Journal of Home Economics Research (JHER)
A Multidisciplinary Journal

Volume 28, No. 2, December 2021

ISSN 1118-0021

Published by the
Home Economics Research Association of Nigeria
www.heran.org

Printed by
great ap express publishers ltd,
oyibo villa, off elder okoli drive, olivet hill area amogbo, nsukka
08116981800; 08034276377
e-mail: apexapeh@yahoo.com

Note to Contributors

1. The *Journal of Home Economics Research* (JHER) is a scholarly and trans-disciplinary research publication. Manuscripts to be considered for publication must be found very useful to both scholars and practitioners in Home Economics and related fields.
2. Articles which should be typed in double spacing should not exceed 10-12 quarto pages including references and abstracts using MS word 2003 format.
3. The title and institutional affiliation of the author(s) and an abstract of not more than 120 words should precede the title.
4. Manuscript under consideration by other journals must not be submitted.
5. Empirical reports must be written under the following distinctive headings:
   (i) Introduction should incorporate background of study, statement of problem, significance of study and appropriate literature.
   (ii) Objectives/Purposes/ Research Questions/Hypotheses.
   (iii) Methodology - This should contain the following distinctive sub-headings: Area of study, design of the study, Population, Sample, Instrument, Data collection, and analysis techniques
   (iv) Findings
   (v) Discussion.
   (vi) Conclusion.
   (vii) References.
6. Non-empirical reports must have:
   (i) Introduction - that shows clearly the focus of the article.
   (ii) Main body - under distinctive headings that could have been reflected in the Introduction.
   (iii) Conclusion with appropriate recommendations where necessary.
   (iv) References.
7. Literature must be relevant, rich and current. References should be according to the American Psychological Association (APA).
8. Tables *must* be in line with the *MS Word* table format
9. Manuscript must be submitted in *Triplicate* with a non-refundable peer-review fee of five thousand Naira (₦5000.00), to:

The Editorial Board,
c/o Professor Elizabeth. U. Anyakoha,
Department of Home Economics & Hospitality Management Education,
University of Nigeria, Nsukka.
and on-line to **admin@heran.org**

Journal of Home Economics Research [JHER]

In this Issue

HER Vol. 28 No. 2, December 2021, pp. 6-18

Exploring Essence of Multi-Generational Households in the Effutu Municipality, Central Region of Ghana

[1]Danso-Odame, .S.L.; [2]Soyebo, K.O.; [3]Adjei, P.Y.; [4]Donkor, .A.; [5]Amu, T.A.
[1,3&5]Department of Family Life Management Education,
University of Education, Winneba. Ghana.
[2]Department of Family, Nutrition and Consumer Sciences,
Obafemi Awolowo University, Ile-Ife. Nigeria.
[4]Department of Integrated Home Economics Education,
University of Education, Winneba. Ghana

Abstract

The study investigated the essence of multi-generational households in the Effutu Municipality. Specifically, it determined reasons for existence of multi-generational households, roles of individuals living in multi-generational households and socio-cultural practices of the households. Descriptive (cross-sectional) survey design was used. Area of the study was Effutu Municipality Central Region of Ghana. Population for the study was made up of all the households in the area of the study. Questionnaire was used for data collection. Data were analyzed quantitatively using means and standard deviations. Major findings reveal 17 reasons for the existence of multi-generational households ($\bar{X}$ = 3.95 to 3.50). These include, high rate of unemployment ($\bar{X}$ = 3.95), security for old age ($\bar{X}$ = 3.87). Also 35 roles played by individual members in the family were indentified ($\bar{X}$=3.95 to 3.39). These include, protecting family interest ($\bar{X}$ = 3.95), engaged in salaried jobs ($\bar{X}$ = 3.95). There are also18 socio-cultural practices of the households ($\bar{X}$ =3.89 to 2.7). These include, running errands (help) for everyone especially elders ($\bar{X}$ = 3.89), showing of love for everyone ($\bar{X}$ = 3.87) There was a positive and significant(r = 0.12, p = 0.003) relationship between reasons for the existence and socio-cultural activities multi-generational households. Based on the findings, four recommendations for sustaining multi-generational households in Effutu Municipality were made.

Key words: Multi-generational Households, Extended Family, Socio-cultural Practices-Essence, Reasons

Introduction

It has been observed that most parts of African communities are made up of households usually comprising closely related family members of a common genealogy who ensure the maintenance of a strong bond among families. According to Dzramedo, Amoako & Amos (2018) traditionally, Africans mostly revere and arrange their lives around the extended family line whose membership include, spouses and their children together with other relations of common descent such as grandparents, uncles, aunties, nephews, nieces and cousins and sometimes, other people who are not directly related to the family. This reflects the African culture of inter-dependency for care, support, protection and social interaction. This system of lifestyle does not only provide protection for members of the household, it also provides economic and socio-cultural benefits to the members and for that matter the community as a whole. Multi-generational households often consist each of three or more generations living together under the same roof. It further explains that these households include households with a householder, a parent or parent in-law of the householder, a child of the householder and a grandchild of the householder. Asamoah (2015) revealed that 78% of Ghanaians live in multi-generational households due to prolonged education, unemployment, housing shortages or high cost of accommodation, relatively high rates of out-of-wedlock childbearing, among others. He added that Africans uphold kinship ties and network in high esteem because they are used to define the individual's social status. This explains why the multi-generational family system is common in African (Ghanaian) societies. The traditional multi-generational family epitomised the society's values, norms, ideas, ideals, mores, beliefs etc.Perrino, Gonzalez, Pantin and Szapocznik, (2000); Peterson, (2009) cited in Adinkra (2017) stated that multi-generational families have a cultural practice of nurturing and supporting its individual members includes promoting and safeguarding the health of children as well as instilling moral and social values in them, with the overall goal being to ensure that the next generation is productive and socially responsible To execute this parents and other adult family members generally exert considerable influence as teachers and role models for children through skill building, limit setting or discipline, and as models of healthy and competent behavior. Omari (2018) indicated that over the decades and at various times, the Ghanaian society had come under different influences resulting in changes of one kind or the other. Some changes came following internal realignment of political; others in the wake of civil wars, famine, floods and other natural disasters. Again, Omari (2018) posited that multi-generational households' system has gone through dynamic and rigorous changes from colonial era by compression of genealogical ties in kinship behaviour is meant the tendency of people to virtually disregard their traditional reciprocal obligations, duties and responsibilities to relatives outside their nuclear families except the closet and the most immediate. Presently many Ghanaians especially, those most intensively exposed to the factors of change, would limit their responsibilities to their children and spouses and people who go beyond these would not go further their own parents, siblings and their siblings' children Omari (2018). Cohn & Passel, (2018) argued that a range of demographic factors that likely contributed to this decline of multi-generational living, among them was the rapid growth of the nuclear-family-centered suburbs; the decline in the share of immigrants in the population; and the sharp rise in the health and economic well-being of adults aged 65 and older.

In addition, Kurankye (2017) cited in Dzramedo, Amoako & Amos (2018) posited that undoubtedly, before the coming of the Europeans, with mainly the introduction of formal education, the communities and by extension the Ghanaian (African) societies depended solely on the family; precisely, the extended family system for survival. Indubitably, the extended family in those days was the backbone of the family in society. The traditional extended family was an embodiment of the society's values, norms, ideals, morals, and beliefs. Dzramedo et al (2018), stated that notwithstanding the strong influence on its individual members coupled with the aforementioned roles and functions of the extended family system in the past, in modern Ghanaian civilization following colonialism with the introduction of industrialization, education, western religion, among others these influence, roles and functions have taken a nose dive.

The economic downturn compelled most people to live in nuclear families where they could meet their needs without much struggle and save enough for future use. However, Omari, (2018) argued that in spite of the economic benefits of the nuclear family, it is yet to be given acceptance in many African societies. Except the urban cosmopolitan societies, where the nuclear family system seems to be popular, the multi-generational systems operate among a larger segment of African societies. It is interesting to note that most of these households have now resulted in an increasing number of generations of families living together as multi-generational households in the Effutu Municipality, perhaps due to the number of benefits members derived from multi-generational household system of living.

Available reports that there is a bounce back of multi-generational living in the Effutu Municipality. According to Sampe (2019), multi-generational households have bounced back and about 83.8 percent of Ghanaians are living these households for numerous benefits and the Effutu Municipality is not exempted. Population and Housing Census 2010 revealed that about 65.9 percent of the population in Effutu Municipality is living in the extended family. It is surprising to note that little has been done to document the issues relating to multi-generational households in the Municipality for public education. This gap informed the study.

Research Objectives

The general objective of the study was to explore the essence of multi-generational households in the Effutu Municipality, Central Region Ghana. Specifically, the study determined:

1. reasons for existence of multi-generational households in Effutu Municipality.
2. roles of family members living multi-generational households in Effutu Municipality.
3. socio-cultural practices of multi-generational households in the Effutu Municipality.

Research Questions

1. What are the reasons for existence of multi-generational households in Effutu Municipality?
2. What are roles of family members living multi-generational households in Effutu Municipality?
3. What are socio-cultural practices of multi-generational households in Effutu Municipality?

Hypothesis

There is no significant relationship between reasons for existence of multi-generational households and socio-cultural practices of multi-generational households.

Methodology

***Design of the study*:** The research design used for this study was a descriptive (cross-sectional) survey. I used this design because according to Jackson (2009) survey involves acquiring information about a group by asking questions, tabulating and describing answers. The information is collected from a group of people in order to describe aspects or characteristics, (abilities, opinions, attitudes, beliefs, experiences or knowledge) of the population of which the group is part.

***Area of study*:** The Effutu Municipality is the area of the study. It covers a total land area of 95 square kilometers and shares border with Gomoa East District to the west, north and east. On the Southern flank is the Gulf of Guinea. The Municipality is one of the 20 administrative districts in the Central Region of Ghana with its administrative capital being Winneba, which originated from the words "Windybay" traditionally known as "Simpa" a town renowned for its several specialized major institutions of higher learning, fishing and cultural displays. Most households are made up of from the 3rd to the sixth generation living together under one roof. Some of the buildings have been extended to accommodate the increasing number of family members. Their building structure is poorly designed, constructed and doesnot have basic facilities in the home (Population and Housing Census Report, 2010).

Population for the study: The Municipality has 1,873 multi-generational households (Population and Housing Census, 2010). In the context of this study age was a variable of interest to the research as a result the respondents were also categorized into three groups based on their age; elderly (65 and above), adults (40yrs-

64) and youths (18yrs-39yrs). This categorization was done to give every generation in the family the privilege to express their views and opinions on the questions asked.

***Sample for the study*:** All multi-generational households were purposively selected for this study and data on multi-generational households was accessed from the Effutu Municipal Office. The 2010 Population Census, states that 75 percent of multi-generational households are found in rural Winneba and 25 percent in urban Winneba. Thus, 75% and 25% of multi-generational households were selected from rural and urban Winneba respectively. Systematic random sampling technique was used to select 4.66% of 1,873 multi-generational households in the Municipality. In all 87 households were selected for the study comprising 65 and 22 households from rural and urban respectively. According to Bryman (2004) a percentage of the total population can be used to achieve confidence level and minimize errors. Simple random sampling technique was used to select one (1) respondent from each age category. Three (3) respondents were selected from each household from 87 multi-generational households using the age category. In all 261 respondents were involved in the study.

***Instrument for the study*:** Structured questionnaire was used to collect data from respondents. The items on the questionnaire were close-ended, open-ended and multiple-choice questions. The close-ended questions were mainly in the form of Likert scale type of question. This was measured on a four-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 researcher and two trained research assistants. 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 three (3) months. The questionnaires were collected immediately upon finishing. The return rate of the instrument was 100%.

***Data analysis technique*:** Data were using frequency, percentage, means and standard deviations. Hypothesis was also tested using Pearson Products Moment Correlation analysis to establish a relationship.

Results

Demographic Characteristics of Respondents

The age of the respondents ranged from 18 – 31years 24.6%, 32 – 45years 20.3%, 46 – 59 year 19.5% and 60 years and above 33.7%. Again, there were 60.5% females and 39.5% males. On marital status 44.4% were single, 20.3% were cohabiting, 19.2% were married, 11.9% divorced while 4.2% were separated. In addition, responses on their educational level revealed that 18.4% had no formal education, 44.8% had primary education, 9.2% had junior high education, 5.0% had secondary education, 10.3 had technical and vocational education and 14.1 had tertiary education.

Reasons for the existence of multi-generational households in the Effutu Municipality

Table 1: Mean responses on reasons for Existence of Multi-Generational Households n=261

S/N	Reasons for existence of Multi-generational households	Mean $\bar{x}$	STD ±	Remarks
1	High rate of unemployment	3.95	0.50	Very important
2.	Security for old age	3.87	0.34	Very important
3.	Socializing young ones	3.84	0.32	Very important
4.	Children as a source of labor	3.85	0.36	Very important
5.	High cost of accommodation	3.84	0.35	Very important
6.	Teenage pregnancy	3.79	0.43	Very important
7.	Managing family business	3.78	0.42	Very important
8.	High rise of migration	3.78	0.42	Very important
9.	Cultural beliefs of the family	3.74	0.47	Very important
10.	High rise of single parenting	3.73	0.45	Very important
11.	Early marriage	3.67	0.50	Very important
12.	Family members help each other	3.64	0.52	Very important
13.	High rate of divorce	3.61	0.50	Very important
14.	Prolonged education	3.58	0.52	Very important
15.	Prestige and status	3.57	0.45	Very important
16.	Provision of basic needs	3.47	0.52	Important
17.	High level of emotional bonding and closeness across generations	3.47	0.51	Important

Table 1 shows how respondents rated the reasons for the existence of multi-generational households from very important to not important. The mean scores ranging from M =3.47, STD = 0.51 to M = 3.95, STD = 0.50 depicts that all the reasons for the existence of multi-generational households were ranked very important such as high rate of unemployment, security for old age, socializing of young ones among others.

Roles of family members living multi-generational households in the Effutu Municipality

Table 2: Mean Responses on roles of family members living in Multi-generational households **n = 261**

S/N	Roles of family members	Mean $\bar{X}$	STD ±	Remarks
	Fathers/Uncles			
1.	Protecting family interest	3.95	0.54	Strongly agree
2.	Engaged in salaried jobs	3.95	0.54	Strongly agree
3.	Meeting basic necessities	3.95	0.50	Strongly agree
4.	Disciplining of children	3.86	0.57	Strongly agree
5.	Home administration	3.87	0.34	Strongly agree
6.	Take major decisions	3.85	0.36	Strongly agree
7.	Fulfil marital obligations	3.86	0.32	Strongly agree
8.	Pay utilities/bills	3.78	0.49	Strongly agree
9.	Settle dispute among family members	3.71	0.50	Strongly agree
	Mother/Aunties			
10.	Imparting ethics to children	3.95	0.50	Strongly agree
11.	Children upbringing	3.95	0.50	Strongly agree
12.	Care for the aged and invalids in the family	3.84	0.32	Strongly agree
13.	Home administration	3.78	0.56	Strongly agree
14.	Supervise children's school assignment	3.71	0.70	Strongly agree
15.	Shop for the family	3.74	0.46	Strongly agree
16.	Discipline of children	3.74	0.46	Strongly agree
17.	Fending for the home	3.74	0.47	Strongly agree
18.	Sustain the finances of the home	3.71	0.50	Strongly agree
19.	Take major decisions	3.86	0.50	Strongly agree
20.	Household chores	3.86	0.50	Strongly agree
21.	Fulfil marital obligations	3.67	0.50	Strongly agree
22.	Selling of articles/farm produce	3.50	0.75	Strongly agree
23.	Counselor	3.61	0.55	Strongly agree
24.	Resolve conflict	3.61	0.51	Strongly agree
25.	Engaged in salaried jobs	3.53	0.52	Strongly agree
	Children			
26.	Complement family's business	3.86	0.57	Strongly agree
27.	Household chores	3.78	0.49	Strongly agree
28.	Run errands	3.78	0.56	Strongly agree
29.	Assist parents	3.76	0.45	Strongly agree
30	Selling of articles/farm produce	3.71	0.70	Strongly agree
	Grandparents			
31.	Imparting ethics to children	3.87	0.34	Strongly agree
33.	Children upbringing/ education	3.84	0.32	Strongly agree
34	Settle dispute among family members	3.71	0.70	Strongly agree
35.	Discipline of children	3.39	0.71	Agree

Table 2 shows how respondents rated the roles of family members on a scale of strongly agree to strongly disagree. On the roles of fathers/uncles, a mean score from M= 3.71, STD = 0.50 to M = 3.95, STD = 0.54 revealed that the respondents strongly agreed that adult males in the family perform their roles. Again, the mean score from M = 3.95, STD = 0.50 to M = 3.53 to STD =0.52 implies that respondents strongly agreed to the roles played by mothers/aunties in the family. In addition, respondents strongly agreed to the roles performed by children with mean score range of M= 3.71, STD = 0.70 to M = 3.87, STD = 0.57. Last but not the least the result depicts that majority of respondents agreed to the roles played by grandparents with mean score range from M = 3.39, STD= 0.34 to M= 3.87, STD = 0.71.

