after cutting. Fruits were taken once daily by 72.7% of the farmers while 6.8% and 20.5% took it twice and three times, respectively. Few (39.7%) of the farmers were able to identify all the ways in which sickness can be prevented while the rest (60.3%) only chose one out of the three ways. Health care centres were visited by 66.8% while 33.2% of the farmers did not. The major reasons why they did not were lack of money to pay bills (46.6%) and lack of health centres (36.4%). The major health facilities available for the farmers were primary health centre (44.3%) and private clinics (27.4%). Based on the nutrition security indicators assessed, 60.2% of the farmers were nutrition secure while 31.9% and 7.9% were moderate and severe nutrition insecure, respectively.

Table VI: Anthropometric Status of the Farmer.

Anthropometric Variable	Male		Female		Total	
	F	%	F	%	F	%
Body Mass Index Status (BMI)						
Underweight (<18.5)	4	2.3	2	1.1	6	1.7
Normal (18.5-24.99)	32	18.4	16	8.8	48	13.5
Overweight (25.0-29.9)	73	41.9	94	51.9	167	47.1
Obesity (30 and above)	65	37.4	69	38.2	134	37.7
Total	174	100.0	181	100.0	355	100.0
Waist Circumference (WC)						
Not at risk (<94cm for males; <80cm for females)	138	79.3	144	79.6	282	79.4
Increases risk (94-101.99cm for males; 80-87.99cm for females)	36	20.7	37	20.4	72	20.6
Total	174	100.0	181	100.0	355	100.0
Waist-Hip Ratio Status (WHR)						
High risk (>1.0 for males; > 0.85 females)	54	31.0	57	31.5	111	30.4
Moderate risk (0.90-1.0 for males; 0.80-0.85 for females)	100	57.5	103	56.9	203	57.2
Low risk (<0.90 for males; <0.80 for females)	20	11.5	21	11.6	41	11.4
Total	174	100.0	181	100.0	355	100.0

Table VII: Relationship between Food Security Status and Anthropometric Status of the Farmers

		BMI	WC	WHR	FSS
BMI	Pearson correlation	1	.019	.345	.150
	Sig. (2 tailed)		.716	.567	.005**
	N		355	355	355
WC	Pearson correlation		1	.765	.199**
	Sig. (2 tailed)			.105	.000
	N			355	355
WHR	Pearson correlation			1	.126
	Sig. (2 tailed)				.002**
	N				355
FSS	Pearson correlation				1
	Sig. (2 tailed)				
	N				355

** Correlation is significant at the 0.01 level (2 tailed).

Key: FSS = Food Security Status. BMI= Body mass index, WC= Waist circumference, WHR= Waist-hip-ratio

Table VIII. Association between Nutrition Security Indicators of the Farmers and their BMI

	Anthropometric parameters						
Nutrition security variables	Under weight (%)	Normal (%)	Overweight (%)	Obese (%)	Total	X ² - value	P-value
Proper cooking of food							
They are boiled and well cooked	56(9.3)	198(68.3)	23(7.9)	19(6.5)	290	107.989**	0.000
They are hot	9(30.0)	13(43.3)	5(16.7)	3(10.0)	30		
The ingredients were thoroughly mixed	7(20.0)	18(51.4)	7(20.0)	3(8.6)	35		
Prevention of sickness							
Wash hand after going to toilet or cleaning baby bottom	57(37.5)	67(47.2)	10(7.0)	8(5.6)	142	67.09**	0.008
Remove feces from	13(30.2)	26(60.5)	4(9.3)	0(0)	43		

home and surroundings								
Wash hands before preparing and eating foods	7(28.0)	9(36.0)	7(28.0)	2(8.0)	25			
All of the above	34(24.1)	78(55.3)	22.(15.6)	7(4.9)	141			
Storage of left over								
Refrigeration	23(21.1)	56(51.4)	22(20.2)	8(7.3)	109	74.09**	0.005	
Reheating	44(27.2)	87(53.7)	27(16.7)	4(2.5)	162			
Others	14(16.7)	56(66.7)	9(10.7)	5(5.9)	84			
Reasons to avoid cross contamination								
They have offensive odor	18(14.6)	75(61.0)	23(18.7)	7(5.7)	123	34.45*	0.017	
They are not cooked	44(27.2)	87(53.7)	27(16.7)	4(2.5)	162			
Raw animal food often contain germ	23(32.8)	27(38.6)	15(21.4)	5(7.1)	70			
Source of water for meal preparation								
River/stream/pond	34(24.1)	78(55.3)	22(15.6)	8(4.9)	140	27.23*	0.035	
Dug well	4(22.2)	6(33.3)	7(38.9)	1(5.5)	18			
Borehole	35(21.2)	90(54.5)	30(18.2)	10(6.1)	165			
Public water supply	9(28.1)	18(56.2)	3(9.4)	2(6.2)	32			

** and * are significant at 1% and 5%, respectively

Tables VI, VII and VIII present the anthropometric status of the farmers and the association between them, food security and nutrition security status. The result showed that 47.1% of the farmers were overweight of which 41.9% and 51.9% were males and females, respectively. The proportion of them who were obese were 37.7% with the females recording slightly higher prevalence of 38.2%. Those who were found to be normal and underweight were 13.5% and 1.7%, respectively. Waist –hip-ratios indicated that 57.2%, 30.4% and 11.4% were at moderate risk, high risk and low risk, respectively. There was negative correlation between BMI and food security status of the farmers. All the nutrition indicators associated with body mass index of the farmers showed positive and significant associations.

DISCUSSION

Age and sex are important demographic variables used mainly for classification in vital statistics, censuses and different types of surveys. Greater female farmers recorded in this study is not out of place as many reports have shown that females are more involved in agricultural activities especially at the subsistence level. The 2013 Nigerian Demographic and Health Survey reported that 68.8% of women aged 30-49 years had agriculture as their occupation. Of that proportion, 22.4% resided in rural areas and specifically in Imo State, the proportion was 16.1% (National Population Commission, 2013). The age category of the farmers recorded in this study was also consistent with the same report where 57.5% and 55.3% were reported nationally to be of ages 15-34 and 35-49 years, respectively. This clearly shows that agriculture remains the main occupation and source of livelihood for most people in the country and in rural areas in particular.

To support that assertion, Sasu (2022) stated that 70% of Nigerian households practice crop farming and 87% of households practice crop farming in rural areas of Nigeria while FAO (2022) opined that over 70% of Nigerians engage in the agricultural sector mainly at the subsistence level. Other people who may have other occupations as civil/public servants, entrepreneurs use agriculture to supplement their incomes. However, the monthly incomes earned by these farmers were very low when compared to the current economic situation. This further shows that most of the farmers may be living on less than 11 dollars per person per day typical of people living in lower-middle-income countries (World Bank, 2018).

Education is an important determinant of an individual's attitude and outlook on various aspects of life. In Nigeria, educational attainment is said to be fairly high as 45% of women and 62% of men have a secondary or higher level of education (National Bureau of Statistics (NBS) (2018). The report is consistent with the findings of this survey. Access to water and sanitation facility has considerable health and economic benefits to both households and individuals. The findings from this survey noted that more than half of the farmers used pit latrine which was not an improved sanitation facility. This depicted the typical Nigerian situation where an improved sanitation facility was used by only 47% of households even though it improved from 31% in 2008 to 34% in 2012 and 37% in 2015 (NBS, 2018).

In South East and Imo State in particular, it was 56.2% and 58.8%, respectively. Improved sources of drinking water such as piped water, borehole and protected well, spring or rain water were accessible to 56.8% of households in Nigeria, 65.2% south Eastern Nigeria and 84.2% in Imo State (NBS, 2018). The present survey thus indicated that borehole has become increasingly the main and improved source of drinking water for many people in Nigeria. The rest of the farmers whose sanitation facilities and sources of drinking water were not improved could be at risks of many diseases such as diarrhea, cholera, typhoid fever etc. due to lack of access to safe drinking water and inadequate disposal of human excreta. Firewood and charcoal are solid fuels and are mainly used by the farmers in cooking. These lead to high levels of smoke, which is made up of pollutants that can increase the risk of contracting diseases. Additionally, kerosene

which is also used to cook by the farmers is now becoming increasingly expensive in comparison with cooking gas.

Food insecurity, a state in which people experience limited or uncertain physical and economic access to safe, sufficient and nutritious food to meet their dietary needs or food preferences for a productive, healthy and active life according to Keino, Plasqui & Vanden Borne (2014), remains highly prevalent in developing countries and over the past two decades has increasingly been recognized as a serious public health problem in both developing and developed countries (FAO, 2013). The high prevalence of food insecurity reported by the study corroborated the global report of 10.2% of severe food insecurity in 2017 of which 29.8% was for Africa while Asia recorded 6.9% (FAO, 2018). If nothing is done to the already precarious situation, it is going to hamper the progress towards achieving sustainable development goal target 2.1 which is: “By 2030, end hunger and ensure access by all people especially the poor and vulnerable groups (infants, children under age five, women and older persons) to safe, nutritious and sufficient food all year round”.

Food insecurity in terms of poor food access contributes to different forms of malnutrition which can also be attributed to nutritional problems. The obvious effect in simple terms is nutrition insecurity and the prevalence of nutrition insecurity in this study was not far-fetched from lack of access to basic sanitation, water and health facilities as well as other underlying factors affecting nutrition security. It has been established earlier in the personal data of the farmers that most of them lacked access to those basic needs. However, in Nigeria, most rural communities lack basic primary health centers that are well-equipped and functional. This may further worsen the health condition of the people together with other factors such as lack of money.

Kapur (2011) defined nutrition security as physical, economic, environmental and social access to an adequate diet and clean water for every child, woman and man. In line with that definition the study accessed the source of water for meal preparation, storage of leftover foods, prevention of sickness, access to health facilities as some of the nutrition security indicators. The physical and economic input for nutrition security are earlier covered under food security. The study found that some of the farmers experienced instability in their access to food probably due to sickness, lack of adequate storage facilities and poor sanitation. This therefore undermine the nutrition security which exists when secure access to an appropriate nutritious diets is coupled with a sanitary environment and adequate health services and care in order to ensure a healthy and active life for all household members (FAO, 2018a). At the long run it negatively affects nutritional status of individual concerned. The few farmers who were found to have little or no access to food, experienced poor utilization and poor food stability were in congruent with the findings of Osei, Pandey, Nielson, Shrestha, & Talukdor (2010) who reported that 10% of households they studied were nutrition insecure due to poor access to and utilization of food.

The double burden of under and over-nutrition is affecting many people across all age categories globally. This double burden co-exist in the same people at the same time. The study found both underweight and overweight/obesity among the farmers indicating that overweight /obesity and household food insecurity also coexist as also asserted by Tabibian *et al.* (2018). The prevalence of overweight/obesity reported in this study was high compared to a range of 20.3%-35.5% for overweight and 8.1%-22.2% for obesity reported by Chukwuonye, Abali, Collins & Kenneth (2013). The proportion of farmers found to be at increased risk of abdominal obesity was similar to the findings of Egbe (2014). Overweight and obesity are conditions of abnormal or excessive fat accumulation that may impair health. They are causes of many non-communicable diseases such as non-insulin dependent diabetes mellitus, coronary heart disease and stroke. They also increase the risk of many types of cancer, gall bladder disease, musculoskeletal disorders (WHO, 2018). Urgent action is needed to tackle the problem of over nutrition if sustainable development goal 3 is to be achieved which proposes “good health and well-being for people”. Achieving that will ensure the achievement of other goals because “health is wealth”.

The negative but significant correlation found between food security status and BMI implies that an increase in food security status will lead to decrease in BMI and vice versa. Incongruent with the finding, Ruel, Garrell, Yosef, & Olivier (2014) and Kennedy and Pauline (2017), found a negative relationship between food security and weight status. The probable explanation for that negative relationship as well as the positive relation and food security status could stem from the link between food insecurity and overweight/obesity as a result of increased BMI and abdominal fat. Adequate and nutritious diets and fresh foods are often expensive, hence households that are food insecure as a way of coping often choose less expensive foods that are high in calorie and low in nutrients. Additionally, the link between food insecurity and obesity have psychosocial route such that the experience of not having certain or adequate access to food often causes feelings of anxiety, stress and depression which can lead to patterns of bingeing or overeating when food is available or choosing low cost energy dense foods rich in fat, sugar and salt. Such cycles of feast and famine have been associated with an increase in body fat and more rapid weight gain when food becomes available (Maitra, 2018).

All the nutrition security variables (proper cooking of food, prevention of sickness, storage of leftover foods, reasons to avoid cross-contamination and source of water for meal preparation) showed significant positive associations with the BMI of the farmers. Ayantoye, Yusuf, Omonona, & Amao (2011) found such association between nutrition security status of households and their anthropometric status. This implies that all the variables are all environmental and social inputs required for nutrition security. That means that improvement in any of them or all of them will improve the nutrition security status of the farmers. For instance, prevention of sickness through health services and proper food preparation through use of clean water and avoidance of cross-contamination ensures proper food utilization which improves nutrition and overall health status.

CONCLUSION AND RECOMMENDATIONS

More female farmers were studied and the entire farmers had mainly basic education operating majorly at subsistence level as shown by their income levels. A little above half of the farmers were food secure while the rest were food insecure. More than half of them were nutrition secure while the remaining were not. However, double burden of malnutrition existed among the farmers with over nutrition being more prevalent. Majority of them were not at risk based on their waist circumferences. Nonetheless, their waist-hip- ratios showed that majority were at risk, slightly evenly distributed among the male and female farmers. The study generally showed that improvement in food security status of the farmers will lead to a decrease in BMI, thus reducing the proportion of them who are overweight or obese. Additionally, the positive significant associations noted between some nutrition security variables and BMI implies that adequate sanitary and health outcomes for the farmers will help improve their overall nutrition and health status.

A sustainable nutrition education programme should focus on food procurement, hygienic preparation methods and storage to address the food and nutrition insecurity experienced. The farmers should be assisted with inputs by the government to enable them operate at a commercial level for self-sufficiency. Good food choice will also enable the farmers maintain a healthy weight even in the face of imminent food shortage.

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THE ROLE OF SUSTAINABLE CONSUMER SCIENCES IN CONTRIBUTING TO NATIONAL DEVELOPMENT IN NIGERIA

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ABSTRACT

Education is the bedrock of development of any nation. Over the decades, Nigerian educational system especially in the public universities has suffered from poor infrastructural development and funding thus leading to demotivation of teachers as well as students. This paper discusses the role of Consumer Sciences in National development in Nigeria. It covers some national issues, consequences of poor education and Consumer Sciences as a well-rounded field for quality education and character building beyond academics. The importance of the field in human, social, economic and environment development and recommendations for possible sustainable education are also emphasized.

Keywords: Consumer Sciences, Quality Education, Character, Development, Sustainability

1.0 National Issues in Nigeria

Nigeria though regarded as the giant of Africa is a nation faced with many challenging issues which include:

Social issues: With rising insecurity, Nigeria is regarded as the 16th least peaceful country in the world (GPI, 2021). Violent conflict such as religious, farming-herdsmen, Boko-Haram insurgency, kidnapping, raping and increasing divorce rate in families are some of the social issues amongst many.

Economic issues: These include poorly-executed policies and increasing unemployment rate of about 32.5% (NBS, 2021) which renders about 500,000 graduates jobless in Nigeria annually. Others include increasing crime rate, corruption, and devaluation of the Naira. We are a nation engaged more in consumption of goods than in production.

Education and university system issues: Poor government funding of public universities, poor human capital development, libraries with old books, poor internet facilities, inadequate infrastructure (such as office space, laboratories with obsolete equipment, epileptic electricity and inadequate water supply), poor learning environment and incessant strikes are some of the issues in the educational system. These lead to poor human development and result in production of *half-baked* graduates.

Socio-political issues: Poor and ineffective leadership, election-related violence, terrorism and lack of patriotism are some of the issues.

Agriculture, Environmental and Health issues: Food insecurity and hunger, climate change, oil spills, poor waste management and disposal, diseases (HIV/ AIDs, non-communicable health problems and COVID-19 pandemic) have been reported.

1.1 Ignorance, Poor Education and Consequences

Ignorance or illiteracy is the root cause of many problems and constitutes threats to the environment or any society. Moreover, poor education brings about lack of understanding, improper behavior and actions which negatively impacts man himself and his environment hence, posing threat to the world. Aristotle once said, “Education of the mind without educating the heart is no education at all.” Therefore, an illiterate is described as a person who is not just able to read and write but also ignorant about certain subjects.”

Many issues have been found to be interconnected (Bhargava, 2006). Illiteracy and poor education have been linked with effects such as increasing morbidity, high mortality, ineffectiveness, unproductivity, poverty, lack of growth and development.

2.0 Consumer Sciences as Well-rounded field for Quality Education

Family and Consumer Sciences as an Interdisciplinary Science

Family Life and Consumer Sciences education is a field of study that focuses on family, work and the interrelationship. Family and Consumer Sciences is the study of nutrition, food, clothing, child development, family relationships and household economics.

Consumer Science can be defined as a discipline of understanding consumer choices, behaviors/routine, and preference in relation to products including media, packaged goods, communications, food/beverage and user experience.

It is a well-rounded field: it integrates Social Sciences, Physical and Biological Sciences, Arts, Humanities and Mathematics. A content-rich curriculum is not just a necessary building block for education but also for comprehension beyond the classroom. The curriculum content includes Career, Community and Family Connections, Consumer and Family Resources, Family Development, Human Development, Family Development, Interpersonal Relationships, and Wellness, Parenting, Childhood Education, Facilities Management and Maintenance, Consumer Service, Food Production, Food Science, Dietetics, Nutrition, Hospitality, Tourism, Recreation, Housing, Interiors and Furnishings.

2.1 *Consumer Sciences and Values for Character Building beyond Academics*

Education is not just about the ability to read and write. It is about knowledge and its application in meeting societal needs. Quality education ought to be well-rounded, all-rounded, balanced, and whole, that is, it entails; mental or intellectual, emotional, moral, physical, social, work, and financial aspects. It is key to eliminating all problems (Raman, 2019). It is the foundation to improving people's lives and sustainable development. It enables students to develop all of their attributes and skills to achieve potentiality as human beings and members of the society. It is what helps individuals to develop all their talents maximally and to realize their creative potentiality including responsibility for their own lives and the achievement of their lives aims. It is the process of facilitating learning or acquisition of knowledge, skills, values, morals, beliefs and habits.

Values have been shown to impact actions. The field develops the ability to think critically and creatively. It builds understanding and character, the ability to make informed choices or decision, better attitudes, behavior and habits, therefore better practices that bring about better results. Quality education has formative effect on an individual's mind, character or physical ability.

Character is foundational to growth and development. The seven pillars of character include respect, responsibility, integrity, fairness, care, citizenship and courage. Character is a key factor to success in life and in leadership (Ayokunle, 2015). When people gain better understanding, they do things in a better way.

2.3 Consumer Sciences from History

Back into its history as Home Economics, it advances in the development of its curriculum in the following order:

- Early 1900s: It was known as Home Economics with emphasis on cultural, ethical, social ideals and the scientific management, improving the quality of life, helping students develop critical thinking skills, and to improve lives and communities.
- By 1945: There was a curriculum update which involved community leadership, developing responsible family members and citizens, healthy and moral households, and productive and confident individuals.
- By 1950s: Career choices expanded to home care, production of food and clothing, parenting roles, managing families and community responsibilities.
- In 1972: The course opened to males and females and consequently increased men enrollment.
- By 1994, the field changed the name to Family and Consumer Sciences to reflect cultural and educational developments. Beyond home making skills, interpersonal and skill development in family, workplaces and communities, practical and ethical reasoning, economic values for effectiveness and productivity, moral and ethical values such as personal responsibility, social responsibility and respect for all people were incorporated in the curriculum.
- Today, it entails different personal development courses designed to help adolescents and adults learn about themselves, career and family responsibilities, life skills, orientation in life and career, adult roles and responsibilities, leadership in workplace, career choices, financial and life planning, and entrepreneurship. It meets diverse needs of populations from cultural, political, and legislative. This field has evolved with growing sophistication in research methods, specialization within the field, use of new technologies for dissemination of knowledge, advocacy for policies to protect families and consumers rights.

Consumer Sciences cover academic competence in knowledge and skills, employability skills such as critical and creative thinking skills, written and oral communication skills, problem solving skills, planning, teamwork, self-management, initiative, enterprise skills, resourcefulness, motivation, commitment, life skills, leadership skills, digital skills, and character.

It is what makes students grow, to be successful and to make a difference in the society. It is discovered that students who receive proper education are likely better prepared for life and careers because they develop a wider range of knowledge and skills necessary to succeed in life. High-performing countries excel because they exposed students to a vibrant, balanced education that teaches them to read and think critically (Jimenez & Sargrad, 2018). It expands the vision and creates awareness. It builds students into skilled manpower in line with the international labor market.

2.4 Purpose and Goals of Consumer Sciences

Family and Consumer Sciences contribute to a broad range of intellectual, moral and workforce development goals. This means it helps to develop right values and to develop character that will lead to lasting success in life. The mission is to prepare students for family life, work life, careers in family and consumer sciences. The nine (9) goals that provides direction for curriculum development in the field are to:

1. strengthen the well-being of individuals and families across the life span;
2. become responsible citizens and leaders for family, community and work settings;
3. promote optimal nutrition and wellness across the life span;
4. manage resources to meet the material needs of individuals and families;
5. balance personal, home, family and work life;
6. use critical and creative thinking skills to address problems in diverse family, community and work environments;
7. foster successful life management, employment, and career development;
8. function as providers of consumer goods and services for families;
9. appreciate human worth and accept responsibility for one's action and success in family and work life.

3.0 National Development and Scope

National development is a broad and comprehensive term which includes all aspects of development of a nation namely, social, economic, environmental and political. The scope includes:

- **Removing poverty;**
- Improving national income and per capital income;
- Developing **quality education;**
- Revolutionary change in **agriculture;**
- Developing transport and **communication;**
- Developing medical facilities;
- **Use of science and technology;**
- Preservation of nature and **environment;**
- **Improving economic** and living standards of the citizen;
- Enriching culture and promoting **sustainable development.**

3.1 Sustainable Education and National Development

Sustainable education is important to national development. The word 'sustainable' is defined as 'making something exist or happen for a long time' (Longman Dictionary); 'being able to last or continue for a long time' (Merriam- Webster); and 'meeting the needs of the present without compromising the ability of the future generation to meet their own.'

Education is important in passing on of values to future generations. Families, societies, schools,

colleges, universities and other institutions deliberately transmit its **cultural heritage** and its accumulated knowledge, values and skills to each generation through education.

Sustainable development rests on these three major pillars:

1. **Human/social development**
2. **Environmental development**
3. **Economic development**

The relationship between quality education, character, and sustainable development is shown in Figure 1.

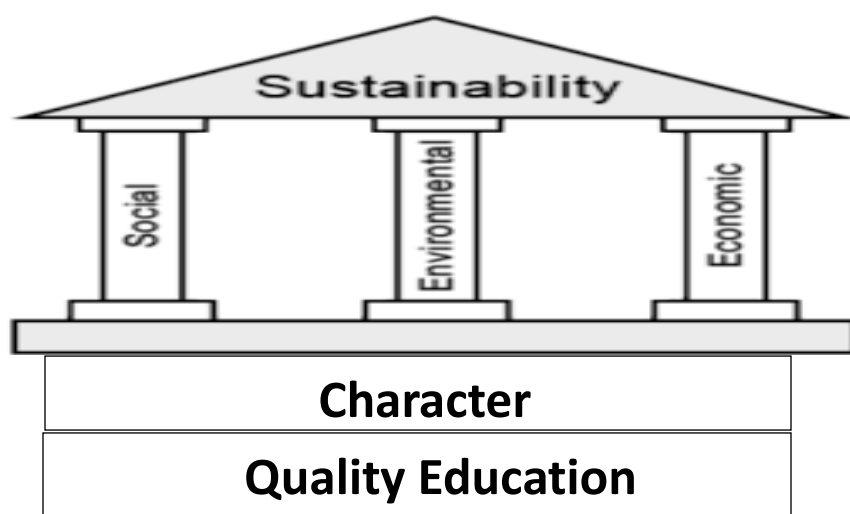


Figure 1: Relationship between quality education, character and sustainability pillars for development

3.2 Consumer Sciences and Contributions to National Development and SDGs

Consumer Sciences contributes to human, social economic and environmental development. It will contribute to eight areas on national development in Nigeria. Table I shows how sustainable Consumer Education will contribute to national development and twelve goals of the Sustainable Development Goals (SDGs).

Table I: Sustainable Consumer Education, National Development and SDGs

Sustainable Education	3 Pillars of sustainability	*National/Sustainability Development Goals
	Human development	1* No Poverty, 2 No Hunger 3 Good health & Well-being, 4*Quality Education 6 Clean water & Sanitation

	Social development	5 Gender Equality, 16 Peace, Justice & Strong Institutions, 17 Partnerships
	Economic development	8* Decent work and Economic Growth 9 Industry, Innovation and Infrastructures
	Environmental development	11 Sustainable Cities & Communities 13 Climate action

Consumer Sciences: Human and Social Development

3.2.1 Producing well-rounded quality graduates as leaders

Quality graduates are groomed students who mentally, emotionally, morally, socially and financially prepared to serve and lead. Leadership in the 21st century is not limited to a position but the ability to identify needs and add value, contributing, solving problems and making a difference in the society. Quality graduates as change agents can initiate and bring about transformation. They grow and adapt as a whole person. They make informed decisions and demonstrate problem-solving skills. They are hardworking and ensure good practices. They are creative and innovative to bring about technological changes that improve life of the modern society. They create job opportunities and are after effectiveness and productivity. They grow the economy through knowledge and practical applications. They live in harmony with other people. Quality graduates are able to contribute to the society's growth and progress, creating a stable and stimulating community. By sharing knowledge, educated people can impact numerous lives and make the individual lives meaningful, happier and prosperous.

3.2.2 Developing students for services through different career paths

The course prepares students to become professionals to meet nation's needs. Family and Consumer Sciences provide career options in Child Development, and Guidance, Consumer Education, Family and Health Development, Fashion and Textile, Food and Nutrition, Housing and Furnishing, Financial Management, Grooming and Leadership Development. Graduates find varied and wide career opportunities in business, industry, health, human service and education settings.

3.2.3 Consumer education and better practices

Consumer education brings about better understanding which leads to better knowledge, skills, choices, attitudes, behavior, practices, habits and life. People can be educated on one-one basis as in counselling for adolescents to groups training such as in body grooming. Figure 2 shows that consumer education can use different communication means including technology such as

radio, television, newspaper and internets to disseminate messages to reach different target audience such as sensitizing and training on food choices and nutrition, food and water safety, sanitation and good hygienic practices, quality products and consumer right.



Figure 2: Consumer education of different target audience

3.2.4 Research for development and new knowledge and technologies

Research studies by food nutritionists and scientists have solved problems or proffered solutions to food insecurity, hunger and malnutrition (stunting and wasting). They have also provided immuno-boosting products to address communicable and non-communicable diseases, new product development and food preservation techniques.

3.2.5 Household food security

Addressing undernutrition: Food fortification of locally-available and affordable foods address protein-energy malnutrition by supplementing or complementing cereals with available legumes. Locally-available foods are fortified to provide amino acid balance and develop richer foods. Maize-soybean, maize-cowpea, maize-pigeon pea or cassava-pigeon pea fortified products have been developed as breakfast meals, snacks, lunch or dinner meals which will impact food security, better nutrition and health especially for young children (Ashaye, Fasoyiro & Kehinde, 2000; Fasoyiro, Arowora & Ajani, 2017; Fasoyiro *et al.*, 2019; Obatolu, Omueti & Adebawale, 2006).

Dietary diversification of cassava, cereals and other biofortified food crops include vitamin A maize, vitamin A cassava, orange-flesh sweet potatoes for increase household food security has been achieved. Figure 3 shows examples of dietary diversification of cassava and pigeon pea.



Figure 3: examples of dietary diversification of cassava and pigeon pea

3.2.6 Better nutrition and health

Addressing overnutrition: Dieticians should advise on food choices as dietary concerns include overconsumption of calories, added sugar, saturated fats, salt intake, and underconsumption of whole grains, fruits and vegetable leading to health conditions such as obesity and other non-communicable diseases.

Better nutrition impacts mental (cognition), emotional, physical, social, health and well-being, outputs and economic productivity of the society.

3.2.7 Family and societal peace

Family life and Consumer Sciences as a field focuses on family and work, and their interrelationship. Challenges are experienced by people of all ages in their families, workplaces and communities. Through counselling, professionals in the field can help stabilize families and communities going through challenges. Professionals in the field can guide in making informed choices, in problem solving, in coping with stress and emotions, in conflict management, in leadership and management issues.

Students trained in these areas can be helpful in resolving family/ relationship issues, guiding and raising healthy and productive children, and they are also prepared to serve and lead in human engagements (Amato & Booth, 2006).

As a social worker, they can assist the physically challenged, the sick, the elderly, and the drug or alcohol addict. They can help in retirement planning.

Consumer Sciences: Economic and Environmental Development

3.2.8 Entrepreneurial activities, job creation and economic growth

Consumer Sciences provide various entrepreneurial opportunities for self-reliance, to become employer of labour and to contribute to the economy. These includes food preparation, manufacturing, child care and elderly support, nutrition and fitness consultants, fashion designing, textile making, interior decoration, hotel management, hospitality services, event planning, and tourism and recreation. Increased Gross Domestic Products from *production and services* contributes to national economic growth and development. A positive relationship has been reported between crimes rates and unemployment (Kapuscinski, Braithwaite, & Chapman, 1998). With various work options for engagement, this will reduce unemployment rates and crime rates associated with doing illegal works. Figure 4 shows some entrepreneurial opportunities in food area from IAR&T.



Figure 4 Entrepreneurial opportunities in food areas from IAR&T technologies

3.2.9 Agricultural and environmental development

Urban agriculture is encouraged through home and school gardening, and subsistence farming. Planting of fruits of vegetables and food crops at household level have impact on the environment. Environmental health is improved through improved soil fertility, erosion control, improved oxygen which help in climate change mitigation. Good landscaping also beautifies the environment. Poor sanitation contributes to diarrheal diseases through fecal contamination of food and water (Campbell, 2015). Proper sanitation practices aid clean environment and the people's health.

3.3.0 Financial and resource management

The course teaches students to budget, manage personal finances and be accountable. A family and consumer scientist can guide in taking wise decision on buying and selling of products. Graduates can form their own marketing or consulting firms to assist businesses in understanding their consumers.

3.3.1 Poverty alleviation and quality of life

Quality education has influence on quality of life. According to WHO (2012), quality of life is defined as individuals' perception of their position in life to the context of the culture and value systems in which they live, and in relation to their goals, expectation, standards and concern.

Quality of life indicators include: quality air, quality soil, shelter quality, urbanization, communication, nutrition, health, education, economic conditions, security, social, and leisure/recreation (Dennis, Remwick, Brown & Rootman, 1996). Reduction in total crime, murders, rape, robbery, assault, death, divorce, hospital bed patients are also signs of better quality of life in a community. This also manifests in economic growth and development, reduced poverty, nation development, peace and prosperity. Family and Consumer Sciences will aid quality of life of individuals by contributing to the three pillars of sustainable development.

4.0 Sustainable University Education System

Sustainable university education requires

- Stabilized and secure society through effective peace-building bodies;
- Good governance;
- Close interaction between the universities and professional bodies with the government;
- Effective and sustained educational policies; and
- Partnerships within universities and relevant educational bodies nationally and globally.

Furthermore, sustainable Consumer Sciences requires professional and experienced teachers, consistent development, updated curriculum, quality library, well-equipped facilities (such as office space, state-of-art-laboratories, good learning environment and classrooms), better remuneration of the teachers, and proper mentoring and employment of departmental graduates for continuity.

CONCLUSION

Sustainable Consumer Education is vital to equipping quality graduates and future leaders in competence and character to contribute to human, social, economic and environmental aspects of national development for growth, peace and prosperity. Potential students should see Consumer Sciences as a field of learning which provides wide employment opportunities to serve as either a professional or an entrepreneur.