Socio-cultural practices of multi-generational households in the Effutu Municipality

Table 3: Mean Responses on Socio-Cultural Practices of multi-generational household **n=261**

S/N	Socio-cultural practices	Mean $\bar{x}$	STD $\pm$	Remarks
1.	Run errands for everyone especially elders.	3.89	0.32	Always
2.	Show respects for everyone	3.89	0.32	Always
3.	Show love for everyone	3.87	0.34	Always
4.	Family members follow one pattern of profession.	3.84	0.35	Always
5.	Practicing of widowhood rite	3.64	0.52	Always
6.	Organise social ceremonies	3.50	0.75	Always
7.	Family contributions (“noboa”)	3.47	0.74	Often
8.	Strong religious beliefs	3.46	0.53	Often
9.	Low level of education	3.43	0.72	Often
10.	Adhering to taboos	3.43	0.67	Often
11.	Maintaining family status in the society	3.45	0.57	Often
12.	The opinion of the head of a household is always accepted when there is disagreement.	3.21	0.70	Often
13.	Conscious about gender composition of household	3.15	0.65	Often
14.	Every family member has an equal opportunity to take part in family decisions	3.15	0.63	Often
15.	Parents arrange marriage for children.	3.10	0.65	Often
16.	Female circumcision	3.10	0.65	Often
17.	Every family member is free to present his views on family issues	3.10	0.65	Often
18.	High level of education	2.77	0.80	Rarely

Table 3 depicts that, most respondents indicated that the socio-cultural practices of the family were either always or often practiced. A mean score of M = 3.89, STD = 0.32 each revealed that respondents always ran errands for everyone especially elders and showed respects for everyone. Again, respondents indicated that rarely (M =2.77, STD = 0.80) did people living in multi-generational households in the Effutu Municipality had high level of education

Table 4: Result of Pearson Product-Moment Correlation Analysis

Independent Variables	Type of correlation	Correlation Co-efficient (r)	p. value	Decision
Socio-cultural practices	Pearson Correlation Sig. (2-tailed)	0.12**	0.03	Significant

Correlation is significant at the 0.05 level (2-tailed). Correlation is significant at the 0.01 level (2-tailed).

Table 4 show (r = 0.12, p = 0.003) that there is a positive and significant relationship between the reasons for the existence of multi-generational households and the socio-cultural practices of multi-generational households.

Discussion of Findings

Data on the demographic characteristics of respondents reveals that one-third (33.7%) aged 60 years and above and 19.5% aged between 46 – 59 years. This finding implies that more than half (53.2%) of respondents aged 46 years and above. In support, Easthope *et al* (2015) indicated that large proportions of multi-generational households are middle-aged couples (45–54 years old) living with their young adult children (18–24 years old). Also, Declining health, acts as catalysts for parents moving in with adult children for proper care.

Furthermore, more than half (60.5%) of respondents were females. This implies that majority of multi-generational households were female dominated. This confirms studies by Wija and Holmerova (2012), Treas and Batalova (2011), and Kochhar and Cohn (2011) cited in Leach (2012) which state that males have a lower likelihood of being in a multi-generational household than females. They indicated that men have a high tendency to live in single person households earlier in their life course than women while women live in multi-generational households at later stages of the life course, when the probability of needing care is higher. This could be because men are more likely to be part of a married couple than women are, therefore they end up living with just a spouse and kids more often while women more often live with their children and parents, but without a spouse.

Also, respondents' responses on their marital status reveal that 44.4% were single while 20.3% were cohabiting. The results indicate that

64.7% of the respondents were single and some cohabiting.

Moreover, the data reveals that 44.8% were Primary School leavers. The findings implied that a bit less than half (44.8%) of the respondents were primary school leavers implying people living in multi-generational households had low educational level.

The first research question identified the reason for existence of multi-generational households. Hence, household members ranked the reasons from very important to not important. The results presented in Table 1 show that respondents ranked all the reasons for the existence of multi-generational households as very important or important. The mean values which range from 3.47 to 3.95 indicate that all their reasons for multi-generational households were almost very important. Boakye (2013) asserted that Ghanaian families especially those in the farming and fishing communities traditionally live in multi-generational households because life was routinely bounded to manual work and the more potential workers the better. It was simply advantageous for such families to have many people under one roof. Lynsar and Dupuis (2015) also revealed that care, especially care of the elderly and care for young children is one of the major reasons for opting to live in multi-generational households and associated with care was the strengthening of family bonds particularly across generations.

Data in Table 2 reveal that majority of the respondents strongly agreed to all roles performed by family members with mean score range from $\overline{X}$ = 3.39, SD = 0.71 to $\overline{X}$ = 3.95, SD = 0.54. The findings imply every member of family have roles to play to ensure that the family system functions well to achieve its goals. This finding is in line with Adams, (2008) that adult males are the protector and the breadwinner of his family. He provides shelter, food, and clothing and protect the females and male children from external attacks. She added that adult females nurture young ones and care for the aged and sick, provide meals for the family, wash, keep the house and its surroundings clean and train young girls to be able to perform women's roles when they grow up. In view of this White and Klein (2002) stated that a family is a system with family members as sub-systems that have roles to perform to achieve the common goal of the system. Each and every one, young, adults or even the aged has a role to perform and failure on any one to perform his/her roles affects the total functioning of the family in achieving goals.

The results in Table 3 show that most of the socio-cultural practices in the family were either always or often practiced by the respondents with the mean scores ranging from M = 3.89, SD = 0.32 to $\overline{X}$= 3.10, SD = 0.65. According to White and Klein (2002) theory of family system, every system has internal rule that shape the behaviour and attitudes of its members and make every family system unique from each other. These internal rules are the socio-cultural practices such as values, standards, norms, folkways among others of which some are general and others are peculiar to families. Therefore, these internal rules of a family give direction and mold individuals to fit in the society and wherever they find themselves. Sahene (2016) also believed that family norms set standards for how family members dress, talk and act. They also set limits on what is permissible or impermissible behaviour under different circumstances and conditions. More than just rules of etiquette, norms provide family members with a guide for living both within the home and outside.

However, interestingly, the responses on high level of education were low with a mean score of X = 2.77, SD = 0.80 which clearly indicates that there is a socio-cultural practice of low level of education among members in living multi-generational households in the Effutu Municipality. Marsh (2015) in her study in the coastal areas found that it was very difficult engaging students and their families in education, notwithstanding sometimes parents' own poor understandings of school influenced their children. There is little belief in the worth of education in families in the coastal areas. Ofsted (2015) indicated that coastal areas with high levels of poverty and in which there are multi-generational households limit employment prospects and with poor experiences of education had developed in years into an 'anti-education' culture, as education was perceived to havV e little positive impact on their own life chances.

The findings in Table 4 (r = 0.12, p = 0.003)revealed that there was a significant relationship between the reasons for the existence of multi-generational households and socio-cultural practices implying that the socio-cultural practices of multi-generational households motivates/create the reasons for the existence of multi-generational households. The more favourable the socio-cultural practices are the more likely people will have reasons to live in multi-generational households in the Effutu Municipality. According to Osako (2013) culture is identified as a vital factor determining multi-generational co-residence in several countries and can be viewed as an explanatory factor for differences in the number of multi-generational households between countries. Asamoah (2015) said the characteristic way of thinking, feeling, judging, and acting defines a culture. In direct and subtle ways, children are molded by the family culture into which they are born. Growing up, their assumptions about what is right and wrong, good and bad, reflect the beliefs, values and traditions of the family culture.

Conclusions

From the findings, it can be concluded that there were varied reasons for the existence of multi-generational households in the Effutu Municipality, notable among the reasons, were high rate of unemployment, security for old age, socializing young ones, children as a source of labour, high cost of accommodation among others. The findings indicated that majority of individuals living in multi-generational households performed most of their roles in the family to ensure smooth running and achieving of family goals. Members in MGH always experienced and engaged in diverse socio-cultural practices such as running errands for everyone especially elders, showing respects for everyone, showing love to everyone among others. However, low level of education predominated in multi-generational household in the Effutu Municipality which may deprive them of getting good careers that will fetch them good income. There was a positive significant relationship between the reasons for the existence of multi-generational households and socio-cultural practices.

Recommendations

Based on the findings the following recommendations are made

1. Individuals, parents or guardians should encourage the youth to learn vocational/technical skills to enable them set up their own business to avoid unemployment in order to meet some of their basic needs and also support the family financially.
2. Members of the family should be encouraged to continuously play their roles in the family. Such responsibilities must assiged to every individual with strict supervision to ensure that the family functions well to achieve the purpose of the existence of multi-generational households in the Effutu Municipality.
3. Young persons should also be encouraged by parents and opinion leaders to pursue education to a reasonable level to gain full employment. They should take advantage of the Government's Free Senior High School's Educational Policy to upgrade themselves.
4. Multi-generational households should be encouraged to establish more favorable socio-cultural practices to entice the youth in order to instill in them the norms, folkways, values, among others, to ensure proper transmission of family's culture from generation to generation.

References

Adams, M. L. (2008). *Family life education*. Accra: Yamens Press.

Adinkra, M. (2017). *The extended families in Ghana.* Accra: Adwinsa Publications.

Asamoah, H. (2015). *Extended families.* Tema: DDr Publishing.

Boakye, B. (2013). *Living in the coastal area in Ghana.*Amakom-Kumasi: Payless Publication Limited.

Bryman, A. (2004). *Social research methods* (2nded). New York: Oxford University Press.

Cohn, D.V.,& Passel, J. (2018). A record of 64million *Americans live in multi-generational households.* Pew Research Center. Retrieved from www.pewresearch.org

Dzramedo, J. E., Amoako, B. M., & Amos, P. M (2018). The state of the extended family system in Ghana: Perceptions of some families. *Research on Humanities* *and Social Sciences.* Vol.8, No. 24. Retrieved from www.researchgate.net on 07-08-2020.

Easthope, H., Lui, E., Baneley, I.,& Judd, B. (2015). Changing Perceptions of Family: A Study of Multi-Generational Households in Australia. *Journal of sociology*: 53(1); 182-200.

Jackson, S.L. (2009). *Research Methods and Statistics: A Critical Thinking Approach. (3rded.).* Belmont, California: Wadsworth publishers.

Kochhar, R.,& Cohn, D. (2011). *Income and poverty in multi-generational and other households.* Retrieved from http//www.pewsocialtrends.org

Kurankye, H. K. K (2017). The Ghanaian (African) extended family system. Retrieved from http//:www.ghanaweb.com/ghanahomepage/features/the Ghanaian-african-extended-family-system1990.

Leach, M. A (2012) A Burden of Support: Household Structure and Economic Resources among Mexicans Immigrant Families. *Journal of Family Issues.* 35(1), 28-53.

Lynsar, P., & Dupuis, A. (2015). *Meeting the housing needs of multi-generational households: A Research Report prepared for BRAAZ.* Retreived from https://www.iso.456.org

Marsh, S. (2015). *Challenges in the coastal areas of Ghana.* Accra: Yasarko Press.

Ofsted, R. (2015). *Multi-generational living.* London: Earthscan Publications.

Omari, M. (2018). *Leadership styles in the family systems.* Accra: Yamens Press.

Osako. D. (2013). *Our tradition.* Accra: Yamens Press.

Peterson, R. (2009). *Families first: Keys to successful family functioning.* Retrieved from www.ext.vt.edu.

Perrino, T., Gonzalez, S. A., Pantin, H., &Szapocznik, J. (2000). The Role of Families in Adolescent HIV Prevention: A review. *Clinical Child and Family Psychology Review*, 3, 81-96.

Pew Research Center. (2010). *The return of the multigenerational family household*. Retrieved from http://www.pewsocialtrends.org

Sahene, G. (2016). *The indigenous family system.* Kumasi: Diddy Publication.

Sampe, R. A. (2019). Living in large families. Accra: Asquart Publications

Treas, J.,&Batalova, J. (2011). Residential Independence: Race and Ethnicity on the Road to Adulthood in Two U.S. Immigrant Gateways. *Advances in Life Course Research.*16, 13-24.

White, J. M & Klein D. M. (2002). *Family Theories* (2nded). London, Sage Publication.

Wija, P., &Holmerova, R. (2012). *Global Perspectives on Multi-generational householdsand Intergenerational Relations. An ILC Global report 2012.*Retrieved from http//:www.ilc-alliance.org

HER Vol. 28 No. 2, December 2021, pp. 19-31

Challenges to Application of Environmental Management Accounting Practices in Manufacturing Firms in Anambra State

Nwandu, L. O.; Ugwoke, E.O.; Eze, C.C.
Department of Business Education,
University of Nigeria, Nsukka

Abstract

This study focused on challenges to application of environmental management accounting in manufacturing firms in Anambra State. Specifically it determined challenges to effective application of environmental management accounting in manufacturing firms and strategies for improving the application of environmental management accounting in the firms in Anambra State, Nigeria. Two research questions guided the study and two null hypotheses were tested at 0.05 level of significance. Survey research design was used. Population for the study was 214, comprising 107 practicing accountants and 107 managers in manufacturing firms in the area of the study. Questionnaire was used for data collection. Data were analyzed using mean, standard deviation and t-test. Findings include 12 challenges to the application of environmental management accounting in manufacturing firms. These are lack of environmental accounting standards ($\overline{X}$ = 3.34), poor environmental legislation ($\overline{X}$= 3.35) and poor specification of environmental information ($\overline{X}$= 3.33), among others. Other findings are 13 strategies for improving the application of environmental accounting practices. These include, sensitizing management on the importance of being open to change ($\overline{X}$ = 3.27), provision of environmental accounting standards by professional bodies for uniformity of accounting reports ($\overline{X}$ = 3.29) and others. Based on the findings, it was recommended among others that environmental accounting standard should be well specified to enable manufacturing firms apply it in their accounting system.

Keywords: Environmental, Management, Accounting, Practices, Challenges, Manufacturing, Firms.

Introduction

The human race has sought ways to preserve and protect the environment against pollution and excessive generation of wastes which if not checked will affect future generation. To this end, a 17-point agenda called Sustainable Development Goals (SDGs) was developed by the United Nations during a summit in 2015 with the development agenda titled "Transforming our World: The 2030

Agenda for Sustainable Development." Sustainable development is a development that will meet the needs of the present generation as well as the needs of the future generations (Sola,Obamuyi, Adekunjo &Ogunleye, 2016). In agreement to the above definition, Ndubuisi-Okolo and Anekwe (2018) asserted that sustainable development is a development that promote and seeks for the progress of the environment, economy and society in general. In this study, sustainable development is a development that seeks for the well-being of the environment, society, economic (organization) and future generations. Therefore, sustainable development stresses on the concept of "Triple Bottom Line" to encourage businesses to manage and enhance their economic, social and environmental performance for sustainability.

Sustainability can be achieved when manufacturing firms conduct their activities with a view of protecting the environment and society instead of focusing on economic gains alone in every production activity (Doorasamy, 2014). The United Nations has required businesses and industries to play roles that will facilitate the achievement of sustainable development Goals (Jones, Wynn, Hillier & Comfort, 2017).This is because most of the environmental problems and challenges faced by the society today are caused by business organizations especially manufacturing firms since their activities are environmentally sensitive.

Manufacturing, according to United Nations in Onuoha (2012), involves the transformation of inorganic or organic substances into new product through a mechanical or chemical process. In the same vein, manufacturing is the process of applying the right tools, machines, labour and material in the right quantity to transform them into goods and services either for commercial purpose or personal use (Ududechinyere, Eze, & Nweke, 2018). Therefore, any firm that is involved in the conversion of raw materials into finished/semi-finished goods or services to meet human needs and want is known as a manufacturing firm.

Manufacturing firms have contributed immensely to the growth and development of the economy through the provision of intermediate inputs, finished goods, job creation, stimulation of investment and innovation, gross domestic product, economic growth and development among others. (Hermana, 2016; Oburota &Ifere, 2017; Ududechinyere, Eze & Nweke 2018). However, despite the roles of manufacturing firms in the economic development of the nation, their activities have brought hazardous consequences to both the environment and the human population. Manufacturing firms exert much impact on the environment through factory processes, mechanisms and products, resulting to waste products, pollution, toxic wastes and emissions among others (Ezeibe & Umenweke, 2015). To validate the above statement, the report of Environmental

Investigation Agency in Adebambo, Ashari, and Nordin (2015) revealed that manufacturing firms are responsible for the generation of solid wastes, contamination of the water bodies and above all emission of carbon dioxide that causes hazards to the environment. Therefore, in a bid to achieve sustainable development goals, manufacturing firms should seek ways of protecting the environment by revealing the cost of the impact of their activities on the environment through environmental management accounting.

Environmental Management Accounting (EMA) involves identifying the financial and non-financial environmental related costs to improve the financial and environmental performance of an organization for internal decision making by management (Chang in Iredele & Ogunleye, 2017). Kumar, Jat, and Sharma (2016) observed that environmental management accounting practices are veritable tools that enable management plan, manage resources, control pollution so as to help an organizations to determine and compare the cost of preventing environmental damages using greener technologies, processes and products and what it will cost to remedy the damages caused by the impact of their activities on the environment.

The effective application of environmental management accounting practices by manufacturing firms would lead to reduction in wastes, energy and emission, use of natural resources among others which will also lead to reduction of firms' adverse impact on the environment (Arong, Ezugwu &Egbere, 2014). However, the authors further asserts that Nigerian business organizations are yet to apply environmental management accounting and its role in ensuring efficiency in the use of raw materials, energy and natural resources which depletes the environment. This can be attributed to the challenges in applying EMA because it is a new aspect of accounting. As a result, researches has shown that most of the manufacturing firms are still using conventional accounting system and thus they are not aware of their environmental costs and how those costs could be managed for sustainability (Okafor, Okaro and Egbunike, 2013; Jamil, Mohamed, Muhammad, & Ali 2015; Iredele & Ogunleye, 2017).

Most manufacturing firms therefore are not yet environmentally responsible giving the reason for high environmental threats in the society especially in Anambra state. Anambra state is one of the states in South East Nigeria and known as the hub for manufacturing activities. The manufacturing sectors surveyed in this study are those in chemical and pharmaceutical, plastic and foam, steel metal & iron, motor vehicle and miscellaneous assembly, electrical& electronics, pulp and paper, food, beverages & tobacco, textile and non-metallic minerals. These firms are located in three major cities namely: Onitsha, Awka and Nnewi which serves as the major center for manufacturing activities and thus exact environmental impact in these areas. Most manufacturing firms in Onitsha do not have programmes for wastes treatment and thus they discharge wastes directly into the environment and into the water bodies. Such practices pose health threats to residents in the area. The unavailability of programme for effluents can be linked to none application of environmental management accounting practices which help firms to be aware of the impact of their activities on the environment. In agreement to the above, researches revealed that manufacturing firms are the major sources of pollutants which causes global warming and as such they need to apply practices that will reduce the impact of their activities on the environment (Smith & Perks, 2010; Wakulele, Odock, Chepkulei &Kiswili, 2016; Eshikumo & Odock, 2017)

Manufacturing firms all over the world tends to face varying challengesto effectivelyapply environmental management accounting practices in their accounting system.Such challenges include: attitudinal challenges, institutional challenges, financial challenges, informational challenges and management challenges which have made it difficult for them to apply environmental management accounting practices Chang, 2007;Ustad, 2010; Jamil, Mohamed, Muhammad, and Ali, 2015; Egbunike and Eze (2017); Karimi, Dastgir, and Arab Salehi, 2017; Iredele and Ogunleye, 2017; Krivačić &Janković, 2017; Hossain, Islam & Naznin, 2019).

These factors in varying degrees have prevented accurate tracking and tracing of environmental costs and thus pose challenges to the adoption of EMA in industries. Although past researches have reported the factors that challenge the application of EMA in other countries of the world, there is scare information on what restrict Nigerian manufacturing firms to practice EMA. Hence, since other researches like Das, (2016), emphasized on the need for a standardized environmental accounting practices and with legal enforcement for firms to apply EMA in their accounting system. The factors challenging EMA practices in manufacturing firms in Nigeria, with particular reference to Anambra State which is the hub of manufacturing firms in South-East Nigeria are unknown. When these challenges are unraveled and solutions proffered, the firms would be fitted to apply the practices for sustainability. The problem of this study, therefore, is to identify the challenges to the application of environmental management accounting practices in manufacturing firms in Anambra state and to identify the strategies to improve on the challenges.

Purpose of the Study

The general purpose of the study was to investigate the challengesto the application of environmental management accounting in manufacturing firms (EMA) in Anambra State. Specifically, the study determined:

1. challenges to the effective application of EMA in manufacturing firms in Anambra State, Nigeria
2. strategies for improving the application of EMA in Anambra State, Nigeria.

Research Questions

The following research questions based on the specific purposes will guide the study.

1. What are the challenges to effective application of EMA in Anambra State?
2. What are the strategies for improving the application of environmental EMA in Anambra State?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

$H0_1$. There is no significant difference between the mean responses of practicing accountants and managers on the challenges to effective application of EMA in Anambra State.

$H0_2$. There is no significant difference between the mean responses of practicing accountants and managers on the strategies for improving the application of EMA in Anambra State.

Methodology

***Design of the Study*:** This study adopted descriptive survey research design.

***Area of the Study*:** The area of the study was Anambra State. It was chosen for this study because most of the manufacturing firms within the South-East of Nigeria are located in the state majorly in Onitsha, Awka and Nnewi. These manufacturing firms cause pollution, toxic wastes and emissions leading to climate change and global warning. Therefore, there is need to look into their business activities to determine the challenges they have in applying EMA practices which will help them to protect the environment.

***Population for the Study*:** The population for this study was 214, comprising 107 practicing accountants and 107 managers from the selected 107 manufacturing firms. The lists of manufacturing firms and locations were obtained from the Manufacturers Association of Nigeria (MAN), Anambra/Enugu/Ebonyi Chapter directory collected on 11th March, 2019. Since the population of the study is manageable in size, no sampling was drawn.

***Instrument for Data Collection*:** A 26-item questionnaire was used to collect data. It was developed based on the literature specific purposes of the study review. The questionnaire was divided into two parts. Part 1 elicited information on the bio data of the respondents while Part 2 was further divided into two sections (A-B). Section A focused on challenges to effective application of EMA practices while section B focused on strategies for improving the application of EMA practices. The questionnaire utilized four-point scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with values as 4, 3, 2 and 1 respectively. The questionnaire was face-validated by three experts in University. Cronbach Alpha was used to determine reliability coefficient of the instrument. It yielded coefficient index of 0.89 and 0.86 for section A and B respectively with a grand reliability coefficient value of 0.88.

Method of Data Collection: Two hundred and fourteen copies of the questionnaires were distributed by hand to respondents, comprising 107 practicing accountants and 107 managers of the registered manufacturing firms in Anambra State. Out of 214 copies of the questionnaire administered, 202 were correctly filled and returned representing about 94% return rate.

***Method of Data Analysis*: **Data were analyzed using mean (X) and standard deviation (SD) for answering the research questions. The analyzed data were interpreted using real limit of numbers to answer the research questions as follows: Strongly Agree (SA) 3.50-4.00; Agree (A) 2.50-3.49; Disagree (D) 1.50-2.49 and Strongly Disagree (SD) 1.00-1.49. Hypotheses were tested using t-test at 0.05 level of significane.

Findings

Table 1: Mean Responses, Standard deviation and t-test of Practicing Accountants and Managers on the Challenges to Effective Application of EMA in Anambra State.

S/N	Challenges	$\bar{X}_{PA}$	SD_{PA}	$\bar{X}_{MG}$	SD_{MG}	X_{GM}	SD_{GM}	DEC	P-value	RMK
1	Management resistance to change	2.55	0.88	2.21	0.67	2.38	0.78	DA	0.39	NS
2	low priority of accounting for environmental costs	3.01	0.82	2.85	0.71	2.93	0.77	A	0.50	NS
3	perception of the insignificance of environmental costs in overheads	2.76	0.74	2.89	0.75	2.83	0.75	A	0.65	NS
4	Lack of environmental accounting standards by professional bodies	3.36	0.61	3.32	0.72	3.34	0.67	A	0.35	NS
5	Poor environmental legislation	3.39	0.60	3.31	0.64	3.35	0.62	A	0.13	NS
6	Lack of institutional and stakeholder pressure to apply EMA	3.38	0.69	3.33	0.63	3.36	0.66	A	0.58	NS
7	Low incentive for managing environmental costs	3.35	0.67	3.19	0.74	3.27	0.71	A	0.09	NS

Table 1 Contuned

8	Higher initial capital cost	3.28	0.78	3.18	0.73	3.23	0.76	A	0.73	NS
9	Poor research and development in EMA	2.51	0.82	2.60	0.94	2.56	0.71	A	0.13	NS
10	Poor specification of environmental information	3.39	0.61	3.26	0.62	3.33	0.62	A	0.24	NS
11	lack of integration of the environment into strategic planning	3.05	0.66	3.08	0.80	3.07	0.73	A	0.74	NS
12	lack of management support for environmental issues	2.65	0.60	2.31	0.52	2.48	0.56	DA	0.36	NS
13.	lack of environmental responsibility and accountability by management	3.02	0.44	3.06	0.35	3.04	0.40	A	0.58	NS
	Cluster Mean & Standard Deviation					**3.01**	**0.67**	**A**		

Key: *X_{PA} = Mean of practicing accountants, X_{MG} = Mean of managers, SD_{PA} = Standard deviation of practicing accountants, SD_{MG} = Standard deviation of managers, X_{GM}= Grand mean, SD_{GM} = Grand standard deviation, DEC = Decision, A = Agree, DA = Disagree, RMK = Remark.*

Table 1 shows that all the items except item 1 and 12 have their mean ratings ranged from 2.56 to 3.36. This means that the respondents agreed that the items are challenges to effective application of EMA practices in manufacturing firms in Anambra State. On the other hand item 1 and 12 had the mean of 2.38 and 2.48 respectiveely, indicating that the items were not challenges to effective application of EMA practices in manufacturing firms in Anambra State. Also, the standard deviation (SD) of all the items ranged from 0.40 to 0.78, which indicated that the respondents were close to one another in their opinions, and that their responses are not far from the mean.

Table 1 also shows that all the items have t-value of -0.67 to 1.69 with P-values ranged from 0.09 to 0.74 at 200 degree of freedom which is greater than 0.05 level of significance. These indicate that there is no significance difference in the mean responses of practicing accountants and managers on the challenges to effective application of EMA practices in manufacturing firms in Anambra State.

Table 2: Mean Responses, Standard deviation and t-test of Practicing Accounts and Managers on the Strategies for Improving the Application of EMA **in Manufacturing Firms in Anambra State.**

S/N	Strategies for improving EMA in manufacturing firms	$\overline{X}_{PA}$	SD_{PA}	$\overline{X}_{MG}$	SD_{MG}	$\overline{X}_{GM}$	SD_{GM}	DEC	P-value	RMK
1	Sensitizing management on the importance of being open to change	3.27	0.54	3.01	0.42	3.14	0.48	A	0.99	NS
2	Encouraging managements to prioritize accounting for environmental costs	3.28	0.52	3.22	0.48	3.25	0.50	A	0.74	NS
3	Enlightening management on the need to separate environmental cost from general overhead	3.36	0.52	3.33	0.57	3.35	0.55	A	0.72	NS
4	Provision of environmental accounting standards by professional bodies for uniformity of accounting reports	3.29	0.51	3.30	0.52	3.30	0.52	A	0.86	NS
5	Strict environmental regulations and monitoring as a means of ensuring firms apply EMA	3.36	0.64	3.33	0.49	3.35	0.70	A	0.69	NS
6	Adequate institutional and stakeholder pressure for application of EMA	3.37	0.70	3.56	0.50	3.47	0.60	A	0.03	S
7	Adequate incentive to firms who incorporate environmental protection strategies in their organization	3.40	0.66	3.38	0.55	3.39	0.61	A	0.83	NS
8	Creating and setting up budget for environmental research and development in EMA	3.26	0.50	3.25	0.60	3.26	0.55	A	0.90	NS
9	Relevant researches should be conducted on the effective way to apply EMA	3.31	0.54	3.28	0.59	3.30	0.57	A		NS
10	Adequate specification of all environmental information based on each group of environmental costs	3.43	0.65	3.37	0.60	3.40	0.63	A	0.52	NS
	Management Strategies							A		
11	Making policies available for management of manufacturing firms to integrate environment in their strategic plans	3.15	0.53	2.96	0.48	3.06	0.51	A	0.31	NS

Table 2 Contuned

12	Educating management that the benefit of applying EMA far outweighs the cost involved in its application	3.25	0.48	3.35	0.54	3.30	0.51	A	0.15	NS
13.	Enlightening managements of manufacturing firms on the need to adopt cleaner technologies to meet societal goal of achieving sustainable development	3.32	0.53	3.35	0.52	3.34	0.53	A	0.72	NS
	Cluster Mean& Standard Deviation					**3.30**	**0.56**	A		

Key: *X_{PA} = Mean of practicing accountants, X_{MG} = Mean of managers, SD_{PA} = Standard deviation of practicing accountants, SD_{MG} = Standard deviation of managers, X_{GT} = Grand mean, SD_{GT} = Grand standard deviation, DEC = Decision, A = Agree, RMK = Remark.*

Table 2shows that all the items had their mean ratings range from 3.06 to 3.47. This means that the respondents agreed that all the items are strategies for improving the application of EMA in manufacturing firms in Anambra State. Also, the standard deviation (SD) of all the items ranged from 0.48 to 0.70,indicating that the respondents were close to one another in their opinions, and that their responses were not far from the mean.

Table also shows that all the items except item 6 had their t-value ranged from -0.36 to 0.65 with a P-value of 0.15 to 0.99 at 200 degree of freedom which is greater than 0.05 level of significance, indicating that there is no significance difference in the mean responses of practicing accountants and managers on the challenges to effective application of environmental management accounting in manufacturing firms in Anambra State. However, item 6 had a t-value of -2.16 with a P-value of 0.03 at 200 degree of freedom indicating that a significant difference exists between the two groups of respondents.