The field should be made a high priority area for learning, support and funding because of its high capability to contribute to the nation's development especially towards addressing unemployment and character development. Sustainable education will also require stable and secure society, good governance, close interaction of the universities and FACSSON as a professional body with the government for effective and sustained policies, adequate and consistent funding, support and partnerships among universities and other relevant educational bodies nationally and globally.

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INFLUENCE OF EXPLOITATIVE CHILD LABOUR PRACTICES ON CHILDREN'S ACADEMIC PERFORMANCE IN ILORIN WEST LOCAL GOVERNMENT, ILORIN, KWARA STATE

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ABSTRACT

This study assessed influence of exploitative child labour on children's academic performance amidst global challenges in Ilorin metropolis. Five specific objectives and five research questions were formulated with one null hypothesis associated. Survey research design was adopted. Population for the study was primary school pupils, totaling 335 drawn from three primary schools in Ilorin West Local Government, Kwara State. A sample of 150 respondents from classes 4, 5, and 6 were randomly selected for the study. The instruments used for data collection were a self-design questionnaire, and report cards.

Results revealed that global challenges influencing involvement in Child Labour include – inability of parents to pay school fees, single parenting, family low income, polygamous and price hike of items. On the level of child labour practices, results show that 25 (16.7%) were never involved in exploitative child labour, 88(58.7%) were sometimes involved in exploitative child labour, while 37(24.7%) were always involved in exploitative child labour.

Result of the hypothesis tested at 0.05 level of significance was rejected ($P < 0.05$). The findings showed that child labour affect pupil's academic performance. The study recommended that parents should stop exploitative child labour. Government should also enact a law to permanently ban underage recruitment.

Keywords: child labour, academic performance, global challenge, family, parents.

INTRODUCTION

Childhood is a phase of life when a child is free from all tension, fun-loving, plays and learns new things, and is also the sweetheart of the family (Orazem & Gunnarsson, 2004), but it is quite unfortunate that something rebellious is depriving some children of irreplaceable moment “child labour”. Child labour refers to a situation where children miss their childhood and are not able to have basic amenities which a child should have (Osment, 2014). Child labour can cause damages to the wellbeing of children, physically, psychologically and morally. Whereas child exploitation is the act of using a child for profit, labour, sexual gratification, or some other illegal personal or financial advantages. Child exploitation often results in harmful treatment of the child, as the activities he or she may be forced to take part in can cause emotional, physical, and social problems.

According to the International Labour Organization (ILO, 2006), there are approximately 317 million “economically active” children throughout the world. Of these, about 218 million are considered “child labourers”. Majority of children, approximately 69 percent, are found to work in agriculture, followed by services (22 percent) and industry (9 percent), respectively (ILO, 2016, p.8). The International Labour Organization (ILO, 2016) adopted standards to eliminate it. Throughout 20th century, a number of legally binding agreements and international conventions were adopted but despite all this, child labour continues to this day. Child labour remains a major source of concern in Nigeria, inspite of legislative measure taken by the Government at various levels. Also in 1998, a report from the International Labour Organization (ILO, 2016) estimated that 24.6 percent of children between the ages of 10-14 in Nigeria were working. It is a ridiculous sight in most big cities, as well as rural villages today to see children of school age, trading food on the street, herding animals, tanning and drying raw leather product, fetching water for commercial purpose, washing dishes at restaurants, serving as domestic hands, selling wares at kiosks, collecting fire wood for business, harvesting crops in family farm or commercial plantation amongst other activities (Thomberry, 2013).

According to a UNICEF (2008) report, child labourers toil for long hours under dangerous and unhealthy, hazardous work conditions. Most times, working children undertake work obligations that may be beyond their physical capability for long hours without eating. Child labour in its worst forms is highly exploitative (Adeleye, 2014). Under the Convention on the Rights of the Child (CRC) (2001) and Child Right Act (CRA) (2003), the child is entitled to protection from economic exploitation and from work that is likely to be hazardous or interfere with the child’s education or be harmful to the child’s health or development.

In agreement with the labour abuse (child labour) trend, the International Labour Organization (ILO, 2012) in its other report issued, states that the global figure of child labourers was put at approximately 250million. Interaction with students of low academic performance shows that most of them came from poor or broken homes with little or no means of livelihood; hence they

need to fend for themselves, which exposes them to psychological and emotional Instability (Okpechi, 2014). Academic achievement or (academic) performance is the outcome of education, the extent to which a student, teacher or institution has achieved their educational goals. It was observed that for a pupil or student to be successful in his or her academic performance, the pupil has to be regular in school, face learning problems squarely, avoid late coming to school and he or she should consult with the teacher (Giersch et.al, 2016)

Yap, Gulherme, and Peter (2003) pointed out that a child who attends school more frequently may influence the knowledge he or she gains. However, the more the school attendance, the less time a child has on labour activities. Academic performance often revealed the level of a child academic knowledge after the result of each term is received.

Statement of the Problem

Despite the fact that International Labour Organization (ILO, 2016) set a goal to eradicate the worst forms of child labour across the globe, the possibility of achieving this goal in Nigeria is being doubted because child labour in its worst forms continues to thrive in the country, and has become worse in recent times. It has been noticed that child labour and exploitative rooted from poverty. Researchers observed that in some situation a child will be asked to hawk early in the morning before going to the school, which will always result to the child lateness to the school or at times play truancy. This could also result in the child sleeping in class due to fatigue or hardly understand exercises given by the teacher, especially mathematics. At the end of the term the child will come out with a poor performance .Therefore, this study seeks to investigate the influence of exploitative child labour on Children's academic performance.

Objectives of the Study

The main objective of the study is to investigate the influence of exploitative child labour practices on children's academic performance in Ilorin West Local Government, Kwara State. The specific objectives in this study intends to:

- I. Identify the factors influencing child labour.
- II. determine types of exploitative child labour.
- III. assess the level of child labour practices in Ilorin West.
- IV. determine the children's perceptions on influence of child labour on their academic performance.
- V. investigate the influence of exploitative child labour practices on children's academic performance.

Research Questions

The following research questions were raised for the study.

What are the factors influencing child labour?

What are the types of exploitative child labour?

What is the level of child labour practices in Ilorin West?

What are the children's perceptions on influence of child labour on their academic performance?

What influence does exploitative child labour have on children's academic performance?

Hypothesis of the Study

Hypothesis formulated for the study.

H₀₁: Exploitative child labour will not significantly influence children's academic performance.

Scope of the Study

The study is based on influence of exploitative child labour practices on children's academic performance. The study focussed on the causes for exploitative child labour, types of exploitative child labour, perception of parents in practice of exploitative child labour, and academic performance. The study was carried out in Ilorin West Local Government Area, Kwara State. Kwara State consists of 16 Local Government Area.

METHODOLOGY

Design of the Study: Survey research design was adopted in this study. Population of the study comprised pupils between the ages of 6 - 12years old in Ilorin West Local Government Area, Kwara State. It comprises primary four to six pupils in three schools numbering three hundred and thirty five (335).

Sample Size and Sampling Technique: Random sampling technique was used to select 150 samples for the study. This represents 45% of the population. In selecting the sample, ballot paper method in which "Yes" and "No" was written on pieces of papers, folded, put in a box and thoroughly mixed. Each pupil was asked to pick one from the box. Those who picked "Yes" were used for the sample for the study as representatives.

Instruments for Data Collection: The instrument that was used for collecting data for this study is Questionnaire that was tag "Influence of Exploitative Child labour practice on Children's Academic Performance Questionnaire". The questionnaire was developed by the researcher based on the objectives, research questions and research hypothesis. The first section was based

on socio-demographic characteristics of the respondents such as gender, age, while the second section was to identify respondents that engaged in “Exploitative Child labour practice and their academic performances” using the school attendance register and report cards of the pupils for 2018/2019 academic year. Responses of each item was rated on “4 points” scale ranging from (1=strongly disagree; 2= disagree; 3= agree; strongly agree) scaled 4 to 1 respectively.

Method of Data Analysis

Descriptive and inferential statistics such as mean, standard deviation, frequencies, and percentages were used to analyze the demographic variables of the respondents. The null hypothesis involved was analyzed with Pearson Product Moment Correlation (PPMC).

DISCUSSION

Interpretation of Demographic Data of Respondents

Table I: Distribution of respondents according to their socio-demographic information
N=150

Variables	Frequencies	Percent%
Sex		
Male	68	45.3
Female	82	54.7
Total	150	100.0
Age:		
6-8	9	6.0
9-11	87	58.0
12 years and above	54	36.0
Total	150	100.0
Religion:		
Christianity	31	20.7
Islam	119	79.3
Total	150	100.0
Classes:		
Primary 4	41	27.3
Primary 5	55	36.7
Primary 6	54	36.0
Total	150	100.0
Living with parent:		
Yes	115	76.7
No	35	23.3
Total	150	100.0

Table I shows demographic distribution of the respondents by gender, age, religion, class, and

living with parent. The table shows that 68 (45.3%) males and 82 (54.7%) females participated in the study. The age range of the respondents, indicated that 9 (6.0%) 6-9 years, 87 (58.0%) were between the age range of 9-11 years, 54 (36.0%) were between the age range of above 12 years. This shows that majority age range of respondents were between 9-11 years. In terms of religion the findings revealed that 119 (79.3%) were practice Islam, 31 (20.7%) were Christians. This shows that majority of respondents were Muslims. Individual classes revealed that 41 (27.3%) were in primary four, 55 (36.7%) were in primary five, 54 (36.0%) were in primary six. The findings revealed that 115 (76.7%) were living with their parents, whereas 35 (23.3%) were not living with their parents.

Analysis of the Research Questions

The first specific objective was to investigate Factors Influencing involvement in Child Labour in Ilorin West Local Government, Kwara State, Nigeria.

Research Question 1: What are the factors influencing Child Labour in Ilorin West Local Government?

Table II: Mean Ratings and Standard Deviation of Respondent on Factors Influencing Child Labour

S/N	STATEMENT	A N (%)	D N (%)	MEAN (\bar{x})	SD	Remark
Factors Influencing Involvement in Child Labour						
6	Inability of parents to pay school fees	89(59.4)	61(40.6)	2.79	1.16	Agreed
7	To assist parent because of family low income	89(59.4)	61(40.6)	2.79	1.11	Agreed
8	Not living with parents	53(34.6)	99(65.4)	2.33	1.13	Disagree
9	Being in a polygamous family	51(34)	99(66)	2.21	1.09	Disagree
10	Father absence	42(28)	108(72)	2.11	1.07	Disagree
11	Living with a single parents	63(42)	87(58)	2.43	1.16	Disagree
12	Source of personal income	80(53.3)	70(46.7)	2.61	1.11	Agreed

Figures in parenthesis are in percentages

The mean (\bar{x}) of 2.50 was used for the decision. A mean rating of any item by the respondents equal to or above 2.50 was accepted and taken as Agree while any mean rating lower than 2.50 was taken as Disagree. Result on factors influencing involvement in child labour in the above table revealed that the respondent agreed with items 6, 7, and 12 and disagree with items 8, 9, 10 and 11, with the mean items ranging from 2.11-2.79.

In Table II, the respondents agreed that factors that influence child labour include inability of parents to pay school fees ($\bar{x}=2.79$) 89% and also to assist parents because of family low income ($\bar{x}=2.79$) 59.4% and as a source personal income ($\bar{x}=2.61$) 53.3%. They however disagree that it is not because they do not live with parents ($\bar{x}=2.33$) 65.4% and being in a polygamous family ($\bar{x}=2.21$) 66% or as a result of father absence ($\bar{x}=2.11$) 72% and living with a single parents ($\bar{x}=2.43$) 58%.

Research question 2: What are the types of child labour?

Table III: Mean ratings and standard deviation of respondent on types of child labour; how often they do the following.

S/N	STATEMENT	Always	Some times	Rarely	Never	Mean (\bar{x})	SD	Remark
Types of Child Labour								
How often do you do the Following?								
13	Hawking early in the morning before going to school	26 (17.3)	12 (8.0)	16 (10.7)	96 (64.0)	1.79	1.17	Disagree
14	Working before going to school	95 (63.3)	33 (22.1)	8 (5.3)	14 (9.3)	3.39	.96	Agreed
15	Going to the market to help mother in the shop	40 (26.7)	34 (22.6)	19 (12.7)	57 (38.0)	2.38	1.24	Disagree
16	Cook before leaving home in the morning	42 (28.0)	42 (28.0)	24 (16.0)	42 (28.0)	2.56	1.17	Agreed
17	Hawking pure water	33 (22.0)	25 (16.7)	18 (12.0)	74 (49.3)	2.11	1.24	Disagree
18	Going for apprenticeship training	41 (27.3)	22 (14.7)	17 (11.3)	70 (46.7)	2.23	1.29	Disagree
19	Hawking after the school hours	38 (25.3)	20 (13.3)	27 (18.0)	65 (43.4)	2.21	1.24	Disagree
20	Running errands during school period	22 (14.7)	46 (30.7)	35 (23.3)	47 (31.3)	2.29	1.06	Disagree
21	Washing clothes	67 (44.7)	58 (38.7)	17 (11.3)	8 (5.3)	3.23	.85	Agreed
22	Being an house help	35 (23.3)	41 (27.3)	18 (12.1)	56 (37.3)	2.37	1.21	Disagree

Figures in parenthesis are in percentages

In research question 2 (Table III), respondents agreed with items 14, 16 and 21 and disagree with items 13, 15, 17, 18, 19, 20 and 22. Mean ranged from 1.79-3.39. Respondents agreed that they always work before going to school ($\bar{x}=3.39$) 63.3%, also always and sometimes cook before leaving home in the morning ($\bar{x}=2.56$) 28% and always washing clothes ($\bar{x}=3.23$) 44.7%. They disagree with hawking early in the morning before going to school ($\bar{x}=1.79$) 64% and hawking pure water ($\bar{x}=2.11$) 49.3%, and running errands during school period ($\bar{x}=2.29$) 31.3% and being a house help ($\bar{x}=2.37$) 37.3% and going for apprenticeship training ($\bar{x}=2.23$) 46.7%.

Research Question 3: What is the level of child labour practices in Ilorin West?

Table IV: Frequency of level of child labour practices in Ilorin West

Level of Exploitative child labour practices	Frequency	Percentage
Never	25	16.7%
Sometimes	88	58.7%
Always	37	24.7%

Table IV revealed the result of the 150 pupils, 25(16.7%) were never involved in exploitative child labour, 88(58.7%) were sometimes involved in exploitative child labour, while 37(24.7%) were always involved in exploitative child labour,

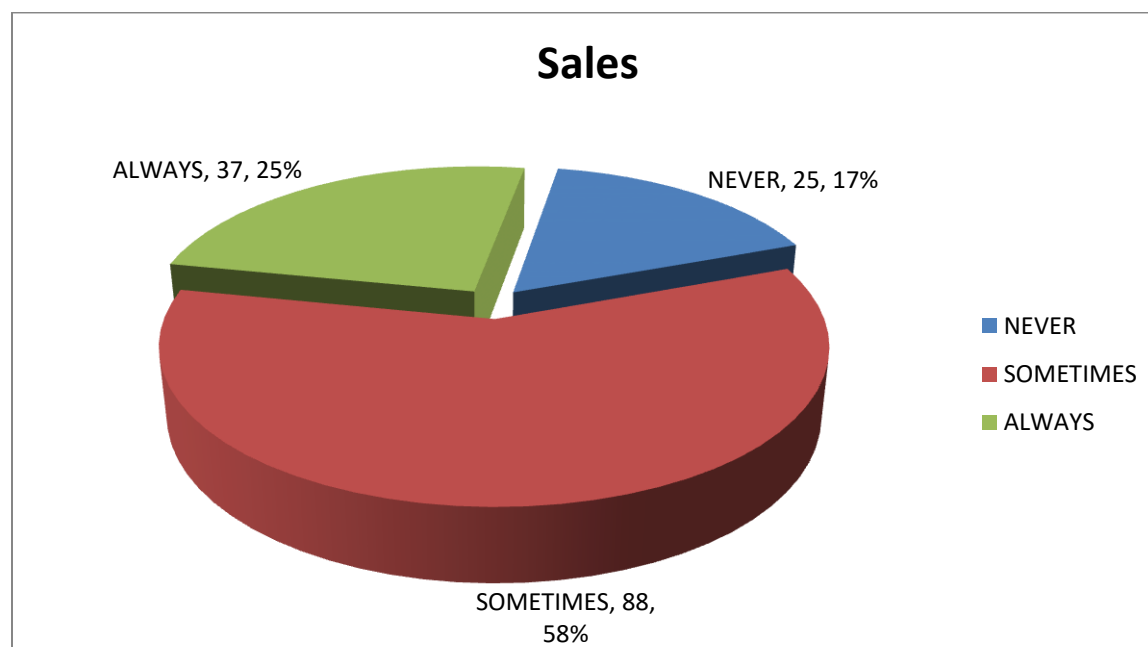


Figure I: Level of child labour practices in Ilorin West

Figure I revealed that of the 150 pupils 25(16.7%) were never involved in exploitative child labour, 88(58.7%) were sometimes involved in exploitative child labour, while 37(24.7%) were **always** involved in exploitative child labour.

Research Question 4: What are the children's perceptions on influence of child labour on their academic performance?

Table V: Mean ratings and standard deviation on children's perception on influence of child labour on their academic performance.

S/N	STATEMENT	Always	Sometimes	Rarely	Never	Mean (\bar{x})	SD	Remark
Children's perception on influence of child labour on their class activities								
23	It reduces ability to cope with the class work	37 (24.7)	62 (41.3)	27 (18.0)	24 (16.0)	2.27	1.14	Disagree
24	It prevents participation school's activities	28 (18.7)	39 (26.0)	29 (19.3)	54 (36.0)	2.75	1.01	Agreed
25	It has nothing to do with academic performance	38 (25.3)	45 (30.0)	45 (30.0)	22 (14.7)	2.66	1.02	Agreed
26	Lack of concentration in class	4 (2.7)	30 (20.0)	43 (28.7)	73 (48.7)	1.77	.86	Disagree
27	Causes absence in school	24 (16.0)	30 (16.0)	30 (20.0)	66 (44.0)	2.08	1.13	Disagree
28	Results into lateness to school	16 (10.7)	45 (30.0)	33 (22.0)	56 (37.3)	2.14	1.04	Disagree
29	Sleeping in class	12 (8.0)	28 (18.7)	39 (26.0)	71 (47.3)	1.87	.99	Disagree

Figures in parenthesis are in percentages

Result on influence of child labour on children's academic performance on Table V revealed that the respondent agreed with items 24 and 25. They disagree with items 23, 26, 27, 28 and 29. Items' mean ranged from 1.77-2.75. The respondents agreed that it prevents participation school activities ($\bar{x}= 2.75$) 36% and it has nothing to do with academic performance $\bar{x} =2.66$) 30%. They however disagree that they do not lack concentration in the class ($\bar{x}=48.7$) 73% and disagree with causes absence in school ($\bar{x}= 44.0$) 66% or result into lateness to school ($\bar{x}=37.3$) 56% and

sleeping in class (\bar{x} = 47.3) 71%.

Research question 5: How does exploitative child labour influence children's academic performance?

Research Question 5: What influence does exploitative child labour have on children's academic performance?

Table VI: Influence of exploitative child labour on children's academic performance

Level of child labour	Grades						Ta ble VI rev eal ed the sco res of thr ee
	70-100 A	60-69 B	50-59 C	45-49 D	40-44 E	Total	
Never	4 (16.0%)	16 (64.0%)	5 (20.0%)	0 (0.0%)	0 (0.0%)	25 (100.0%)	
Sometimes	34 (38.6%)	40 (45.5%)	10 (11.4%)	2 (2.3%)	2 (2.3%)	88 (100.0%)	
Always	12 (32.4%)	13 (35.1%)	10 (27.0%)	2 (5.4%)	0 (0.0%)	37 (100.0%)	
Total	50 (33.3%)	69 (46.0%)	25 (16.7%)	4 (2.7%)	2 (1.3%)	150 (100.0%)	

subjects examined (English Language, Mathematics and Social Studies). There are 12 pupils that have "A" and 13 pupils "B" among children that are always involved in child labour, and for children that are Sometimes involved in child labour 34 "A" and 40 "B" and 4 "A", 16 "B" out of those that are Never involved in child labour. The results revealed that of the 25 pupils that were **never** involved in exploitative child labour, 4(16.0%) has 70-100 % in the summary of subjects scores examined, 16 (64.0%) has 60-69%, and 5(20.0%) has 50-59. Of the 88 pupils that were **sometimes** involved in exploitative child labour, 34 (38.6%) has 70-100 % in the summary of subjects scores examined 40(45.5%) has 60-69%, 10(11.4%) has 50-59, 2(2.3%) has 45-49% and 40-44% respectively. Amongst the 37 pupils that were **always** involved in exploitative child labour, 12 (32.4%) has 70-100 % in the summary of subjects scores examined 13(35.1%) has 60-69%, 10(27.0%) has 50-59, and 2(5.4%) has 45-49%.

This result implied that exploitative child labour has influence on the children academic performance but the effect is not significant.

Hypotheses testing

H0₁: Exploitative child labour will not significantly influence children's academic performance.

Table VII: Pearson Product Moment Correlation on influence of Exploitative child labour on children's academic performance

N=150

Variable	Mean (\bar{x})	SD	N	Pearson r	Sig.(2-tailed)
Exploitative child labour	24.5467	5.30112	150	.	.
academic performance.	15.5400	3.86974		.463**	.000

$\alpha = 0.05$

Table VII shows a Pearson r of .463** and a p value of .000, testing at an alpha level of .05. ($p < 0.05$) The Pearson r of .463** shows high influence of Exploitative child labour on children's academic performance. The hypothesis which states that exploitative child labour will not significantly influence children's academic performance is therefore rejected. Consequently, exploitative child labour significantly influence children's academic performance.

Discussion of Results

This study investigated the Influence of exploitative child labour practices on children's academic performance in Ilorin West LGA Kwara State. The demographic distribution shows that 68(45.3%) male and 82(54.7%) females participated in the study. The findings revealed that 115(76.7%) are living with their parents and 35(23.3%) are not living with their parents. The bio-data of the study revealed that majority of the respondents were children between the age of 9-11years 87(58.0%), which is disagree with Isah (2013) whose majority of her respondents were between age of 8-10years (63%) referred to them of being regular to school.

Result of the findings in research questions one revealed that factors influencing involvement in child labour include - inability of parents to pay school fees ($\bar{x}=2.79$) 59.4%, and ($\bar{x}= 2.79$)89% said that to assist parent because of family low income. This agrees with Bhat and Rather (2009), decisions about child labour and schooling are generally made by parents. If the family live below the poverty line, parents see children as part of contributor in their family income.

Result of the findings in research questions two revealed that types of child labour include – working before going to school where most of the respondents choose always ($\bar{x}=3.39$) 95%. Likewise ($\bar{x}=2.56$) 42% respondents cook before leaving home in the morning. Since the majority of respondents took part in domestic work before going to school, there will be possibility of not taken part in some activities in the school likewise in the class room. And this agrees with the findings of Derby (2012) who states that child domestic work is also referred to

as child domestic servitude. If children are working 12-14 hours a day along with their parents at the cost of their education, their situation is similar to that of children working for other employers. In fact children, particularly girls, are expected to take on work burdens by parents in complete disproportion to their strengths and abilities. This is the largest category of children who are out- of -school and are working full time.

Result on level of child labour practices in research question three Ilorin West Local Government revealed that out of the 150 pupils 25 (16.7%) were never involved in exploitative child labour, 88 (58.7%) were sometimes involved in exploitative child labour, while 37(24.7%) were always involved in exploitative child labour. This is in line with the report of Yap (2003), who pointed out that a child who attends school more frequently may influence the amount of knowledge he or she gains. However, the more the school attendance the less time a child has on labour activities. Academic performance shown the level of a child academic knowledge after the result of each term is received.

Result on Influence of child labour on children's academic performance in research question four revealed that it prevents participation school's activities ($\bar{x}=2.75$), which means it has a negative impact on academic performance. Whereas result of "it has nothing to do with academic performance" is ($\bar{x}=2.66$) which disagree with Okpechi (2014), who states that if parent have to pay for costs of books and materials, then working may actually facilitate access to education. Interaction with students of low academic performance shows that most of them came from poor or broken homes with little or no means of livelihood; hence they need to fend for themselves. This exposes them to psychological and emotional Instability.

Result of the hypothesis shows high influence of Exploitative child labour on children's academic performance ($p<0.05$). This agrees with Isah(2013) whose study discovered that when children are left to work and at the same time go to school, they will always perform poorly in school and therefore not be able to acquire the quality education they need for productivity in future.

Likewise using their grade scores in Mathematics, English Language and Social Studies, the following was observed: of the 150 pupils, 25(16.7%) were never involved in exploitative child labour, 88(58.7%) were sometimes involved in exploitative child labour, while 37(24.7%) were always involved in exploitative child labour; of the 150 pupils, 50 (33.3%) had 70-100 % in the summary of subjects scores examined; 69(46.0%) had 60-69%, 25(16.7%) had 50-59, 4(2.7%) had 45-49% and 2(1.3) had 40-44% respectively. This result implied that exploitative child labour has influence on the children academic performance but the effect is not significant.

The respondents agreed that "exploitative child labour" prevents participation in school activities ($\bar{x}=2.75$) 36% and it has nothing to do with academic performance ($\bar{x}=2.66$) 30%. They however disagreed that they do not lack concentration in the class ($\bar{x}=48.7$) 73% and disagreed that it causes absence in school ($\bar{x}=44.0$) 66% or results into lateness to school ($\bar{x}=37.3$) 56% and

disagreed that it led to sleeping in class ($\bar{x}=47.3$) 71%. Likewise, this disagree with Senbet (2010) who observed that academic performance is for a pupil or student to be successful in his or her academic performance, the pupil has to be regular in school, face learning problems squarely, avoid late coming to school and he or she should consult with the teacher.

CONCLUSION

Based on the findings, the study concludes that exploitative child labour has influence on children's academic performance but it has no effect on their ability to cope with the class work or concentration in class, absence in school, lateness to school and sleeping in class. This may probably be, because apart from exploitative child labour there are other factors that influence academic performance such as divorce, emotional problem, starvation, lack of proper care etc.

RECOMMENDATIONS

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

1. Parents should stop involvement of their children in any kinds of exploitative child labour.
2. Parents should fend for their family needs and manage their resources among the family members.
3. Each child in a family should have freedom to education and the Government Organizations and Non- Government Organizations (NGOs) should create more awareness to parents who are ignorant to value education than using their children in exchange for money.
4. Class teachers and head of teachers should also enlighten the children more about the importance of education and the effect of exploitative child labour.
5. Government Organizations can also help parents by employing them and paying them with allowances that can be used to cater for their family needs.
6. Government/parents should develop strategies to reduce or eradicate child labour activities. For example, government should enact a law to permanently ban underage recruitment.

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SOCIO-ECONOMIC CHARACTERISTICS OF CAREGIVERS OF THE ELDERLY AND THE RELATED CARE RENDERED IN WINNEBA OF GHANA

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ABSTRACT

The study investigated the socio-economic characteristics of caregivers of the elderly and the related care rendered in Winneba of Ghana. The phenomenological research design was used for the study to uncover lived experiences of caregivers of the elderly. An unstructured interview guide was used to gather the data from fifteen caregivers who were purposively selected for the study. Responses were transcribed and analysed using atlas-ti software. The findings showed that caregivers involved in the study were aged between 15 and 65 years with 14 of the participants being female. Caregivers perform multiple tasks such as working and catering for their families alongside caregiving. The caregivers were mainly relatives of the care receivers who provide informal care ranging from two or more activities of daily living to instrumental activities of daily living. It was concluded that caregiving in Winneba assumes an informal type and caregivers mostly undertake cooking, washing, and administering of medication. It was therefore recommended that married female caregivers must be given some support by other relatives because they have to consider caring for their own families, parents, or elderly relatives alongside their jobs which might be very tedious.

Keywords: Caregiver, Care-recipient, Elderly, Activities of daily living (ADL), Instrumental Activities of daily living (IADL).

INTRODUCTION

The elderly will always need some kind of support from a caregiver either formally or informally because of the ageing, physical and health challenges that they go through. It is projected that there will be a world population of 9772 million in 2050, with 16% of individuals being aged 65years or older (Kong, et al., 2019). Meanwhile, the aging population will develop to varying extents in different countries. The percentage of elderly people aged 65years and above in the more-developed countries is projected to reach 27% in 2050, up from 18% currently, while the

percentage of older adults in less-developed countries is projected to double to 14% by 2050 (Do, Cohen & Brown, 2014). This means that there would be a need for more caregivers to support these elderly people who may not be able to take care of themselves. Caregivers will continue to play an important and valuable role in our lives as they provide this support ranging from *activities of daily living* to *instrumental activities of daily living*. However, the maintenance of such responsibility can result in caregiver stress, leading to negative physical and mental health consequences including loss or reduction in employment and decreased quality of childcare and marital relationships (Do, Cohen & Brown, 2014).

Mostly, the quality of care provided, level of caregivers' stress and other challenges they face in rendering caregiving to their care recipients are mostly as a result of their socio-economic characteristics such as being a woman, age, marital status, financial status, occupation, educational level as well as the type of care their care recipient might need (Govina, et al., 2015). Women in most developed countries are more frequent caregivers, they provide care at higher intensity, and experience higher social pressure to provide care (Carmichael, Charles & Hulme, 2010). This is similar to African families whereby traditionally, women, especially daughters and daughters-in-law, take responsibility for caring for older adults even for Asian-Americans, making them particular research interest, leading some studies to focus only on female care provision (Casado & Sacco, 2011; Johnson & Lo Sasso, 2006; Kotsadam, 2011). Women in Ghana are the sole and primary caregivers of their children during their reproductive period and extend the caregiving role to parents, spouses and grandchildren during their middle age stage. According to the 2019 data from the China Statistics Bureau, females are 2.8 and 1.3 times more likely than males to do housework and care for older people, respectively. Married females, in particular, deserve more attention because this group has to consider not only the care of their parents but also the responsibilities of taking care of their parents-in-law, as well as the pressures of taking care of their own families and working (Wang, *et al.* 2021).

According to the National Alliance for Caregiving and American Association of Retired Persons (2009), most family caregivers of older people are themselves elderly and the average age of those caring for someone aged 65years and above is 63years. Research conducted by the National Alliance for Caregiving and AARP in America in the year 2012 revealed that an estimated 44 million Americans aged 18 and above provide unpaid assistance and support to older people and adults with disabilities who live in the community. Edwards (2015) stated that 44.0% of caregivers who are in the age bracket of 45-64years are more, yet, there are millennials (45<) who are equally taking care of spouses and relatives. Becoming a person's caregiver significantly changes one's relationship with the person whether they are their parent, spouse, friend, or otherwise related to the care receiver. Research has shown that 72.0% of unpaid caregivers cared for a parent, step-parent, mother-in-law, or father-in-law, and 67.0% of caregivers provided for someone age 75years or older (Organisation for Economic Development, 2013). When potential caregivers are of working age, the time used for informal care competes

with that for paid work, meaning that the opportunity costs of informal care are often associated with paid employment (Becker 1965 cited in Bauer & Sousa-Poza, 2015). They, therefore, examine the evidence of a link between informal care and employment decisions and strive to identify which characteristics of the care arrangement matter and to what extent informal care affects caregiver employment.

The socio-economic characteristics such as being a woman, being younger in age or elderly, being the care recipients' spouse, having a lower socioeconomic status, being unemployed and lacking personal and/or social needs are associated with the kind of support provided and caregiver's burden. Caregivers' burdens end up affecting the type and quality of care given to the elderly. As such, the burdens that caregiving presents are multiple and often contribute to guilt feelings, worry and grief because they were not able to perform their task to expectation (Yakubu & Schutte, 2018). Despite the fact that informal caregiving has its own set of difficulties, including a lack of professionalism, role conflicts, little time for social activities, and financial burdens, it is mostly carried out by elderly women in Winneba, the study area, who are already battling with the difficulties of aging, such as declining physical stamina, financial insecurity, difficulty with daily tasks, and mobility. Although many researchers have researched on socio-economic characteristics of caregivers and how they pose challenges to them and their care recipients, less has been done on how the socioeconomic characteristics of these caregivers influence the type of care they render. The inadequate research on socio-economic characteristics of caregivers of the elderly and their influence on the type of care given in Ghana means that uncertainty exists regarding the extent of care needed, types of support received and burden of caregiving in Winneba. The information about the socio-economic characteristics of elderly caregivers may assist policymakers and other stakeholders to design appropriate training programmes for caregivers in Winneba. This study was therefore designed to investigate the socio-economic characteristics of caregivers of the elderly and the related influence on the care types they render in Winneba.