Discussion of Findings

The findings of the study presented in Table one revealed that lack of environmental accounting standards by professional bodies; poor environmental legislation; poor specification of environmental information; lack of institutional and stakeholder pressure; low incentive for managing environmental costs among others are challenges to effective application of environmental management accounting in manufacturing firms in Anambra State. Furthermore, no significant difference was found in the mean responses of practicing accountants and managers of manufacturing firms on the identified challenges to effective application of environmental management accounting for sustainable development in Anambra State.

These findings are in line with the findings of Chang, 2007, Ustad

(2010),Karimi, Dastgir, and Arab Salehi (2017) Iredele and Ogunleye (2017) and Hossain, Islam and Naznin (2019) who found that the challenges to adoption of environmental management accounting are poor specification of environmental information, poor legislation, lack of institutional pressure and stakeholder power, low of incentive for managing environmental costs, lack of skills, knowledge and experience to identify and allocating environmental cost, resistance to change, and culture of the society in dealing with environmental issues. In the findings of Egbunike and Eze (2017), lack of environmental awareness by employees, shortage of environmental information and higher adaptation costs were the challenges in the adoption of EMA. The similarity in findings between the previous studies and the present study shows that these items are the general challenges affecting the application of environmental management accounting.

The findings of the study presented in Table two revealed that creating and setting up budget for environmental research and development in EMA; provision of environmental accounting standards by professional bodies for uniformity of accounting reports; strict environmental regulations and monitoring as a means of ensuring firms apply EMA; adequate specification of all environmental information based on each group of environmental costs; adequate institutional and stakeholder pressure for application of EMA; adequate incentive to firms who incorporate environmental protection strategies in their organization among others are strategies for improving the application of environmental management accounting practices in manufacturing firms in Anambra State. Furthermore, no significant differences was found in the mean responses of practicing accountants and managers of manufacturing firms on 12 out of the 13 identified strategies. However, significant differences were found in one of the items

The findings of this study are in congruent with the findings of Das (2016) who found that legal enforcement necessitating the urgent and pressing need to apply environmental management accounting practices to combat environmental problems should be made by government and other related agencies. This is because, according to Iredele and Ogunleye (2017), in encouraging firms to apply environmental management accounting practices, government and other stakeholders should play an active role in enforcing environmental laws and regulations; introduce tax incentives and other market-based environmental policy instruments as a reward for environmental performance by firms among others. Also Egbunike and Eze (2017) declared that to encourage firms to apply EMA, government and environmental agencies should develop environmental accounting guidelines and employees should be trained in environmental accounting practices. The consistencies of these findings implies that these strategies are generally accepted as a way forward in ameliorating the challenges to effective and efficient application of EMA in manufacturing firms.

Conclusion

Environmental management accounting has been identified as a means through which any economy can achieve sustainable development. The activities of manufacturing firms have impacted negatively to the environment. Stakeholders and investors are not only interested in the financial position but on their environmental practices. The findings have shown that the manufacturing firms are facing challenges in the application of EMA and thus they are not environmentally responsible. Hence, strategies that can be used to improve the challenges were identified. It is hoped that if these strategies would be adopted by the manufacturing firms, they will be capable of solving the environmental management problems particularly in their immediate environment and the society at large.

Recommendations

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

1. Government through its agencies should mount pressure on manufacturing firms to adopt environmental management accounting as a means through which the environment can be protected and preserved for future generation.
2. Accounting bodies should work towards developing an environmental accounting standard and frameworks to enable companies apply EMA in their business activities as this was identified as one of the challenges to the application of EMA.

References

Adebambo, H.O, Ashari, H. & Nordin, N. (2015). An empirical study on the influence of sustainable environmental manufacturing practice on firm performance. *Journal ofSustainability Science and Management,10(*2), 42-51.

Arong, F.E., Ezugwu, C.I., & Egbere, M.I. (2014). Environmental cost management and profitability of oil sector in Nigeria (2004-2013). *Journal of Good Governance and Sustainable Development in Africa,2*(2), 181-192.

Chang, H. (2007).Environmental management accounting within universities: Current state and future potential. An Unpublished Thesis Submitted to the School of Accounting and Law, RMIT Universityin Fulfillment of the Requirements for the Degree of Doctor of Philosophy.

Doorasamy, M.(2014).Using environmental management accounting to investigate benefits of cleaner production at a paper manufacturing company in Kwadakuza, Kwazulu Natal: A case study, A thesis submitted in fulfillment of the requirement of Master of Technology, Department of Management Accounting, Faculty of Accounting and Informatics, Durban

University of Technology, Durban, South Africa.

Egbunike, P A. & Eze, M. N.(2017). Must firms adopt environmental accounting? Adoption challenges in Nigeria. *Trends Economics and Management,30*(3), 9-19

Eshikumo, S.M., & Odock, S.O. (2017). Green manufacturing and operational performance of a firm: Case of cement manufacturing in Kenya.*International Journal of Business and Social Science,8*(4), 106-120

Ezeibe K.K., & Umenweke, M.N. (2015). A critical review of the law of environmental protection for manufacturing industries in Nigeria.*International Journal of Business & Law Research 3*(3), 1-23.

Hermana, E. (2016). The importance of the manufacturing sector in the Romanian economy.*Procedia Technology,22* (2016), 976 – 983.

Hossain, S., Islam, N., & Naznin, T. (2019). Environmental accounting disclosure practices: A survey of some listed companies in Bangladesh.*Journal of Business and Management, 21*(1/4), 17-23.

Iredele, O.O. & Ogunleye, O.J. (2017). Identifying barriers to environmental management accounting: A comparative study of Nigeria and South Africa practices.*The Business and Management Review*, *9*(1), 168-179.

Jamil, C.Z.M., Mohamed, R., Muhammad, F., & Ali, A. (2015). Environmental management accounting practices in small medium manufacturing firms.*Procedia - Social and Behavioral Sciences,172*, 619 – 626.

Jones, P., Wynn, M., Hillier, D. & Comfort, D. (2017). The Sustainable Development Goals and Information and Communication Technologies.*Indonesian Journal of Sustainability Accounting and Management, 1*(1), 1–15.

Karimi,Z,. Dastgir, M.& Saleh, M.A. (2017). Analysis of factors affecting the adoption and use of environmental management accounting to provide a conceptual model.*International Journal of Economics and Financial Issues*,*7*(3), 555-560.

Krivačić, D. & Janković, S. (2017). Managerial attitudes on environmental reporting: Evidence from Croatia.*Journal of Environmental Accounting and Management*, *5*(4), 327-341.

Kumar, R., Jat, D.R.,& Sharma, S. (2016). Towards green accounting: Effective tool for sustainable development.*International Journal of Applied Research*; *2*(12), 604-607.

Das, P. K. (2016). Environmental accounting: A conceptual study of Indian context. *International Journal of Mechanical and Industrial Engineering*, *10*(8), 2927-2933.

Ndubuisi-Okolo P. U., & Anekwe R.I. (2018). Strategies for achieving sustainable development in Nigeria: The Nexus. *International Journal of Academic Research in Business and Social Sciences*, *8*(6), 168–180.

Oburota, C.S. & Ifere, E.O. (2017). Manufacturing subsector and economic growth in Nigeria, *British Journal of Economics, Management & Trade,17*(3), 1-9.

Okafor, G. O., Okaro, S. C. & Egbunike, C. F. (2013). Environmental cost accounting andcost allocation: A study of selected manufacturing companies in Nigeria.*European Journal of Business and Management,5* (18), 68-75.

Onuoha, B.C. (2012). The environments of the manufacturing sector in Nigeria: Strategies towards vision 20:

20.*International Business and Management*, *5*(1), 67-74.

Smith, E. E., & Perks, S. (2010). A perceptual study of the impact of green practice implementation on the business functions. *Southern African Business Review, 14*(3), 1-2.

Sola,O., Obamuyi, T.M., Adekunjo, F.O &Ogunleye, E.O. (2016). Manufacturing performance in Nigeria: Implication for sustainable development. *Asian Economic and Financial Review*, *3*(9), 1195-1213.

Sustainable development goals report (2017). United Nations Publications, 300 East 42nd Street, New York, NY, 10017, United States of America. Available at https://unstats.un.org/sdgs. Accessed 1st February, 2019.

Ududechinyere, C., Eze, O. M. & Nweke, A.M. (2018). An analysis of the effect of manufacturing sector on the growth of the Nigerian economy.*Journal of Business and Management*, *20* (4), 34-46.

Ustad, B.H. (2010). The adoption and implementation of environmental management systems in New Zealand hotels: the managers' perspective, An Unpublished dissertation submitted to Auckland University of Technology in partial fulfilment of the requirements for the degree of Master of International Hospitality Management (MIHM). Available at **Error! Hyperlink reference not valid.**. Accessed on 15th October, 2018.

Uzuagulu, A.E. (2011). *Practical guide to writing research project reports in tertiary institutions*. Enugu: Cheston Ltd.

Wakulele, S.R., Odock, S., Chepkulei, B. & Kiswili, N.E. (2016). Effect of eco-design practices on the performance of manufacturing firms in Mombasa County, Kenya. *International Journal of Business and Social Science,7*(8), 108-132.

HER Vol. 28 No. 2, December 2021, pp. 32- 44

Sustainable Heritage Tourism Development and Host Community Perceptions: A Case Study of *Irefin* Palace in Ibadan, Oyo State, Nigeria

Yusuf, T. G.
Department of Family, Nutrition and Consumer Sciences,
Obafemi Awolowo University, Ile – Ife

Abstract

This study investigated issues relating to host community perception of Irefin Palace for sustainable heritage tourism development in Ibadan, Oyo State, Nigeria. Specifically, the study determined residents' perception of developing Irefin palace for sustainable tourism, factors influencing tourists' patronage of the palace and residents' percveption on the importance of heritage tourism. Questionnaire was used to gather data. Eighty respondents selected by purposive and simple ransom sampling techniques participated in the study. Findings of study include 10 perception indicators of developing Irefin Palace for heritage tourism. These include heritage tourism is alien to our culture, Irefin Palace and its design are too old for preservation, heritage tourism lead to under-utilization of the Palace and others. Findings also reveal four factors influencing tourists' patronage of Irefin palace. These are lack of awareness, poor state of the palace, absence of tourism supporting ameities at the Palace, absence of professional tour guide. Other findings are 12 indicators of perceived importance of heritage tourism. These include provide employment opportunities, provide revenue for government, be a source of pride for the community among others. Based o the findings, three recommendations were made.

Key Words: Irefin, Palace, Heritage, Development, Perception, Host, Community

Introduction

Heritage tourism falls under the purview of cultural tourism. It is a tool for economic development that achieves economic growth through attracting visitors from outside a host community, who are motivated wholly or in part by interest in the historical, artistic, scientific or lifestyle/heritage offerings of a community, region, group or institution (Silberberg, 1995).As history shows, even the ancient Egyptians and Romans, as well as the nobility of medieval times, travelled to experience historic places of cultural importance (Towner, 1996).

While there may exist various interpretations and descriptions of 'heritage', perhaps the most commonly accepted definition among heritage scholars described it as 'the present day use of the past' (Ashworth,2003; Graham, Ashworth &Tunbridge, 2000). This definition is purposefully broad and includes both tangible and intangible features of the cultural landscape. Some observers, including UNESCO, have extended the scope to include natural heritage as well (Boyd and Butler, 2000; Thorsell&Sigaty, 2001). Heritage is a complex and highly political phenomenon. There are few social elements and types of tourism that are more hotly contested at so many levels (Hall, 1997; Timothy & Boyd, 2003; Timothy &Prideaux, 2004). Literature has identified reasons why heritage conservation and preservation are of high priorities in western societies; fear of over-industrialization or rapid modernization; national pride and collective nostalgia; education and scientific research; economics; aesthetic and artistic value; and utilitarian value (Boyd, 2002; Hewison, 1987; Prentice *et al*., 1998; Tiesdell*et al*., 1996; Timothy & Boyd, 2003).The recognition of an area's historic resources can bring about neighborhood revitalization, increased and sustainable tourism, economic development through private investment, and citizenship building (Russell, 2014). For instance, in an attempt to ensure holistic appreciation of heritage tourism and its associated multiplier effects in India, a popular travel site, Lonely (2020) suggested that tourists seeking an authentic heritage tourism experience should explore the real India by using traditional modes of transport to obtain a lifetime experience. Chapman and Duncan (2011) argued that ancient attractions (arcades) can be important elements of strategies for repositioning and rebranding heritage tourism.

According to Nur *et al.* (2015), failure to explore the touristic asset of any community for development as an integral part of strategies for ensuring overall community development will lead to the neglect of the touristic potential of such destinations. When communities' travel-related entities partner with public or private organizations, the historic, cultural, and natural resources are more effectively promoted to meet the heritage traveler's desire for an integrated and enriching experience (Bruce, 2010).Tourism is too important a resource to be left to the tourism professionals, it needs to be part of a community mobilization strategy that can reinvent the role of heritage so that it serves the needs of everyone (Bob, 2014). Heritage tourism is a personal encounter with traditions, history, and culture. Heritage tourism is based upon the concept that each community has a story to tell. This is a rapidly growing niche market that is directed towards experiencing the local customs, traditions, arts, history, sites, and culture that authentically represent a particular place. To the heritage tourist, this culture must be unique and it must be authentic.

Cultural heritage is not just something to preserve for future generations, but is in fact an asset that can be leveraged to bring real economic benefits to the community (Bob, 2014). Rober (2014) opined that small-scale tourism is often far more beneficial to local economies than the rapid expansion of massive resort enclaves that dominate many tourism-dependent regions. Recent studies have shown that 78 percent of US tourists take part in a cultural heritage activity while traveling (partners for livable communities, 2014).

From a certain view, cultural heritage tourists might be thought of as amateur ethnographers. But while they are interested in learning about other cultures, they are first and foremost tourists. The pervasiveness of heritage resources has put heritage tourism at the forefront of the tourism industry in many parts of the world. It is one of the most significant types of tourism in terms of visitors and attractions, involving hundreds of millions of people every year. Some observers such as; MacCannell (1976) have argued that people travel in a constant search for authentic experiences and genuine places. According to Moscardo and Pearce(1986), tourists desire authentic encounters of some sort and that, at least perceived authenticity creates more satisfactory visitor experiences. Heritage tourism ensures preservation of community resources and provide a lot of economic benefits for the host community. The enormity of the economic impact of heritage tourism cannot be overstated.

As one of the largest forms of tourism, visitors to historic places and the spending that accompanies them in the areas of lodging, food, admission fees and shopping, contribute billions of dollars every year to the global economy and employ millions of people directly and indirectly (Timothy & Boyd, 2003). With the current challenging and difficult economic situation in Nigeria led by high level of unemployment and dwindling revenue for the government, exploring the many benefits offered by heritage tourism could provide another source of revenue for government and employment opportunities for residents, however, while trying to explore any community resources, the importance of the knowledge and perception of the host community cannot be over emphasized, hence the concern of this study, which is to assess residents' perception of *Irefin* palace for sustainable tourism development in Ibadan, Oyo State, Nigeria. According to Litheko and Potgiester (2016), what a local destination has to offer must be known to local residents in order for them to support local tourism facilities and attractions. Lee &Brahmasrene (2013)concluded that local population awareness and perception of tourism development is useful for developing measures to overcome problems due to hostility between visitors and local populations and for making plans to gain residents' support for further tourism development.