Objective of the study

The study;

1. identified the socio-economic characteristics of caregivers of the elderly in Winneba
2. examined the types of care given to the elderly by their caregivers

METHODOLOGY

A qualitative research approach and phenomenology research design were used to investigate the socio-economic characteristics of caregivers of the elderly and the related care rendered. The population for the study was caregivers of the elderly within Winneba Township. Purposive and snowball techniques were used to select the sample size. The purposive sampling technique was used to select the initial five caregivers who assisted through snowballing to get the additional

ten (10) participants. A sample size of fifteen (15) caregivers was used for the study. This satisfied the proposal made by Crouch and McKenzie (2006) that less than 20 participants in a qualitative study help a researcher build and maintain a close relationship with the participants and thus improve the ‘open’ and ‘frank’ exchange of information. An unstructured interview guide was used to gather data for the study. Data gathered through interviews in Fante (a local language), were analysed using Atlas ti version 7

FINDINGS AND DISCUSSIONS

Table I: Personal Characteristics of Caregivers of the Elderly

Age of Caregivers			Gender			Marital Status			Children of Caregivers			Ages of Children of Caregivers		
Years	F	%	Sex	F	%	Status	F	%	No. of Children	F	%	Age	F	%
15 – 24	2	13.3	Male	1	6.7	Single	3	20	None	5	33.3	1 – 9	3	17.7
25 – 34	2	13.3	Female	14	93.3	Married	5	33	2	4	26.7	10 – 18	5	29.4
35 – 44	1	6.7				Divorced	4	27	3	1	6.7	19 – 27	4	23.5
45 – 54	2	13.3				Widowed	3	20	4	2	13.3	28 – 36	3	17.7
55 – 64	5	33.3							5	3	20	37 – 45	1	5.9
65 +	3	20										46 – 56	1	5.9
Total	15	100		15	100		15	100		15	100		17	100

Source: Field Survey, 2018

Age of caregivers

Regarding the ages of caregivers under the socio-economic characteristics, 66.6% of the caregivers were above 45 years old (Table I). This implies that caregivers of the elderly in Winneba Township were mostly adults. It also came out that two participants representing 33.3% were within the age bracket of 15-24. Surprisingly, one (1) of the caregivers in the age bracket of 15-24 years was a 15-year individual, an adolescent who is expected to be a care recipient herself. Levine *et al.* (2005) also mentioned that although caregivers are predominantly middle-aged or older, there is growing recognition that even children can take up the role of a caregiver. From the interactions during the data collection, it was also revealed that adolescents and participants who were 65 years and above were not able to provide all the necessary support their recipients might need because they were supposed to be care recipients based on their socio-economic characteristics such as being unemployed and aged. Participants who were aged 65 or above complained of regular fatigue and illness which are associated with ageing, therefore, the intensity of care given to the care recipient is likely to be low. The 15-year-old participant

disclosed not having much time for studies and friends which indicate that the participant's social behaviour and school performance are likely to be affected. The outcome of the study agrees with the National Alliance for Caregiving and AARP (2015) that the average age of caregivers was 49.2 years old with about 34.0% being over 65 years old.

Gender

Majority (93.3%) of the respondents were females. (Table I). Women in Winneba are multiple primary caregivers who take care of their children, grandchildren, spouses, parents as well as in-laws. Sometimes, women who are of childbearing age leave their children with their mothers, who are caregivers of the elderly, and go for greener pastures leaving these women with multiple roles to perform as caregivers. This is therefore likely to affect the type of support they would render to elderly care recipients because it will increase the caregivers' burden and the intensity of care given is likely to be low. The finding also agrees with the proposal from the National Alliance for Caregiving and AARP (2009) as cited in Sharma, Chakrabarti and Grover (2016) that, not only is the majority of informal care provided by family members, but the majority of family-caregiving is also carried out by women.

Marital status

Results in Table I indicate that 47.0% of the caregivers had been married before while 33.0% were married. This implied that the married caregivers had multiple responsibilities of caring for their elderly care recipients, children as well as their spouses. This finding affirmed the statement made by Wang *et al.* (2021) that "married female, in particular, deserve more attention because this group has to consider not only the care of their parents but also the responsibilities of taking care of their parents-in-law, as well as taking care of their own families and doing their jobs". From the interview, it came up that these married caregivers were giving more attention to their children and spouses than the elderly care recipients. It was established that those who were not married had more time and gave much attention to their care recipient than those who were married and had children. It is unfortunate that these unmarried caregivers equally deprived themselves of social activities. During the interview, a participant boldly said that *she has no social life and has had many broken relationships because she could not leave her care recipient at home to attend any social gatherings and socialize*. This confirms what Gibbons, Ross and Bevans (2014) said: "there are social changes with a shift from usual participation in life activities to a focus on the challenge of being a caregiver".

Children of Caregivers and their ages

Most (66.7%) of the caregivers had children (Table I). The ages of these children were between the ages of one (1) and 56 years. Participants with children between the age bracket of one (1) and 27 years were of interest to the researchers because these caregivers are more likely to take up multiple caregiving roles which can make the caregiver give more attention to one recipient than others. This indicates that participants with children of that age are likely to take care of

these children, spouses as well as care recipients. Though children in the age bracket of 19 and 27 years were within the early adult stage where they were supposed to be working to earn an income to support the family, it was not the case. The economic situation in Ghana is such that people in that age bracket were usually not in any good employment and were being cared for by their parents. This finding agrees with the assertion of Thang and Johan (2017) that the competing interests and demands of care for dependent elderly weakens relationships between caregivers and their children which reduces the number of contacts due to guilt arising from the failure of filial responsibilities. Caregivers are therefore likely to be confronted with some challenges in the performance of their multiple caregiving roles by taking care of their children as well as the care recipients.

Table II: Socio-Economic Characteristics of Caregivers of the Elderly

Education			Occupation			Relationship with Care-Recipients		
Level	F	%	Type of work	F	%	Relationship	F	%
Tertiary	3	20	Fisher-folks	5	33.3	Grandchild	3	20
Secondary	4	26.7	Unemployed	4	26.7	Sibling	2	13.3
Technical	1	6.7	Teachers	2	13.3	Friend	1	6.7
Vocational	1	6.7	Traders	2	13.3	Spouse	3	20
JHS	1	6.7	Student	1	6.7	Children	6	40
None	5	33.3	Retiree	1	6.7			
Total	15	100		15	100		15	100

Source: Field Survey, 2018

Education

Touching on their level of education, 66.7% of the respondents had one form of formal education (Table II). Though this is quite impressive, it was to be expected since there is a national policy on free education at least to the Junior High School (JHS) level, which since 2017 had been extended to the Senior High School level. During the interview, it was established that caregivers who had formal education felt more in control to provide support and were able to plan ahead

better than those who had no education. Owing to their level of education, some of the participants were able to administer drugs to their recipients with no difficulties. One participant said and I quote *“Even though I am not a nurse, I can give injections to my diabetic mother every fortnight”*. Gibbons, Ross and Bevans (2014) affirm the assertion by saying that the confidence of the caregiver concerning their caregiving role is linked to the illness status of the care recipient and the caregiver's knowledge and skills in addressing care recipient needs.

Occupation of participants

Regarding the occupation of the participants as shown in Table II, 33.3% of the respondents were fisherfolks, two (13.3%) each were teachers and traders respectively. It also came up that one (6.7%) each being student and retiree respectively with four (26.7%) being unemployed. The unemployed, student and retiree had no major source of income and had to depend on other relatives for financial support to take care of the care recipients. Majority (60.3%) of the caregivers, were engaged in one occupation or the other, therefore caregiving was not the primary occupation of these caregivers. During the study, one participant who is a teacher said, *“I have to lock up my grandmother in the house when going to school when there is nobody to take care of her, and I will come back from school around 3 pm before the door will be opened.”* By this, it was deduced that this caregiver has been depriving the care recipient of emotional support by making her feel lonely. It is also evident that caregivers' time used for paid work will compete with that of caring for the elderly and this will influence the type and quality of care rendered to the elderly. Even though the caregivers who were engaged in one occupation or another were able to support the recipient financially, they were not able to provide other needs such as emotional support that could help bring relief from stress and heal an ailment such as depression of care recipients. A proof of the statement by Bainbridge and Broady (2017) that incompatibilities between work and care roles create inter-role conflict that can degrade day-to-day effectiveness in one or both roles.

Relationship of Caregivers to care-recipients

As shown in Table II, in bringing out the relationship of the caregivers to the care recipient, 40.0% and 20.0% of the respondents were spouses and children of the care recipients respectively, while 20.0% were grandchildren of the care receivers. With this outcome, it was established that caregivers were mainly children, grandchildren and spouses of care recipients. This, therefore, made the type of care being rendered informal. It was also revealed that caregivers see the caregiving role as a form of reciprocity whereby they were taking care of their parents because the parents also took care of them when they were young. Informal caregivers are usually relatives with no professional training and not paid for services rendered, yet they offer caregiving with passion. This finding reiterated what the survey research by the Organisation of Economic Development (2013) established that 72.0% of unpaid caregivers cared for a parent or a relative by providing informal care. Florida Policy Exchange Center on

Aging, (2020) also supported these findings by echoing that care recipients' relationship type was identified as parents, other family and friends.

Table III: Age of Care Recipient

Ages of Care-Recipients		
Ages	F	%
70 – 74	3	20
75 – 79	2	13.3
80 – 84	6	40
85 – 89	1	6.7
90 – 94	2	13.3
95 & above	1	6.7
Total	15	100

Source: Field Survey, 2018

Majority (74.0%) of the care recipients were aged between 70 and 84 years (Table III). The ages of the care recipients were gathered to give an idea of the age bracket that caregivers were catering for and confirm how elderly they were. The elderly at a point in time would not be able to function properly without help as a result of physical and/or cognitive deterioration. It was also confirmed that the recipients needed one help or another due to functional limitations ranging from ill-health to natural weakness that goes with ageing. Freedman and Spillman (2014) attest to this finding that between ages 85 and 89 years, more than half of older adults receive a family caregivers help because of health problems or functional limitations. This means they needed caregivers to offer assistance or support them with some of the Activities in Daily Living (ADL) or Instrumental Activities in Daily Living (IADL).

Table IV: Types of Caregiving

*Duty	Frequency	Percentage
Cook	14	93.3
Wash clothes	15	100
Fetch water	5	33.3
Bath care-recipient	7	46.7
Change diapers	6	40

Give medicine	6	40
Send care recipient to hospital	5	33.3
Feed care-recipient	4	26.7
Dress-up recipient	7	46.7
Laying of bed	5	33.3
Accompany care-recipient everywhere	1	6.7
Send the recipient around in a wheelchair to enable him/her to enjoy the fresh air.	2	13.4

Source: Field Survey, 2018

Types of caregiving

As presented in Table IV there were different duties that were undertaken or offered by caregivers within Winneba for their care recipients. From the table, most of the duties under the ADL and IADL were undertaken by between five (5) and seven (7) participants. All (100.0%) and 93.3% of the respondents cook and wash the clothes of their recipients respectively. Duties or supports such as laying of beds, giving medications, changing diapers and other duties mentioned by the participants during the interview confirmed what Thang and Johan (2017) enumerated, that, the common daily tasks undertaken by informal caregivers include going to the market, cooking, undertaking household chores such as washing, and cleaning and ensuring that dependent elderly take medication. It was also established that caregivers in Winneba provided an informal type of care to their recipients by supporting them with the activities of daily living (ADL) and the instrumental activities of daily living (IADL). These supports provided were mostly unprofessional because they have not been given any training on how to care for the aged so they are likely to affect the quality of care provided to their care recipients. This statement reiterated what Cross and MacGregor (2010) established that the quality of care provided by informal caregivers may be poor relative to what a professional caregiver could provide, but the low cost alongside socio-cultural norms means that it still remains the most popular option of caregiving.

CONCLUSION

Middle-aged females dominate caregivers of the elderly in an informal way seeing it as an obligation and reciprocity. Socio-economic characteristics like occupation was dominated by non-formal jobs as traders and fishmongers. Other social factors such as marital status and education were seen to have influence on caring for the elderly through service such as cooking, washing and administering of medication.

RECOMMENDATIONS

The study recommended that,

1. married female caregivers must be given some support by other relatives because they have to consider caring for their own families, parents or elderly relatives alongside their jobs which might be very tedious.
2. access to education, at least basic level, will be beneficial, to assist caregivers to undertake their duties diligently.
3. caregivers must be given some form of training on the activities of the daily living (ADL) and instrumental activities of the daily living IADL since most of the supports elderly care recipients require are within them.

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FOOD CONSUMPTION PATTERN AND NUTRITIONAL STATUS OF CONFINED PEOPLE IN SELECTED RURAL PRISONS DURING COVID-19

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ABSTRACT

This study was conducted to assess the food consumption pattern and nutritional status of confined persons in selected rural prisons of Ogun State during COVID-19. A total of 208 prisoners were assessed for food consumption pattern and nutritional status and determination of their BMI. Structured questionnaire was used to elicit information on personal characteristics of prisoners, food consumption pattern, suitability of food served and Body Mass Index (BMI) of prisoners during COVID 19. Results show that the prisoners were between age 24-29years (34.6%), had secondary school education (58.7%), and were single (50.5%). Beans was the most consumed daily food by inmates with not less than 81.3% of them consuming it as breakfast on Mondays to Saturdays respectively, except for Sundays where 61.5% of the inmates usually consume rice for breakfast. Findings also show that Garri was the most commonly served meal for lunch while Eba was mostly taken for dinner by inmates during COVID 19. Furthermore, 25.6%, 64.2% and 10.2% of the prisoners were underweight, normal weight, and overweight, respectively. It was concluded from this study that foods served to the prisoners were not adequate in terms of quantity, quality and suitability. Most of the respondents were nutritionally poor, with weakened immune system and therefore predisposed to infectious diseases like COVID-19. It is therefore recommended that foods served should be improved for the prisoners to have better nutritional status and stronger immune system to withstand effects of the COVID-19 disease.

Key words: food consumption pattern, nutritional status, confined people, rural prisons, covid-19

INTRODUCTION

Food is an essential aspect of human needs that provides the energy that invigorates man's existence for all categories of persons. It is the avenue that determines the survival the living being in all ramifications. Its essentialities and availability, is therefore sine qua non to the survival of any living being. Food for different age group and different categories of people need to be given serious consideration due to the various needs of different individuals.

WHO (2015) emphasized that food is a central component of life in correctional institutions, plays a critical role in the physical and mental health of incarcerated people, and the construction of prisoners' identities and relationships. An understanding of the role of food in correctional settings and effective management of food systems may improve outcomes for incarcerated people and help correctional administrators to maximize the health and safety of individuals in these institutions.

More than 2,500 years ago, Hippocrates said: *"Let food be thy medicine and medicine be thy food."* Both nutrient intake and incidence of diseases usually influence the nutritional status particularly of developing nations, where everyone is striving for food (Bogoch et al; 2020).

Certain factors such as lifestyle, age, health status, sex and medications affect the nutritional status of an individual. During the COVID-19 pandemic, the nutritional status of individuals has been used as a measure of resilience toward destabilization (Bogoch et al, 2020). Similarly, Aslam, Majeed, Aslam, Irfan (2017) pointed out that optimal nutrition and dietary nutrient intake impact on the immune system through gene expression, cell activation, and molecules modification. Therefore, the existing evidence suggests that the only sustainable way to survive in the current situation is to strengthen the immune system through the consumption of healthy, required & nutritious food.

In the current situation, it is necessary to be aware of the specific types of food that can improve our immune system in order to combat COVID-19. Some professional and authentic dietary guidelines to withstand COVID-19 include eating fruits daily, eating fresh vegetable, whole grains and nuts (Khayyatzadeh, 2020).

Incarcerated people, as human beings, have the right to a standard of living adequate for sound health, including food (United Nations, 2015). However, evidence shows that the basic human rights of incarcerated people are not sufficiently respected (Abera & Adane, 2017).

Nutritional problems in prison can result in severe adverse outcomes. Nutritional inadequacy places incarcerated people at a higher risk of developing acute and chronic nutritional deficiency diseases (Rachel, Kigaru, Nyamota; 2018). As a result, incarcerated people will return to the community, carrying back with them new diseases and untreated conditions that may pose a

threat to community health and add to the burden of disease in the community. In addition, incarcerated people's sentences might be turned into death sentences if the problems of undernutrition are not understood well and managed properly (Ethiopian Public Health Institute; 2019).

Statement of problem

Globally, community nutritionist and health practitioners are now of the general opinion that the health status of inmates in most prison in the world is very poor due to so many factors which ranges from lack of proper health policies, improper nutrition, inadequate orientation about personal health for inmates, negative societal belief and orientation about prisoners, inadequate intervention programmes from recognized health bodies, improper sanitation practices and lack of infrastructural provision and maintenance etc. Due to these, inmates across all regions globally are being found to be very prone to various diseases especially communicable ones (WHO, 2015).

The current global challenge is the issue of the COVID-19 pandemic which has killed over 4,762,089 persons. The disease is an infectious disease that easily spread through poor living conditions, lack of sanitation and from person to person. The World Health Organization advice individuals to slow the spread of the disease through measures like physical distancing, a practice which is practically impossible in most of Nigerian prisons due to congestion of the prisons. By 2016, the total number of in-mates as reported by the National Bureau of Statistics has increased to 68,686, when the capacity of the prisons could only contain 50,803 inmates (NBS, 2016). This figure proves further that physical distancing will be impossible to achieve in Nigerian prisons (ICPR, 2020).

Currently, a total of 71,522 prisoners are incarcerated in 240 locations in Nigeria. According to the World Prison Brief, the prison population rate per 100,000 population increased from 27 in 2008 to 37 in 2018. The majority (72%) of the prison population are pre-trial detainees (World Prison Brief Data, 2020). Due to the inability of Nigeria to conduct testing and reporting for majority of its population and most especially the confined people in our prisons, data on the COVID-19 disease burden in Nigerian prisons is sparse. There are no outbreak data for prisons either on the Nigeria Center for Disease Control COVID-19 dashboard or reported in any medical or public health publication. A newspaper article reported that 17 inmates at a prison in Bauchi State were infected with COVID-19 and subsequently isolated.

Many common infectious diseases and common parasites have a major effect on health and nutritional status; for example, diarrhea and respiratory diseases, measles, malaria, tuberculosis, HIV/AIDS etc. The infections themselves damage the nutritional status of a person. A person suffering from infection usually has little appetite and tends to eat less. This lack of food during illness can be a serious threat to the health of a malnourished person, who has little or no stored reserves of energy and nutrients.

Food does have a very significant effect on the behavior of human. Research shows that nutrition can impact everything from a child's growth to their mood, behavior and learning capabilities (Continuum Pediatrics, 2018). Being that as it is, it is important to note that inmates are incarcerated at correctional facilities in order to modify their behavior so as to make them integrate-able into the society, makes their food consumption a germane factor in making them a better person. From recent researches, it is observed that the nutritional status of inmates drops significantly as against their nutritional status before confinement. The longer prisoners stay in the prison, the poorer their nutritional status; this point to the fact that the food consumption pattern, quality of meal in the prisons are very poor. This is a serious issue which could lead to a health crisis that will not only hinder the general wellbeing of prisoners but also cause serious financial and economic complications for the nation. It is also a marker of serious human rights violation of prisoners as every prison facility are expected to have medical officers who are charged with the responsibility of regularly inspecting and advising the director of prison on the suitability of food, water, and hygiene. A prisoner who is observing the sentence of court by being in custody does not totally lose his rights as a human being and must, therefore, enjoy some basic rights despite being confined to prison (Araromi, 2018). It is therefore important that the state of health state and nutritional status of prisoners during COVID 19 pandemic should be examined.

It is against this background that this study intends to investigate the pattern of food consumption and nutritional status of prisoners during COVID-19.

Objectives of the study

The general Objective of the study is to evaluate the food consumption pattern and nutritional status of confined people in selected rural prisons of Ogun during Covid-19 pandemic. While the specific objectives are to:

- i. Describe the personal characteristics of the prisoners,
- ii. Determine the food consumption pattern of prisoners during COVID-19 pandemic,
- iii. Determine the suitability of food served to prisoners,
- iv. Evaluate the Body Mass Index (BMI) of the prisoners during COVID-19.

METHODOLOGY

The study adopted a descriptive survey design. The study was carried out in Ogun state of Nigeria. Prisons located in the rural communities of Ogun state were considered appropriate for this study; these include federal prison Ibara-Abeokuta, Ago-Iwoye, Ijebu-Ode, Ilaro, and Sagamu. Sixty percent (60%) of these prisons were randomly selected for this study which includes federal prison Ibara-Abeokuta, Ilaro, and Ijebu-Ode. The population of this study consists of all inmates in the selected prisons. Not less than 15% of the confined people were then selected using systematic sampling procedure to arrive at two hundred and eight (208) respondents for this study.

Face and content validity were carried out to determine the validity of the instrument. Split-half method was used to test the reliability of the instrument to arrive at reliability co-efficient of 0.75. A general accepted rule is that α of 0.6-0.7 indicates an acceptable level of reliability, and 0.8 or greater a very good level. However, values higher than 0.95 are not necessarily good, since they might be an indication of redundancy (Hulin, Netemeyer, and Cudeck; 2001). Structured questionnaire was used to retrieve information from the respondents. This information was rendered in frequency count and percentages. The Body Mass Index (BMI) was also determined in relation to the weight and height of the respondents. The body mass index (BMI) is the metric currently in use for defining anthropometric height/weight characteristics in adults and for classifying (categorizing) them into groups (Nuttall, 2015).

RESULTS AND DISCUSSION

Personal Characteristics of Confined People

The personal characteristics of the respondents shown in Table I shows that 34.6% of the respondents fall within the ages of 24-29, this is keenly followed by 31.7% which fall in the age between 30-35. This implies that young adults are more prone to commit violence and crime which makes them to be incarcerated more than other age groups. This result also affirms the finding of Kassa, Alle, Tesfu (2017) which reported that 64.6% of inmates fall within the age category of 18-39. This is also an implication for the nation's economy as the able-bodied youth who could have form part of the labour force and contribute to the GDP of the country are locked up in a prison.

Majority of the inmates (58.7%) have secondary school education only as the highest level of education obtained. This finding is in line with that of Oyedokun and Onabanjo (2018) which stated that majority of inmates 39% completed secondary school education only. Further findings reveal that most inmates (50.5%) are not married. This finding is in correlation with that of Kassa et al (2017); that majority (46.8%) of inmates are single. This implies that most irresponsible individuals usually find themselves in one crime or the other that will make them to be incarcerated. This also corroborates the fact that more of the inmates (49%) do not have any children. 53.8% of the inmates also come from a monogamous type family. This implies that most of the inmates do not have the necessary support needed for them to live through the time of incarceration decently. This finding is in tandem with that of Kassa et al (2017); which reported that 79.9% of the respondents have no source of support.

About 31.3% of the inmates have trading as an occupation before incarceration. This is closely followed by Artisans (25%). It can be inferred from this finding that people who work in informal settings are prone to crime than those working in official settings.

Table I: Personal Characteristics of Respondents

Variable	Frequency
Age	
18-23	36 (17.3)
24-29	72 (34.6)
30-35	66 (31.7)
36-40	22 (10.6)
>40	12 (5.8)
Educational level	
None	5 (2.4)
Primary	18 (8.7)
Secondary	122 (58.7)
NCE or OND	35 (16.8)
HND, Bsc, Others	28 (13.5)
Marital status	
Single	105 (50.5)
Married	69 (33.2)
Divorced	34 (16.3)
Number of children	
None	102 (49.0)
1-3	75 (36.1)
4-6	28 (13.5)
>6	03 (1.4)
Family type	
Monogamous	112 (53.8)
Polygamous	96 (46.2)
Occupation	
Trading	65 (31.3)
Farming	16 (7.7)
Artisans	52 (25.0)
Civil servant	16 (7.7)
Others	59 (28.4)

Source: Field survey, 2020

Food Consumption Pattern

Table II shows the frequency of inmates' consumption of different food items by inmates on each day of the week. 82.7% of the inmates always have beans as their breakfast on Mondays, which is followed by 18.8% of the respondents who take garri for breakfast also probably to support the beans served. Majority (81.3%) of the inmates also take beans always on Tuesdays. This breakfast food pattern is noticeable across all the remaining days of the week where 81.7%, 83.2%, 82.2%, and 84.1% of the inmates also usually consume beans for breakfast except for Sundays where 61.5% of the inmates consume rice for breakfast usually largely due to the presence of certain religious bodies and NGOs within the premises of the prison. This finding is in resonance with the report of Premium times news report dated June 25, 2019 which stated that "inmates are being fed watery beans in the morning".

Majority (95.7%) of the inmates take garri as their main meal for lunch always every Monday. A larger percentage of the inmates (88.4%) take garri always on Tuesdays also for lunch. Ninety point four (90.4%) of the inmates always take rice for lunch on Wednesdays. The remaining days of the week will feature 94.7%, 73.1%, 95.7% (for Thursday, Friday, and Saturday respectively) always taking garri for lunch, except for Sundays where 34.6% of the inmates consume beans for lunch while 33.2% take garri, 45.7% of respondents also consume other food items which are usually supplied by religious bodies and NGOs. The dominance of garri as food for lunch among the inmates is largely due to the fact that a 2-meal system is practiced in most Nigerian prisons largely due to financial reasons. The implication of the over consumption of garri is that it could lead to a case of serious deficiency in certain micronutrient by the prisoners. This is backed up by the findings of Oyedokun and Onabanjo (2018), which revealed that respondents' mean nutrient intake did not meet up with the recommended daily allowance for some nutrients such as vitamin B, folate, calcium, vitamin B, phosphorus, 23 potassium and magnesium.

A larger percentage of the inmates (80.3%) take Eba for dinner with a watery soyabean or draw soup with absence of fish or meat. On Tuesdays, 82.7% take Eba always, 82.2% on Wednesdays, 80.8% on Thursdays, 80.3% on Fridays, 74.1% on Saturdays, and 77.9% on Sundays. There is imbalance energy intake as it can be seen clearly that the major source of energy for the inmates is Eba, Garri, and rice occasionally; which are all sources of carbohydrate. Insignificant sources of fat are present in their food. The only source of protein is beans, which is poorly prepared coupled with the fact that it is a low biological value protein. This supports the finding of Oyedokun and Onabanjo (2018) which revealed that about 23% of the respondents did not consume beef at all and more than half of the respondents (56.5%) consumed beef 1-3 days a week. Regarding dairy products consumption, about 37% of the respondents consumed no milk at all and more than half of them (53.5%) consumed milk 1-3 days a week, while consumption of cheese and yoghurt were generally low as over 80% of the respondents consumed none in a week.

Table II: Food Consumption Pattern of the Respondents

Days	Meal time	Food served	Always Frequency (%)	Rarely Frequency (%)	Seldomly Frequency (%)
Monday	Breakfast	Rice	18(8.7)	75(36.1)	115 (55.2)
		Beans	172(82.7)	17(8.2)	19(9.1)
		Garri	39(18.8)	101(48.5)	68(32.7)
		Eba	13(6.3)	97(46.6)	98(47.1)
		Others	21(10.1)	96(46.1)	91(43.8)
	Lunch	Rice	16(7.7)	36(17.3)	156(75)
		Beans	10(4.8)	9(4.3)	189(90.9)
		Garri	199 (95.7)	5(2.4)	4(1.9)
		Eba	56 (26.9)	87(41.8)	65(31.3)
		Others	11(5.3)	19(9.1)	178(85.6)
	Dinner	Rice	2(0.9)	5(2.5)	201 (96.6)
		Beans	9(4.3)	23(11.1)	176(84.6)
		Garri	37(17.8)	86(41.3)	85(40.9)
		Eba	167(80.3)	28(13.5)	13(6.2)
		Others	21(10.1)	98(47.1)	89(42.8)
Tuesday	Breakfast	Rice	16(7.7)	79(38)	113 (54.3)
		Beans	169(81.3)	28(13.4)	11(5.3)
		Garri	38(4.8)	89(44.2)	81(51)
		Eba	9(4.3)	64(30.8)	135(64.9)
		Others	19(9.1)	91(43.8)	98(47.1)
	Lunch	Rice	18(8.6)	39(18.8)	151(72.6)
		Beans	17(8.2)	38(18.3)	153(73.6)
		Garri	184 (88.4)	18(8.7)	6(2.9)
		Eba	54(26)	83(39.9)	71(34.1)
		Others	23(11.1)	87(41.8)	98(47.1)
	Dinner	Rice	4(1.9)	7(3.4)	197(94.7)
		Beans	5(2.4)	18(8.7)	185(88.9)
		Garri	34(16.4)	88(42.3)	86(41.3)
		Eba	172(82.7)	25(12)	11(5.3)
		Others	20(9.6)	91(43.8)	97(46.6)

Wednesday	Breakfast	Rice	12(5.8)	38(18.3)	158(75.9)
		Beans	170(81.7)	21(10.1)	17(8.2)
		Garri	39(18.8)	88 (42.3)	81(38.9)
		Eba	17(8.2)	39(18.7)	152(73.1)
		Others	32(15.4)	51(24.5)	125(60.1)
	Lunch	Rice	188(90.4)	12(5.8)	8(3.8)
		Beans	32(15.4)	51(24.5)	125(60.1)
		Garri	21 (10.1)	37(17.8)	150(72.1)
		Eba	13 (6.3)	27(12.9)	168(80.8)
		Others	89(42.7)	75(36.1)	44(21.2)
	Dinner	Rice	4(0.9)	16(7.7)	188(90.4)
		Beans	8(3.8)	13(6.3)	187(89.9)
		Garri	25(12)	79(38)	104(50)
		Eba	171(82.2)	12(5.8)	25(12)
		Others	13(6.2)	22(10.6)	173(83.2)
Thursday	Breakfast	Rice	17(8.2)	74(35.5)	117(56.3)
		Beans	173(83.2)	15(7.2)	20(9.6)
		Garri	30(14.4)	94(45.2)	84(40.4)
		Eba	11(5.3)	99(47.6)	98(47.1)
		Others	19(9.1)	25(12)	164(78.9)
	Lunch	Rice	13(6.3)	35(16.8)	160(76.9)
		Beans	12(5.8)	11(5.3)	185(88.9)
		Garri	197(94.7)	7(3.4)	4(1.9)
		Eba	32 (15.4)	69(33.2)	107(51.4)
		Others	41(19.7)	63(30.3)	104(50)
	Dinner	Rice	3(1.4)	4(1.9)	201 (96.7)
		Beans	10(4.8)	21(10.1)	177(85.1)
		Garri	37(17.8)	86(41.3)	85(40.9)
		Eba	168(80.8)	29(13.9)	11(5.3)
		Others	19(9.1)	97(46.7)	92(44.2)
Friday	Breakfast	Rice	19(9.1)	77(37)	112(53.9)
		Beans	171(82.2)	19(9.1)	18(8.7)
		Garri	48(23.1)	88 (42.3)	72(34.6)
		Eba	13(6.3)	97(46.6)	98(47.1)
		Others	23(11.1)	94(45.2)	91(43.7)
	Lunch	Rice	17(8.2)	37(17.8)	154(74)
		Beans	9(4.3)	7(3.4)	192(92.3)
		Garri	152(73.1)	39(18.8)	17(8.1)

Saturday	Dinner	Eba	22(10.6)	58(27.9)	128(61.5)
		Others	95(45.7)	72(34.6)	41(19.7)
		Rice	4(1.9)	7(3.4)	197(94.7)
		Beans	9(4.3)	23(11.1)	176(84.6)
		Garri	22(10.5)	59(28.4)	127(61.1)
	Breakfast	Eba	167(80.3)	28(13.5)	13(6.2)
		Others	28(13.5)	92(44.2)	88(42.3)
		Rice	19(9.1)	73(35.1)	116(55.8)
		Beans	175(84.1)	19(9.2)	14(6.7)
		Garri	10(4.8)	92 (44.2)	106(51)
	Lunch	Eba	11(5.3)	99(47.6)	98(47.1)
		Others	23(11)	95(45.7)	90(43.3)
		Rice	16(7.7)	37(17.8)	155(74.5)
		Beans	12(5.8)	7(3.4)	189(90.9)
		Garri	199 (95.7)	5(2.4)	4(1.9)
		Eba	36(17.3)	59(28.4)	113(54.3)
		Others	33(15.9)	51(24.5)	124(59.6)
Sunday	Dinner	Rice	3(1.4)	6(2.9)	199(95.7)
		Beans	7(3.4)	21(10.1)	180(86.5)
		Garri	33(15.9)	87(41.8)	88(42.3)
		Eba	154(74.1)	29(13.9)	25(12)
		Others	19(9.1)	99(47.6)	90(43.3)
	Breakfast	Rice	128(61.5)	69(33.2)	11(5.3)
		Beans	65(31.2)	73(35.1)	70(33.7)
		Garri	11(5.3)	85(40.9)	112(53.8)
		Eba	6(2.9)	32(15.4)	170(81.7)
		Others	67(32.2)	63(30.3)	78(37.5)
	Lunch	Rice	18(8.7)	92(44.2)	98(47.1)
		Beans	72(34.6)	69(33.2)	67(32.2)
		Garri	69 (33.2)	73(35.1)	66(31.7)
		Eba	12(5.7)	17(8.2)	179(86.1)
		Others	23(11.1)	58(27.8)	127(61.1)
	Dinner	Rice	4(1.9)	9(4.3)	195(93.8)
		Beans	10(4.8)	21(10.1)	177(85.1)
		Garri	26(12.5)	37(17.8)	145(69.7)
		Eba	162(77.9)	31(14.9)	15(7.2)
		Others	26(12.5)	84(40.4)	98(47.1)

Source: Field Survey, 2020**Assessment of the Suitability of Foods Served in Prison**

The assessment of the Suitability of food served in prison is presented in Table III. Majority of the inmates (85.1%) do not like the foods being served to them, while 52.5% of the inmates are able to do nothing regarding the food served to them. This implies that despite the fact that the inmates are not satisfied with the food being served to them, they do not have a choice or the capacity to buy or order food from home or elsewhere.