The importance of understanding residents' perceptions of the impact of tourism is substantial when it comes to the successful development of tourism (Zhang *et al*., 2006), as well as local support for tourism development (Nicholas *et al*., 2009; Latkova*et al*., 2012; Rasoolimanesh*et al*., 2017) and the satisfaction of host communities (Xie*et al*., 2014; Ribeiro *et al*., 2017). Many authors agree that tourism has effect on the economy, social-culture, and environment of host communities (Sharpely, 2014). Tourism tends to be beneficial to the communities whose government is in the stage of tourism development because it can increase their quality of life in different ways, such as improved facilities and employment opportunities (Sheng &Tsui, 2010; Moayad, *et al*., 2019). It also enhances the economy (Liang &Bao, 2015); creates more natural and cultural attractions, and helps protect these attractions (Ko& Stewart, 2002; Vargas-Sanches*et al*., 2008). Besides this, tourism leads to an increase in restaurants and accommodation services and creates more festivals and outdoor recreation opportunities (Liang &Bao, 2015). Regrettably, despite such benefits to the community, negative impacts can occur when tourists interact with local residents. For instance, tourism increases the cost of living and contributes to an increase in crime, the use of drugs, and traffic, leading to a big change in the culture of local residents (McCool & Martin, 1994; Tosun 2002; Jurowski&Gursoy, 2004) as well as environmental damage (Latkova*et al*., 2012). Several studies have found that the influence of residents' perception toward tourism affects their satisfaction (Xie*et al*., 2014; Ribeiro *et al*., 2017; Vargas-Sanches*et al*., 2008; Andereck*et al*., 2005; Shen & Cottrell, 2008). Wang *et al*. (2014) noted that residents' satisfaction is one of the key factors leading to the success of tourism development. In Nigeria, there are a lot of heritages unique to different ethnic groups of the country. Among these are UNESCO certified (*Osun Osogbo* Grove and *Sukur* Heritage sites) and others such as; *Shao Awon*Mass Wedding Festival, *Argungun* Fishing Festival, Masquerade festivals, Long Juju of *Arochukwu* etc. Ibadan, the capital city of Oyo State and the largest city in Nigeria by geographical area also has some popular heritages. Among these are; *Oke Ibadan* and *Egungun* festivals, *Mapo* Hall, *Irefin* Palace, Bowers' Memorial Tower etc. The focus of this study is on the *Irefin* palace. This is an ancient palace built with mud and timber over 200years ago and still stands strong on the soil of Ibadan city, southwest Nigeria (Folarin, 2015). The palace belongs to one of the royal families of Ibadan (Sulaimon, 2019).The *Irefin* clans were warriors in the days of old who settled in the Ibadan area known then as a resting settlement for travelers. The palace was the abode of a powerful chief in Ibadan enclave, who later became the traditional head of Ibadan called *Baale Irefin*, who ruled from

1912-1914. All thieves caught and convicted in Ibadan during his reign were beheaded. Preserved at the ancient palace are ancient diaries showing old records of events that took place at the *Irefin* Palace in the olden days. Among the numerous rooms in the palace are the clan's 'spiritual powerhouse' and the judgment room where misunderstandings within the clan and the community are resolved or punishment meted out to the iniquitous. This palace possesses great touristic value, hence, it is the concern of this study to determine host community's perception of developing it for heritage tourism.

Objectives of the Study: This study instigated issues relating to host community perception of *Irefin* palace for sustainable heritage tourism development in Ibadan, Oyo state. Specifically, the study determined:

1. residents' perception of developing Irefin palace for sustainable tourism.
2. factors influencing tourists' patronage of Irefin palace.
3. residents' perception on the importance of heritage tourism.

Research Questions

1. How do the residents perceive developing *Irefin* Palace for heritage tourism?
2. What are the factors influencing tourists' patronage of the Palace? and
3. How do the residents perceive importance of heritage tourism?

Methodology

***Design for the Study*:** Descriptive survey research design was adopted for the study.

Area of the Study: The study was carried out within the Palace and its closest proximity. The Palace is located in Ibadan North East Local Government Area of Ibadan, Oyo State, Nigeria. This area is semi-rural. It is an ancient settlement. The buildings around the palace are old. However, the urban center is within 2 - 5 kilometer radius. The area is a slum. Businesses around this area include; petty trade, artisans, transport, and small scale canteens.

***Population for the Study*:** The population was made up of the people living in the area of the study. They were mostly elderly men and women, but also included middle aged women, ma, youth and children. Most of the male residents were farmers, hunters, vulcanizers, automobile mechanics, barbers, carpenters, and other forms of artisanry workers. Majority of the women were petty traders, few others were hair dressers. Members of the population involved in this study consisted of the residents of the palace and people living in the closest proximity to the palace (I Kilometer radius) all of whom were adults. Responses from the opinion leaders in the community revealed that the total population of the community was about one hundred people.

***Sample for the Study*:** Out of a total population of about 100 residents, samples of 80 persons were selected for the study. While all adult residents of the palace were purposively selected, simple random sampling technique was deployed in selecting members of the host community.

***Instrument for Data Collection*:** Questionnaire was the instrument used to gather data. It was developed based on the specific objectives of the study. Sections of the instrument on specific objectives No 1 and 2 had 5 – point Likert scale of Strongly agree (5), Agree (4), Strongly disagree (3), Disagree (2). It served as interview schedule for the illiterate respondents. It was validated by three university lecturers in Tourism studies. Cronbach Alpha reliability method was used to establish the reliability of the instrument. Reliability coefficient of 0.78 was obtained.

***Data Collection Methods*:** Four research assistants together with the researcher were involved in the data collection. Non - literate respondents were guided in responding to the questionnaire items while educated respondents completed the questionnaire on their own. The researcher also moved round the palace and its environs for first-hand information on the current condition of the Palace.

Key Informant Interview (KII) was conducted for nine people who represented the three different categories of key informants about the *Irefin* palace. These include; three elderly men in the community, three residents (elderly) and descendants of *Irefin* clan, and three elderly women in the community. They all gave the same history about the palace; materials for construction (mud and timber only); age of the palace (over 200 years); number of rooms (over 200 rooms) available in the palace; and the reign of *Irefin* as the traditional head of Ibadan between 1912 – 1914.

***Data Analysis Techniques*:** Description statistics frequency counts, percentages, and mean were used to analyze the data. Mean (X) values were used for decision making in answering the research questions. Based on the 5 – point Likert scale of the instrument, mean of 2.50 was used for decision making or Research questions No 1 and 2. Any items with means of 2.50 and above were regarded as "agreed" on perceptions", while those with means less than 2.50 were regarded as "disagreed on perception". Qualitative data gathered via the Key Informant Interview were summarized, and built into the Introduction of the study.

Results

Respondents' Personal Characteristics: Majority of the respondents were married (73.7%), females (58.8%), and belonged to Yoruba ethnic group (91.6%). Majority were Muslims (70%). They had between two and four children (51.3%), up to 60 percent of the respondents attended secondary schools (61.3%). All the respondents (100%) were adults.

Respondents' Perception on Developing Irefin Palace for Heritage Toursim

Table 1: Mean Responses on Perceptions on Developing Irefin Place for Heritage Tourism

S/N	Perceptions on Developing of Irefin Palace for Heritage Tourism	Mean±SD
1	The benefits of developing *Irefin* Palace for heritage tourism far outweighs its demerits	4.24±0.83
2	Heritage tourism is alien to our culture	3.95±1.07
3	*Irefin* Palace should be developed for heritage tourism for inherent benefits	4.19±0.93
4	It can lead to increase in the cost of living in the immediate community	1.65±1.38
5	*Irefin* Palace and its design are too old for preservation	2.19±1.42
6	Heritage tourism lead to under – utilization of the Palace	3.24±1.42
7	The number of visiting tourists may not justify the resources committed for the preservation of the Palace	3.62±1.12
8	Displacement will distort the normal way of life of the occupants of the Palace	3.31±1.25
9	The Palace should be preserved and developed for the benefits of the future generation	3.91±1.14
10	It will deprive *Irefin* family members and residents free access to the palace	3.37±1.36

Table 1 sows eight of the 10 perception indicators have means ranging from 3.24 to 4.19 ($\overline{X}$ = 3.24 – 4.19). This implies that each of the eight indicators (No 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10) is "agreed – on "perception on developing Irefin Palace for Heritag Tourism. Items No 4 ($\overline{X}$ = 1.65) and No ($\overline{X}$ = 2.19) are however, not agreed on. They are "disagreed – on perception".

Factors Influencing Tourism Patonage of Irefin Palace

Table 2: Percentages Responses on Frequency of Tourist's Visit and Factors Influencing Visit of *Irefin* Palace **N = 80**

	Frequency(%)
Frequency of visitation	
Rarely	63(78.8)
Occasionally	10(12.5)
Always	07(8.8)
Factors influencing tourist's patronage of *Irefin* Palace	
Lack of awareness	65(81.3)
Poor state of the palace	62(77.5)
Absence of tourism supporting amenities at the palace	52(65.0)
Absence of professional tour guide	39(48.8)

Table 2 shows that majority of respondents (78.8%) agreed that tourists rarely visit the palace. The table also shows the factors influencing tourist's patronage of *Irefin* palace in order of importance to include; lack of awareness i. e. low publicity of the palace (81.3%), poor state of the palace (77.5%), absence of tourism supporting facilities at the palace (65%), and absence of professional tour guide (48.8%). These findings corroborate Bankole (2013), who also listed these factors among others as factors influencing development of cultural resources for tourism in Nigeria.

Perception of the Importance of Heritage Tourism

Table 3: Mean Responses on Perceptions of the Importance of Heritage Tourism

S/N	Perceptions of the Importance of Heritage Tourism	Mean±SD
	It can:	
1.	provide employment opportunities	4.31±0.59
2.	provide revenue for government	4.25±0.88
3.	be a source of foreign exchange	4.03±1.09
4.	increase the crime rate in the community	3.19±1.33
5.	facilitate provision of infrastructures in the host communities	3.76±0.90
6.	improve the livelihood of the community members	3.90±0.94
7.	provide market for crafts, arts, artifacts and other local products	4.00±0.99
8.	promote the image of the community	4.00±0.97
9.	be a source of pride for the host community	3.99±0.96
10.	support local entertainment industry	4.14±0.82
11.	draw the attention of government, NGOs, and international organizations who are interested in heritage tourism to the needs of the community	4.15±0.99
12.	distort the culture of the host community	3.41±1.40

Table 3 shows that each of the 12 "Importance indicators" has a mean of 2.50 and above. Themeans reponses of the 12 items (Importance indicators) range from X = 3.19. Thus, it follows that the respondents agree on the Importance of Heritage Tourism based on the 12 indicators in Table 3.

Discussion

Heritage records and expresses the long processes of historic development, forming the essence of diverse national, regional, indigenous and local identities and is an integral part of modern life. It is a dynamic reference point and positive instrument for growth and change. The particular heritage and collective memory of each locality or community is irreplaceable and an important foundation for development, both now and into the future. At a time of increasing globalization, the protection, conservation, interpretation and presentation of the heritage and cultural diversity of any particular place or region is an important challenge for people everywhere (ICOMOS, 1999).This study established that majority of the respondents positively perceived the development of *Irefin* Palace for tourism. They agreed that the inherent merits far outweigh its demerits. This finding is in consonance with the submission of Moayad*et. al*. (2019) whose research showed that the perceived economic impact of heritage tourism is the most important aspect for the host community, and that the perceived negative impacts do not significantly influence their satisfaction. Thus, harnessing the heritage for tourism will be warmly received by the host community. This study also revealed that, the occupants of the palace and the host community are worried that the development of the palace for tourism will alter the normal way of life of the occupants. The finding collaborates the submission of Luis (2019) whose study showed that; the inhabitants of far distance areas have a more positive opinion on tourism development in historic areas than those who live in the historic center. This reinforces the best approach of ensuring total support for tourism via all stakeholders' participation. The study further identified; lack of awareness of the palace, poor state of the palace, absence of tourism supporting facilities, and absence of professional tour guide as factors militating against patronage of the palace. This result is in line withthe submission of Bankole (2013), who also listed these factors among others as factors influencing development of cultural resources for tourism in Nigeria. It also upholds the finding of Sulaimon (2019) who concluded from his study that modern attractions are far more popular than ancient attractions.

Conclusion

This study established that, though recognized and listed as a tourist centre by Oyo State Tourism Board, *Irefin* Palace has not received any attention for preservation and sustain ability from any source. Though the main palace still stands strong, the total environment is no longer in good shape and some parts have started dilapidating. The palace receives tourists once in a while and the factors influencing patronage include; lack of awareness, poor state of the palace, absence of tourism supporting facilities, and absence of professional tour guides. The host community is very much aware of both the positive and negative likely effects of heritage tourism development in the destination. Though majority of the respondents had a good perception of heritage tourism, they still have some reservations on the development of *Irefin* Palace for heritage tourism. The magnitude, features, and historical importance of *Irefin* Palace is too attractive to be neglected as a tourist attraction. This site is long overdue for proper action to be taken to preserve it and ensure its sustainability. It is not an over statement that the history of Ibadan, the largest city in Nigeria is incomplete without mentioning the Palace, hence, the need for stakeholders such as; members of *Irefin* clan, Ibadan Progressive Development Union, Olubadan in Council, Nigeria Tourism Development Corporation (NTDC), and Oyo State Tourism Board to take necessary actions to preserve and position the palace for sustainable heritage tourism.

Recommendations

In line with the findings of this study, the following recommendations are made;

1. Since the host community is ready to support the tourism development effort at the palace, effort should be made without further delay to position the palace for sustainable tourism development by improving the state of the palace, providing tourism supporting facilities, and creating awareness about the destination. This can be done by the state government, private investor or through public – private partnership. Local and international Non – Governmental Organizations who are interested in heritage conservation can also be contacted for support.
2. While developing the palace for tourism, all stakeholders must properly be involved to ensure total support for the project. Members of *Irefin* clan and the host community should be well orientated on the pros and cons of tourism. Employment opportunities should be given to the host communities for any position that that may have qualified human resources for.
3. Awareness of the palace should be increased through bill board and social media. A festival can be instituted by the collaborative effort of *Irefin* clan, Olubadan in Council (traditional chiefs), and State Tourism Board to further promote the palace.

References

Andereck, K. L.; Valentine, K. M.; Knopf, R. C. & Vogt, C. A. (2005). Residents' Perceptions of Community Tourism Impacts. *Annals of Tourism Research*, 32; 1056 - 1076.

Ashworth, G.J. (2003). Heritage, Identity and Places: For Tourists and Host Communities. In S. Singh, D.J. Timothy and R.K. Dowling (eds) Tourism in Destination Communities. Wallingford: CABI.

Bankole, A. O. (2013). Harnessing Cultural Heritage for Tourism Development in Nigeria: Issues and Prospects. *Global Journal of Commerce and Management Perspective*, 2(3): 121 – 131.

Bob, M. (2014). Cultural Heritage Tourism, Partners for Livable Communities, USA.

Boyd, S.W. (2002). Cultural and Heritage Tourism in Canada: Opportunities, Principles and Challenges,*Tourism and Hospitality Research* 3 (3);211 – 233.

Boyd, S.W. and Butler, R.W. (2000). Tourismand National Parks:The Origin of the Concept. In R.W. Butler & S.W. Boyd (eds) Tourism and National Parks: Issues and Implications. Chichester: Wiley.

Bruce, G. (2010). Heritage Tourism Hand Book: A How-to-Guide for Georgia, Historical Preservation Division, Atlanta Georgia, USA.

Chapman, A. & Light, D. (2011). The 'Heritagisation' of the British Seaside Resort: The Rise of the 'Old Penny Arcade', *Journal of Heritage Tourism* 6 (3); 209-226.

Folarin, K. (2015). Know Your Heritage: The Hidden Ancient Irefin Palace, Ibadan and Its Vernacular Architecture, published by The Green Institute and The Green Campus Initiative, Nigeriaretrieved from*www.thegreeninstitute.org.ng*and accessed on 24/5/2019.