The quantity of the foods being served to the inmates is disliked by most (55%) of the inmates, while 35% of them do not like both the quantity and quality of the foods being served. This implies that inmates would have serious challenge in meeting up with their daily energy requirement needed for proper metabolism.

A larger percentage of the inmates (52.5%) have an occasional access to foods other than the prison food. Majority (62.5%) of those with access to foods other than the prison food get their food from home. This is backed up by the finding of Kassa et al (2017) which stated that respondents who had source of support were 97% times less likely to develop malnutrition than who had no source of support.

The soup served to the prisoners is considered watery by most (44.2%) of the inmates. Intake of fruits and vegetables improves the immune system and micronutrient quantity of an individual. It is observed that majority (82.7%) and (75.9%) of the inmates do not take fruits and vegetables at all respectively. This finding is backed up by the study of Oyedokun and Onabanjo (2018) which concluded that fruits and vegetable intake were generally low among prisoners. Aslam et al (2017) also opine that an adequate intake of zinc, iron, and vitamins A, B12, B6, C, and E is essential for the maintenance of immune function.

Table III: Suitability of Foods Served in Prison

Variable	Frequency (%)
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Do you like the food being served to you?	
Yes	31 (14.9)
No	177 (85.1)
What don't you like about the food being served to you?	
Quantity	114 (55.0)
Quality	21 (10.0)
Both	73 (35.0)
What do you do to satisfy your diet when you don't like the food being served to you?	
Nothing	
Skip meal	109 (52.4)
Buy food	46 (22.1)
Order food from home	31 (14.9)
How often do you take foods other than prison food?	22 (10.6)
Regularly	
Occasionally	42 (20.0)
Not at all	109 (52.5)
Other sources of food	57 (27.5)
Food from home	
Food from institution's buttry	131 (62.5)
None	21 (10.0)
What is the nature of the soup served to you?	56 (27.5)
Watery	
Peppery	
Salty	92 (44.2)
Oily	20 (9.6)
Too cold	21 (10.1)
How often do you take fruits?	19 (9.1)
Regularly	45 (21.6)
Occasionally	
Not at all	11(5.3)
How often do you take vegetables?	25 (12.0)
Regularly	172 (82.7)
Occasionally	
Not at all	15 (7.2)
	39 (18.7)
	154 (74.1)

Source: Field survey, 2021.

Nutritional Status of Respondents

The result in Table IV shows the nutritional status of the inmates. Majority (64.2%) of the inmates had a normal BMI while 25.6% are underweight which can be considered quite alarming for such population. Kassa et al (2017) stated that “Majority of inmates had normal nutritional status 57.0%. The prevalence of the overall malnutrition among respondents was 43%. From this 0.5%, 8.0% and 26.7% were underweight; moderately underweight and mildly underweight respectively”.

Table IV: BMI indicating nutritional status of respondents.

Variable	Frequency (%)
<18.5kg (underweight)	53 (25.6)
18.5-24.99kg (normal range)	134 (64.2)
25-29.99kg (overweight)	21 (10.2)

Source: Field survey, 2021.

CONCLUSION AND RECOMMENDATION

Food consumption is a critical aspect in determining the health outcome of any human. As such, the foods consumed greatly determine the nutritional status of man. This research work therefore looked into the food consumption pattern and nutritional status of confined persons and concludes that food served to inmates are not adequate in terms of quantity, quality and suitability. Consequently, food served to prisoners are poor and below standard for human consumption. This in no doubt affected their nutritional status and hence reduced immune system which can predispose them to infectious diseases such as COVID-19. Based on the findings of this study, it is therefore recommended that

- (i) Nigerian prisons should be decongested to give room for social distancing
- (ii) Food served should be improved for the prisoners to have a better nutritional status
- (iii) Proper and regular inspection should be made to the prisons to monitor the food and nutritional status of prisoners
- (iv) Nutritionists/Dieticians should be employed for every prison to ensure that foods being served provide the necessary micro and macronutrient needed by the prisoners.

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ACCEPTABILITY AND COMPARATIVE EVALUATION OF CHEMICAL PROPERTIES OF ENRICHED WATER YAM BALLS (*OJOJO*) AMONG TOURISTS IN AGODI GARDENS, IBADAN

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ABSTRACT

This study employed the use of three common but underutilized protein supplement seeds (watermelon seeds, soybean and cowpea) in enriching ojojo (fried water yam balls) because of its high carbohydrate content and low protein content. A comparative evaluation of the chemical composition and acceptability level amongst tourists in Agodi Gardens was therefore conducted. Four different samples of ojojo were mechanically prepared. WB served as the control (unfortified ojojo) while WBC, WBS, WBW were enriched with cowpea, soybean and water melon seed flours, respectively. The four samples were subjected to proximate and mineral analysis. The samples were presented to 150 tourists for organoleptic assessment. Results were subjected to descriptive statistics and ANOVA at $\alpha_{0.05}$ using SPSS version 20. The fortified samples were found to be significantly different in their chemical composition from the control sample at $p < 0.05$. The enriched ojojo samples had higher protein, ash, crude fibre, fat, moisture, calcium, magnesium, sodium, magnesium and phosphorus than the control. WBC was rated highest for the taste, compared to other samples. WB however had a significantly higher ($p < 0.05$) overall acceptability than all enriched samples with respect to colour, flavour, aroma and texture. The study concluded that enrichment of ojojo with protein supplement seeds specifically watermelon seed, soybean and cowpea improved the nutritional quality but not the acceptability. It's therefore recommended that inclusion of the underutilized seed flours should be made to prevent protein energy malnutrition in homes likewise among the indigenous snacks' promoters and producers.

Keywords: proximate analyses, organoleptic assessment, water yam, watermelon seed, soybean

INTRODUCTION

Hospitality is defined as a commercial project of the tourism industry (such as hotels, catering, and tour operation) and in another sense to the social interactions between local people and tourists that is, hosts and guests. Sajna (2005) described hospitality products as tangible and intangible elements of food, drinks, accommodation, and pleasure. Saayman, (2007) refer to hospitality as the provision of meals, beverages and accommodation as well as major components of the tourism industry. Tourism entails the travel for recreation, leisure, religious, family or business purposes for a defined period of time (United Nations World Tourism Organization, 2012). The individual who partakes in the travel is referred to as tourists and are expected to stay in a destination for more than a day. Food has been documented to be a major source of satisfaction to tourists during their day (Boyne & Hall, 2004) and enhances their overall tourist experience (Harrington & Ottenbacher, 2010). According to Richards (2002), tourists' days are organized around food, and that a substantial part of most tourist experiences are spent either consuming food and drink or planning what and where to eat.

Food, especially indigenous cuisines has also become a key element in promoting tourist destinations. Fried water yam ball is traditionally known as *ojojo*. It is an indigenous snack of Southwest Nigeria most especially in Ogun state. The balls are prepared from freshly grated water yam and fried in oil which makes it looks like akara balls (beans cake) (Olopade, 2014). It is mostly eaten with *ogi* (pap), *eko/agidi* (solid pap), or *gari*. It can also be eaten solely as a snack. Water yam is the major ingredient used for preparation of *ojojo* and has been referred as poor source of protein (7.4%) but high in starch content of 75-84% hence, there is need to supplement ojojo especially with underutilized protein seeds (soybean, watermelon seeds and cowpea). Soybeans are important dietary sources of protein, lipids, minerals, vitamins, fiber, and bioactive compounds. The chemical compositions of soybean and most of its derived products are characterized by high protein content that ranges from 33 to 43% (Grieshop *et al.*, 2001; Karr-Lilienthal *et al.*, 2004) while watermelon (*Citrullus lanatus*) is one of sweetly fruit crop that belongs to the family *cucurbitaceae*. It is mainly propagated by seeds and thrives best in warm areas. It is grown in every geopolitical zone in Nigeria (Oyeleke *et al.*, 2012). It is known to be low in calories but highly nutritious and thirst quenching. Watermelon can be used as fresh salad, dessert, snack, and for decorations. Drinks can also be made from the juice (Okonmah *et al.*, 2011). Watermelon seeds are known to be highly nutritional; they are rich sources of protein, vitamins B, minerals (such as magnesium, potassium, phosphorous, sodium, iron, zinc, manganese and copper) and fat among others as well as phytochemicals (Braide *et al.*, 2012).

Cowpea grain contains about 25% protein (Singh & Singh 1992), making it extremely valuable for people who cannot afford animal protein foods such as meat and fish (Bradbury & Holloway 1998). The use of cowpea seed as a vegetable provides an inexpensive source of protein in the diet. The plant can be used at all stages of growth as a vegetable crop. Despite the nutritional values of soya beans, watermelon seed and cowpea seed they remained underutilized plant

products though enriching the indigenous snack (*ojojo*) with these seeds could be highly valuable in the treatment of malnutrition and other chronic diseases that are caused by protein deficiency.

Problem statement

Fried water yam ball is traditionally known as *ojojo*. It is an indigenous snack of Southwest Nigeria most especially in Ogun state. The balls are prepared from freshly grated water yam and fried in oil which makes it looks like akara balls (beans cake) (Olopade, 2014). It is mostly eaten with *ogi* (pap), *eko/agidi* (solid pap), *orgari*. It can also be eaten solely as a snack. *Ojojo* is comprised mainly of carbohydrates. Osagie (1992) reported that water yam contains 28 percent starch. The protein content (1.1-2.0%) is however very low. According to World Health Organization and Food and Agriculture Organization of the United Nations, (2006), enrichment is the practice of deliberately increasing the content of an essential micronutrient in a food, so as to improve the nutritional quality of the food supply and provide public health benefit with minimal risk to health. Watermelon seeds, cotton, groundnut, soybean, cowpea and rape seeds are common protein supplement seeds. They have however received less attention (Mustafa & Alamin, 2012).

Some studies have been carried out on the enrichment of *ojojo*. For example, the study of Okoye (2018) documented the proximate composition, micronutrient contents and acceptability of *ojojo* from the blends of water yam and ricebean flours. Likewise, Olapade and Akinyanju (2014) assessed the chemical and functional properties and performance of blends of water yam and soybean flours for *ojojo* preparation. Also, Shittu and Olaitan (2014) investigated the functional effects of dried okra powder on *ojojo*. While these studies had established the significance of enrichment of the balls to improve the protein content, the use of common protein supplement seeds such as watermelon seeds, soybean and cowpea has been scarcely documented. Moreso, none of these studies were carried out in a tourism destination context.

Objectives of the study

The purpose of the study was to determine the acceptability and comparative evaluation of chemical properties of enriched water yam balls (*ojojo*) among tourists in Agodi gardens, Ibadan and specifically, the study

1. determine demographic characteristics of the tourists
2. estimate chemical composition of the major ingredient
3. compare the chemical composition of the wateryam ball (*ojojo*) samples
4. determine organoleptic characteristic of the tourists in water yam balls (*ojojo*) acceptability on the samples.

MATERIALS AND METHODS

Study area

Agodi Gardens comprises of both Zoological and Botanical Gardens, a notch recreational centre in the city of Ibadan, Oyo state Nigeria, sharing same fence with Oyo state fire service headquarters in **Oyo State Secretariat complex**. The site is located in a serene environment on about 150 acres of land. It was originally created in 1967 by the then Western region before the infamous Ogunpa flood disaster in Ibadan destroyed the garden in 1980; the flood swept away most of the animals and left the place in a deplorable state. In 2012, the government renovated it and in 2014 the new Agodi Gardens was re-opened (Oyo State Government Ministry Information, Culture and Tourism, 2014). Since 2014, the garden has been serving as a tourist attraction site in Ibadan.

Materials

Ingredients used were purchased from Bodija market, Ibadan Oyo state. Water yam tubers 10kg (*Dioscorea Alata*) were washed, manually peeled with a sharp stainless knife and manually grated to form paste.

Then Soybeans (1kg) were hand picked to remove extraneous materials and rinsed in tap water. This was followed by roasting in a pot. It was then crushed using mortal and pestle for easy chaff removal, after which it was milled. The sample was packaged in polythene nylon and stored at 5⁰C in a refergerator and Method of Kiin-Kabari and Akusu (2015) was modified in preparation of watermelon seed flour. Water melon fruits was washed and longitudinally divided into two so as to extract the seeds. The seeds were washed in tap water and then subjected to boiling at 100⁰C for 10 min; oven-dried at 120⁰C for 4hrs, dehulled manually; milled into flour; then packaged into polyethylene films; and stored at 5⁰C in a refergerator.

Cowpea (1kg) were hand picked to remove extraneous materials and soaked in tap water for 4minutes. The chaffs were removed manually. This was followed by oven drying at 150⁰C for 5hours and was milled into powder form. The sample was packaged in polythene nylon and stored at 5⁰C in a refergerator.

Table I: Method of Preparation of water yam ball (Ojojo)

Ingredients	Samples			
	WB	WBC	WBS	WBW
Wateryam paste (g)	200	200	200	200
Watermelon seed flour (g)	--	--	--	20
Soya beans flour(g)	--	--	20	--
cowpea flour(g)	--	20	--	--
Vegetable oil (ml)	500	500	500	500

KEY:

Sample WB = water yam paste + Vegetable oil (control)

Sample WBC = Sample **WB** + cowpea flour at 10% (20g)

Sample WBS = Sample **WB** + Soya bean flour at 10% (20g)

Sample WBW = Sample **WB** + watermelon seed flour at 10% (20g)

Firstly, wateryam paste was prepared using 800g of water yam paste with finely chopped 10g of onions, 2g of salt, 5g of pepper, and 8g of magi. 200g of prepared paste were then measured and portioned into labeled four soup bowls (WB, WBW, WBS & WBC). Each of the labeled samples carried 20g of watermelon seed flour, soybean flour and cowpea flour respectively except the control that remains plain. Each of the samples was fried in 500ml groundnut oil at the temperature of 160°C that was done at 130°C to 132°C for 13mins on the regulated burner as represented in Table I.

Preparation of water yam ball (Ojojo)



Fig 1: Samples of water yam ball (ojojo)

produced

Chemical analysis of cowpea flour, soya bean flour, watermelon flour and water yam ball

Moisture Content, Ash content, Crude Fat, Protein Fibre, and Carbohydrates also minerals element such as Ca, K, Na, P, Se, Mg, Cu, Mn, Fe, Ni and Zn were determined in triplicate. The method described by AOAC (2005) was used.

Tourists' acceptability

The Samples (WB, WBC, WBS, and WBW) were taken to Agodi gardens and 150 copies of questionnaire (including sensory evaluation) was administered to visitors. The sensory characteristics (colour, taste, texture, flavour, aroma and overall acceptability) were measured on a five-point hedonic scale of dislike extremely (1) to like extremely (5).

Statistical Analysis

Data obtained were subjected to descriptive analysis using SPSS version 20. Analysis of variance (ANOVA) was used in separating the means of the samples.

DISCUSSION OF FINDINGS

Table II: Demographic characteristics of the respondents

Demography	Frequency	Percentage
Gender		
Male	90	60.0
Female	60	40.0
Religion		
Islam	49	32.7
Christianity	92	61.3
Traditional	2	1.3
Others	7	4.7
Age (Years)		
Below 20	9	6.0
21-30	83	55.3
31-40	34	22.7
41-50	20	13.3
51-60	4	2.7
Nationality		
Nigerian	129	86
Other African	15	10.0
American	2	1.3
Asian	4	2.7
Occupation		
Civil Servant	42	28.0
Public Servant	7	4.7
Artisan	21	14.0
Trading	27	18.0
Student	53	35.3
Marital Status		
Single	92	61.3
Married	57	38.0
Divorced	1	.7
Academics Qualification		
Secondary	45	30.0
OND/NCE	56	37.3
HND/B.Sc./B.Ed.	37	24.7
M.Sc/Ma	10	6.7
Phd	2	1.3

Source: Field survey, 2018

Demographic characteristics of the tourists

Table II shown the results of demographic data of the respondents. Sixty percent of the respondents were male while 40% were female. Majority were Christians with 61.3% while 32.7% were of Islamic faith. Most of the respondents were Nigerians (86%) while 10.0% were from other countries in Africa continent, 1.3% was from America continents and the remaining respondents (2.7%) were from Asian continents. The majority of the respondents were students (35.3%), followed by civil servants (28%), traders (18%) and artisans (14%) while public servants had the lowest percentage (4.7%). The largest numbers of the respondents were single with 61% while 38% were married. On their educational status, the majority of the respondents (37.3%) had either NCE/OND while 30% possessed O level. Moreso, 24.7% possessed HND/BSc/B.Ed. and 1.3% of the respondents possessed PhD degree. Ojo *et al.*, (2017) in their assessment of the socio-demographic characteristics of Agodi Gardens visitors documented similar findings where majority were male, single, students who possessed tertiary education. Apata *et al.* (2019) also documented similar results.

Table IV: Chemical Composition of the raw ingredients

Sample	Water yam	Cowpea flour	Soybean flour	Water melon seed flour
Ash %	3.13 ± 0.06	4.34 ± 0.49	4.93 ± 0.03	4.50 ± 0.00
Protein %	8.30 ± 0.52	18.60 ± 0.40	38.30 ± 0.69	22.50 ± 0.10
Fibre %	2.10 ± 0.20	11.15 ± 0.01	5.20 ± 0.20	7.40 ± 0.53
Fat %	1.50 ± 0.10	1.91 ± 0.01	23.10 ± 0.10	30.00 ± 0.01
Moisture %	59.20 ± 0.35	4.80 ± 0.00	7.60 ± 0.35	10.50 ± 0.00
CHO %	25.76 ± 0.85	59.19 ± 0.87	20.87 ± 1.06	25.10 ± 0.52
Calcium	731.70 ± 0.10	173.54 ± 0.01	371.00 ± 1.73	130.00 ± 3.00
Magnesium	486.70 ± 0.20	191.81 ± 0.02	300.00 ± 2.00	153.00 ± 4.36
Potassium	15400.00 ± 0.00	7500.13 ± 0.00	19796.67 ± 7.57	3940.00 ± 2.65
Sodium	122.70 ± 0.17	79.60 ± 0.36	20.00 ± 1.73	80.10 ± 0.17
Manganese	12.00 ± 2.00	15.13 ± 0.00	43.00 ± 5.20	50.00 ± 2.65
Iron	1781.70 ± 0.01	1169.00 ± 1.0	1700.00 ± 0.00	3497.00 ± 1.00
Copper	13.20 ± 0.35	11.02 ± 0.02	15.00 ± 0.00	47.00 ± 2.65
Zinc	11.20 ± 0.30	6.69 ± 0.02	55.00 ± 2.65	17.00 ± 0.00
Phosphorus	1513.00 ± 1.00	1812.00 ± 1.73	1500.00 ± 1.00	1685.00 ± 1.00

Chemical composition of the major ingredients for *ojojo*

Table III shown that chemical composition of the major ingredients for *ojojo*. Water yam had (3.13 ± 0.06) ash content, (8.30 ± 0.52) protein content, (2.10 ± 0.20) fibre content, (1.50 ± 0.10) fat, 59.2% moisture content and (25.76 ± 0.85) CHO. This shows the characteristic high carbohydrate and moisture content as well as the low ash, protein, fibre and fat contents of water yam as documented by Ogidi *et al.* (2017). Also, water yam was found to have significant

concentration of minerals such as calcium ($731.70 \pm 0.10\text{mg/kg}$), magnesium ($486.70 \pm 0.20\text{mg/kg}$), potassium ($15400.00 \pm 0.00\text{mg/kg}$), sodium ($122.70 \pm 0.17\text{mg/kg}$), manganese ($12.00 \pm 2.00\text{mg/kg}$), iron ($1781.70 \pm 0.01\text{mg/kg}$), copper ($13.20 \pm 0.35\text{mg/kg}$), zinc ($11.20 \pm 0.30\text{mg/kg}$) and phosphorus ($1513.00 \pm 1.00\text{mg/kg}$).

Cowpea flour (CFR) had the lowest ash content (4.34 ± 0.49); water melon seed flour WMSFR had (4.50 ± 0.00) and soybean flour (SOYFR) had the highest with (4.93 ± 0.03). The protein content of the samples in descending order shows that SOYFR had the highest content with (38.30 ± 0.69), to WMSFR with (22.50 ± 0.10) while CFR had (18.60 ± 0.40). The fibre content of CFR was the highest with (11.15 ± 0.01), followed by WMSFR with (7.40 ± 0.53), and SOYFR with (5.20 ± 0.20). For the moisture content, WMSFR had the highest with (10.50 ± 0.00), followed by SOYFR (7.60 ± 0.35) and the least was CFR with (4.80 ± 0.00). CHO of CFR was the highest with (59.19 ± 0.87) followed by WMSFR with (25.10 ± 0.52) while the least was SOYFR with (20.87 ± 1.06). This result shows that soybean flour had higher amounts of ash and protein; cowpea flour had more fibre and carbohydrate content while water melon seed flour had higher moisture content. These were observed to influence the proximate concentration of the water yam balls produced from them.

SOYFR had the highest Calcium (Ca) content of $371.00 \pm 1.73\text{mg/kg}$ followed by CFR with $173.54 \pm 0.01\text{mg/kg}$ while sample WMSFR has the lowest $130.00 \pm 3.00\text{mg/kg}$. Magnesium (Mg) content of SOYFR was the highest at $300.00 \pm 2.00\text{mg/kg}$, followed by CFR with $191.81 \pm 0.02\text{mg/kg}$ and the least was WMSFR ($153.00 \pm 4.36\text{mg/kg}$). The potassium (K) content of SOYFR had the highest value with $19796.67 \pm 7.57\text{mg/kg}$ followed by CFR $7500.13 \pm 0.00\text{mg/kg}$ while the least was WMSFR with $3940.00 \pm 2.65\text{mg/kg}$. Sample WMSFR contains largest portion of sodium (Na) with $80.10 \pm 0.17\text{mg/kg}$; CFR had $79.60 \pm 0.36\text{mg/kg}$ and the least was SOYFR with $20.00 \pm 1.73\text{mg/kg}$. WMSFR had the largest content of manganese (Mn) with $50.00 \pm 2.65\text{mg/kg}$; next to this was SOYFR $43.00 \pm 5.20\text{mg/kg}$; followed by CFR with $15.13 \pm 0.00\text{mg/kg}$. The content of Iron Fe in WMSFR was the highest $3497.00 \pm 1.00\text{mg/kg}$, followed by SOYFR with $1700.00 \pm 0.00\text{mg/kg}$ and least content was in CFR at $1169.00 \pm 1.0\text{mg/kg}$. Sample WMSFR had the largest copper Cu content with $47.00 \pm 2.65\text{mg/kg}$ followed by SOYFR at $15.00 \pm 0.00\text{mg/kg}$ while CFR had the least with $11.02 \pm 0.02\text{mg/kg}$. The Zinc (Zn) content of CFR was the least with $6.69 \pm 0.02\text{mg/kg}$, this increased to $17.00 \pm 0.00\text{mg/kg}$ in WMSFR while sample SOYFR had the largest with $55.00 \pm 2.65\text{mg/kg}$. The phosphorus content in CFR was the largest with $1812.00 \pm 1.73\text{mg/kg}$ followed by WMSFR with $1685.00 \pm 1.00\text{mg/kg}$ while SOYFR had the least $1500.00 \pm 1.00\text{mg/kg}$.

Table V: Comparative evaluation of the chemical composition of the water yam balls (*ojojo*) samples

SAMPLE	WB	WBC	WBS	WBW
Ash (%)	3.57 ± 0.058^c	6.1667 ± 0.21^b	5.70 ± 0.10^{ab}	5.87 ± 0.23^a
Protein (%)	3.15 ± 0.01^d	8.96 ± 0.01^c	12.96 ± 0.01^a	9.10 ± 0.01^b
Fibre (%)	2.20 ± 0.10^b	2.43 ± 0.06^{ab}	2.50 ± 0.10^a	2.67 ± 0.12^a
Fat (%)	2.73 ± 0.15^c	3.80 ± 0.10^b	4.80 ± 0.00^b	4.23 ± 0.32^b
Moisture (%)	36.13 ± 3.27^c	41.23 ± 0.56^b	47.90 ± 0.89^a	47.14 ± 0.22^a
Carbohydrate (%)	52.22 ± 3.26^a	37.26 ± 0.54^b	26.14 ± 0.99^c	30.99 ± 0.69^d
Ca (mg/kg)	625.00 ± 4.36^c	690.00 ± 5.00^b	820.00 ± 2.00^a	680.00 ± 4.00^b
Mg (mg/kg)	347.00 ± 1.00^c	345.00 ± 0.00^c	667.00 ± 2.00^a	510.00 ± 5.00^b
K (mg/kg)	7250.00 ± 5.00^a	6750.00 ± 10.00^a	6750.00 ± 0.00^a	5750.33 ± 1.01^b
Na (mg/kg)	3650.00 ± 5.00^c	4300.00 ± 50.00^a	3950.00 ± 0.00^b	3700.00 ± 100.00^c
Mn (mg/kg)	6.50 ± 0.100^b	7.50 ± 0.10^b	5.00 ± 1.00^b	26.00 ± 2.00^a
Fe (mg/kg)	263.00 ± 2.65^a	214.00 ± 1.00^a	235.50 ± 1223.69^a	104.00 ± 1.00^a
Cu (mg/kg)	22.80 ± 0.100^a	18.95 ± 0.04^a	4.40 ± 0.10^a	22.25 ± 53.93^a
Zn (mg/kg)	15.60 ± 0.100^a	14.25 ± 0.03^c	12.15 ± 0.05^d	15.15 ± 0.02^b
P (mg/kg)	1853.50 ± 0.100^c	1756.33 ± 2.31^d	2662.35 ± 3.21^b	3909.00 ± 0.00^a

(Means in a row with different superscript are statistically different)

Comparative evaluation of the chemical composition of the water yam balls

The chemical composition (proximate and mineral) of the water yam balls is presented on Table V.

WBC had the highest ash content of (6.1667 ± 0.21). This was followed by WBW (5.87 ± 0.23) and WBS (5.70 ± 0.10). WB had the least with (3.57 ± 0.058). The protein content of WBS was highest at (12.96 ± 0.01). This was followed by WBW and WBC with (9.10 ± 0.01) and (8.96 ± 0.01) respectively, while WB had the lowest (3.15 ± 0.01). WBW had the highest fibre content (2.67 ± 0.12). Other samples WBS, WBC and WB had 2.50 ± 0.10 , 2.43 ± 0.06 and 2.20 ± 0.10 respectively. Also, WBS had the highest fat content at 4.80 ± 0.00 . This was followed by WBW and WBC at 4.23 ± 0.32 and 3.80 ± 0.10 respectively, while WB had the least (2.73 ± 0.15). The highest moisture content was recorded in WBS (47.90 ± 0.89). This was closely followed by WBW with (47.14 ± 0.22), and then by WBC (41.23 ± 0.56). The lowest moisture content recorded was in WB (36.13 ± 3.27). Furthermore, highest carbohydrate concentration was found in WB (52.22 ± 3.26). WBC and WBW had 37.26 ± 0.54 and 30.99 ± 0.69 respectively, while the least was 26.14 ± 0.99 in WBS. These results are indications that fortification of the *ojojo* with cowpea, soybean and water melon seeds brought about an increase in the ash, protein, fat, fibre and moisture contents. Soybean was found to contribute to the highest protein, fat and moisture contents. Olapade and Akinyanju (2014) who researched on the inclusion of soybean also found an improvement of the protein, fat, ash and crude fibre contents

of water yam. Increase in fat content was also reported by Okoye *et al.*, (2018) and Ayo *et al.* (2013). Cowpea increased the ash content more than the other samples while water melon seed brought about more fibre content.

Furthermore, there was a decrease in the carbohydrate contents of all the fortified samples. This is an expected decrease given the supplementation of the water yam with the three protein sources used. Similar decrease in water yam balls was reported by Oyeleke *et al.* (2012) and Okoye *et al.* (2018) who fortified with bambara groundnut and ricebean flour respectively. The lowest moisture content in the control sample (WB) is an indication that that fortification with soybean, water melon seeds and cowpea may predispose the samples to a lower shelf life when compared to the usual *ojojo*. As noted by Temple (1996), high moisture content shows a liability to microbial spoilage, hence short shelf life.

WBS was found to have the highest calcium content of 820.00 ± 2.00 mg/kg. This was followed by samples WBC (690.00 ± 5.00 mg/kg) and WBW (680.00 ± 4.00 mg/kg), while WB had the least (625.00 ± 4.36 mg/kg). Similarly, the magnesium content in WBS was the highest (667.00 ± 2.00^a mg/kg). This was followed by WBW with 510.00 ± 5.00 mg/kg. The least concentrations were in WB and WBC with 347.00 ± 1.00 mg/kg and 345.00 ± 0.00 mg/kg respectively. The potassium content in WB was the highest at 7250.00 ± 5.00 mg/kg. This was followed by that of WBC and WBS at 6750.00 ± 10.00 mg/kg each, while WBW had 5750.33 ± 1.01 mg/kg. WBC had the highest sodium content with 4300.00 ± 50.00 mg/kg. This was followed by WBS (3950.00 ± 0.00 mg/kg) and WBW (3700.00 ± 100.00), while WB had the least with 3650.00 ± 5.00 mg/kg. The manganese concentration in WBW was the highest at 26.00 ± 2.00 mg/kg. Other samples; WBC, WB and WBS had 7.50 ± 0.10 mg/kg, 6.50 ± 0.100 mg/kg and 5.00 ± 1.00 mg/kg respectively. The iron content in WB (263.00 ± 2.65 mg/kg) was higher than the rest; 235.50 ± 1223.69 mg/kg, 214.00 ± 1.00 mg/kg and 104.00 ± 1.00 mg/kg in WBS, WBC and WBW respectively. Also, WB had the highest copper content with 22.80 ± 0.100 mg/kg. This was closely followed by WBW with 22.25 ± 53.93 mg/kg, and then WBC (18.95 ± 0.04 mg/kg) while the least was found in WBS (4.40 ± 0.10 mg/kg). Zinc concentration was found to be highest in WB (15.60 ± 0.100 mg/kg), followed by WBW (15.15 ± 0.02 mg/kg) and WBC (14.25 ± 0.03 mg/kg) while WBS had least 12.15 ± 0.05 mg/kg. WBW had the highest concentration of phosphorous with 3909.00 ± 0.00 mg/kg. This was followed by WBS, WB and WBC at 2662.35 ± 3.21 mg/kg, 1853.50 ± 0.100 mg/kg and 1756.33 ± 2.31 mg/kg respectively.

It can be said that with respect to the mineral composition of the samples, soybean flour inclusion brought about the highest concentration of calcium and magnesium; cowpea flour inclusion increased the sodium content while water melon seed brought about magnesium and phosphorous increase. The inclusion of defatted watermelon seed flour in bread as assessed by Anang *et al.*, (2018) resulted in a significant increase in phosphorous. Interestingly, the control sample had highest content of potassium, iron, copper and zinc. Observations from the mineral

composition of the natural ingredient shows that water yam had very high concentration of these elements than the others.

Table VI: Organoleptic characteristics of the wateryam balls

	WB	WBC	WBS	WBW
Colour	3.83±1.09 ^a	3.67±1.15 ^a	3.76±1.21 ^a	3.52±1.21 ^a
Taste	3.51±1.28 ^a	3.61±1.10 ^a	3.47±1.29 ^a	3.39±1.37 ^a
Flavour	3.77±0.95 ^a	3.65±1.12 ^a	3.75±1.05 ^a	3.59±1.25 ^a
Aroma	3.95±0.96 ^a	3.66±1.00 ^a	3.53±1.13 ^a	3.66±1.13 ^a
Texture	3.87±0.99 ^a	3.80±0.85 ^a	3.48±1.20 ^{ab}	3.49±1.35 ^b
Overall acceptability	4.17±0.93 ^a	3.75±0.98 ^b	3.80±1.07 ^b	3.71±1.34 ^b

(Means in a row with different superscript are statistically different)

Organoleptic characteristics of tourists on water yam balls

WB (the control sample representing the usual *ojoko* without fortification) had the highest rating for colour (3.89±1.09), followed by WBS (3.76±1.21), WBC (3.67±1.15) and WBW (3.52±1.21). There was no significant difference in the colour, at $p>0.05$. This may be because the colour of all the samples was golden brown, which could explain the lack of significant differences in the rating. This golden brown *ojoko* colour was also reported by Olopade and Akinyanju (2014) and Okoye *et al.* (2018). With respect to taste, WBC, the sample containing cowpea was rated highest (3.61±1.10), followed by WB (3.51±1.28), WBS (3.47±1.29) and WBW (3.39±1.37). No statistically significant difference however exists among the samples. On flavour, sample WB, the control was rated highest (3.77±0.95) above all the fortified samples {WBS (3.75±1.05), WBC (3.65±1.12) and WBW (3.59±1.25)}. Similarly, the samples were not statistically different from each other. In the same vein, the control sample, WB had the strongest aroma (3.95±0.96). This was followed by WBC and WBW at 3.66±1.00 and 3.66±1.13 respectively. The rating for WBS aroma was the least (3.53±1.13). These samples on account of aroma did not statistically differ.

The texture of the control sample WB was found to be the most acceptable by the respondents given the high rating of 3.87±0.99. This was followed by WBC (3.80±0.85), WBW (3.49±1.35) and WBS (3.48±1.20). The texture rating of WB and WBC was statistically the same ($p>0.05$), but statistically different from WBW ($p<0.05$). Also, WBS and WBW were statistically the same. In terms of the overall acceptability of the samples by the respondents, WB had the highest rating (4.17±0.93) and statistically differed ($p<0.05$) from the remaining samples. This was followed by WBS (3.80±1.07) and WBC (3.75±0.98) while the least was WBW (3.71±1.34).

This is an outright indication of the preference of the usual *ojojo* to the fortified samples. This is not in line with the findings of Okoye *et al.* (2018) in their study of the acceptability of *ojojo* from the blends of wateryam and ricebean flours, who found out that the control sample (100% wateryam) was the least accepted. Also, Alakali *et al.* (2016) who supplemented *ojojo* at varying inclusion levels with bambara groundnut reported that the control sample without any fortification was the least acceptable. It is however important to note that the fortifying ingredients for the two studies vary, which may explain the dissimilarity. Overall acceptability of the fortified samples was in the order WBS>WBC>WBW. In other words, the sample with soybean was the most acceptable of all the fortified samples, followed by that with cowpea while that of water melon seed was the least.

CONCLUSION

The improvement in the chemical properties of water yam balls using the flours produced from cowpea, soybean and water melon seed brought about increase in the protein, crude fibre, ash and fat content. Soybean was found to contribute to the highest protein, fat and moisture contents. Cowpea increased the ash content more than the other samples while water melon seed brought about more fibre content. With respect to the mineral composition of the samples, soybean flour inclusion brought about the highest concentration of calcium and magnesium; cowpea flour inclusion increased the sodium content; while water melon seed brought about magnesium and phosphorous increase. The most acceptable fortified sample among visitors to Agodi Gardens was WBS (water yam ball made from the blend of water yam and soybean flour), followed by WBC (water yam ball made from the blend of water yam and cowpea flour) while the least was WBW (water yam ball made from the blend of water yam and water melon seed flour). The visitors however still preferred the traditional water yam ball (WB) above all the fortified samples, based on the colour, aroma and texture.

RECOMENDATIONS

1. Since the inclusion of soya beans, watermelon seeds and cowpeas seeds increase the protein content of the water yam balls, this will prevent protein energy malnutrition (PEM) among the masses.
2. Water yam balls enriched with plant proteins should be encouraged among tourist either as snacks or part of main menu to promote indigenous food.
3. This water yam balls enriched with soya beans, watermelon seeds and cowpea seeds can be made into pudding for the benefit of those with health challenges such as cardiovascular diseases and diabetics to benefit from it.
4. Further research is recommended on the microbial load of the water yam cuisine enriched with plant-based protein.

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PREVALENCE AND PERCEPTION OF COHABITATION AMONG THE UNDERGRADUATE STUDENTS IN NIGERIA

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ABSTRACT

Cohabitation which was once considered unwholesome in the African culture is becoming prevalent among students in Nigerian tertiary institution with a vast array of consequences. This study investigated the prevalence, perceived factors and health-related problems of cohabitation among students in University of Nigeria. Five specific objectives guided the study. Multi-stage sampling technique was employed in the selection of 746 students from a population of 26,629. An interview and a standardized questionnaire titled "Students' Cohabitation Questionnaire" were used as instruments for data collection. Findings showed that 74.1% of the students had close friends of the opposite sex. More than half (54.8%) of those who had opposite sex friends visited each other's residence regularly. The result for objective 2, shows that a total of 27% of the respondents were found to be cohabiting. Among this group, 16% were partly cohabiting while eleven percent (11%) were fully cohabiting. Factors responsible for cohabitation as rated by the respondents included financial problem, need for academic assistance, lack of parental training, disregard for African culture and peer pressure. A greater proportion of the respondents disagreed that cohabitation increases the risk of sexually transmitted diseases, drug abuse, suicidal attempt, unwanted pregnancy and abortion. Strategies for minimizing the incidence of cohabitation among university students as rated by the students included keeping away from bad friends, reduction in school and accommodation fees, proper parental upbringing. Cohabitation is prevalent among undergraduate students in Nigeria. University administration should therefore make accommodations available and affordable for students.

Keywords: Cohabitation, Health, Undergraduate, Students, Culture

INTRODUCTION

In the times past, universities had been able to accommodate most of the undergraduate students in hostels within the campuses. The university authority makes residential rules and regulations governing the hostels, such that there is no room for accommodating both sexes in a single apartment. However, with the current up surge in the student population, most universities find it impossible to cater for the accommodation needs of the students. Majority of the students therefore resort to off-campus apartments, mostly in response to the shortage of hostel accommodations, but also due to personal preferences. In the off-campus apartments, rules are hardly put in place to regulate the activities of the residents. As a result of this, and in addition to the dynamics of individual values and moral standards, cohabitation is gradually permeating the culture of students in higher institutions.

Cohabitation refers to living together of two independent people who are emotionally and sexually involved, without any form of legal marriage (Onoyase, 2020). Unachukwu and Iloakasia, (2018) defined cohabitation as a situation when an adult man and woman live together and engage in non-marital intimate sexual acts. According to Duyilemi, Tunde-Awe and Adekola (2018), cohabitation among undergraduate students is often referred to as campus marriage or campus coupling, in which some student couples are well known among their peers as non-marital sexual partners. Jamison and Ganong (2011) identified two forms of cohabitation among students; part-time cohabitation or stay over relationship, and full-time cohabitation. Stay over partners live apart but spend nights together with their partners while full-time cohabiters maintain one residential unit (Jamison & Ganong, 2011).

Cohabitation is on the rise in various Nigerian tertiary institutions and might not be decreasing in the near future except adequate measures are put in place to stem the tide. A study carried out in Ebonyi state by Imo (2017) found that 11% of the students were cohabiting. Adejumo, Okojide, Adejumo and Bateren (2017) reported 66% prevalence among undergraduates of four public universities in Ogun and Lagos states. In addition, Duyilemi, et al. (2018) reported in their study that 25-50% of students in a university in Ondo state engaged in the act of cohabitation. Most of the cohabiting students do so without the knowledge and approval of their parents. Studies have found various factors associated with cohabitation among students. They include economic factors (Adejumo et al., 2017), freedom from parental control (Imo, 2017) and high cost of school fees (Iyakolo, 2021).

Cohabitation which was once considered an abomination and unwholesome in the African culture is becoming prevalent among youths in Nigerian tertiary institution with a vast array of consequences (Iyakolo, 2021). Ojo (2019) found that cohabitation adversely affected students' academic performance. In a similar study among polytechnic students in Owerri, Imo state, Kalu, Ejiogu, Chukwukadibia and Nleonu (2021) reported sexually transmitted diseases, poor academic performance, dropping out of school, abortion, depression and death as some of the problems associated with cohabitation among students. Ojo (2019) further observed that many of the cohabiting students do not eventually get married, leaving some of the students, heart-broken and emotionally destabilized for the rest of their lives. All these could endanger a student's life, especially female students, and possibly truncate the educational pursuit and life career of the individual. However, it is not yet certain whether undergraduate students actually believe that cohabitation could result in so much health-related problems. There is also scarcity of data on the issue of cohabitation among undergraduates in the universities in Enugu state. This study therefore is aimed at filling this very crucial gap, by investigating the prevalence, perceived factors and opinions of students on the health consequences of cohabitation among undergraduates, using University of Nigeria as a case study.

Objectives of the study:

The specific objectives of the study were to;

1. identify the pattern of opposite-sex relationship among the respondents;
2. determine the prevalence and type of cohabitation among the respondents;
3. identify perceived factors responsible for cohabitation;
4. ascertain the opinion of the respondents on the health-related consequences of cohabitation; and
5. identify important strategies for minimizing cohabitation among undergraduate students.

METHODOLOGY

Study design: The study adopted descriptive cross-sectional research design. This research design was considered appropriate because it has the ability to examine current situation in a given place and to check the extent to which current practices meet required standard (Uzoagulu, 2011).

Study population: The study population involved all 26,629 undergraduate students in University of Nigeria, Nsukka and Enugu campuses within the 2019/20 academic session.

Sample size and sampling technique: Sample for the study was selected in multi-stages. In the first stage, simple random sampling by balloting without replacement was used to select fifty percent of the total faculties from the two campuses. Fifty percent was selected because it is considered to be representative of the population. Thus, five faculties in Nsukka campus and three faculties in Enugu campus were selected for the study. They were Faculties of Biological Sciences, Social Sciences, Agriculture, Pharmaceutical Sciences and Arts from Nsukka campus and Faculties of Law, Health Sciences and Business Administration from Enugu campus. The student population in the selected faculties at Nsukka campus was 17,769 while that of Enugu campus was 8,860.

In stage two, online sample size calculator by Survey Monkey was used to calculate the total sample size for each campus using this formular;

$$n = \frac{z^2 \times p(1-p)}{e^2} \div \left(1 + \left(\frac{z^2 \times p(1-p)}{e^2 N} \right) \right)$$

Where; N = Population of the study, n = Sample size, e= Margin error (0.05), z==z- score (level of confidence) and p= baseline levels of indicators (50%).

This gives a total sample size of 746 students; 377 students from Nsukka campus and 369 students from Enugu campus.

Instrument for data collection: An interview and a structured questionnaire titled “Students’ Cohabitation Questionnaire” were used to assess the prevalence, factors and opinion on health-related problems of cohabitation among undergraduates of University of Nigeria. The interview was briefly used to obtain elaborate views of the respondents on the items. The questionnaire was divided into four parts. Part I was used to elicit personal data and opposite sex relationship pattern of the respondents. Part II elicited information on the factors associated with cohabitation among the respondents, while part III elicited information on the opinion the respondents on health-related consequences of cohabitation. Finally, part IV elicited information on strategies that could be adopted to minimize the incidence of cohabitation among undergraduate students. Part II of the questionnaires was assessed on a 5- point Likert scale as follows: Strongly agree (5 point), Agree (4 point), Neither agree nor disagree (3 point), Disagree (2 point), Strongly disagree (1 point), the decision rule was placed at mean score ≥ 3 . Part III which is the respondents’ opinion on health-related consequences of cohabitation was rated on a 3-point scale of 1= agree, 2 = undecided and 3 = disagree. Part IV which is the strategy of minimizing cohabitation was assessed using a 4-point rating scale of 1 = unimportant, 2 = Not so important, 3 = Important and 4 = Very Important type of questionnaire, the decision rule was placed at mean score of ≥ 2.5 .

Validation and reliability of the instrument: The questionnaire was validated by three lecturers from the Department of Home Science and Management, University of Nigeria, Nsukka. Their suggestions and observations were used to modify the questionnaire items and approved by the supervisor. Cronbach’s alfa coefficient score of 0.69 was obtained for the factors responsible for cohabitation, 0.65 for health-related problems, 0.81 for the strategies for minimizing the incident of cohabitation. These values fell within the acceptability range of 0.65 and 0.90 as stated by Goforth (2015) showing that the instrument showed moderate internal consistency of the items.

Data analysis: The results were analysed using frequency, percentage, mean and standard deviation. Frequency and percentage were used to present results on the respondents’ background information, pattern of opposite sex relationship among the respondents, prevalence and types of cohabitation, and opinion of respondents on health-related consequences of cohabitation. Mean and standard deviation were calculated for factors responsible for cohabitation and important strategies for minimizing cohabitation. Tables and pie chart were used for presentation of results.

RESULTS

Demographic characteristics of the respondents

More than half (56.7%) of the respondent were females, whereas 43.3% were males. 47% were within the ages of 18-22 years while 3.6% were <18 years. Most (81.5%) of them were Christians, while few (7.4%) were Islam. The table further reveals that more than half (62.7%)

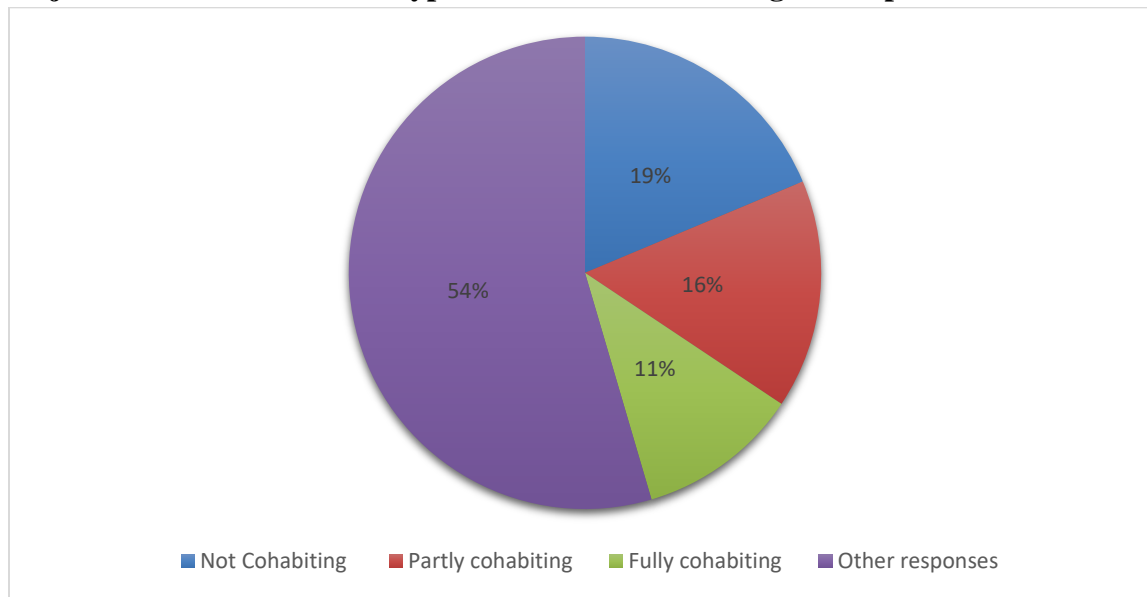
were single, and only 2.4% were widowed. Most (79.8%) of the respondents were Igbo, 12.4% were Yoruba and just a few (7.8%) were Hausa.

Objective 1: Pattern of opposite sex relationship among the respondents

Table I: Pattern of Opposite Sex Relationship among the Respondents

Variables	Frequency	Percentage
Do you have a close friend of the opposite sex?		
Yes	520	74.1
No	182	25.9
Total responses	702	100
How often do you visit each other's residence?		
Regularly	285	54.8
Occasionally	80	15.4
Never	155	29.8
Total responses	520	100
How long do you stay in each other's residence per visit?		
Few hours in a day	131	41.1
Few days in a week	6	1.9
A week or more in a month	104	32.6
We don't need to visit, we live together	78	24.5
Total responses	319	100.0
How long have you been staying over/living in each other's residence?		
Less than a month	39	20.0
1-3months	5	2.6
4-6months	54	27.7
7-12months	97	49.7
Total responses	195	100.0

Data on Table I showed the opposite sex relationship pattern of the respondents (objective 1). Majority (74.1%) of the respondents had close friends of the opposite sex. More than half (54.8%) of those who had opposite sex friends visited each other's residence regularly, 15.4% visited occasionally while 29.8% never exchanged visits. During each visit, 41.1% (n = 319) reported that they spent few hours in a day, about a third (32.6%) spent a week or more in a month, while 24.5% reported that they lived together, therefore did not need to visit each other. A good number (49.7%) of those who sleep over at opposite sex friend's apartment, have been doing so for 7-12 months, 27.7%; 4-6 months, 20.0%; less than a month and a few (2.6%) have been together for 1-3 months.

Objective 2: Prevalence and types of cohabitation among the respondents**Fig. I: Prevalence of Cohabitation among the Respondents**

The result for objective 2, shows that a total of 27% of the respondents were found to be cohabiting. Among this group, 16% were partly cohabiting indicating respondents who spend few days or weeks together with opposite sex friend. Eleven percent (11%) were fully cohabiting. About 20% were not cohabiting and 54% either did not have opposite sex close friends or never exchanged visits at place of residence.

Objective 3: Factors responsible for cohabitation among the respondents**Table II: Factors Responsible for Cohabitation among the Undergraduates**

Parameter	Mean	Std deviation	Remark
Feeling free and independent from parental control	3.41	1.26	Accepted
Financial problems	3.30	1.05	Accepted
Need for academic assistance	3.26	1.04	Accepted
Lack of parental training	3.19	1.25	Accepted
Disregard for African culture	3.11	1.20	Accepted
Loose morals	3.07	1.02	Accepted
Peer pressure	3.04	1.62	Accepted
Loneliness	3.00	1.63	Accepted
Need for Love and friendship	2.93	1.02	Rejected
Security reasons	2.92	1.76	Rejected
Testing compatibility for marriage	2.85	1.08	Rejected
Health condition that requires assistance	2.81	1.09	Rejected
Desire for sexual satisfaction	2.78	1.42	Rejected
Inadequate hostel facilities in the university	2.78	1.34	Rejected

High cost of renting accommodation	2.56	1.55	Rejected
Newness to the environment	2.56	1.40	Rejected

Findings for objective 3 (Table II) shows the factors responsible for cohabitation as rated by the respondents. Out of the 16 items, 8 were accepted as factors and they include, feeling free and independent from parental control (3.41 ± 1.26), financial problem (3.30 ± 1.05), need for academic assistance (3.26 ± 1.04), lack of parental training (3.19 ± 1.25) disregard for African culture (3.11 ± 1.20), loose moral (3.07 ± 1.02), peer pressure (3.04 ± 1.62) and loneliness (3.00 ± 1.63).

Objective 4: Opinion of the respondents on the health-related consequences of cohabitation

Table III: Opinion of the Respondents on the Health-Related Consequences of Cohabitation

	Agreed F (%)	Undecided F (%)	Disagreed F (%)
Increase in risk of STDs	130 (18.5)	234 (33.3)	338 (48.1)
Drug abuse	111 (15.8)	140 (19.9)	450 (64.1)
Suicidal attempt	104 (14.8)	260 (27.0)	338 (48.2)
Unwanted pregnancy	52 (7.4)	130 (18.5)	520 (74.1)
Abortion and its complication	52 (7.4)	234 (33.4)	416 (59.3)
Emotional stress	52 (7.4)	260 (37.0)	390 (55.6)
Sexual/Physical abuse	34 (3.7)	117 (14.8)	551 (77.8)

Data obtained for objective 4 (Table III) shows the opinion of the respondents on the health-related consequences of cohabitation. Only a few (18.5%) of the respondents agreed that cohabitation increases the risk of sexually transmitted diseases (STDs), 15.8%; drug abuse, 14.8%; suicidal attempt, 7.4%; unwanted pregnancy, 7.4%; abortion and its complications, 7.4%; emotional stress. Very few (3.7%) agreed that it leads to sexual/physical abuse. A greater proportion of the respondents disagreed to all the items.

Objective 5: Important strategies for minimizing cohabitation among undergraduates

Table IV: Important strategies for minimizing cohabitation among undergraduates

Strategies	Mean	Standard deviation	Remark
Promoting African instead of Western moral culture	3.00	0.90	Very important
Provision of school guidance and counselor by each faculty	3.00	0.61	Very important
Keeping away from bad friends	2.93	0.72	Important
Reduction in tuition fees	2.85	1.04	Important
Proper parental upbringing	2.74	0.84	Important
Reduction in hostel fees and students house rents	2.74	0.97	Important

Staying away from erotic films and videos	2.67	0.82	Important
Legal regulation against student cohabitation	2.44	0.92	Not so important
Moral education against cohabitation	2.37	0.82	Not so important
Parent(s) should often visit their wards in school	2.33	0.94	Not so important
Provision of adequate hostel accommodation for students in the school premises	2.19	0.61	Not so important

Table IV provided data on the strategies for minimizing the incidence of cohabitation among university students (objective 5). Two out of eleven items were regarded as very important and they include; promoting African instead of western moral culture (3.00 ± 0.97) and provision of school guidance and counselor by each faculty (3.00 ± 0.61). Five items were regarded as important; keeping away from bad friends (2.93 ± 0.72), reduction in school fees (2.85 ± 1.04), proper parental upbringing (2.74 ± 0.84), reduction in hostel fees (2.74 ± 0.97), and student house rent, staying away from erotic films and videos (2.67 ± 0.82).

DISCUSSION OF FINDINGS

Studies have shown that cohabitation is becoming rampant among undergraduate students in Nigerian higher institutions. In this study, more than a quarter (27%) of the students were partly or fully cohabiting with friend of the opposite sex. Among the cohabiting students, almost one out of five students were partially living together; spending few days or more per visit in each other's residence, while 11% were fully cohabiting. This finding showed a similar prevalence to that observed by Imo (2017) among the undergraduate students at Ebonyi state. Conversely, the prevalence was much lower than the 66% reported by Adejumo et al. (2017) among undergraduates in four public universities in Ogun and Lagos states.

Cohabitation has been attributed to some factors in various studies. However, it is surprising to observe that inadequate hostel accommodation was not accepted as a factor among the respondents. Unachukwu and Iloakasia, (2018) made similar findings among undergraduate students in Anambra state. However, this finding is incongruent with the findings of Onoyase (2020) who observed that shortage of in-campus accommodation was one of the major factors encouraging the trend of cohabitation among students. In line with the finding of Imo (2017), the finding of current study showed that the most perceived factor was the sense of freedom of having left home for more independent living, followed by financial problems which could make students to co-depend on each other for financial survival. Furthermore, disregard for African culture loose morals, financial problems, need for academic assistance, lack of parental training, peer pressure and loneliness were the factors responsible for cohabitation among students. These findings corroborate the findings of previous study by Imo (2011) conducted in south-eastern Nigeria.

Opinion of the respondents on health-related consequences of cohabitation among undergraduates

Cohabitation has been found to have various health related problems. However, when students do not agree that such problems were consequences of cohabitation, the knowledge of such problems might not deter them from engaging in cohabitation. The finding of this study showed that majority of the respondents did not agree that cohabitation could lead to increased risk of sexually transmitted diseases, unwanted pregnancy, abortion and its complications as found in previous studies (Duyilemi et al., 2018; Kalu et al., 2021; Unachukwu & Iloakasia, 2018). On a personal enquiry, some of the respondents verbally stated that “cohabiting couples who take adequate precautions do not run any higher risk of all the mentioned problems than their non-cohabiting counterparts who indulge in premarital sex”. Thus, it is unprotected premarital sexual relationship rather than cohabitation that was considered problematic among the youths. Much as this line of argument is valid, it further goes to substantiate the observation that the contemporary youths have adopted the hitherto abominable culture of premarital sexual activities which is usually obtainable with cohabitation (Imo, 2017). The finding also showed that more than half of the respondents do not agree that cohabitation could lead to emotional stress due to incidences of cheating and break-ups, sexual and physical abuse, drug use and abuse. Again, the argument by the respondents is that it depends on the individuals involved in the relationship and cannot be widely asserted for everyone.

Strategies that could be adopted to minimize the incidence of cohabitation among undergraduates

Many researchers have proffered different solutions or strategies that could be adopted to minimize the incidence of this menace called cohabitation among undergraduates. From the finding of current study, seven strategies were identified as ways of minimizing cohabitation. They include; reduction in hostel fees and students house rent, reduction in tuition fees, proper parental upbringing, provision of school guidance and counselor at faculty level, keeping away from bad friends, staying away from erotic films and videos, and promoting African instead of western culture. Other strategies that were suggested by previous studies were not found so important in this study such as enforcing legal regulation against, regular visit by parents (Popoola & Ayandele, 2019). Unexpectedly, providing adequate hostel accommodation was not considered an important strategy for minimizing cohabitation among students as observed by Obikeze, Obi and Mmegbuanaeze (2019). In the verbal opinion of some students, “students who will cohabit will do so, even if there were enough hostel accommodation”.

CONCLUSION

Cohabitation is quite prevalent among undergraduate students of the University of Nigeria mostly in the partial form of it. It appears to have deeper rooted causes than the inadequate hostel accommodation widely observed in previous studies. Factors responsible for cohabitation among the students were traceable to the family and individual students rather than the institution, such

as independence from parents, financial problems, lack of parental training, need for academic assistance, loneliness and disregard for African culture. This indicates that families have indispensable roles to play in curbing the issue of cohabitation among students through adequate financial provision for their children, inculcating good morals and promoting the much-cherished African values of premarital chastity. However, the university can also assist the family by making accommodations more affordable and providing counsellors for students.

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SEX EDUCATION AND TEENAGE PREGNANCY AMONG SECONDARY SCHOOL STUDENTS IN ONA ARA LOCAL GOVERNMENT AREA OF OYO STATE, NIGERIA

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ABSTRACT

This research examined the level of awareness of teenagers on sex education and pregnancy with its formation among adolescent of reproductive age. Ona Ara local government area was purposively selected due to rampage of teenage pregnancies and rural area which might be cause of unawareness and dreams damage, 110 students were randomly selected from the 11 secondary schools from the 11wards in the local government area. Majority of the teenagers (98.1%) were aware of sex education through their friends, classmates, social media, parents, class lectures, novels, pornography books, religion gatherings and video clips while 1.9% have not. 69.4% of the respondents were aware of pregnancy formations while 30.6% have never. There is significant association between sex education and teenage pregnancy at $p < 0.05$. It was revealed that teenagers are well aware of sex education and pregnancy formation through the third parties (friends, classmates, phonographs e.t.c.) compare to their parents. This unguarded sex information may aid exuberant engagement in unlawful, sinful acts and unknowingly fell out of the rightful part been guided from onset. It is thereby recommended that parents should be more alive to the responsibility of getting the children the rightful information.

Key words; sex education, teenage pregnancy, adolescent, rural area, dream damage

INTRODUCTION

The word “sex” in African culture remains in bad reputation is often used in surreptitious ways. Sex education means any form of education encompassing family planning and reputation. World Health Organization, (2017) described sexuality as an integral part of the personality of

everyone: man, woman and child. Connell and Elliott (2009) defined sexuality as unavoidable aspect of human being that is continually influences thoughts, feelings, actions and interactions and thereby our mental and physical health.

According to Queer theory, there is a sexual double standard that implies men and women have different needs and desires, which ultimately constructs gendered beliefs about men and women's sexuality which describes that sexuality education cannot be done on a page or booklets due to its genuity and value among human being (Connell & Elliott, 2009). Sexuality education should not be limited to a course that lasts only a few weeks, but should be integrated throughout a student's academic career like the Netherlands and other countries (Schalet, 2011). Sex education can be taught formally or informally, though it was introduced into secondary school curriculum through the subject taught such as social studies, civic education, integrated science, and biology to expose the teenagers to the ways of maintaining their sex life for a brighter future (Preston, 2013).

Teenage is refers to as graduating stage of adolescence which is a transitional stage in physical and psychological development period from puberty to adulthood called Pubescence. Cognitively it is viewed as changes in the ability to think abstractly and multi-dimensionally and socially as a period of preparation for adult roles (Kail and Cavanaugh, 2010). According to Newman and Newman (2011) in Pubescence both boys and girls undergo an adolescent growth spurt. Primary sex characteristics (the reproductive organs) enlarge and mature, and secondary sex characteristics appear. This stage is characterized by accelerated and uneven growth, improved gross and fine motor skills and rapid growth of reproductive functions. The principal signs of sexual maturity are production of sperm (for males) called 'spermarche' that typically occurs at age 13 and first menstruation or occurrence of 'menarche' (for females) between the ages of 12 and 13 in the United States (Sumter, Bokhorst, Steinberg and Westenberg, 2009). The sex organs mature and the secondary sex characteristics appear (Table 1 summarizes these changes). The secondary sex characteristics are those characteristics which are not directly tied to reproduction yet distinguish the male from the female of that species. These changes include breast development, facial and body hair and appearance of voice changes.

Table I: Secondary Sex Characteristics

Girls	Boys
Breasts	Pubic Hair
Pubic Hair	Axillary Hair
Axillary Hair	Facial Hair
Increased width and depth of pelvis	Body Hair
	Voice Change

Source: Lefton, (1985)

~~The occurrence of the above mentioned changes triggers their sexual interests and exuberantly engaged in unlawful and sinful acts. Unknowingly fell out of the rightful part been guided from~~

onset. It is undoubted that secondary school students, especially those in junior secondary classes are of teen age. Nigeria currently practices a 6-3-3-4 system of education under which students of school ages are expected to have spent about six (6) years in primary school before moving to the secondary school under which they spend about three (3) years for junior classes and later another three (3) and later another three (3) years for senior classes.