Graham, B., Ashworth, G.J. and Tunbridge, J.E. (2000). A Geography of Heritage: Power, Culture and Economy. London: Arnold.

Hall, C.M. (1997).The Politics of Heritage Tourism: Place, Power and the Representation of Values in the Urban Context. In P.E. Murphy (ed.) Quality Management in Urban Tourism, 91–101,Chichester: Wiley.

Hewison, R. (1987). The Heritage Industry: Britain in a Climate of Decline. London: Methuen.

ICOMOS (1999). Managing Tourism at Places of Heritage Significance, International Cultural Tourism Charter.

Jurowski, C. &Gursoy, D. (2004). Distance Effects on Residents' Attitudes Toward Tourism. *Annals of Tourism Research*, 31; 296 - 312.

Ko, D.W. & Stewart, W. P. (2002). A Structural Equation Model of Residents' Attitudes for Tourism Development. *Tourism Management*, 23; 521 - 530.

Látková, P. & Vogt, C. (2012). Residents' Attitudes Toward Existing and Future Tourism Development in Rural Communities. *Journal of Travel Research*, 51; 50 - 67.

Lee, J.W. &Brahmasrene, T. (2013). Investigating the Influence of Tourism on Economic Growth and Carbon Emissions: Evidence from Panel Analysis on the European Union, *Tourism Management*, 38;69 - 76.

Liang, Z. X. &Bao, J. G. (2015). Tourism Gentrification in Shenzhen, China: Causes and Socio-Spatial Consequences. *Tourism Geography*, 17; 461 - 481.

Litheko, A. M. &Potgieter, M. (2016). Residents' Awareness and Support for Tourism in Mahikeng, South Africa, *African Journal of Hospitality, Tourism and Leisure*, 5 (2); 1 -17.

Luis, A. E. (2019). Residents' Opinions and Perceptions of Tourism Development in the Historic City of Toledo, Spain. *Sustainability*, 11; 3854, Doi:10.3390/Su11143854

Lonely, P. (2020). Autorickshaws and E-rickshaws. Retrieved January 15, 2020 from: *https://www.lonelyplanet.com/india/practical-information/transport/getting around/local*-transport/autorickshaw,-e-rickshaw,-tempo-andvikram/6398d250-f742-4bd3-9cb6-3edb638bc588/a/nar/6398d250-f742-4bd3-9cb6-3edb638bc588/356195

MacCannell, D. (1976) The Tourist. New York: Schocken Books.

McCool, S. F. & Martin, S. R. (1994). Community Attachment and Attitude Toward Tourism Development. *Journal of Travel Research*, 32; 29 - 34.

Moayad, M. A., Fernando, A. G., and Rafael, C. (2019). Residents' Perceptions and Satisfaction toward Tourism Development: A Case Study of Petra Region, Jordan. *Sustainability*, 11; 1907. Doi: 10.3390/Su11071907.

Moscardo, G. and Pearce, P.L. (1986). Historic Theme Parks: An Australian

Experience in Authenticity. *Annals of Tourism Research* 13; 467 - 479.

Nicholas, L.; Thapa. B. &Ko, Y. (2009). Residents' Perspective of World Heritage Sites in the Pitons Management Area, St. Lucia. *Annals of Tourism Research*, 36; 390 – 412.

Nur, I. O., Nor, A. I. &Mohd, Y. Y. (2015). Development of Cultural Heritage Tourism: Issues and Challenges. *Advances in Environmental Biology*, 9(4); 218 - 221

Partners for Livable Communities (2014). Cultural Heritage Tourism, Washington DC, USA.

Prentice, R. C., Guerin, S. and McGugan, S. (1998). Visitor Learning at a Heritage Attraction: A Case Study of Discovery as a Media Product, *Tourism Management*, 19; 5 – 23.

Rasoolimanesh, S. M.; Ringle, C. M.; Jaafar, M.&Ramayah, T. U. (2017). Rural Destinations Residents' Perceptions of Community Participation and Support for Tourism Development. *Tourism Management,* 60; 147 – 158.

Ribeiro, M. A.; Pinto, P.; Silva, J. A. &Woosnam, K. M. (2017). Residents' Attitudes and the Adoption of Pro-Tourism Behaviours: The Case of Developing Island Countries. *Tourism Management*, 61; 523–537.

Rober, M. (2014). *How to Create a Local Cultural Heritage Tourism Development Plan: Patners' Experience in Washington DC* in Cultural Heritage Tourism, Partners for Livable Communities, USA.

Robin, G. (2018). 100 Most Beautiful UNESCO World Heritage Sites, Road Affairs.

Russell, K. (2014). Model Experiences in Cultural Heritage Tourism from Across the United StatesIn Cultural Heritage Tourism, Partners for Livable Communities, USA.

Sharpley, R. (2014). Host Perceptions of Tourism: A Review of the Research. *Tourism Management*. 42; 37 - 49.

Shen, F. & Cottrell, S. P. (2008). A Sustainable Tourism Framework for Monitoring Residents' Satisfaction with Agritourism in Chongdugou Village, China. *International Journal of Tourism Policy*, 1; 368 - 375.

Sheng, L. &Tsui, Y. F. (2010). Foreign Investment in Tourism: The Case of Macao as a Small Tourism Economy. *Tourism Geography*, 12; 173 – 191.

Silberberg, T. (1995). Cultural Tourism and Business Opportunities for Museums and Heritage Sites. *Tourism Management*, 16(5); 361 - 365.

Thorsell, J. &Sigaty, T. (2001) Human Use in World Heritage Natural Sites: A Global Inventory. *Tourism Recreation Research* 26 (1); 85 - 101.

Tiesdell, S., and Heath, T. (1996). Revitalizing Historic Urban Quarters. Oxford: Architectural Press.

Timothy, D.J. & Boyd, S.W. (2003). Heritage Tourism. Harlow: Prentice Hall.

Tosun, C. (2002). Host Perceptions of Impacts: A Comparative Tourism Study. *Annals of Tourism Research*, 29; 231 - 253.

Towner, J. (1996). An Historical Geography of Recreation and Tourism in the Western World. Chichester: Wiley.

Sulaimon, A. A. (2019). Assessment of Residents' Awareness and Attitude towards Tourist Attractions in Ibadan, Oyo State, Nigeria. An Unpublished B.Sc. Thesis of Hospitality and Tourism Management Unit, Department of Family, Nutrition and Consumer Sciences, Faculty of Agriculture, Obafemi Awolowo University, Ile – Ife, Nigeria.

Kim, H. G. (2005). Nostalgia and Tourism. *Tourism Analysis*, 1(1); 85 - 88.

Timothy, D. J. &Prideaux, B. (2004). Issues in Heritage and Culture in the Asia Pacific Region. *Asia Pacific Journal of Tourism Research*, 9 (3); 213 – 223.

Vargas-Sánchez, A.; Plaza-Mejia, M. & Porras-Bueno, N. (2008). Understanding Residents' Attitudes Toward the Development of Industrial Tourism in a Former Mining Community. *Journal of Travel Research*, 47; 373 - 387.

Wang, X.; Zhen, F.; Zhang, J. & Wu, X. (2014). Exploring Factors Influencing Residents' Satisfaction with Tourism Development in Poverty-Stricken Areas: A Case Study of Five Poor Villages in China. *Asia Pacific Journal of Tourism Research*, 19; 517 - 537.

Xie, H. J.; Bao, J. &Kerstetter, D. L. (2014). Examining the Effects of Tourism Impacts on Satisfaction with Tourism between Native and Non-Native Residents. *International Journal of Tourism Research,*16; 241 - 249.

Zhang, J.; Inbakaran, R. J.; Jackson, M.S. (2006). Understanding Community Attitudes Towards Tourism and Host - Guest Interaction in The Urban - Rural Border Region. *Tourism \Geography*, 8; 182 - 204.

Effect of Traditional Processing Methods on Cooking Time, Proximate and Amino Acid Composition of Pigeon Pea (*Cajanus Cajan*)

Ani, P.N.; Ibeanu, V.N.; Umerah, N.N. & Nwanga, T.J.
Department of Nutrition and Dietetics, University of Nigeria, Nsukka
Department of Food Science and Technology, Enugu State University of Science and Technology, P.M.B. 01660, Enugu, Nigeria

Abstract

Pigeon pea is underutilized mostly due to its long cooking time and limited knowledge of its benefits. Effect of traditional processing methods on cooking time, proximate and amino acid composition of pigeon pea were investigated. Pigeon pea was sorted and divided into five portions of 1.0 kg each. One portion was the control while remaining four portions were treated separately using boiling alone (PpB), soaking for 12 h and boiling (PpS), boiling with cooking salt (PpSs) and boiling with potash (PpBp). All the four samples were boiled until soft. The cooking time was recorded and the samples were analyzed for chemical composition from which metabolizable energy values were calculated. Soaking for 12 h before boiling and addition of potash reduced the cooking time by 50% and 24%, respectively. Proximate composition of the samples ranged from 15.58-18.65% (protein), 2.13-2.66% (fat), 2.48-3.38% (ash), 3.68- 5.18% (crude fiber) and 60.79 -63.88% (carbohydrate). Soaking for 12h prior to boiling ranked highest in protein content (16.69%) while boiling with potash reduced the fat (2.13%), ash (2.48%) and carbohydrate (60.79%) contents to great significant level. The boiled alone sample had the best amino acid profile. Although, addition of potash reduced the cooking time by 24%, it adversely affected the proximate and metabolizable energy values of pigeon pea. The findings could help enhance the nutritive quality of pigeon pea-based diets and improve its utilization.

Keywords: Amino acid; Cooking time; Processing; Methods; Pigeon pea; Proximate;

Introduction

Pigeon pea (*Cajanus cajan*) is a widely adapted, drought tolerant food legume crop that is believed to have originated from India (Kassa et al., 2012). It is widely grown in about 14 countries in over 14 million ha. Other major producers of pigeon pea in the world include Uganda, Tanzania, Kenya, Malawi, Ethiopia, and Mozambique in Africa; the Dominican Republic, Puerto Rico and West Indies in the

Caribbean region and Latin America; Burma and Thailand; Indonesia and the Philippines in Asia and Australia (Sinha, 1977). Pigeon pea is commonly consumed in India where it serves as an important source of protein in a mostly vegetarian diet. In Nigeria, it is more popular in the Northern and Western States. It is also consumed in Eastern States, especially among Nsukka people of Enugu State where the dry seeds are cooked until tender then mixed with cooked yam, maize, dried cocoyam grits or freshly cooked cocoyam, sweet potatoes in addition to vegetables, palm oil, salt, pepper and other spices (Enwere, 1998).

Pigeon pea is still underutilized in Nigeria due to various limiting factors such as presence of anti-nutritional factors and its hard-to-cook property. The anti-nutritional factors have been shown to be detrimental to human growth and other physiological processes especially when present at higher levels (Okomoda *et al.,* 2016). Also, long cooking time and the consequent fuel consumption affect the utilization of this legume in cuisines. Reduction of cooking time of hard-to-cook legumes is a priority to consumers especially in developing countries due to high cost of fuel. These have led to the use of different traditional processing methods irrespective of their effect on nutrient quality and health of the consumers. It was reported that due to its hard to cook phenomenon, pigeon pea is usually parboiled overnight and the parboiled pulses soaked in hot water and cooked the following morning to be served as breakfast (Babarinde et al., 2020).

The proximate composition of pigeon pea seed has been widely researched (Kunyanga et al., 2013; Adamu & Oyetunde, 2013). It has been reported to contain 17.95 -30.53% protein, 2.77 – 3.68% fat, 50.08 - 57.45% carbohydrate, 3.58 - 9.93% ash and 5.54 - 6.98% fibre. Pigeon pea is rich in amino acids especially aspartic acid, glutamic acid, lysine, phenylalanine and leucine (Akande et al., 2010; Kunyanga et al., 2013). Babarinde et al. (2020) produced breakfast food with blend of fonio and pigeon pea flours and found that substitution of fonio grain with pigeon pea increased the protein, ash, some amino and vitamins content of the breakfast food.

The transformation of raw food ingredients into edible form is referred to as food processing. The nutritional value of legumes significantly depends on the processing methods applied, anti-nutritional factors present or absent and interaction of nutrients with other food components (Ghadge et al., 2008). The effect of processing on nutrients (Sathya & Siddhuraju, 2015), anti-nutrients (Nwafor et al., 2017) and acceptability (Ngwu et al., 2014) of some underutilized legumes has been reported. Alaye et al. (2020) also reported significant increase in the crude protein content of an underutilized legume (*Mucuna pruriens*) processed using different processing techniques.

Processing method such as cooking is beneficial in reducing or eliminating the inherent anti-nutritional factors of legumes however, this also reduced some nutrients. Studies have shown that cooking legume seeds beyond 30 minutes reduced the nutrient content and anti-nutritional factors (Iorgyer et al., 2009; Nwafor *et al*., 2017). However, the hard-to-cook legumes such as pigeon pea take longer than 30 minutes at 100°C to be properly cooked for human consumption. This has made most people to pre-treat (soaking in water, addition of potash or salt before boiling) raw pigeon pea in order to reduce the cooking time but limited information abound on the effects of these pre-treatments on nutritive quality of the legume.

Objectives of the study

The objective of the study was to investigate the effect of different traditional processing methods on cooking duration, proximate and amino acid composition of pigeon pea (*Cajanus cajan*). Specifically the study determined:

1. effect of traditional processing methods on the cooking time of pigeon pea;
2. effect of traditional processing methods on the proximate composition of pigeon pea
3. extent to which the amino acid composition (profile) of pigeon pea is affected by the traditional processing methods.

Materials and Methods

***Design of Study*:** Experimental method was used for this research. Pigeon peas were purchased, sorted and divided into five portions. One portion was not processed while the remaining four portions were processed separately using different processing methods. The samples were further taken for chemical analysis.

***Materials*:** The materials used in this study were pigeon pea seeds, potash, and salt. Dried pigeon pea seeds, cooking salt and potash were purchased from *Ogige* market Nsukka in Enugu State, Nigeria.

***Preparation of Materials*:** The pigeon pea seeds were sorted to remove dirt and divided into five portions of 1.0 kg each. One portion was not processed (raw sample). The remaining four portions were washed in distilled water and drained.

***Preparation of sample*:** The drained samples were processed separately using different traditional methods. The second portion (PpB), (which acts as the control to the processed samples) was boiled at 100°C until soft. The third portion (PpS) was soaked in distil water (1:3 w/v) for 12 hours at ambient temperature, after which the water was discarded and the seeds were boiled at 100°C until soft. The fourth portion (PpSs) was boiled (100°C) with 20g of cooking salt until soft. The fifth portion (PpBP) was boiled (100°C) with 10g of potash until soft. The samples were dried in an air-oven at 50°C until well dried, and milled with Thomas-Wiley Mill, Model ED-5, England into fine flour to pass through a 70 mm mesh screen. The flours were separately packaged in air-tight containers, coded and taken for chemical analysis.

Softness was determined using the 1-5 scale established by Yeung et al. (2009), with 1 representing undercooked, 2: slightly undercooked, 3: average cooked, 4: slightly overcooked and 5 representing overcooked. A minimum of three seeds were pressed between the thumb and forefinger. The time required to achieve scale 3 (cooked) was recorded for the samples.