Ona Ara Local Government Area is one of 33 existing LGAs of Oyo state that was carved out of old Oluyole Local Government in 1989 which has its administrative headquarters in the town of Akanran. According to 2006 population census, Ona–Ara Local Government has a total population of 265,059 made up of male population is 131,471 while that of female is 131,588, with the land mass of about 3570km. Ona–Ara Local Government is bounded in the north partly by Egbeda Local Government, in the south part by Oluyole Local Government, in the east part by Ogun/Osun State and in the west part by Lagos/Ibadan express way with Ibadan South East and Ibadan northeast Local Government area on the other side of the express way. Ona–Ara Local Government comprises of eleven wards. The people of Ona–Ara Local Government are predominantly farmers with fertile land, large number of communities in the Local Government are rural in nature. The effects of teenage pregnancy are highly visible and becoming rampant. It is common practice in the area for teenagers to engage in premarital sexual intercourse, conceive unwanted pregnancies, which often result in these (female) teenagers to stop formal education halfway and end up later doing petty trading and menial jobs. Most of the teenagers in fact use pregnancy pills, visit quack doctors or know the different abortion techniques, amongst other family planning techniques, despite under the guidance of their parents Some even grow up, marry and never know birth control thereby making what should be a joy to them a problem and burden this called for attention which brings this research to live.

Objectives of the study

The purpose of the study was to determine the sex education and teenage pregnancy among secondary school students in Ona-Ara local government area of Oyo state, Nigeria and specifically, the study

1. Determine demographic characteristics of the respondents
2. Examine the level of awareness of teenagers on sex education
3. Examine level of awareness of teenagers on pregnancy and how it forms
4. Determine level of their parents' awareness and interaction with teenagers.

Research hypothesis

H₀₁ – There will be no significant relationship between sex education and teenage pregnancy among adolescents of reproductive age.

RESEARCH METHODOLOGY

This research employed descriptive survey design. The study area was purposively selected due to rampaging of teenage pregnancies and rural nature of the which might be cause of unawareness and dreams damage. The study area consists of 11 wards with 164 number of primary and secondary schools own by the government and private individuals across the local government area without higher learning institution.

10students were randomly selected from one secondary school from each ward of local government including Community secondary School

There are eleven wards in the study area namely: Ward 1- community Secondary school, Alaagba Akanran. Ward 2- Araro community Secondary School, Araro. Ward 3- Community Secondary School, Badeku, Ward 4 Gbanda-efon – Ola-David Group of Schools Alaro. Ward 5- Community Secondary School, Amuloko. Ogbere Idi Osan Ward 6- Community Secondary School 1 Idi Osan, Ward 7- Elekuro High School 1 Oke Ogbere. Ward 8- Ajia Community High Grammar School Ajia, Ward 9- Zumural tul- hujaj Secondary School, Ibadan/Lagos expressway, Olorunsogo, Ward 10- Gbedun Community Grammar School Gbedun, and Ward 11- Atolu Community Grammar School I Oremeji; all in Ona Ara, Ibadan. Ten (10) students were randomly selected from each of the secondary schools which made a total of 110 students as respondents.

A well-structured and close-ended questionnaire was employed to collect information from the respondents so as to ascertain the research objectives as well as to address the hypotheses of the study. The questionnaire was split into four Sections: A demographic variables, B Level of awareness of the teenagers on sex education, C Level of awareness of teenagers on pregnancy and it forms and D Parent awareness and interaction with their teens.

Procedure for data collection

Data was collected from 11 selected secondary schools involved in the study; the schools were visited on two occasions. Firstly, was for familiarization visits to get school authorization and teachers in charge of related subjects. By the second visit the administration of questionnaires took place. The questionnaires were retrieved immediately after the completion.

Data collected were subjected to analyses using descriptive and inferential statistics such as frequent counts, percentage and chi square.

RESULTS**Table II: Demographic Data of the Respondents**

	FREQUENCY	PERCENT
SEX		
MALE	33	30.0
FEMALE	77	70.0
TOTAL	110	100.0
RELIGION INFORMATION		
CHRISTAINITY	31	28.2
ISLAM	67	60.9
OTHERS	12	10.9
TOTAL	110	100.0
CLASS		
SS1	42	28.0
SS2	68	72.0
TOTAL	281	100.0
AGE IN YEARS		
10yrs -15yrs	36	32.7
16yrs -20yrs	74	67.3
TOTAL	110	100.0
PARENT OCCUPATION		
CIVIL SERVANT	18	16.4
TRADING	27	24.5
ARTISAN	09	8.2
FARMING	51	46.4
OTHERS	05	4.5
TOTAL	110	100.0
FAMILY SIZE		
BELOW 5	23	20.9
WITHIN 5-10	61	55.5
ABOVE 10	26	23.6
TOTAL	110	100.0
PARENT EDUCATIONAL LEVEL		
PRIMARY	25	22.7
SECONDARY	59	53.6

TERTIARY	16	14.6
NONE	10	9.1
TOTAL	110	100.0

Source: field survey 2018

Table II above shown that 30% of respondents were male and 70% were female, 28.2% of the total respondents were Christians and Muslims had the highest representation with 60.9% and 10.9% of the respondents are into other religions. The table shows that 28.0% of the respondents are still in the class of SS1 while SS2 students were 72%. The teenagers of age 10-15 in the research have 32.7% while 67.3% are in the range of age 16-20, this table indicate that respondent parents of 16.4% were civil servants, 24.5% are into trading while 8.2% were artisans almost half of the respondents' parents are farmers with 46.4% and 4.5% are into other occupations other. 20.5% of the respondents are from the family that has less than 5 members while 55.5% falls among the family members with the range of 5-10 in numbers and 23.6% have family members more than 10 in number.

Only 22.7% of the total respondent parent's possess primary leaving certificate as the highest academic's certificate, 53.6% had secondary school leaving (O Level) while 14.6% possess tertiary education and parents of 9.1% has none.

Table III: Distribution of Respondents Based on Sex Education Awareness

	YES	%	NO	%
AWARENESS ON SEX EDUCATION	98.1		1.9	
Source of their information % distribution	Parent 28	Friends 7.6	School 49.7	Other sources 12.7
Depth of their information received	91.1		8.9	
Relevance of sex education to their age	45.9		54.1	
Support of their religion	57.3		42.7	
Any programme in church or mosque on sex	54.8		45.2	
Support of their society	70.7		29.3	
Any programme in their society on sex	67.5		32.5	
Preference of abstinence-only sex education	70.1		29.9	
Education sex education than informative	94.3		5.7	
Helpfulness of sex education	79.0		21.0	
Who should give sex education	Parent 19		School 21	Both 70

Source: field survey 2018

From Table III, the level of awareness of the respondents on sex education is very high. 98.1% of them have heard about sex education while 1.9% had not. For those who have heard about sex education, they heard about it in school during biology class and other related subjects or when sex education was taught to them in class by their teacher. These respondents constitute 49.7% of the total respondents. However, 28.1% of the respondents got the information from their parents while 12.7% got it from other sources like novels, pornography books, tapes and video clips. 7.16% heard it from friends who might be wrong and not reliable. This indicate that most of the parent are not alive to their responsibility of getting their children informed on sex and related issues. Most (91.1%) of the respondents received a full information on sex education that include family planning, reproduction, body image, sexual orientation, sexual pleasure, values, decision making, communication, dating, relationship, sexually transmitted diseases and birth control method while 8.9% got no information or not full. The reason could be due to the environmental nature (i.e. rural area)

Less than half (45.9%) of the respondents admitted that it is relevant to the age while 54.1% did not see it applicable to their age due to ignorance because if the information is well explicit, they will see its relevance to their age. The support of their religion to sex education is interesting and it can be deduced from the distribution that 57.3% of the respondent had their religion supporting sex education while 42.7% said that their religion does not support receiving information on sex education. Out of these who their religion support information on sex education 54.8% of them had once a programme in their place of worship while 45.2% had never. The societies in which they are also influence their knowledge on sex education. 70.7% said their society encouraging receiving information about sex while 29.3% said their society did not. 67.5% of the respondent said they have once or more had a programme on sex-related issues in their community while 32.5% said they have never. 70.1% of the respondent prefers sex education that talks about abstinence till marriage while 29.9% prefer comprehensive sex education. 94.3% of the respondents thought sex education should be educative and well explicit than informative and brief while 5.7% of them think the other way round.

Majority (79%) of the respondents says sex education would be helpful to them while 21% says it would not be of help to them. When asked about who they think should provide the information about sex related issues, 12.1% says it should be the parents, 13.4% think it should be from the school while 74.5% says it should come from both their parent and the school.

Table IV: Distribution of Respondent Awareness Based on Pregnancy

	YES (%)	NO (%)
Awareness about pregnancy and how it forms	69.4	30.6
Any of their friends or classmate got pregnancy	84.7	15.3
Is the cause lack of sex education?	59.2	40.8
Is sex before marriage, right?	10.2	89.8
The support of their religion	15.3	84.7
Any program in church or mosque warning against it	66.2	33.8
Support of society for pregnancy before marriage	27.4	72.6
Any program in the school or community warning against it	72.0	28.0
Any of their classmate that got pregnant back in school	52.2	47.8
Can proper sex education reduce teenage pregnancy?	67.5	32.5

Source: field survey 2018

Results in Table IV show the awareness of the respondent on pregnancy, 69.4% of the respondents are aware of pregnancy and how it forms while 30.6% have never. This shows that majority are aware. Majority (84.7%) of them have friends or classmates that got pregnant which are alarming while 15.3% do not have; 59.2% of them admit that the cause of their classmate or friend's pregnancy is lack of proper and comprehensive sex education which means that if they have proper knowledge of sex education, they will not have been pregnant. 89.9% of the respondent said it not. Religion being an important aspect of life and have great influence on us, 15.7% of the respondent said that their religion support pregnancy before marriage while 84.7%

of them said that their religion does not support marriage before marriage. Also, 66.2% of the respondents had once held a program in their church or mosque warning against pregnancy before marriage while 33.3% have never had any of such programs. The society in which majority of the respondents fall into does not support pregnancy before marriage and most of them had once had a program warning against pregnancy before marriage or teenagers' pregnancy in either school or community which is their immediate society. This shows that religion and society at large see teenager's pregnancy as a stigma and do not want to be associated with such individual. Almost half (52.2%) of the respondents said their pregnant friend or classmate are back in school which shows that pregnancy among teenagers, cause dropping out of school or can be a cog in the wheel of academic and life progress of the adolescent. Moreover, 67.5% of the respondents agrees that proper sex education will help to reduce pregnancy while 32.5% said it will not.

Table V: Distribution of Respondent Parent Based Awareness

Variable	YES	%	NO	%
Free to talk with their parent on sex	41.4		58.6	
Spending quality time with their parent	40.1		59.9	
Boy-girl relationship	50.3		49.7	
Did their parent know about this relationship?	21.7		78.3	
Parent support sex before marriage	11.5		88.5	
Warning by parent against sex before marriage	87.9		12.1	
Telling parent about pregnant friend or classmate	72.0		28.0	
Reaction of parent to hearing such news	Warn you		Rebuke or scold you	
% distribution	89.2		10.8	
Parent more responsibility for sex education	79.6		20.4	

Source: field survey 2018

It can be deduced that majority of the respondents are not free to talk with their parent on sex as their parent will see it as waywardness or perverseness which in turn make the teenager to rather speak with their friends on such subjects. Only 40% of the respondents use to spend quality time with their parent to talk and gist about their lives while majority (59.9%) does not probably because their parents are not available due to work and other activities consuming their time. Half (50.3%) of the respondents are into boy-girl relationship that is majority have boyfriend and girlfriend with whom they possibly have sexual relationship and 21.7% of the respondents said their parent are aware of their relationship while 72.3% said their parent are not which shows that parent are not alive to their responsibility of being concerned with the affairs of their adolescent and this is causing a lot of havoc for this adolescent as they lack guidance.

While 38.5% of the respondent said their parents do not support sex or pregnancy before marriage and warn though not vehemently or comprehensively against it, 70.0% of the

respondents told their parents about their friends or classmates that got pregnant with 89.2% of them reported that their parents warn them while 10.8% said that their parents rebuke and scold them on hearing such from the teenagers. Majority (79.6%) said their parents should be most responsible for giving the necessary and vital instruction on sex related issues; 31.2% said that it might be because their parents are shying away from giving them such instruction while 68.8% said that their parents are not scared but it might be as a result of no time due to work and other activities.

Null hypothesis

H₀₁ – There will be no significant relationship between sex education and teenage pregnancy among adolescents of reproductive age.

Table VI: Chi-Square between Sex Education and Teenage Pregnancy

Characteristics	Df	X ² calculated	X ² tabulated	Decision
Sex education and teenage pregnancy	1	55.089	3.84	R

Source: field survey 2018

Df - Degree of freedom

X² calculated – Calculated Chi square

X² Tabulated – Tabulated Chi-square

R – Rejected

Level of significant is 0.05 $X^2_{1-\alpha, df} = X^2_{1-0.95, 1} = 3.84$

Null hypothesis (H₀₁):- Based on the above result, the null hypotheses is rejected because the tabulated chi square is less than the calculated Chi square which shows that there is relationship between sex education and teenage pregnancy.

DISCUSSION OF FINDINGS

The study focused on sex education and teenage pregnancy among secondary school students revealed that the level of awareness of the students on sex education is very high especially from the school by the teachers during biology class while minority of them got the information from their parent due to academy level of their parent and others got it from other sources like novels, pornography books, tapes and video clips which has negative influence on them sometimes, some also heard it from friends who might be wrong and not reliable. This indicate that most of their parent are not alive to their responsibility of getting their children informed on sex and related issues. In line with this study Fields, (2012) asserted that sex education in the classroom can promote sexual agency and subjectivity within young people and ultimately empower them to take control of their bodies while respecting others. Furthermore, Elliott (2012) explores how and why vital conversations about healthy sexuality are not being discussed at most American schools or in most American families, in contrast to some other countries because many of them

are growing up lacking knowledge about the various aspects of sexual health, sexuality, and gender.

The study reveals that majority of secondary school students received a full information on sex education that include family planning, reproduction, body image, sexual orientation, sexual pleasure, values, decision making, communication, dating, relationship, sexually transmitted diseases and birth control method because they believed it will be helpful to them while minority did not receive information on sex education due to their age, religion, society and they also believed it can't be helpful to them. In support of this study Lesko, (2010) explains that curricula and programs of sex education need to have input from the community, where health professionals, parents, educators, and students assist in implementing decisions on timing, consent, and other specific details of the program without segregation.

The study also revealed that majority of the secondary school students are aware of how pregnancy is formed because they have friends and classmate that got unwanted pregnant due to lack of proper conduct and knowledge of sex education, also the religion of some of them allows pregnancy before marriage. that also show that unwanted pregnant can be a cog in the wheel of academic and life progress of the adolescent which that agree that proper sex education will help to reduce pregnancy. In support of this study Pascoe (2011) explains that Informative, accurate and positive sex education contributes to lower rates of unwanted teenage pregnancy, sexual assault, and abortion.

The study deduce that majority of the secondary school students are not free to talk with their parent on sex as their because their parent will see it as waywardness or perverseness which in turn make the teenager to rather speak with their friend on such subjects while minority of them spend quality time with their parent to talk and gist about their lives. In contrast to this study Elliott (2012) explore that many female students find it much easier to talk about sex with their mother rather than their father and peer because they spent more with time their mother, and also they are of the same gender.

CONCLUSION

From the research carried out it was found that the teenagers were informed of sex issues and pregnancy and how it forms. Most teenagers got this information from school with less parental influence or contribution. This is in contrast to the adage "charity begins at home" which means that citizen are mostly influenced from home.

Parents are not alive to their responsibility of getting the teens informed probably because of been tired of work or their educational level which deprive them the opportunity of sitting to gist and discuss important life issues to their adolescent and this makes them ignorant of important issues of their adolescent.

The society and religion supported acquiring information on sex related issues and against pregnancy before marriage (unwanted pregnancy) and organized programs to warn against it. This is because both society culture and religion have so many issues to grind with sex education either in form of acceptance or rejection. There is a relationship between sex education and teenage pregnancy

RECOMMENDATIONS

In view of the results of the research work, the following recommendations were made to help the concerned bodies and for further studies:

1. Parent should be more alive to the responsibility of getting the children informed as charity begins at home is the true source of the information.
2. Pursuant to this, government should:
 - ❖ Endeavor to provide comprehensive sex education in our secondary and tertiary institutions thereby eliminating barriers to adolescents' access to contraceptives and making emergency contraception easily accessible to adolescent.
 - ❖ Make family planning services more accessible to teenagers' and providing information on the risks of unsafe abortion through sexuality education and informational materials.
 - ❖ Fashion out new policies so that school – age girls can return to school to complete their education following the delivery of baby.
 - ❖ Provide comprehensive post-abortion care that includes counseling on provision of contraceptive methods and referrals to other reproductive health services.
 - ❖ Provide health workers to visit rural areas to educate the hold seminars and teach trainers from among the community people to continue the sex education.
 - ❖ Invest more in health and perhaps provide premier hospitals and health services.

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PERCEPTION OF MOTHERS OF PRIMARY SCHOOL CHILDREN ON MALNUTRITION IN YABA LOCAL GOVERNMENT AREA OF LAGOS STATE

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ABSTRACT

This study examined the perception of mothers of primary school children on malnutrition in Yaba Local Government Area of Lagos State. A community based descriptive cross-sectional study was employed through quantitative techniques. The study investigated the causes and implications of malnutrition, as well as the consequences of specific micronutrients on the health status of primary school children. A proportionate sampling technique was used to select 100 mothers of primary school children (6-12yrs). Data collected using a validated structured questionnaire, were described using mean and standard deviation while the hypotheses were analyzed using ANOVA and Chi-square. Results revealed that poor maternal/nutritional knowledge, poverty, food insecurity and poor living condition among others were the causes of malnutrition among primary school children. The implications of malnutrition among primary school children include poor social skills, delayed physical growth and poor motor development, low intelligent quotient and poor immune system. The study also showed that the consequences of specific micronutrient deficiencies such as retinol, cyanocobalamin and ascorbic acid can cause detrimental effects on the nutritional and health status of primary school children and consequently, impact economic productivity. The ANOVA test showed a statistically significant difference in the means of mothers' demographic characteristics on their perception of malnutrition among children ($P < 0.05$). Also, the Chi-square test showed a statistically significant association between mothers' demographic characteristics and their perception of malnutrition among young children ($P < 0.05$). The study recommends that primary school children should be assisted to making healthy food choices both in school and at home.

Keywords: Perception, mothers, primary school children, malnutrition

INTRODUCTION

Adequate nutrition is essential for the day-to-day activities of individuals including young children. Nutrition is the intake of food, considered in relation to the body's dietary needs (WHO, 2012). Malnutrition is the lack of sufficient quantity or quality of nutrient to maintain the body system at some definable level of functioning (WHO, 2012). Good nutrition and well-balanced diet combined with regular physical activity is a cornerstone for good health. Children are more prone to suffer from nutritional deficiencies and problems. Poor nutrition can lead to reduced immunity, increased susceptibility to disease, impaired physical and mental development, and reduced productivity (WHO, 2012). Malnutrition results from a poor diet or a lack of food, and occurs when the intake of energy is too low, too high or poorly balanced (UNFAO, 2012). Malnutrition increases an individual's susceptibility to disease(s) by attacking the immune system, which increases vulnerability to infectious diseases such as Tuberculosis, HIV, and hepatitis C. (Semba, Cegielski & McMurray, 2014). According to WHO, malnutrition is the gravest single threat to global public health. Globally, it has contributed to 45% of deaths of young children (WHO, 2013).

Mothers have been shown to be the most predominant care-givers of children. Their social, economic, and psychological characteristics influence the quality of care they are able to provide, and the number of initiatives they apply to problem solving. A mother is the principal provider of the primary care that her child needs during the first six years of its life. They are also likely to be more assertive and play a greater part in intra-family decision making in favor of their children's needs. Mothers who have good knowledge of nutrition are likely to provide their children with adequate nutrition. Malnourished children experience developmental delay, weight loss and illness as a result of inadequate intake of protein, calories and other nutrients (Ananya, 2015). School aged children may experience one or several of macronutrient or micronutrient deficiencies which puts them at risk of varieties of implications which may be short term or long term. Other symptoms of malnutrition include breathing difficulties, higher risk of hypothermia, weight loss and higher susceptibility to diseases. The risk factors for malnutrition include larger family size, maternal literacy, low monthly income among more.

Many people particularly children associate food with pleasure, often forgetting daily nutritive requirements. Fast foods, sugar sodas, and foods rich in fat and carbohydrates become the preferred foods of primary school children. Over consumption of energy dense foods can lead to obesity in children and adults, which will in turn lead to high risks of developing certain illnesses such as high cholesterol level, growth problems due to excess weight, and other forms of malnutrition. The Institute for Dietetics, Nigeria (2018) asserted that the record of acute malnutrition is still high in some of the local government areas in Lagos state. Lagos State has recorded an alarming figure for childhood death resulting from malnutrition. This is of public health concern. Hence, the need to examine the knowledge of mothers on malnutrition becomes crucial since nutrition is one of the major factors that determine health and mothers are the principal determinants of the children's nutrition.

Research Questions

The following research questions were formulated to guide the study:

1. What is the knowledge of mothers on causes of malnutrition among primary school children?
2. What is the mothers' perception on implications of malnutrition among primary school children?
3. What are the consequences of specific micronutrient deficiencies among primary school children?

Hypotheses

H₀₁: There is no significant difference in the responses of mothers' perception of malnutrition based on their demographic characteristics.

H₀₂: There is no significant association between mothers' demographic characteristics and their perception of malnutrition among young children.

METHODOLOGY

This study adopted the descriptive survey research design. The study was carried out in two primary schools in Yaba local government area of Lagos State, Nigeria. The schools were purposefully selected for the study because they have a high population of mothers bringing their children to school. The estimated population for this study comprised 500 parents (mothers) of pupils in Yabatech primary school (Government owned school) and Mbari-Mbayo primary school (Private school). The population distributions are 200 mothers in Yabatech primary school and 300 mothers in Mbari-Mbayo primary school (The summary of population and sample for the study is shown in Table I). Proportionate sampling was used to determine the sample size for the study. The sample size for the study comprised one hundred (100) mothers who have children between the ages of 6-12 in the two selected schools in Yaba local government area of Lagos state.

Information on demographic and nutrition related practices of school-aged children were obtained from mothers using a structured questionnaire. The questionnaire contained two sections. Section A elicited information on the socio demographic characteristics of mothers such as; age of mothers, marital status, educational qualification, employment status, income and number of children. Section B elicited information on mothers' perception of the causes and implications of malnutrition on young children as well as the consequences of specific micronutrient deficiencies among school-aged children. The questionnaire was administered to the participants in each of the schools. The exercise lasted for two weeks. Explanations were made to the participants where necessary for clarifications on instrument.

The research questions were answered using mean and standard deviation while the hypotheses were analyzed using ANOVA and Chi-square. The decision rule for mean is 2.50. Items with mean values of 2.50 and above were regarded as accepted while items that scored below 2.50 were regarded as not accepted.

Table I: Population and Sample Distribution for the Study

S/N	School	Population	Sample (20%)
1	Mbari-Mbayo Private School, Jibowu, Yaba	300	60
2	Yabatech Secondary School	200	40
	Total	500	100

Source: School Records Unit, 2019

Table I showed the population and sample distribution of the study. Sixty percent (60%) of the sample was drawn from Mbari-Mbayo private school while the remaining 40% was drawn from Yabatech secondary school.

RESULTS

Table II: Demographic Characteristics of the Participants (N=100)

Characteristics	%
Age (yrs.)	
20-30	49
31 – 40	38
41 – 50	13
51 and above	-
Marital Status	
Married	85
Divorced	6
Widowed	9
Educational Level	
Primary	2
Secondary	26
Tertiary	72
Employment Status	
Working	76
Full Housewife	24
Monthly Income (₦)	
Less than 50,000	17
50,000 – 100,000	48
Above 100,000	35

Data in Table II showed that majority (49%) of the mothers were between ages 20-30 years. Eighty-five (85%) of the mothers are married; 72% had tertiary education; 76% are working; 35% of the mothers earn above N100, 000 while 48% of the mothers earn between N50,000 to N100,000 as monthly income.

Research Question 1: What are the causes of malnutrition among primary school children?

Table III: Causes of Malnutrition among Primary School Children

S/N	Causes of malnutrition among primary school children	M	SD	Decision
1	Poor maternal education/nutrition knowledge	3.14	0.65	Agreed
2	Poverty	3.25	1.00	Agreed
3	Diseases and illness	2.92	1.05	Agreed
4	Poor hygiene and sanitation	1.88	1.94	Disagreed
5	Unsafe water	3.20	1.00	Agreed
6	Poor living condition	2.92	1.05	Agreed
7	Inadequate breast feeding	3.12	0.84	Agreed
8	Food insecurity in the family	2.93	1.05	Agreed
9	Consumption of inadequate diet	3.29	1.00	Agreed

Table III showed the causes of malnutrition among primary school children. All the items were accepted as causes of malnutrition among primary school children with a mean range of 2.92 to 3.14 except item 4 (poor hygiene and sanitation) which had a mean rating of 1.88. This indicated that majority of the mothers know the causes of malnutrition among primary school children.

Research Question 2: What are the implications of malnutrition among primary school children?

Table IV: Implications of Malnutrition among Primary School Children

S/N	Implications of malnutrition among primary school children	M	SD	Decision
1	Delay in physical growth and motor development	3.26	1.00	Agreed
2	Low intelligent quotient	2.96	1.12	Agreed
3	Behavioral problem	2.05	1.97	Disagreed
4	Poor social skills	2.92	1.05	Agreed
5	Susceptibility to infectious diseases	3.12	1.73	Agreed
6	Reduced ability to fight infections	3.21	0.91	Agreed
7	Impaired temperature regulation which can lead to	2.50	1.06	Agreed

	hypothermic			
8	Rickets	2.05	1.97	Disagreed
9	Reduced muscle mass and strength	3.43	0.60	Agreed
10	Delayed sexual development	3.17	1.09	Agreed
11	Growth failure and stunting	2.94	0.55	Agreed
12	Increased lifetime risk of osteoporosis	2.50	1.06	Agreed

The data presented in Table IV showed the implications of malnutrition among primary school children. Given the mid-point of 2.50, the respondents agreed with most of the items with the exception of items 3 and 8 with mean values below 2.50. This indicated that majority of the mothers know the implications of malnutrition among young children.

Table V: Consequences of Specific Micronutrient Deficiencies among Primary School Children

S/N	Consequences of specific micronutrient deficiencies among primary school children	M	SD	Decision
1	Iron deficiency causes anemia	3.30	1.04	Agreed
2	Deficiency of vitamin A (Retinol) could lead to night blindness	2.24	1.81	Disagreed
3	Deficiency of vitamin C (Ascorbic acid) leads to scurvy	3.20	1.04	Agreed
4	Zinc deficiency causes skin rashes and decreased ability to fight infections	1.88	1.94	Disagreed
5	Deficiency of vitamin D causes rickets in children	3.14	0.65	Agreed
6	Deficiency of vitamin B12 causes anemia and nerves problem	2.94	1.35	Agreed
7	Deficiency of iodine can cause mental impairment	3.21	0.91	Agreed

The data presented in Table V revealed the consequences of specific micronutrient deficiencies among primary school children. Given the point of 2.50, the respondents agreed with most of the items with the exception of items 2 and 4 with mean values below 2.50. This indicated that majority of the mothers are aware of the consequences of specific micronutrient deficiencies among primary school children.

Hypotheses

H₀₁: There is no significant difference in the responses of mothers' perception of malnutrition based on their demographic characteristics.

Table VI: ANOVA Analysis Showing Difference in the Means of Mothers' Demographic Characteristics on their Perception of Malnutrition among Children

Mothers' demographic data	Source	MS (DF)	F	P-value	Remark
Mothers' Age	Between Groups	35.419 (2)	198.831	<.001	Sig.
	Within Groups	.178(97)			
Mothers' marital status	Between Groups	18.720 (2)	35.831	<.001	Sig.
	Within Groups	.522(97)			
Mothers' educational level	Between Groups	21.706 (2)	47.096	<.001	Sig.
	Within Groups	.461(97)			
Mothers' monthly income	Between Groups	36.303 (2)	227.025	<.001	Sig.
	Within Groups	.160(97)			

Table VI revealed that there is a significant difference in the means of mothers' demographic characteristics on their perception of malnutrition among children since their respective p-values is less than 0.05.

H₀₂: There is no significant association between mothers' demographic characteristics and their perception of malnutrition among young children.

Table VII: Association between Mothers' Demographics Characteristics and their Perception of Malnutrition among Children

	Response	<u>Perception</u>		Total	X ² (R)	DF	Remark
		Good	Poor				
Mothers' Age	20-30	49	0	49	52.111(0	2	<0.001
	31-40	26	12	26	.688)		
	41-50	0	13	13			
Mothers' marital status	Married	75	10	85	47.205	2	<0.001
	Divorced	0	6	6	(.725)		

	Widowed	0	9	9			
Mothers' educational level	Primary	2	0	2	11.880	2	<0.001
	Secondary	26	0	26	(0.359)		
	Tertiary	47	25	72			
Mothers' employment status	Work	75	1	76	93.789	1	<0.001
	Full housewife	0	24	24	(0.973)		
Mothers' monthly income	< 50,000	17	0	17	45.507		<0.001
	50,000-100,000	48	0	48	(0.709)		
	> 100,000	10	25	35		2	

Table VII showed that there is a significant association ($P < 0.005$) between mothers' demographic characteristics and their perception of malnutrition among young children.

DISCUSSION OF FINDINGS

This study examined the perception of mothers of primary school children on malnutrition. Findings from the study showed that poor maternal/ nutritional knowledge, poverty, food insecurity, poor living condition, unsafe water, diseases among more were identified as causes of malnutrition among primary school children. These implied that a number of factors could result to malnutrition. This is in agreement with the findings of Bhargava, Aggarwal, Kandpal & Semwal (2015) that several factors could cause malnutrition and these include food intake, infections, psychosocial deprivation, and insanitary environment as well as lack of good personal hygiene, social inequality and some genetic contributions. The findings from this study also corroborates the submissions of Mkhize and Sibanda (2020) that malnutrition among school children is caused by household food insecurity, low household income, illiterate caregivers, unemployment, inadequate dietary intake, low birth weight, consumption of monotonous diets, poor caregiver nutritional knowledge, poor access to water and sanitation, poor weaning practices, age of the caregiver and demographic characteristics of the child. In the same vein, Seshadri and Ramakrishna (2018) asserted that malnutrition among school children is caused by the socio-economic status of their parents/guardian which further influenced their social development.

Findings from the study showed that the implications of malnutrition among primary school children include poor social skills, delayed physical growth and poor motor development, low intelligent quotient, poor immune system and many more. School-age is a period of physical growth as well as mental development of the child. Serious and long-term consequences of malnutrition have been observed to impede motor, sensory, cognitive, social and emotional

development. As the malnourished child grows, he is less likely to perform well in school and more likely to become malnourished adults and are at greater risk of developing diseases and die early (Amoghan & Narayana, 2021). School-aged children spend more time away from their parents, thus, influence from friends and media further affect the formation and stabilization of their dietary practices. There is growing evidence suggesting that young children from developing countries are increasingly making unhealthy food choices especially due to lack of knowledge and wrong perception towards healthy foods which has led to the increasing rate of under nourished or over nourished children (Mirmira & Azadbakh, 2017). This could be attributed to the fact that the concept of 'food' has changed from a means of nourishment to a marker of lifestyle and a source of pleasure as portrayed by media. A large proportion of televised food advertisements are of highly processed foods/convenient foods with, high caloric content, large amounts of fat and sugar, and with little or no micronutrient content. School aged children have to be empowered to make the right food choices at the right time.

Findings from the study showed that the consequences of specific micronutrient deficiencies such as retinol, iodine, ascorbic acid, zinc and cyanocobalamin (Vitamin B12) can cause detrimental effects on the nutritional status of primary school children. Deficiency of Vitamin A reduces immunity and increases the incidence and gravity of infectious diseases resulting in increased school absenteeism. Child malnutrition may have adverse effect on economic productivity. Haddad and Bouis (2019) affirmed that the mental impairment caused by iodine deficiency is permanent and directly linked to loss of productivity. Iodine is critical for cerebral growth and development because it is required for the production of the thyroid hormones triiodothyronine (T3) and thyroxine (T4). Long term and severe iodine deficiency causes cretinism and goiter. However, even at less severe stage, iodine deficiency can be responsible for lower cognitive performance, deaf mutism, or birth defects (Wardlaw & Smith, 2017). They further stressed that the loss from stunting is 1.38% reduced productivity for every 1% decrease in height while 1% reduced productivity is estimated for every source of iron status. Erickson (2016) asserted that, children need five food components to maintain cognitive capabilities. This component includes; protein, carbohydrates, vitamins, vegetables and, fats. Proper nutrition is critical to maximizing brain function and enhancing learning in school aged children; helping children develop healthful habits from a young age will aid them in reaching optimal potential (UNICEF, 2017).