Chemical/Proximate Analysis

The moisture, protein, fat, ash and crude fibre content of the samples (raw and processed) were determined according to the Association of Official Analytical Chemist (AOAC, 2010) methods. Moisture content was determined by air oven method. The protein content was determined using the micro-Kjeldahl method and nitrogen content converted to protein using 6.25 as the conversion factor. Soxhlet extraction method was used to determine the fat content of the samples. Ash was obtained by weighing 5 g of individual charred samples into a tarred porcelain crucible then incinerated at 600°C for 6 h in ash muffle furnace until ash was obtained. Crude fibre was determined by exhaustive extraction of soluble substances in a sample using $H_2SO_4$and NaOH solution, after the residue was ashed and the loss in weight recorded as crude fibre. The carbohydrate contents were determined by difference. The percentage values of the moisture, protein, fat, ash and crude fibre were added and the total subtracted from 100%. Metabolizable energy was calculated by applying the energy conversion factors (one gram of protein, fat, carbohydrate and fibre yields 4, 9, 4 and 2 kcal of energy, respectively) as described in the West African Food Composition Table (Stadlmayr *et al.,* 2012).

$$\text{Calculated metabolizable energy (kcal)} = (\text{Protein} \times 4 + \text{Fat} \times 9 + \text{Fibre} \times 2 + \text{Carbohydrate} \times 4).$$

Amino acid composition was determined using the method described by Spackman et al., 1958. The samples were dried to a constant weight and defatted in a Soxhlet extractor. The defatted sample was hydrolyzed with7ml of 6N HCl in a sealed Pyrex tube at 105°C ± 5° C for 22 h. The hydrolysate was evaporated in a rotary evaporator and loaded into the Technicon Sequential Multi sample Amino acid Analyser (TSM). The steam carrying the amino acid reagent mixture passed through a heating bath where development of the coloured reaction product occurred. The absorbance was proportional to the concentration of each amino acid and was measured by colorimeter. All determinations were performed in triplicates.

Statistical Analysis: Data generated from laboratory analysis were analyzed using Statistical Package for Social Sciences (SPSS), version 20. Data were presented as mean ± standard deviation. Cooking time was presented in chart. Analysis of variance (ANOVA) was used to compare means. Duncan's new multiple range tests were used to separate group means. Significance was considered at $p < 0.05$.

Findings

Effect of traditional processing methods on cooking time of pigeon pea

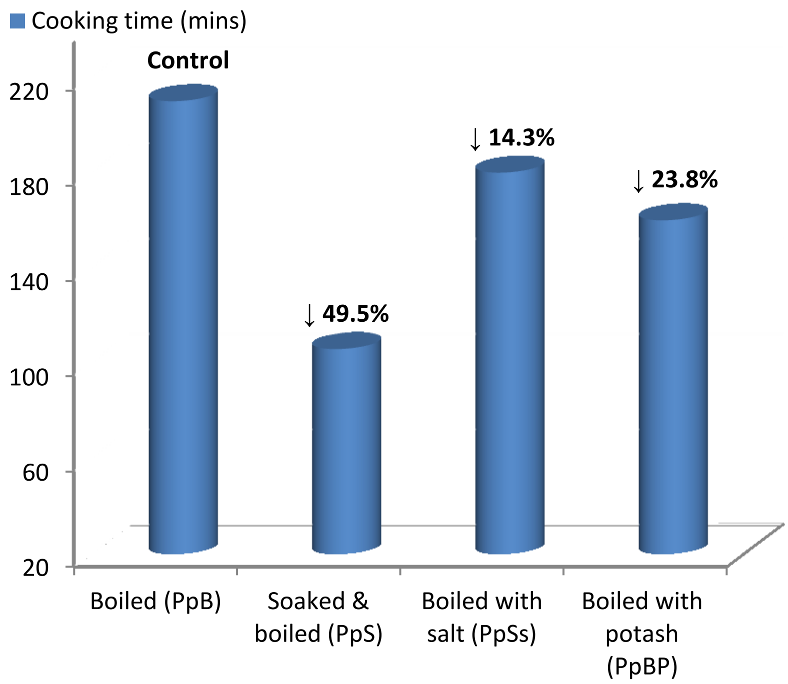

Figure 1: Cooking time (min) of processed pigeon peas

Figure 1 shows the cooking time of the samples. Soaking before boiling (PpS) reduced the cooking time by 49.5. The cooking time reduced by 23.8% when boiled with potash (PpBP). Boiling with salt (PpSs) reduced the cooking time by only 14.3%. This finding shows that soaking pigeon pea before boiling had the highest effect in reducing cooking time followed by boiling with potash.

The proximate composition, metabolizable energy and amino acid composition of raw pigeon pea

Table 1: Proximate Composition, Metabolizable Energy and Amino Acid Composition of Raw Pigeon Pea

Variables		Raw pigeon pea
Proximate composition (%)	Protein	18.65±0.01
	Fat	2.66±0.03
	Ash	3.38±0.01
	Crude fibre	5.18±0.04
	Moisture	6.25±0.01
	Carbohydrate	63.88±0.04
[a]Metabolizable energy value (Kcal/100g)	Energy	364.42±0.05
Amino acid composition (mg/100g)	Isoleucine	650.26±0.01
	Leucine	1263.24±0.02
	Lysine	1222.25±0.01
	Methionine	147.20±0.06
	Cysteine	115.26±0.01
	Phenylalanine	750.16±0.01
	Tyrosine	385.86±0.01
	Threonine	585.85±0.01
	Tryptophan	215.26±0.01
	Histidine	395.58±0.01
	Glutamic acid	2333.23±0.02
	Arginine	1266.64±0.01

[a]Calculated metabolizable energy (kcal) = (Protein × 4 + Fat × 9 + Fibre × 2 + Carbohydrate × 4)

Table 1 shows that raw pigeon pea had an energy value of 364.42 kcal/100g with 63.88% carbohydrate and 18.65% protein. Among the proximate values fat (2.66%) was the least followed closely by ash (3.38%) and crude fibre (5.18%). The abundant amino acids were glutamic acid (2333.23 mg) arginine (1266.64mg) and leucine (1263.24mg) while cysteine (115.26 mg), methionine (147.20) and tryptophan (215.26mg) were the least amino acids.

The proximate and metabolizable energy values of the processed samples

Table 2: Proximate Composition (%) and Metabolizable Energy Value (kcal) of the Processed Samples

Variables	Boiled (PpB)	Soaked & boiled (PpS)	Boiled with salt (PpSs)	Boiled with potash (PpBP)
Protein	15.58±0.01[a]	16.69±0.03[d]	16.34±0.01[b]	16.49±0.01[c]
Fat	2.26±0.01[c]	2.17±0.02[b]	2.23±0.01[c]	2.13±0.03[a]
Ash	2.54±0.01[b]	2.78±0.01[c]	3.25±0.01[d]	2.48±0.01[a]
Crude fibre	4.43±0.01[d]	3.68±0.01[a]	3.97±0.05[c]	3.85±0.03[b]
Moisture	12.46±0.03[a]	13.75±0.01[c]	12.64±0.01[b]	14.26±0.01[d]
Carbohydrate	62.01±0.02[d]	60.93±0.21[b]	61.57±0.02[c]	60.79±0.03[a]
Energy[a]	342.44±0.02[c]	337.37±0.02[a]	339.65±0.04[b]	335.99±0.22[a]

Mean values in the same row with different superscripts are significantly different at p < 0.05
[a]Calculated metabolizable energy (kcal) = (Protein × 4 + Fat × 9 + Fibre × 2 + Carbohydrate × 4)

Table 2 shows that processed pigeon pea seed contained 15.58 - 16.69% protein, 60.79 - 62.01% carbohydrate, 2.13 - 2.26% fat, and 2.48 - 3.25% ash. Boiling alone (PpB) resulted to sample with the highest significant ($p < 0.05$) amount of carbohydrate, crude fibre and fat while addition of potash (PpBP) significantly ($p < 0.05$) reduced the fat, carbohydrate, crude fibre and ash content of the sample. Ash content was significantly increased (3.25%) by boiling the sample with salt. Moisture content was highest in PpBP (14.26%) followed by PpS (13.75%) and PpSs (12.64%). The metabolizable energy value of the samples ranged from 335.99–342.44 kcal/100g with the PpBP and PpB having the lowest and highest energy value, respectively.

The amino acid composition (profile) of processed pigeon pea samples

Table 3: Amino Acid Composition (Profile) (mg/100g) of Processed Pigeon Pea Samples

Variables	Boiled (PpB)	Soaked & boiled (PpS)	Boiled with salt (PpSs)	Boiled with potash (PpBP)
Isoleucine	635.34±0.01^{d}	440.24±0.01^{c}	435.30±0.08^{b}	426.36±0.01^{a}
Leucine	1156.22±0.01^{d}	1065.59±0.01^{b}	1055.57±0.02^{a}	1112.23±0.01^{c}
Lysine	1188.54±0.01^{d}	1005.23±0.01^{b}	1001.24±0.01^{a}	1006.35±0.01^{c}
Methionine	163.54±0.01^{d}	115.26±0.01^{b}	110.24±0.01^{a}	117.56±0.01^{c}
Cysteine	166.55±0.01^{c}	110.03±0.01^{b}	105.56±0.01^{a}	110.24±0.01^{b}
Phenylalanine	696.66±0.01^{d}	652.24±0.01^{c}	645.56±0.01^{b}	635.34±0.01^{a}
Tyrosine	375.54±0.01^{d}	355.36±0.01^{c}	350.23±0.01^{b}	345.26±0.01^{a}
Threonine	555.26±0.01^{d}	550.34±0.01^{c}	542.26±0.01^{b}	535.37±0.01^{a}
Tryptophan	188.85±0.01^{a}	205.26±0.01^{d}	200.25±0.01^{c}	196.36±0.01^{b}
Histidine	360.44±0.01^{b}	362.25±0.01^{c}	352.25±0.01^{a}	625.25±0.01^{d}
Glutamic acid	2055.32±0.01^{a}	2166.24±0.01^{c}	2144.24±0.01^{b}	2304.11±0.02^{d}
Arginine	1288.26±0.01^{d}	1266.97±0.01^{b}	1255.23±0.01^{a}	1268.56±0.01^{c}

Mean values in the same row with different superscripts are significantly different at p < 0.05

Table 3 shows that the sample that was processed by boiling alone (PpB) had the highest amino acid content except for tryptophan, histidine and glutamic acid while addition of potash (PpBP) increased the glutamic acid, histidine and arginine contents. Boiling with salt significantly ($p < 0.05$) reduced leucine, lysine, methionine, cystine, histidine and arginine compared to the other processing methods. Among the processed samples, boiling (PpB) had the highest effect in enhancing the amino acid content of pigeon pea seed whereas boiling with salt and potash significantly ($p < 0.05$) reduced the amino acid composition of the legume.

Discussion of Findings

It was observed that the cooking time of pigeon pea reduced by approximately 50% when soaked in water before boiling. The effect of soaking on cooking time of common beans was evaluated by Correa *et al*. (2010, which showed that cooking time was reduced after soaking. This Siddiq and Uebersax (2012) attributes to water dispersion into the starch granules and protein fractions, protein denaturation and starch gelatinization resulting in tender beans. High loss of nutrient into the soaking water remains the implication of soaking legumes prior to cooking. However, Ramı´rez-Ca´rdenas et al. (2008) revealed that loss of nutrient could be minimized by cooking the legume with the soaking water instead of discarding it. Other beneficial effects of soaking such as elimination of antinutrients have been reported (Yasir & Asif, 2018). Addition of potash in legumes during cooking has been an age long practice especially in rural areas where it is believed to reduce the cooking time of hard-to-cook legumes. In this study, addition of cooking salt and potash reduced the cooking time by 14.3 and 23.4%, respectively compared to the reference sample (PpB). The reduced cooking time of the sample treated with potash as reported supports the findings of Momoh et al. (2019). According to the authors potash acts as a tenderizer for pigeon pea and that the higher the concentration of potash, the higher the level of tenderness. Earlier studies by Onwuka & Okala (2003) and Avila et al. (2015) on the impact of potash and sodium chloride (salt) on the cooking time of African yam beans and cowpeas showed decrease in cooking time of the legumes soaked in water containing these salts.

The recorded reduction in nutrient content of processed samples compared to the raw pigeon pea was expected. This is because heat treatment brings about various physical, chemical and enzymatic changes which directly or indirectly affect the nutrient composition. For instance, boiling legumes separates the bean cells resulting in the release of some cell contents (nutrients) into the processing water consequently leading to reduction in the nutrient content. The significant increase in the moisture content of soaked sample in the present study is in close agreement with the findings of Deshmukh and Pawar (2020). With the addition of potash (PpBP), we observed that the fat, carbohydrate, crude fibre and ash content of pigeon pea reduced significantly ($p < 0.05$). This finding disagrees with the report that potash added to *Ekuru*, produced from two cultivars of beans significantly increased the crude fat, ash and carbohydrate content of the products (Yewande & Thomas, 2015). The difference could be attributed to the method of preparation and interaction with other food ingredients added to the beans samples (*Ekuru*). Onwuka and Okala (2003) also reported that heat treatment and salt influenced the protein content of legumes when cooked.

Soaking before boiling (PpS) significantly ($p < 0.05$) reduced the crude fibre content while boiling (PpB) produced sample with the highest fibre content among the treated samples. Increased total and insoluble dietary fibre was also reported in chickpea, pigeon pea and lentil during cooking (Vidal-Valverde & Frias, 1991), which was partly attributed to the production of Maillard reaction due to high temperature. Dietary fibre has been linked to health beneficial effects including lowering of blood cholesterol, control of colon cancer and reduction of glycaemic levels.

Glutamic acid was the most abundant amino acid (2055.32 - 2333.23 mg/100g) in pigeon pea irrespective of the processing method applied. This was followed by arginine, lysine and leucine. This result corroborates the reports of other researchers who reported that glutamic acid was the most abundant amino acid in pigeon pea (Oshodi & Olaofe, 1993, Akande et al., 2010), and various other Nigerian underutilized legumes (Ogungbenle & Ebadan, 2014, Aremu et al., 2006). Furthermore, the result showed that pigeon pea seed contained limited amount of sulphur-containing amino acids, cysteine and methionine. This finding is in line with a previous study that showed that pigeon pea has low concentration of cysteine and methionine (Akande et al., 2010). Our finding is also in line with the amino acid analysis of goat pea reported by EL-Suhaibani *et al*. (2020) which showed that sulphur-containing amino acids are limited in the legume. Among the heat-treated samples, boiling alone (PpB) had the highest effect in enhancing the amino acid content of pigeon pea seed whereas boiling with salt and potash significantly ($p < 0.05$) reduced the amino acid composition of the legume. The decrease in amino acid concentration was highest in the sample boiled with salt. Denaturation of protein seems to be the reason for this finding. According to Sinha and Khare (2014) salts strip off the essential layer of water molecules from the protein surface eventually denaturing the protein.

Conclusion

This study has shown that processing methods have significant effect on cooking time and nutrient composition of pigeon pea. Boiling provided the best quality amino acid profile among the heat treated samples while addition of cooking salt led to poor amino acid profile. Although, addition of potash and salt reduced the cooking time, they negatively affected the proximate and metabolizable energy value of pigeon pea. The results of this study could help enhance the nutritive quality of pigeon pea-based diets and improve its utilization.

Recommendations

Based on the results of this study, we recommend that:

1. the use of traditional processing methods with the aim of reducing

the cooking time of pigeon pea should be done with caution as the nutritive value of the legume could be adversely affected.
2. pigeon pea should be consumed with other food crops such as cereals in order to improve the amino acid quality of the diet.

References

Adamu, A. S. & Oyetunde, J. G. (2013). Comparison of dietary proximate and mineral values of twovarieties of bean. *Asian Journal of Natural and Applied Sciences*; 2, 103-106.

Akande, K.E., Abubakar, M.M., Adegbola, T.A., Bogoro, S.E. & Doma, U. D. (2010). Chemical Evaluation of the Nutritive Quality of Pigeon Pea [Cajanus cajan (L.) Millsp.]. *International Journal of Poultry Science*; 9 (1): 63-65.