The ANOVA test showed a significant difference ($p < 0.005$) in the means of mothers' demographic characteristics on their perception of malnutrition among young children. This implied that a mother's demographic characteristics such as age, educational level, monthly income among others can influence her perception of malnutrition among young children. This corroborates Wordu (2014) who reported in his study that knowledge, attitude and practice of mothers on child nutrition were found to be influenced by socio-demographic factors such as level of educational attainment, family income, employment status, age and marital status.

The Chi-square test showed a statistically significant association ($p < 0.005$) between mothers' demographic characteristics and their perception of malnutrition among young children. This indicated that mother's age, monthly income and educational level could influence their perception of malnutrition. This relates the findings of Anas and Mujahid (2020) who reported a significant association between mothers' demographics (such as age, educational level, monthly income) and malnutrition.

CONCLUSION

The study concluded that the causes of malnutrition among young children are well known to the mothers. These include food insecurity, poor hygiene and sanitation, poverty, poor maternal nutritional knowledge, diseases and illness. Malnutrition results into behavioural problems, low intelligent quotient, susceptibility to diseases, poor social skills among primary school children. Deficiency of micronutrients could lead to reduced immunity, mental impairment and increases the incidence and gravity of infectious diseases resulting in increased school absenteeism. There was a significant difference in the means of mothers' demographic characteristics on their perception of malnutrition among children ($P < 0.05$). A statistically significant association ($P < 0.005$) existed between mothers' demographic characteristics and their perception of malnutrition among young children.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are proffered:

1. Children should be encouraged to make healthy food choices both in school and at home.
2. There is need for parents and schools to intensify frequent hand-washing practices among children
3. Parents should try as much as possible to prevent their children from deficiencies of micronutrients since they can cause permanent detrimental effects on the children.

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GIRL-CHILD MARRIAGE AND ITS CONSEQUENCES OF GIRLS IN ASSIN SOUTH DISTRICT IN THE CENTRAL REGION OF GHANA

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ABSTRACT

This paper investigated girl-child marriage and its consequences in Assin South District in the Central Region of Ghana. It examined the causes of early marriage of girls, consequences faced as a result of early marriage and ways of eliminating girl-child marriage. The design used for the study was cross sectional survey. Multi-stage sampling procedure was used to select 171 girls for the study. Questionnaire was used to collect data, which were analyzed and summarized using descriptive statistics. A little below half of the respondents (45.6%) were between the age ranges of 10–13years, 56.7% had primary education. The study revealed that teenage pregnancy (78.4%), financial hardship (66.1%), protection of family name (62.6%) among others were the causes of girl-child marriage always. Again, the respondents strongly agreed that low education (74.9%), low self -confidence and sense of security (71.3%), social misfit (68.4%), school dropout and poverty (64.9%) etc were the consequences of girl-child marriage. In eliminating girl-child marriages, measures such as discouragement of sex before marriage ($m=4.78$, $std=0.41$), provision of needs by parents ($m=4.64$, 0.69), scholarships and sponsorships for girl-child education ($m=4.67$, $std=0.62$) among others were very effective. Girl-child marriage has been a major factor preventing young girls in the study area from being able to pursue their academic and future aspirations. The Ghana Education Service and other stakeholders should adopt counseling strategies that will appeal to the conscience of the girl-child in barring this early marriage.

Keywords: assess, teenage pregnancy, early/child marriage, causes, consequences

INTRODUCTION

Marriage is a social institution that unites people in a special form of mutual dependence for the purpose of founding and maintaining a family (Olson & Defrain, 2002). According to Walker, (2015), early marriage is also referred to as child marriage and defined it as any marriage carried out below the age of 18 years, before the girl is physiologically and psychologically ready to shoulder the responsibilities of marriage and childbearing. Early marriage, according to Ango (1991) cited in Kolie (2019) said early marriage of an adolescent girl to an adolescent boy or marriage of an adolescent girl to a matured man or vice-versa happens at puberty when the individual is getting matured. As a social practice, it has entered into through a public act, religious or traditional ceremony, it reflects the purposes, character, and customs of the society in which it is found. Many societies have norms that limit the age of young girls to enter into marriage, but in some cases the age limit does not take into consideration their physiological readiness for child bearing. Marriage often takes place at ages much earlier than the legally ratified minimum age.

The practice of girl-child marriage is most common in sub-Saharan Africa and South Asia. Walker (2015) stated that while more women are marrying in their thirties in developed countries, overall, 20 to 50 percent of women are married by the age of 18 in the developing world with the highest percentages in West African within Sub-Saharan Africa and South Asia. He added that approximately 40% of women aged 20-24 worldwide who were married before the age of 18 live in Sub Saharan Africa, thus resulting in early marriage being largely sub Saharan African. The economic context in which girl-child marriage exist in Africa is one of household poverty, vulnerability, uncertainty, seasonality of labor, labor surplus economies in a low productive rural setting. In this context, poverty is a significant risk factor as marrying girls off before the age of 18 is experienced positively for poor families who are relieved of the responsibility of feeding, clothing and protecting the girl child in an uncertain and insecure society. Also, UNICEF (2019) revealed that six of the world's 10 countries with the highest rates of child marriage are in West and Central Africa. Average prevalence across the region remains high: about 41 per cent of girls marry before reaching the age of 18. Yaha, Odusina and Bishwajit (2019) added that in a resource constrained settings, the prevalence of child marriage is alarming. More than 67 million women aged 20–24 years were married as adolescents by 2010, with 20% of them from Africa. The indication was that 14.2 million adolescents, who are less than 18 years had been married off annually; making almost 39,000 young women married on a daily basis. This will increase to about 15.1 million girls per year, beginning from 2021 to 2030, should the current trend be allowed to persist. In West Africa, the Middle East, and other parts of Africa, marriage shortly after puberty is common among those living traditional lifestyles. Among those marrying early, some are forced into this union. Others, who may not necessarily be forced, enter into marriage because they are too young to make informed decisions or due to reasons such as teenage pregnancy, poverty, school dropouts etc. Because the girl-child does not have the opportunity to exercise her right to choose, early marriages are also

referred to as forced marriages. In its most extreme form, forced marriages are the result of abductions.

UNICEF (2019) asserts that girl-child marriage is a human rights violation taking place on a vast scale in West and Central Africa which disproportionately affect girls. Girls who marry young often drop out of school and face physical risks, especially during pregnancy. Due to the social, health and economic impacts of child marriage, the practice is a major obstacle to sustainable development. Yaya et al (2019) stated that elsewhere, the practice of girl-child marriage was found to be most prevalent among young women who live in disadvantaged households, lack school education, and dwell in rural residence. Emerging evidence also reveals that drivers of girl-child marriage are complex especially if it is viewed from the perception of those impacted.

Not all girl-child marriages are arranged; many girl brides may be interested in the relationship. Also, low investment in girls' education, social norms, sexual relations, unplanned pregnancy, incomplete education, poverty and unemployment among girls have been identified as factors promoting child marriage. Ahonsi, et al (2019) stressed that while girl-child marriage is usually used to ensure that sex and child bearing occur within marriage, it effectively brings a girl's childhood and adolescence to a premature end and imposes adult roles and responsibilities on young girls before they are physically, psychologically and emotionally prepared to handle them.

Sexual intercourse and child bearing among girls can lead to various health complications; however, the practice of girl-child marriage worsens these health challenges. For instance, early sexual debut goes hand in hand with girl-child marriage, which increases a girl's health risks, because an adolescent's vaginal mucosa is not yet fully matured, exposing them to increased risk of sexually infected diseases including HIV. In addition, 29 countries including Ghana, it was found that female adolescents were more vulnerable to HIV infection than older women. Girls who marry young often tend to have much older husbands, in polygamous unions and are frequently junior wives that increases young girls' probability of HIV infection.

According to Ahonsi *et al* (2019), the 1998 Children's Act of Ghana and the 1992 Constitution of Ghana define a child as a person below the age of 18. By age 18, young persons are expected to have developed enough intellectual, emotional and physical skills, and resources to fend for themselves as well as to successfully transition into adulthood. Until then they require care from adults, support, guidance and protection. The 1998 Children's Act of Ghana (Act 560), indicates that no person shall force a child: (1) (a) to be betrothed; (b) to be the subject of a dowry transaction; or (c) to be married; and (2) the minimum age of marriage of whatever kind shall be eighteen years (18 years). Furthermore, they revealed that in Ghana, there is commitment towards curbing child marriage. The Ministry of Gender, Children and Social Protection established a Child Marriage Unit in 2014 to promote and coordinate national initiatives aimed at ending girl-child marriage in Ghana. In 2016, the unit in partnership with the United Nations Children's Fund (UNICEF) and other key stakeholders developed a National Strategic

Framework on Ending Child Marriage in Ghana. The framework is to ensure effective, well-structured and well-guided collaboration between state and non-state institutions.

History in Assin South District, Central Region, Ghana brings to bare that girl-child marriage is very common and over the years the rate consistently continues to increase. Also, the enrollment of girls in this district is very low because most of the girls marry early which interrupts or put an end to their education. An observation in the Assin South District of the Central Region revealed that many girls of school going age are either pregnant, school dropouts or married instead of being in school. The inhabitants of these towns are mostly peasant farmers, with low literacy rate, thus there is high level of poverty which leads to girl-child early marriage. Documentations of girl-child marriage in Assin South District mostly dwelt on the causes of girl-child marriage, again a lot of works has been done on girl-child marriages in other places but interestingly little has been done in Assin South District for them to realize the extent of the impact of girl-child marriage on the girls, society, the district and even the region. This backdrop necessitate this research. The study is generally aimed at investigating girl-child marriage and its consequences on the girls in Assin South District, Central Region, Ghana. Specifically, this work assessed the causes of girl-child marriage in Assin South District, investigated the consequences of girl-child marriage on the girls and examined measures to eliminate girl-child marriage in Assin South District, Central Region, Ghana

METHODOLOGY

Design of the study: Cross-Sectional survey was used for this study. It is a design where investigator measures the outcome and the exposures in the study participants at the same time. Unlike in case-control studies (participants selected based on the outcome status) or cohort studies (participants selected based on the exposure status), the participants in a cross-sectional study are just selected based on the inclusion and exclusion criteria set for the study. Once the participants have been selected for the study, the investigator follows the study to assess the exposure and the outcomes (Setia, 2016). This design used because one can collect data from many different individuals at a single point in time and observe [variables](#) without influencing them.

Area of study: Assin South which was carved out of the former Assin District and established by Legislative Instrument 1760 of 2004 is one of the 13 Administrative Districts in the Central Region. It lies within longitudes 1.05 West and 1.25 West and latitudes 6.05 North and 6.40 North. It is situated within the middle portion of the Central Region. It shares political and administrative boundaries with Assin North in the North, Abura Asebu Kwamankese and Mfantseman in the South, Asikuma-Odoben-Brakwa and Ajumako-Enyan-Essiam in the East and Twifo Heman-Lower Denkyira in the West. The District covers a total land area of 1187 sq. km. which is about 12% of the total land area of the Central Region (9,826). The residents of Assin South District are basically religious with 73.6% being Christians, 18.9% being Moslems,

0.9% being traditionalist and 6.0% with no specific religious affiliations. There are 56 JHS in the District with a total enrolment of 5,781. Girl Child enrolment rate is about 5.8% which might be due to teenage pregnancy, early marriage and poor accessibility.

Population for the study: The population for the study comprised all girls in the Assin South District who married early. There was no data on married girls from Assin South District office because most of them are forced and they do not register their marriages.

Sample for the study: The purposive sampling technique was used to identify girls who are married for the study. Adansi (2018) said this sampling method requires researchers to have prior knowledge about the purpose of their studies so that they can properly choose and approach eligible participants for surveys conducted. Only respondents who married at the teen age qualified to participate and provide the needed information related to the objective of the study. The respondents were purposively identified using the snow-ball approach where a respondent through networking directed the researcher to other young girls married within the study area. The total number of girls involved girl-child marriage after snowballing was 219. Then simple systematic random sampling technique was used to select respondents for the study till a sample size of hundred and seventy-one (171) was reached because the rest were unwilling to participate due to fear of being exposed to the world.

Instrument for the study: Questionnaire was used to collect data from respondents. The questionnaire was used as interview guide where respondents had difficulty in reading and writing. The questionnaire had items on close-ended, open-ended and multiple-choice questions. The close-ended questions were mainly in the form of Likert scale type of question. They were measured on a four-point scale and five-point scale. To ensure high degree of validity of the research instrument the researcher sought for expertise in this area for content and construct validity. The scrutiny of the questionnaire helped to reshape the items to cover the objectives prior to data collection.

Data collection method: The questionnaire was administered by the researchers. The instrument was completed by respondents who could read and write while the instrument was used as interview guide for respondents who cannot read and write in English and their responses were recorded by the researcher. Data was collected within a period of four (4) months. The questionnaires were collected immediately upon finishing. The return rate of the instrument was 100%.

Data analysis technique: Data was analysed quantitatively and Statistical Package for Social Science (SPSS) version 22 software was used to generate frequency, percentage, means and standard deviations. Descriptive statistics (frequency, percentages, mean and standard deviations) were used to interpret results on research questions.

FINDINGS AND DISCUSSIONS**Table I: Demographic Characteristics of Respondents****N = 171**

Ages	Frequency	Percentage
10 -13years	78	45.6
14 – 17years	37	21.6
18 - 21 years	21	12.3
22 -25 years	27	15.8
26 years and above	8	4.7
Educational level		
Primary School	29	17.0
Junior High School	97	56.7
Senior High School	28	16.4
Technical/Vocational	17	9.9
Number of Children		
1	9	5.3
2	25	14.6
3	39	22.8
4	67	39.5
5	19	11.1
6	12	7.0
Occupation		
Farming	17	9.9
Trading in farm produce	25	14.6
Hairdressing	38	22.2
Petty trading	46	26.9
Food vendors	23	13.5
Seamstress	8	4.7
Apprenticeship	14	8.2
Type of marriage		
Cohabiting	103	60.2
Married	68	39.8
Nature of marriage		
Forced	126	73.7
Not forced	45	26.3

Results in Table I show the demographic characteristics of girls who are involved in early marriage. It revealed that 45.6% of the girls aged between 10 – 13 years while 4.7% aged between 26 years and above. The mean age of girls into early marriage for this study was the age

16years. This is an indication of the high number of girls who got married within the school going age. Owiredu (2019) in his work on teenage pregnancy revealed that most girls get pregnant from ages 14 to 17 which forces them into marriage. However, this is quite striking considering the fact that girls as young as 10 to 13 years can be given into marriage. This is in line with Sampare (2017) who said that presently the age at first marriage is going down from 15 to 9 years which he made specific reference to the rural areas in the Central and Eastern regions of Ghana. UNICEF (2005) cited Abansah (2017) attested to this fact that in many traditional settings, poor families use the early marriage of their daughters as a strategy for reducing their own economic vulnerability, shifting the economic burden related to a daughter's care to the husband's family, and also to settle debts. This is unacceptable in the Ghanaian traditional set up. Girls at this age should be undergoing some training to prepare them for the future.

Again, the results shows that majority (73.7) of the girls were primary and Junior High School leavers. It means that the highest educational level attained by the majority of the respondents was Basic and Junior High School education. It can be inferred that most of them dropped out of school either as a result of pregnancy or early marriage. It also indicates a decline in the number of respondents in school as they climbed the educational ladder. Ansah (2018), stated that early marriage of the girl-child prevents the girls from furthering their education most especially when the marriage was contracted based on teenage pregnancy and financial hardships of the family. He further expressed his concern that the low level of education of these girl-child is the genesis of their uncountable problems in marriage.

In addition, a little above one third (39.5%) of the respondents had 4 children and each girl-child will averagely give birth to 4 children. It can be deduced that there is a great likelihood that these girls can have more children since they are still in their youthful age leading to large family size. Yamoah (2016) in her submission said girls who start giving birth will build a large family size especially when her fertility level is high but this comes with implications on the family. She explained that in situations where the economic status of the couple is low it affects the provision of basic needs and other essential needs of the family which can cause early marriage and might become a repetitive cycle for girls in such families. According to Kolie (2019), larger families are commonly associated with early marriage and perinatal morbidity and mortality rates are higher in large families as birth weights decrease. Mothers of large families are at higher risk of several physical diseases.

In addition, 26.9% of the respondents were engaged in petty trading as an income generating activity. The occupation of the respondents is the reflection of their educational level. Due to the low level of education, these girls are not able to get good employment which will earn them adequate income to take care of the family. Abbiw (2016) asserted that most girls who marry early because of teenage pregnancy have the tendency of not engaging in any proper income generating activities. He explained that this is due to the lack of skills and training of these girls

which make them become less self-independence and self-reliant. Very brilliant and great girls have lost their identity as a result of early marriage thus the cycle of poverty continues in the family.

Moreover, more than half (60.2%) of the girls were cohabiting with their concubines and 39.8% of the girls were married and have gone through all the necessary rites of the family. This finding confirms the results that the girl-child were forced into marriage without the performance of marital rites.

Last but not the least, on the issue of the nature of their marriage, majority (73.7%) of them indicated that they were forced to marry their husbands while 26.3% of them said they married on their own free will and marital rites were performed. UNFPA-UNICEF Global (2020) revealed that, in some contexts, the practice of child, early and forced marriage may include arrangements that are not formalized, registered or recognized by a religious or State authority. Yamoah (2016) states poverty, debts, traditions and culture of families, child betrothal, teenage pregnancy, child birth outside marriage and other practices of families influence parents to force their innocent girl-child into marriages without performance of the necessary marital rites of the family.

Table II: Respondents Responses on the Causes of Girl-child Marriage.

N = 171

Causes	Always F %	Often F %	Seldom F %	Never F %	Mean	Std
Teenage pregnancy	134 (78.4)	28 (16.4)	9 (5.3)	-	3.73	0.55
Financial problems	113 (66.1)	58 (33.9)	-	-	3.66	0.48
Protection of family name	107 (62.6)	58 (32.7)	8 (4.7)	-	3.58	0.58
Prevent premarital sex	102 (59.6)	69 (40.4)	-	-	3.60	0.49
Avoidance of pregnancy outside marriage	100 (58.5)	60 (35.1)	11 (6.4)	-	3.52	0.62
Love	99 (57.9)	59 (34.5)	13 (7.6)	-	3.50	0.66
School dropout	99 (57.9)	49 (28.7)	22 (12.9)	1 (0.6)	3.44	0.74
Traditions and customary practices	95 (55.6)	38 (22.2)	38 (22.2)	-	3.33	0.82
Peer pressure	95 (55.6)	55 (32.2)	21 (12.3)	-	3.43	0.70
Care of male guidance	93 (54.4)	65 (38.0)	13 (7.6)	-	3.47	0.66
Poor parenting	89 (52.0)	56 (32.7)	26 (15.2)	-	3.37	0.74

Child betrothal	88 (51.5)	45 (26.3)	22 (12.9)	16 (9.4)	3.20	0.99
Weak in school	85 (49.7)	63 (36.8)	23 (13.5)	-	3.36	0.71

Table II shows result on the causes of early marriage of girl. A four-point Likert scale was used to determine the frequency of the causes of early marriage. A mean score range from 3.36, std 0.71 to 3.73, std 0.55 revealed that all these statements always cause early marriage of girls.

Most prominent of the causes were teenage pregnancy ($m = 3.73$, $std = 0.55$), financial problems ($m = 3.66$, $std = 0.48$), protection of family's name ($m = 3.58$, $std = 0.58$), prevent premarital sex ($m = 3.60$, $std = 0.49$), avoidance of pregnancy outside marriage ($m = 3.52$, $std = 0.62$), love ($m = 3.50$, $std = 0.66$) among others. Fordjour (2020) said there is a pyramid of interconnected reasons for why the practice of child marriage happens. These include gender inequality, poverty, traditional and customary practices, social norms, peer pressure and poor parenting. Ignorance, impunity and poor enforcement of the law also play a role. Malhotra (2010) cited in Yamoah (2016) asserts that for many poor families, marrying their daughter at an early age essentially is a strategy for economic survival; it means one less person to feed, clothe and educate. In Asia and Africa, the importance of financial transactions at the time of marriage also tends to push families to marry their daughters early. Malhotra (2010) added that little or no schooling strongly correlates with being married at a young age. Conversely, attending school and having higher levels of education protect girls from the possibility of early marriage. In many countries, educating girls often is less of a priority than educating boys. When a woman's most important role is considered to be that of a wife, mother and homemaker, schooling girls and preparing them for the jobs may be given short shrift. And even when poor families want to send their daughters to school, they often lack access to nearby, quality schools and the ability to pay school fees. Also, in many societies traditions and religion bring parents under pressure to marry off their daughters as early as possible in an effort to prevent her from becoming sexually active before marriage; a woman who does so brings dishonor to her family and community. Because marriage often determines a woman's status in many societies, parents also worry that if they don't marry their daughters according to social expectations, they will not be able to marry them at all. Forced child marriage also is a route to cementing family, clan, and tribal connections or settling obligations. Ahonsi, et al. (2019) said child marriage is used as a mechanism to protect chastity as premarital sex and child bearing bring shame to the family. In traditional Ghanaian societies premarital sex and child bearing is frowned upon, hence early marriage is encouraged. For instance, betrothal is often early, sometimes before birth to ensure sex and child bearing occur within marriage. Also, the need to reinforce social ties or build alliances is another traditional factor that influences child marriage.

Table III: Responses on the Effects of Early Marriage on Girls**N = 171**

Effects	Strongly agree F %	Agree F %	Undecided F %	Disagree F %	Strongly Disagree F %	Mean	Std
Low education	128 (74.9)	43 (25.1)	-	-	-	4.75	0.44
Low self -confidence and sense of security	122 (71.3)	49 (28.7)	-	-	-	4.71	0.45
Social misfit	117(68.4)	54 (31.6)	-	-	-	4.67	0.51
School drop out	111 (64.9)	60 (35.1)	-	-	-	4.65	0.48
Poverty	111 (64.9)	60 (35.1)	-	-	-	4.65	0.48
Large family	110 (64.3)	61 (35.7)	-	-	-	4.64	0.48
Child and maternal mortality	110 (64.3)	43 (25.1)	7 (4.1)	11 (6.4)	-	4.47	0.85
Risk of domestic violence	107 (62.6)	64 (37.4)	-	-	-	4.63	0.49
No skill/profession	103 (60.2)	68 (39.8)	-	-	-	4.60	0.49
Frequent argument and disagreement	103 (60.2)	68 (39.8)	-	-	-	4.60	0.49
Miscarriages	102 (59.6)	69 (40.4)	-	-	-	4.61	0.50
Restricted personal freedom	102 (59.6)	60 (35.10)	9 (5.3)	-	-	4.54	0.59
Still births	101 (59.1)	70 (40.2)	-	-	-	4.49	0.49
Limited work and social life	99 (57.9)	72 (42.1)	-	-	-	4.58	0.49
Lack of adequate support	96 (56.1)	75 (43.9)	-	-	-	4.56	0.49
Injury during birth	94 (55.0)	61 (35.7)	9 (5.3)	7 (4.1)	-	4.42	0.77
Caesarian surgery	93 (54.4)	78 (45.6)	-	-	-	4.54	0.50
Inability to support oneself	91 (53.2)	80 (46.8)	-	-	-	4.53	0.50
Not part of decision making	87 (50.9)	80 (46.8)	4 (2.3)	-	-	4.49	0.55
Lack of effective communication	79 (46.2)	82 (48.0)	10 (5.8)	-	-	4.35	0.76

Results from Table III showed how respondents ranked the effects of early marriage on a five-point Likert scale from strongly agree to strongly disagree. All the responses depicted that they

either strongly agreed or agreed to the effects with a mean score ranging from 4.75 to 4.35. however, the respondents strongly agreed that these effects; low education ($m = 4.75$, $std = 0.44$), low self-confidence and sense of security ($m = 4.71$, $std = 0.45$), social misfit ($m = 4.67$, $std = 0.51$), school dropout and poverty ($m = 4.65$, $std = 0.48$), large family ($m = 4.64$, $std = 0.48$), child and maternal mortality ($m = 4.47$, $std = 0.85$) and others. This finding supports United Nation Report (2019), that child, early and forced marriage is a major impediment to the achievement of the economic empowerment of women and their social and economic development, thereby hampering the ability of women to enter, advance and remain in the labour market, and that this harmful practice can impede economic independence and impose direct and indirect short- and long-term costs on society and the economic autonomy of women can expand their options for leaving abusive relationships. It also revealed that child, early and forced marriage undermines women's and girls' autonomy and decision-making in all aspects of their lives. Fordjour (2020) asserts that one of the reported effects of early marriage is that girls leave school. This means girls lose the opportunity to acquire knowledge and skills. Leaving school also takes them away from friends and spaces where they develop social skills and networks as well as support systems. She said there is loss of adolescence since most married individuals immediately take on adult roles and responsibilities. This can be very stressful. There are also severe reproductive and health risks, abuse of victims' human rights and a high risk of contracting sexually transmitted diseases. Some experts also report a relationship between child marriage and poor health, teenage pregnancy, high child mortality and low agency. Malhotra (2010) said girls who marry and give birth before their bodies are fully developed are more at risk of death or terrible injury and illness in childbirth. She added that in 2007, UNICEF (2005) reported that a girl under the age of 15 is five times more likely to die during pregnancy and childbirth than a woman in her 20's.¹¹ Risks extend to infants, too: if a mother is under age 18, her baby's chance of dying in the first year of life is 60 percent greater than that of a baby born to a mother older than 19. Again, child brides also are at far greater risk of contracting HIV than their counterparts who marry later. Often, they are married to older, more sexually experienced men with whom it is difficult to negotiate safe sexual behaviors, especially when under pressure to bear children. A study conducted in Kenya and Zambia in 2004 finds that married girls aged 15-19 were 75 percent more likely to contract HIV than sexually active, unmarried girls of the same age. Yaya et al (2019) discovered that child brides are prone to domestic violence and are less likely to participate in family decision making due to immaturity and lower socioeconomic status. One of the major problems with child marriage is the pressure to raise children while they are still children themselves and have limited knowledge about sexual and reproductive life. Research evidence indicates that child marriages are associated with many adverse reproductive outcomes such stillbirth, miscarriage, stunting, underweight, unwanted pregnancies, and abortion. Again, childhood pregnancy put both the mother and her baby at high risk of adverse reproductive outcomes. Ahonsi et al (2019) is of the view that a common belief is that child marriage is a coping strategy for poverty, accords girls and parents status and honor. However, evidence also show that child marriage is a

catalyst for poverty which undermines status and honor in societies. In sub-Saharan Africa including Ghana, it was found that early marriage negatively influences education as it reduces the probability of literacy and completing secondary school. In Ghana, early marriage among girls has been found to be one of the important challenges facing effective enrolment and school attendance, which leads to school dropout. In essence, it ends a girl's opportunity to continue her education to acquire employable skills, which results in persistent poverty among girls and effectively undermines their status and honor as they are unable to meet their daily needs.

Table IV: Responses on Minimizing Early Marriage of Girls**N = 171**

Strategies	Very effective F %	Effective F %	Less effective F %	Not effective F %	Not very effective F %	Mean	Std
Discourage early sex before marriage	135 (78.9)	36 (21.1)	-	-	-	4.78	0.41
Provision of needs by parents	132 (77.2)	17 (9.9)	22 (12.9)	-	-	4.64	0.69
Scholarships and sponsorships for girl-child education	130 (76.0)	27 (15.8)	14 (8.2)	-	-	4.67	0.62
Enforcing laws and policies on girl-child marriage	128 (74.9)	43 (25.1)	-	-	-	4.75	0.44
Enforcing policies girl-child education	122 (71.3)	49 (28.9)	-	-	-	4.71	0.45
Guidance and counselling of girls	115 (67.3)	48 (28.1)	8 (4.7)	-	-	4.62	0.57
Training girls in skills acquisition	110 (64.3)	61 (35.7)	-	-	-	4.36	0.48
Proper parental care	101 (59.1)	70 (40.9)	-	-	-	4.59	0.76
Sex education	97 (56.7)	74 (43.3)	-	-	-	4.56	0.49
Abolish unhealthy tradition and culture	96 (56.1)	46 (26.9)	29 (17.0)	-	-	4.39	0.76
Established women serving as role models for girls	91 (53.2)	68 (39.8)	12 (7.0)	-	-	4.67	0.62
Family planning	87 (50.9)	80 (46.8)	4 (2.3)	-	-	4.49	0.55
Cordial relationship between parents and girls	84 (49.1)	87 (50.9)	-	-	-	4.49	0.60

Results in Table IV present the curbing strategies of early marriage and a Five Point Likert Scale was used to determine the very effective to the not very effective strategies to curb early marriage. The mean score ranging from 4.49 to 4.78 of all the items showed that they were either very effective or effective. Furthermore, majority of the respondents said the following were very effective strategies; discourage early sex ($m = 4.78$, $std = 0.41$), provision of needs by parents ($m = 4.64$, $std = 0.69$), scholarships and sponsorships for girl-child education ($m = 4.67$, $std = 0.62$), enforcing laws on child marriage ($m = 4.75$, $std = 0.44$) just to mention a few. This finding is in agreement with Yamoah (2016) that teenage pregnancy which is a major cause of early marriage could be avoided by discouraging the young girls from indulging sex and also creating awareness on sex education should be done early enough with much diligence. Olson (2014) indicated that supporting girls help to avoid child marriage, delay in having children and finishing school. This gives them opportunities to acquire skills and income to eradicate poverty for future generations. Also, promoting gender equality and the empowerment of women ensures girls get choices as to when they will marry and to whom as well as minimizing child/forced marriage will reduce child mortality and disability related to child/teen pregnancy or childbirth. Consequently, improve maternal health which will reduce vulnerability to HIV/AIDS, malaria and other diseases. He also added that empowerment programmes for young girls are key to preventing child or early marriage by improving both their sense of self and self-efficacy through informing girls of their basic human rights, their legal right to refuse a marriage, and education programmes on health and sex education. In addition, Matteaw (2019) in his submission said parents and caretaker of young girls should strive and provide their basic needs to stop them from being lured by grown up men or even young boys. Such act of kindness may not always end well for the young girl and sometimes teenage pregnancy, abortion with complications, school dropouts among others. He continued by saying parenting at the adolescent stage is difficult and it must be done with due diligence. Parents should be able to manage mother and child and father and child relationships very well in order to ensure cordial relationship and friendships with children, thus anything contrary to strong bond and friendships may make these girls look somewhere else. UNICEF (2005) recommended the idea of community-based mobilization programs which would seek to educate parents, young people and other community members that early marriage is a human right issue and that delayed marriage has economic, social and health benefits. Early marriage also entails many reproductive health risks and does not always protect girls or secure their future. USAID (2009) recommended that adolescent girls, married and unmarried should be given the opportunities to have seminars and conferences, where they would be educated on sex education, effects and consequences of early marriage, benefits of education to parents, guardians and the adolescent girl at large. In addition, financial literacy instructions, savings clubs, health services either directly or on referral, preventive measures for girls at risk of HIV, STIs or sexual violence could be offered. This is to empower them and to increase their safety which is not different from what. Atienga (2018) reiterated that the Government, Minister for Gender, Regional Ministers and Metropolitan, Municipal and

District Assemblies should provide economic incentives such as scholarships, funding and other motivations that will motivate girls to climb the academic ladder for delayed marriages.

CONCLUSIONS

From the findings of this research, the following conclusions have been drawn; Majority of these girls enter into early marriage not out of their own personal decisions but mostly from external pressures. Early marriage of girls in the Assin South District is caused by teenage pregnancy, financial problems, protection of family's name, prevent premarital sex, avoidance of pregnancy outside marriage, school dropout. These causes prevent the girls from being able to pursue their academic and future aspirations. The Girl-child marriage militates against their personal and family growth and development.

The findings indicated that there is a strong and great effect of early marriage on these girls, not only short-term effect but long-term ones which might affects their entire lives if the situation is managed well. Some of the consequences of early marriage on the girls includes; low education, low self-confidence and sense of insecurity, social misfit, school dropout, poverty, large family size, child and maternal mortality, risk of domestic violence, no skill/profession etc.

Major findings depicted that discouraging early sex before marriage, provision of basic needs by parents, scholarships and sponsorships for girl-child education, enforcing the existing laws and policies on early marriage, enforcing policies on girl-education, guidance and counselling of girls among others were some of the ways through which early marriage of girls in the Assin South District. Adopting to these strategies will in the long term reduce the prevalence of early marriage of girls and the consequences on the girls.

RECOMMENDATIONS.

Considering the findings and conclusions drawn from the study, the following recommendations are made.

Parents, guardians and caretakers should make frantic effort to engage in an income generating activities to enable them to provide the basic needs of these girls to prevent men luring them with money which may later lead to pregnancy. The Ghana Education Service and other stakeholders should adopt counseling strategies that will appeal to the conscience of the girl-child not to engage in premarital sex which will force them into marriage. The guidance and counseling will open the minds of these girls to know the prospects of equipping and developing oneself and this will make them shun early marriage and even in situation where they get pregnant whiles in school they should be encouraged to return to school after delivery.

The National Commission on Civic Education in collaboration with the Commission on Human Rights and Administrative Justice should sensitize the church, societies, schools, community groups, families, parents, guardians, caretakers and girls to create awareness that early marriage

is an infringement on the rights of the child and is punishable by law. Sensitization should also expose the adverse effects of early marriage on the lives these girls to make them aware and make conscious decisions about their lives.

Parents, guardians, caretakers should take up their parenting roles with all seriousness. They should provide needs of the girls and must create and establish a cordial and friendly relationship with them which will pave way for the girl-child to discuss issues bothering them and also confide in them other than relying on peers for inexperience advice and information. Also, Skills acquiring sessions can be made available to these girls so that they can learn a trade to support themselves and their families instead of just being involved in petty trading. In addition, law makers, stakeholders should enforce the laws and policies on early marriage and girl-child education. Last but the least, chiefs, community leaders, the church, parents, guardians and caretakers should be sensitized on the need to allow the girl-child pursue higher education which will prevent early for the benefit of the family, community, society and the nation at large.

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ACCEPTABILITY OF INFANT CLOTHING ARTICLES PRODUCED FROM FABRIC WASTE USING PATCHWORK TECHNIQUE

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ABSTRACT

The purpose of the study was to produce infant clothing articles using fabric waste and patchwork technique. Specifically, the study sought to: produce five infant clothing articles using fabric waste and patchwork technique for various infant activities and assessed the appropriateness of infant clothing articles produced from fabric waste using patchwork technique based on functional, expressive and aesthetic attributes. The study was guided by three hypotheses. The study was undertaken in two phases. The research and development design were adopted for phase I while a descriptive survey design was utilized for phase II of the study. Purposive sampling technique was used to select 15 judges for the study. infant clothing article assessment instrument for judges (ICAAIJ) was used in phase two of the study for data collection. The reliability of the instrument was determined using Cronbach Alpha coefficient which yielded as follows: functional attribute= 0.84, expressive attribute = 0.90 and aesthetic attribute =0.82. ANOVA were used to test the hypotheses at 0.05 level of significance. Findings revealed that judge's acceptance was significantly related to aesthetic, expressive and functional attributes of infant clothing articles produced. Among recommendations made were that Schools in Rivers State should set up practical fabric recycling programmes and activities in schools to enlightened and encourage students on fabric waste utilization and that lecturers in the Department of Home Economics in tertiary institutions should carry out more practical work on utilization of fabric waste for the production of useful articles using different clothing construction techniques.

Keywords: production, infant clothing, fabric waste, patchwork, acceptability

INTRODUCTION

Patchwork is a sewing technique/craft in which small pieces of cloth in different designs, colours or textures are sewn together. According to Wickell (2019) patchwork also referred to as

pieced work is a form of needle work that involves sewing together pieces of fabric into a large design. The larger design is usually based on repeating patterns built up with different fabric shapes. These shapes are carefully measured and cut into basic geometric shapes making it easy to piece together. Patchwork can be used to make apparel, household clothing articles as well as infant clothing articles.

Infant clothing articles are items of clothing made for infants. These clothing articles are made from fabrics. Infant clothing articles are used to protect infants against, sun, rain and other environmental hazards as well as for adornment. These infants clothing articles include garments, bed covers, receiving blanket, hat, cot bumpers, duvet, bib, diaper bag, burp cloth, protective panties, jacket, toys, among others. An infant is a young person of either sex (birth to 2 years) that can be influenced by family norms, values and practices (Williams, 2018). According to Corley and Gurevich (2019) an infant is a very young human being from birth to 2 years of age, needing almost constant care and attention from adults. To care for an infant perfectly, certain infant clothing articles are needed. These clothing articles should be suitable as they are the basic necessities that must be provided for infants. To make these clothing articles comfortable and suitable the needs of infants must be considered before production.

Production is the process or procedures to transform a set of input to output having the desired unity and quality. According to Gersak (2018) production is an organized process of conversion of raw materials into useful finished products. Ayim (2018) defined production as the way fabric is being converted into a garment or any other finished product in a manufacturing system. The author added that production of garment or any finished product involving fabric involves the design or sketching of the product, production of pattern or template, cutting and sewing. These design process will be utilized in the production and designing of infant clothing articles using patchwork technique on fabric waste

Fabric waste also known as left over fabrics refers to fabrics that are thrown away or set aside as worthless in garment construction centres. According to Clark (2018) and (Brinkmann (2018), fabric waste are the cut-offs or scraps from fabrics found in garment production centres. Fabric waste/leftovers are resources that are abundant in every clothing construction centres, yet these valuable resources are wasted due mainly to poor economic knowledge, poor creativity and innovative ideas, poor entrepreneurial skills and inability to see opportunities in the environment. Within the clothing construction centres, the construction of garment products involves many processes for the transformation of textile fabric to a finished product. The basic steps for development up to product delivery to the final consumer include: collection planning; planning the production process; material stock; design; folding; cutting; preparation for sewing; sewing; finishing; ironing; packaging; product stock; shipping; and client (Pinheiro & de Francisco, 2016). during these steps, there is the generation of textile solid waste, and in addition at each step of the production cycle, waste is generated during the processes. Among the waste generated are paper, packaging packs, threads, fabrics and other materials, making the industry a large generator of negative impacts on the environment (Pinheiro & de Francisco, 2016; Centro

National de Technologies Limpass (CNTL), 2015). Fabrics waste/leftovers are considered as waste and useless in many clothing construction centres, but these wastes could serve as an enormous source of income generation for clothing entrepreneurs. This is because useful clothing articles could be produced from them for clothing entrepreneurship. These fabric waste resources need to be utilized for job creation, generation of income and economic sustainability. Clothing entrepreneurs that are creative and innovative can utilize and design fabric waste/leftovers into excellent and useful finished products for use by using different clothing construction techniques. Hence a need existed to produce useful infant clothing articles from fabric waste gathered from clothing construction centres using patchwork technique which has not been provided in the market by clothing entrepreneurs.

Purpose of the Study

The major purpose of the study was to produce infant clothing articles using fabric waste and patchwork technique. Specifically, the study sought to:

1. Produce five infant clothing articles using fabric waste and patchwork technique for various infant activities.
2. assessed the appropriateness of infant clothing articles produced from fabric waste using patchwork technique based on functional, expressive and aesthetic attributes.

Hypotheses

1. There is no significant relationship between Judges who assessed the infant clothing articles produced and their acceptance based on functional attributes of infant clothing articles produced using fabric waste and patch work technique.
2. There is no significant relationship between Judges who assessed the infant clothing articles produced and their acceptance based on expressive attributes of infant clothing articles produced using fabric waste and patchwork technique.
3. There is no significant relationship between Judges who assessed the infant clothing articles produced and their acceptance based on the aesthetic attributes of infant clothing articles produced using fabric waste and patchwork technique.

METHODOLOGY:

Design of the Study: The study utilized Research and Development (R & D) for phase I of the study and descriptive survey design for phase II of the study.

Area of the Study: The study was carried out in Rivers State, Nigeria. Rivers state is located in Southern Nigeria. It is bounded in the North by Imo, Abia and Anambra States, on the east by Akwa-Ibom State, on the West by Bayelsa and Delta States and on the South by Atlantic Ocean. Rivers state has a good number of clothing construction centres that operates as small and medium industries that produces waste fabrics and there is a huge market for infant clothing.

Population for the Study: Population for phase II of the study was 15,833. This comprised of three groups: 555 registered clothing entrepreneurs (Rivers State Ministry of Commerce 2020/2021 update); 15,269 mothers (Rivers State Health Centres Post-natal records) and 9 clothing and textile lecturers in the two Tertiary institution in Rivers State that were used as judge's population. These sets of population were used because of their knowledge in infant clothing article requirement; designing and educating of students in appropriate use of clothing craft;

Sample and Sampling Technique: The sample size for phase II (the judge's population) was 15 made up of 5 mothers, 5 clothing entrepreneurs, 5 Clothing and textile lecturers that were purposively selected to assess the appropriateness of the prototype infant clothing articles produced based on the variables under study.

Instrument for Data Collection: The instrument used for data collection for phase II of the study was a structured questionnaire developed from literature reviewed and based on the specific objectives of the study. Infant Clothing Article Assessment Instrument for Judges (ICAAIJ) was used. This instrument contained two parts. Part I contained the demographic information of respondents. This includes judge's status (Mothers, clothing entrepreneurs and Clothing and textile lecturers), Part II contained three sections (I, II and III). Section I focused on functional attributes, section II on expressive attributes and section III on aesthetic attributes of infant clothing articles. A five –point rating scale of like Extremely (LE) = 5; Like very much (LVM) = 4; Neither like nor dislike (NLND) = 3; Dislike very much (DVM) = 2 and Dislike extremely (DE) = 1 was used in rating the functional, expressive and aesthetic attributes of infant clothing articles. The Infant Clothing Article assessment instrument for judges (ICAAIJ) for was subjected to face validation by three experts. The validates assessed the clarity, relevance, appropriateness of the instruments for data collection based on the purpose of the study and hypotheses. The reliability of the instrument was determined by test retest using 9 respondents. This consisted of 3 clothing entrepreneurs, 3 mothers and 3 clothing and textile lecturers judges from Yenegoa in Bayelsa State who were not part of the study. From the data collected in test retest, the reliability coefficients obtained from different sections of the two instruments using Cronbach alpha reliability technique are as follows: – functional attribute= 0.84, expressive attribute = 0.90 and aesthetic attribute = 0.82.

Method of Data Collection: Judges were invited to clothing and textile laboratory to assess the eight infant clothing articles produced. Each of the judges were given a copy of the (ICAAIJ) instrument. A total of 15 copies of (ICAAIJ) were given out for assessment attributes of function, expressive and aesthetic. All the copies used for assessment were returned after rating. The data collected were used for mean responses of the judges.

Method of Data Analysis: The 3 null hypotheses generated were tested using Analysis of Variance (ANOVA). Null hypothesis with P value of 0.05 level of significance was considered

significant while p value less than 0.05 was considered not significant. All data collected were analyzed using statistical package of social sciences (SPSS) version 25.0.

RESULTS:

Table 1: Analysis of variance of regression of judges (mothers, clothing entrepreneurs and clothing and textiles lecturers) on functional attributes of infant clothing articles produced using fabric waste.

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	30657.038	1	6271.686	1724.628	.000 ^b
Residual	7074.860	14	33.8395		
Total	37731.898	15			

a. Dependent variable: functional attributes

b. Predictor: (Constant): judges' acceptance

Table 1 shows the analysis of variance of regression of judges (mothers, clothing entrepreneurs and clothing and textiles lecturers) on functional attributes. The result indicates that F-value of 1724.628 is significant at 0.000 ($P > 0.05$). This indicated that the judgement of the judges was significantly related to functional attributes of infant clothing articles produced using fabric waste. Therefore, the null hypothesis of no significant linear relationship between judge's acceptance on the functional attributes of infant clothing articles produced using fabric waste was rejected.

Table 1b: Model Summary on functional attributes.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.901 ^a	.812	.812	4.21616

Predictor: (constant), Acceptance

The coefficient of determination (R^2) is 0.812. This indicates that 81.2% of the variance in functional attributes of infant clothing articles produced using fabric waste is caused by variations in the predictor variable (judge's responses). Therefore, 81.2% of the variance in functional attributes of infant clothing articles produced using fabric waste is predicted by judge's level of acceptance.

Table 2: Analysis of variance of regression of Judges (mothers, clothing entrepreneurs and clothing and textiles lecturers) acceptance on expressive attributes of infant clothing articles produced using fabric waste.

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	32521.606	1	32521.606	2484.237	.000 ^b
Residual	5210.291	14	13.091		
Total	37731.898	15			

a. Dependent variable: Expressive attributes

b. Predictor: (Constant): Judges acceptance

Table 2 shows the analysis of variance of regression of judges (mothers, clothing entrepreneurs and clothing and textiles lecturers) on expressive attributes. The result indicates that F-value of 2484.237 is significant at 0.000 ($P > 0.05$). This indicated that judge's acceptance was significantly related to the expressive attributes of infant clothing articles produced using fabric waste. Therefore, the null hypothesis of no significant linear relationship between judge's acceptance on the expressive attributes of infant clothing articles produced using fabric waste was rejected.

Table 2b: Model Summary on Expressive attributes.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.928 ^a	.862	.862	3.61817

Predictor: (constant), Judges acceptance

The coefficient of determination (R^2) is 0.862. This indicates that 86.2% of the variance in expressive attributes of infant clothing articles produced using fabric waste is caused by variations in the predictor variable (judge's acceptance). Therefore, 86.2% of the variance in expressive attributes of infant clothing articles produced using fabric waste is predicted by judge's level of acceptance.

Table 3: Analysis of variance of regression of Judges (mothers, clothing entrepreneurs and clothing and textiles lecturers) acceptance on Aesthetic attributes of infant clothing articles produced using fabric waste.

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	31313.949	1	31313.949	1941.890	.000 ^b
Residual	6417.949	14	16.126		
Total	37731.898	15			

a. Dependent variable: Aesthetic attributes

b. Predictor: (Constant): Judges acceptance

Table 3 shows the analysis of variance of regression of judges (mothers, clothing entrepreneurs and clothing and textiles lecturers) on aesthetic attributes. The result shows that F-value of 1941.890 is significant at 0.000 ($P > 0.05$). This indicated that judge's acceptance was significantly related to aesthetic attributes of infant clothing articles produced using fabric waste. Hence, the null hypothesis of no significant linear relationship between judge's acceptance on aesthetic attributes of infant clothing articles produced using fabric waste was rejected.

Table 3b: Model Summary on Aesthetic attributes.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.911 ^a	.830	.829	4.01566

Predictor: (constant), judge's acceptance

The coefficient of determination (R^2) is 0.830. This indicates that 83.0% of the variance in aesthetic attributes of infant clothing articles produced using fabric waste is caused by variations in the predictor variable (judge's acceptance). Therefore, 83.0% of the variance in aesthetic attributes of infant clothing articles produced using fabric waste is predicted by judge's acceptances.

Infant Clothing Articles produced



Fig 1: Baby mat



Fig 2: Baby cap



Fig 3: Baby toy for play



Fig 4: Baby carrier



Fig 5: foam cover

DISCUSSION OF FINDINGS

Results presented in Table 1 shows the appropriateness of the infant clothing articles produced based on functional attributes. Findings revealed that the judges were satisfied with the functional attributes that included length of product, width of product, type of fabric used, relationship between product and lining and general acceptability of the produced articles. This finding is in line with Offiong (2018) who noted that the length and width of household clothing articles produced using fabric waste were accepted by the judges who rated them. The findings also confirm the report of Elado, Shaker, Mahmoud, Fathy & Sharaf (2016) who stated that newly designed craft work from fabric waste will further change available waste fabric appearance and style to useful articles that will be appreciated and regarded as appropriate for use. Findings also agreed with the report of Kaur and Kaur (2014) who recorded high mean acceptance of clothing accessories produced from fabric waste. Test of hypothesis 2 indicated that the judgement of the judges was significantly related to functional attributes of infant clothing articles produced using fabric waste. Findings on hypothesis 2 indicated that F-value of 1724.628 is significant at 0.000 ($P > 0.05$). This indicated that the judgement of the judges was significantly related to functional attributes of infant clothing articles produced using fabric waste.

Results in Table 2 shows the appropriateness of the infant clothing article produced based on expressive attributes. Expressive attributes of infant articles produced revealed that the judges were satisfied with the expressive attributes. This indicates that the infant clothing articles produced is appropriate for promoting play value, role identification, promote social status, promotes independence, promote personality and gives satisfaction Therefore, the infant clothing articles are appropriate in expressive attributes for clothing entrepreneurship. This finding confirms the finding of Sonye (2019) who reported that the expressive criteria of the safety playground apparel for school age children which actually control the non-verbal message sent included promoting play value, role identification, social status, independence, personality and satisfaction. In line with the finding, Lamb and Kallal (1992) cited in Cho (2010) noted that expressive garment elements can be defined as that which relate to the communicative and symbolic aspect of dress. Also, in agreement with the finding, Guy and Benim (2000) stated that clothing use is part of the process of self-actualization which reveals both unique and socially shared meanings. This lends itself to the idea that a woman's identity is developed through the use of clothing and this could apply to infants as well. Hwang (2014) noted that expressive clothing dimension proposes symbolic communicative characteristics such as values, roles, and self-esteem that establish identity. Findings from the test of hypothesis 2 showed that F-value of 2484.237 is significant at 0.000 ($P > 0.05$). This indicated that judge's acceptance was significantly related to the expressive attributes of infant clothing articles produced using fabric waste.

Result presented in Table 3 shows the appropriateness of the infant clothing article produced based on aesthetic attributes. Aesthetic attributes of infant clothing articles produced

revealed that the judges were satisfied with the aesthetic attributes. The aesthetic attributes included that the texture, colour, lines, rhythm, style designs of infant clothing articles produced were appropriate. This indicates that the infant clothing articles produced with fabric waste were appropriate in aesthetic attributes for clothing entrepreneurship. In line with the findings, Azonuche (2016) found out that desired aesthetics were actualized in the development of functional clothing for caregivers. Also, in support of the findings Agbo (2013) reported the acceptability of all the aesthetic attributes of prototype garment as beauty, colour, and texture of fabrics, shape, style among others. Sindicich (2008) reported that aesthetic concerns of garment such as texture, colour, styleing, design, fabric colour and type were the most criteria affecting women decisions in garment selection during the interest phase of their purchase. Findings from the test of hypothesis 3 shows that the result shows that F-value of 1941.890 is significant at 0.000 ($P > 0.05$). This indicated that judge's acceptance was significantly related to aesthetic attributes of infant clothing articles produced using fabric waste.

CONCLUSION

This study demonstrates plausible achievement and the possibility of using creativity and innovation in reducing unemployment and poverty with the production of useful infant clothing articles using fabric waste and patchwork technique. Also, utilization of fabric waste will bring an end to the negative effect and environmental hazards that results from disposing fabric waste indiscriminately. This will bring about sustainable development. The study finally established the important involvement and contributions of stakeholders including mothers, clothing entrepreneurs, clothing and textile lecturers in the design, production and final examination of the product.

RECOMMENDATIONS

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

1. Schools in Rivers State should set up practical fabric recycling programmes and activities in schools to enlightened and encourage students on fabric waste utilization.
2. Lecturers in the Department of Home Economics in tertiary institutions should carry out more practical work on utilization of fabric waste for the production of useful articles using different clothing construction techniques.
3. Awareness should be created by stakeholders on creative and innovative utilization of fabric waste for production of useful clothing articles within and outside the school with appropriate information on its potentiality for income generation, job creation, unemployment and poverty reduction.

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EFFECTS OF CLOTHING ON SELF- CONCEPT AND SELF- ESTEEM OF ADOPTED CHILDREN IN SOME SELECTED SCHOOLS IN NEW BUSSA, NIGER STATE

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ABSTRACT

This study investigated the effects of clothing on self-concept and self-esteem of adopted children in some selected schools in New Bussa. An investigation was made into the types of clothing that are made available to adopted children by their parents; the effects of clothing on self-concept of adopted children; the self-esteem of adopted children in relation to their clothing and the adoption procedures. Thirty (30) students were selected from five schools that were used for the study to make the total of 150 respondents, and 130 questionnaires were retrieved out of 150 that were administered. Two-stage sampling procedure was adopted and used for sampling. Descriptive statistics like frequency distribution, mean, and percentages were used in the analysis of the data. It was revealed that type of clothing provided to adopted children was adequate and appropriate; the clothing included ready-made, tailor-made clothes, hand me down clothes, among others; and the most prevalent type of adoption practiced by most parents in the study area was the kinship type of adoption. The adopted children were provided with adequate and appropriate clothing which could lead to the children becoming psychologically balanced persons and consequently, improve their academic performance.

Keywords: clothing, adoption, children, self-concept, self-esteem

INTRODUCTION

Clothing is any article that a person puts on his/her body in order to protect, beautify or adorn it (Anyakoha, 2011). Similarly, Gililan (2010), Ozipek, Tanyas and Mahmutoglu-Dinc (2012) stated that clothing is any item that is placed on the body to protect, adorn or communicate intent. Clothes include skirt, blouses, gowns, shirts, trousers and so on. Ukpore (2008) considered the following as major factors to be considered when choosing clothes; warmth, comfort, neatness, age,

weather, activities, family standards, income, maintenance cost, durability, texture and cost. According to Anyakoha and Eluwa (1991), Clothes chosen should be smart, colourful and pretty; loose and roomy enough to allow free circulation of blood, free movement and comfort during classroom and practical lessons; of appropriate length and size. With Maslow hierarchical order of needs, clothing ranks in a basic physical need category along with food and shelter. Maslow equated clothing with the physiological needs, there is evidence that higher- order needs such as love and self-esteem can be satisfied through clothing. Okwu (2006) emphasized that parents have a primary role to play in their ward's choice of clothing through ensuring adequate supervision and control of children to inculcate good value systems in them. These children could be either biological or adopted. An adopted child is a child that is provided with new family outside his or her biological parent.

Chukwu (2012) defined adoption as the legal process whereby a person obtains judicial or administrative authorization to take the child of another as his own and parental rights and obligations are permanently transferred from the child's natural parents to the adopter. Child adoption simply means parenting a child that is not one's biological child.

Legal adoption can take many forms such as the following;

- **Disclosed Adoption:** In this type of adoption, the identity of the biological parent/s and the identity of the adoptive parent/s are known by both parties.
- **Closed Adoption:** There are no details to identify the biological parent/s of the adopted child and/or exchange between the adoptive parent/s.
- **National Adoption:** A legal adoption where both the adoptive child and parent/s are citizens of the same country or have permanent residence in same country.
- **Inter-race Adoption:** The race of the child and adoptive parent/s differs.
- **International Adoption:** refers to a situation where a child is transfer from one nation to another for the purpose of parenting.

Objectives of the study

The main purpose of the study was to investigate the effects of clothing on self-concept and self-esteem of adopted children in some selected schools in New Bussa. Specifically, the study was designed to:

- i. identify the demographic characteristics of the respondents
- ii. identify the types of clothing that are made available for adopted children by their parents.
- iii. determine the effects of clothing on self-concept and self-esteem of adopted children.

Hypotheses of the study

The following hypotheses were tested:

H₁: There is no significant relationship between clothing effect and selected demographic characteristics of the respondents.

H₂: There is no significant relationship between self-concept and demographic characteristics of the respondents.

METHODOLOGY**Area of study**

The study was conducted in New Bussa, Niger State. New Bussa is the headquarter of Borgu Local Government Area (BLGs) of Niger state. The population of BLGs is slightly over 171,965 people in 2006 census figure for BLGs.

Population of study

The total population for this study was one thousand, two hundred (1200) which consisted of all the adopted children in public primary and junior secondary schools in New Bussa.

Sample size and sampling procedure

Two-stage sampling procedure was used to select respondents for the study. At first stage, five schools in New Bussa were randomly selected for the study. From the selected schools, pupils in

primary 4 – 6 and in JSS 1 – 3 were involved in the study. From each of the categories of selected pupils, ten (10) pupils were selected at the second stage. This exercise led to the selection of thirty (30) pupils from each school. In all, 150 pupils were sampled and included in the study. Purposive and simple random sampling techniques were used to select respondents for the study. The selected schools were Government Day Secondary School Karabonde, Government Secondary School New Bussa, Model Primary School New Bussa, Child Friendly School New Bussa and Richardladen Primary School.

Data analysis

The tools that were used for data analysis include descriptive analysis such as frequency count, percentages, means and standard deviation while chi-square statistics was used to test the hypotheses.

Reliability of research instrument

The instrument that was used for data collection in this study was pretested on samples that did not form part of those that were selected for the actual study. The test /retest method was employed to ensure a considerable high reliability coefficient. The instrument was administered to 30 children outside the selected LGAs for pre-testing and to ascertain reliability. In addition, reliability of the instrument was estimated by calculating Cronbach's alpha for various items in the instrument. Alpha reliability coefficient of 0.75 was obtained as opined by Onasanya (2008).

RESULTS AND DISCUSSION

Demographic characteristics of the respondents

The results obtained from the analysis of data in the course of the study were presented in tables.

Table I: Demographic Characteristics of the Respondents

Socio-economic variables	Frequency	Percentage
Age		
9-12 years	69	53.5
13-16 years	60	46.5
Total	129	100
Sex		
Male	52	40.3
Female	77	59.7
Total	129	100
Class		
Primary 4-6	64	49.6
J.S.S 1-3	65	50.4
Total	129	100
Religion		
Christianity	75	58.1
Islam	54	41.9
Total	129	100

Source: Field Survey, 2018

The mean age of the children was twelve (12) years and this indicated that these children could speak for themselves. The result also indicated that females are higher in adoption than the males.

The study also has fair representation of both primary and junior secondary school students with majority 50.4% were in J.S.S 1-3 and 49.6% were in primary 4-6. Table I also revealed that majority of the respondents 58.1% were Christians while the remaining 41.9% were Muslims.

Table II: Types of Clothing Available to Adopted Children in New-Bussa

Items	Mean	SD	Decision
New readymade clothes	3.26	1.37	Agreed
New tailored made clothes	3.50	1.36	Agreed
Undersized clothes	2.19	1.20	Disagreed
Hand me down clothes (used clothes pass down to younger siblings or from parents to the children)	3.49	1.16	Agreed
Second hand clothes	3.65	1.10	Agreed
Faded/ torn clothes	2.58	1.37	Disagreed
Well fitted clothes	3.05	1.335	Agreed
Poorly fitted clothes	2.70	1.42	Disagreed
Fashion clothes	3.24	1.44	Agreed
Out of fashion clothes	2.98	1.46	Disagreed

Field Survey, 2018.

The study analysed types of clothing available to adopted children in New Bussa and the result is presented in Table II. The results revealed that six (6) out of ten (10) types of clothing attracted mean score above the overall average score of three (3), there are Second hand clothes (M=3.65), New tailored clothes (M =3.50), Hand me down clothes (M=3.49), New readymade (M=3.26), Fashion clothes (M=3.24) and well fitted clothes (M=3.05) while four (4) items receive score lower than the average value. This implies that appropriate clothing is provided for adopted children. In agreement with the findings also, the UNICEF Convention on the rights of the child stated that children have the right to good and adequate clothing (UNICEF, 1989). Supporting this, Mallum and Kembe (2011) stated the following as factors that influence the provision of clothing; garment quality, fit, style features, care, cost, status, resources available, physical changes in the body and the individual figure type.

Table III: Effects of Clothing on the Self-concept of Adopted Children in New-Bussa

Effects of clothing on self-concept	Mean
I have a pleasant personality	4.19

Folks admired my dressing	4.15
My self-esteem is intact	3.98
Am not embarrassed by the way I dress	3.92
I feel emotionally mature in my clothing	3.89
What I wear is consistent with how I dress	3.70
My attitude shows my dressing	3.59
People's is not important	3.42

Field Survey, 2018.

Results in Table III show that all respondents had mean above 3.0 in all the statement and this implies that clothing does not affect the self-concept of adopted children. This study is in line with Ejila (2013) that clothing can be used to deceive people, Weber (1990) in (Ejila, 2013), stated that people adopt extreme styles of clothing to create a false image of themselves. Yet others are careless about their clothing appearance. Weber concluded that either too much or too little concern with clothes might limit a person's life.

Table IV: Effect Level of Clothing on Self-concept of Adopted Children

Effect level of clothing on self-concept	Frequency	Percentage
High effect on self-concept	45	35.2
Low effect on self-concept	83	64.8

Field Survey, 2018.

From the result of the analysis of effect level of clothing on self-concept of adopted children, the result showed that 64.8% of the adopted children were of the opinion that their clothing type had low effect on their self-concept while 35.2% were of the opinion that clothing type provided for them had high effect on their self-concept.

HYPOTHESIS TESTING

H₁: There is no significant relationship between overall clothing effect and demographic characteristics of the respondents.

Results of the hypothesis test of relationship between demographic characteristics of the respondents and their overall clothing effect are presented in Table V. Obtained results revealed that there was significant relationship ($p < 0.05$) between age of the respondents and the clothing effect.

Table V: Chi-Square analysis of overall clothing effect and demographic characteristics of Respondents

Demographic characteristics	Level of effect		χ^2	Df	p-value	Decision
	High	Low				
	F (%)	F (%)				
Age						
9-12 years	52(65.8)	17(34.7)	11.79	1	0.01	Significant
13-16 years	27(34.2)	32(65.3)				
Sex						
Male	28(35.4)	24(49.0)	2.297	1	0.143	Not Significant
Female	51(64.6)	25(51.0)				
Class						
Primary 4-6	41(51.9)	22(44.9)	0.593	1	0.441	Not Significant
J.S.S 1-3	38(48.1)	27(55.1)				
Religion						
Christianity	41(51.9)	33(67.3)	2.959	1	0.085	Not Significant
Islam	38(48.1)	16(32.7)				

Source: Field Survey, 2018

H₂: There is no significant relationship between the effect of self-concept and demographic characteristics of the respondents.

Table VI: Chi-Square analysis of overall concept effect and selected demographic characteristics of respondents

Demographic characteristics	Level of effect		χ^2	Df	p-value	Decision
	High	Low				
	F (%)	F (%)				
Age						
9-12 years	26(57.8)	43(51.8)	0.419	1	0.518	Not Significant
13-16 years	19(42.2)	40(48.2)				
Sex						
Male	18(40.0)	34(41.0)	0.011	1	0.916	Not Significant
Female	27(60.0)	49(59.0)				
Class						
Primary 4-6	25(55.6)	38(45.8)	1.115	1	0.291	Not Significant
J.S.S 1-3	20(44.4)	45(54.2)				
Religion						
Christianity	28(62.2)	46(55.4)	0.553	1	0.457	Not Significant
Islam	17(37.8)	37(44.6)				

Source: Field Survey, 2018

Results of the hypothesis test of relationship between selected demographic characteristics of the respondents and their overall concept effect are presented in Table VI. Obtained results revealed that there was no significant relationship ($p < 0.05$) between selected demographic characteristics of the respondents and their overall concept effect.

CONCLUSION

The adopted children were provided with adequate and appropriate clothing and this could result in the children becoming psychologically balanced persons, they would have good self-concept and good self-esteem, which could further make them perform excellently in their academics.

The clothing of adopted children does not affect their self-concept as well as their self-esteem though age affects the types of clothing worn by the children.

The hypotheses revealed that the adopted children in New Bussa have good self-concept and there is a good relationship between their self-concept and their clothing. The findings also revealed that, the disclosed adoption type in which the identity of the biological parent/s and the identity of the foster parent/s are known by both parties prevails in the study area while clothing influences the type of child adoption practices and vice versa.

RECOMMENDATION

Based on the result of the study, it was recommended that parents should endeavour to provide adequate and appropriate clothing for their children at all time because this will boost their self-esteem and self-concept, which could result in the children becoming psychologically balanced and further make them to perform excellently in their academics.

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