Alaye, S. A., Layade, K. T., Omole, E. B., Onihunwa, J. O., Joshua, D. A. & Akande, O. A. (2020). Eects of Different processing methods on proximate composition of *Mucuna pruriens*. *International Journal of Progressive Science and Technologies*; 20(2), 229-233.

AOAC. (2010). Official method of analysis (20th ed.). Washington, DC: Association of Official Analytical Chemists.

Aremu, M. O., Olaofe, O., & Akintayo, T. E. (2006). A comparative study on the chemical and amino acid composition of some Nigerian under-utilized Legume flours. *Pakistan Journal of Nutrition*; 5(1), 34-38.

Ávila, B. P., Santos dos Santos, M., Nicoletti, A. M., Alves, G. D., Elias, M. C., Monks, J., & Gularte, M. A. (2015). Impact of Different Salts in Soaking Water on the Cooking Time, Texture and Physical Parameters of Cowpeas. *Plant foods for Human Nutrition (Dordrecht, Netherlands)*; *70*(4), 463–469. https://doi.org/10.1007/s11130-015-0504-7

Babarinde, G. O., Adeyanju, J. A., Ogunleye, K. Y., Adegbola, G. M., Ebun, A. A., Wadele, D. (2020). Nutritional composition of gluten-free flour from blend of fonio (*Digitaria iburua*) and pigeon pea (*Cajanus cajan*) and its suitability for breakfast food. *Journal of Food Science and Technology*; 57(10), 3611-3620.

Correa, M. M., de Carvalho, L. M., Nutti, M. R., de Carvalho, J. L., Neto, A. R., & Ribeiro, E. M. (2010). Water absorption, hard shell and cooking time of common beans (*Phaseolus vulgaris L.*). *African Journal of Food Science and Technology;* 1(1), 013-020.

Deshmukh, B. A., & Pawar, V. S. (2020). Effects of different pretreatments on physicochemical and anti nutritional quality of moth bean. *Journal of Pharmacognosy and Phytochemistry*; 9(1), 1965-1968.

EL-Suhaibani, M., Ahmed, M. A., & Osman, M. A. (2020). Study of germination, soaking and cooking effects on the nutritional quality of goat pea (*Securigera securidaca L.*). *Journal of King Saud University-Science;* 32(3), 2029-2033.

Enwere, N. (1998). Food of plant origin. Nsukka, Afro-Orbis Publication.

Ghadge, P.N., Vairagar, P. R., & Prasad, K. (2008). Some physical properties of chick pea split (*Cicer arietinum* L.). *Agricultural Engineering International: the CIGR Ejournal*. 10(FP 07 039).

Iorgyer, M.I., Adeka, I.A., Ikondo, N.D., & Okoh, J.J. (2009). The impact of boiling periods on the proximate composition and level of some anti-Nutritional factors in Pigeon Pea (*Cajanus Cajan)* Seeds. *Production Agriculture and Technology;* 5 (1), 92-102.

Kassa, M. T., Penmetsa, R. V., Carrasquilla-Garcia, N., Sarma, B. K., Datta, S. et al. (2012). Genetic patterns of domestication in pigeon pea (*Cajanus Cajan* (L) Millsp.) and wild *Cajanus Cajan* relatives. *PLos One*; 7(6): e39563. https://doi.org/10.1371/journal.pone.0039563

Kunyanga, C., Imungi, J., & Vellingiri, V. (2013).Nutritional evaluation of indigenous foods with potential food-based solution to alleviate hunger and malnutrition in Kenya. *Journal of Applied Biosciences*; 67, 5277-5288.

Momoh, T. B., Yaro, C. A., Usuman, S. O. & Iyeh, V. A. (2019). Effect of potash on the tenderness and phytochemical constituents of *Cajanus Cajan. Trends Applied Sciences Research*; 14, 278-282.

Ngwu, E. K., Aburime, L. C. & Ani, P. N. (2014). Effect of processing methods on proximate composition of African yambean (*Sphenostylis stenocarpa*) flour and sensory characteristics of their gruel. *International Journal of Basic and Applied Sciences*; 3 (3), 285-290.

Nwafor, F. I., Egonu, S. N., Nweze, N. O., & Ohabuenyi, N. (2017). Effect of processing methods on the nutritional values and antinutritive factors of Adenanthera pavonina L. (Fabaceae) seeds. *African Journal of Biotechnology*; 16, 106–112. https://doi.org/10.5897/AJB2016.15782

Ogungbenle, H. N., & Ebadan, P. (2014). Nutritional Qualities and Amino Acid Profile of Velvet Tamarind (*Dalium guineense*) Pulp. *British Biomedical Bulletin*; 2 (1), 006-016.

Okomoda, V.T., Tiamiyu, L.O., & Uma, S.G. (2016**).** Effects of hydrothermal processing on nutritional value of *Canavalia ensiformis* and its utilization by ***Clariasgariepinus*** (Burchell, 1822) fingerl**ings.** *Aquaculture Reports*; 3 (1), 214-219, 10.1016/j.aqrep.2016.04.003

Onwuka, U. N., & Okala, O. (2003). Effects of selected salts on the cooking time, protein content and sensory properties of African yam beans and cowpeas. *Food Service Technology*; 3(1), 3-7. DOI:10.1046/j.1471-5740.2003.00060.x

Oshodi,A.A., Olaofe, O. & Hall, G.M. (1993).Amino acid, fatty acids and mineral composition of pigeon pea. *International Journal of Food Science and Nutrition*; 43,187-191.

Ramı´rez-Ca´rdenas, L., Leonel, A.J., & Costa, N.M.B. (2008). Effect of domestic processing on nutrient and antinutritional factor content in different cultivars of common beans. *Cieˆncia e Tecnologia de Alimentos*; 28, 200–213.

Sathya, A., & Siddhuraju, P. (2015). Effect of processing methods on compositional evaluation of underutilized legume, *Parkiaroxburghii* G. Don (yongchak) seeds. *Journal of Food Science and Technology*; 52(10), 6157–6169. doi: 10.1007/s13197-015-1732-4

Siddiq, M., & Uebersax, M.A. (2012). Dry beans and pulses: Production, processing and nutrition (1st ed.), Wiley-Blackwell.

Sinha, S. K., (1977). Food legumes: Distribution adaptability and biology of yield, In: Plant production and protection paper 3. FAO, Rome, pp: 102.

Sinha, R., & Khare, S. K. (2014). Protective role of salt in catalysis and maintaining structure of halophilic proteins against denaturation. *Frontiers in Microbiology*; 5, 165. https://doi.org/10.3389/fmicb.2014.00165

Spackman, D. H., Stein, W. H., & Moore, S. (1958). Automatic recording apparatus for use in the chromatography of amino acids. *Analytical Chemistry*; 30, 1990-1991.

Stadlmayr, B., Charrondière, U. R., Enujiugha, V. N., Bayili, R. G., Fagbohoun, E. G., Samb, B., et al. (2012). West African Food Composition Table/Table De Composition Des Aliments D'afrique De L'ouest. Rome: FAO.

Takahashi, T., Toda, E., Singh, R. B., De Meester, F., Wilczynska, A., Wilson, D., & Juneja, L. R. (2011). Essential and Non-Essential Amino Acids in Relation to Glutamate. *The Open Nutraceuticals Journal*; 4, 205-212.

Vidal-Valverde, C., & Frias, J. (1991). Legume processing effects on dietary fibre components. *Journal of Food Science*; 56,1350–1352. doi: 10.1111/j.1365-2621.1991.tb04770.x.

Wu, G. (2009). Amino acids metabolism functions and nutrition. *Amino Acids*; 37, 1-17.

Yasir, A. & Asif, A.(2018). Impact of Processing on nutritional and antinutritional factors. *Annals of Food Science and Technology*; 19, 199 – 215.

Yeung, H., Ehler, J. D., Waniska, R. D., Alviola, J. N., & Rooney, L. W. (2009). Rapid screening methods to evaluate cowpea cooking characteristics. *Field Crops Research*; 112, 245-252.

Yewande, B. A., & Thomas, A. O. (2015). Effects of processing methods on nutritive values of *Ekuru* from two cultivars of beans *(Vigna unguiculata* and *Vigna angustifoliata)*. *African Journal of Biotechnology*; 14(2), 1790-1759.

HER Vol. 28 No. 2, December 2021, pp. 57-68

Food Vendors' Views on Home Grown School Feeding Programme for Public Primary School Children in Ebonyi State, Nigeria

[1]Umoke, C.I.; [2]Umoke, MaryJoy; [3]Obande-Ogbuinya, E.N.; [4]Agu, M.N.; [5]Agbe-Elom, .N.; [6]Umoke, U.G.; [7]Okide, C.C.; [8]Uzoho, C.M.

[1]Department of Human Kinetics and Health Education, University of Nigeria Nsukka; [2]School Health Programme Unit Ebonyi State, Ministry of Health Abakaliki, Nigeria; [3]Department of Science Education, Alex-Ekwueme Federal University, Ndufualike Ikwo; [4]Ananda Marga Universal Relief Team Foundation, Plot 26 Onwe Road Extension, Abakaliki, Ebonyi State, Nigeria; [5]Department of Human Kinetics and Health Education, Ebonyi State University, Abakaliki; [6]Department of Nursing & Midwifery, Teaching Hospital, University of Nigeria; [7]Department of Adult Education and Extramural Studies, University of Nigeria Nsukka; [8]Physical and Health Education Department, Alex-Ekwueme Federal University Ndufualike Ikwo.

Abstract

This study focused on food vendors' views on Home Grown School Feeding Programme (HGSFP) for public primary school children in Ebonyi State, Nigeria. Specifically, it determined types of food provided for school children; meal preparation and, hygiene practices observed by food vendors of the HGSFP, and factors militating against HGSFP. It used survey research design. Population was made up of 1435 food vendors. Questionnaire was used for data collection. Data were analyzed using frequencies and percentages. Findings show nine types of food provided for the children, top among them were rice 333(100%), and beans porridge 314(94.4) while the least provided food were eggs 197(59.3%), fruits 123(37.0%), and meat. Majority of the food vendors (77.8%) used healthy cooking methods such as steaming, broiling, grilling, and roasting and washed all fruits and vegetables before serving 290(87.0%). Majority 259(77.8%) do not wash hands, and cooking surfaces often using hot soapy water, before handling the cooking utensils and food, there were no proper screening and handling of food before meal preparation as revealed by most of them 290(87.0%) and no medical report was requested for before recruitment 321(96.3%). Challenges encountered include insufficient government monitoring of activities 173(51.9%), insufficient funding 79(79.6%), among others. Five recommendations for improving HGSFP were made.

Keywords: Food, Vendors, Home-Grown, School, Feeding, Programme,

Introduction

United Nations World Food Programme revealed that 66 million primary school-age children go hungry every day, with 23 million hungry children in Africa alone. Furthermore, 80% of these 66 million children are concentrated within just 20 countries including Nigeria (World Food Programme, 2015). School feeding is not just about providing food for the school children, it is also beneficial in the following areas: health and nutrition; education and gender equality; social protection, and local economies and agriculture (WFP, 2019).

In 2004, the implementation of the Home Grown School Feeding (HGSF) programme was piloted by the Nigeria Federal Government with 12 States and the Federal Capital Territory (FCT). Not long after commencement, this programme was stopped by 10 States and the FCT leaving only Osun and Kano States with SFP. Some of the major challenges that resulted in the discontinuation of the pilot HGSFP were insufficient monitoring and evaluation, failure of the Universal Basic Education Commission (UBEC) to disburse funds to pilot States, lack of supporting infrastructures such as Water, Sanitation, and Hygiene (WASH) facilities, low community involvement and participation due to inadequate sensitization and advocacy of relevant stakeholders, inadequate policy and legal framework at the State and Federal level, and institutional structure at Federal level not made fully operational. However, for implementing the HGSF programme across Nigeria the Government convened a high-level National Advocacy Meeting with support from donor agencies like the World Bank Group in May 2014, and recommendations to address key challenges were made including the development of National Policy and Guidelines to institutionalize HGSF at State level. (NHGSFP, 2020).

To achieve the objectives of HGSFP, the Federal Government aims to improve the health and educational outcomes of public primary school pupils by providing one meal a day at the cost of ₦70 through the National Home Grown School Feeding Programme (NHGSFP). It uses farm produce locally grown by smallholder farmers hence boosts local agriculture, creates stable markets, business opportunities for about 70% of women, and provides children with nutritional mid-day meals daily (Drake, Woolnough, Burbano, and Bundy, 2016). SFP can lessen poverty by increasing income for families and communities (Bundy, Burbano, Grosh, Gelli, Jukes, and Drake, 2009), link local farmers to the education sector by enabling their access to the school feeding market. For instance, in Jordan, the World Food Programme Healthy Kitchen project exemplifies livelihood creation through school feeding, employing local women who cook healthy school food for over 85,000 pupils (WFP, 2019).

To ensure sustainable implementation of SFP objectives stakeholders including multi-sectorial ministries, school-based management committees/Parent Teachers Association (SBMCs)/PTAs), Local Government Education Authorities, Non-Governmental organizations, Community Based organizations, Food vendors(Cooks), Pupils Farmers, etc., need to work together constructively.

Food vendors as one of the stakeholders of HGSFP play a critical role in providing safe and healthy meals at Nigerian schools and their responsibilities include preparation of meals for their assigned pupils in a hygienic and clean environment, procurement of the required ingredients for cooking based on the menu approved by the state, signing of the feeding attendance sheet of pupils served on a daily, washing of food dishes after meals and store appropriately amongst others (McCain, 2009).

In Nigeria, over 95,000 women are employed as part of the national school feeding program food vendors (NHGSFP., 2017; Government of Nigeria, 2018). So far, more than 19,000 schools and approximately, 3, 000, 000 school children in the pilot states of the federation have been covered under the National Home Grown School Feeding Programme, and in Ebonyi State, the HGSFP has covered 1,050 schools and 163,137 schoolchildren have been fed (Agency Report, and Kaduna, 2017).

In January, 2017, Ebonyi was one of the five states that received N400 million for the continuation of its HGSFP. Under free HGSFP, an estimated 5.5 million pupils in the five states including Ebonyi would be fed for 200 school days and N93.1billion was appropriated for the feeding scheme in the 2016 budget. However, the monitor of the program in Ebonyi State viewed it as being derailed and on the verge of collapse. The food vendors faced an initial challenge of being unable to access their money but the state government intervened which eased the problem of the food vendors. However, given the rising costs of food items in the market, the N70.00 allotted for the meal of each pupil was not enough to provide a pupil a balanced meal because an egg cost N40.00. The programme monitors criticized how the programme is being run in the state. They stated that quality food was not being given to the pupils for the five school days as specified by the FG's guidelines and the pupils were served food on their palms and in a most unhygienic manner thereby emphasizing the need for the programme operators to follow the Federal Government guidelines as stipulated. They also reported that primary school pupils were fed with less than N30 for a meal as against N70 approved by FG, and vendors complained of underfunding by their handlers, making it impossible to serve the pupils with decent meals. The food vendors threatened to quit the programme except the FG mediated and addressed the obvious gaps (The Nations Education News Update, 2017).

The perception of Food Vendors on HGSFP is imperative as it is expected the more they understand the relevance of programme policies, the more they feel involved in the decisions that affect their everyday tasks, and so doing embrace change, and successfully implement it. However, some studies have examined the view of food vendors towards the foods they serve, the conditions under which they serve them, and the challenges encountered.

Murimi, Chrisman, Diaz-Rios, McCollum, and Mcdonald, (2015) stated that poor funding affects the implementation of the programme. Food vendors specifically perceived the SFP as presenting better nutrition in terms of nutrients and variety of foods offered to students than they receive at home. Though they identified disadvantages and barriers of the SFP to be an inadequate amount of time allowed for the meal period, low-quality food, and lack of support and discouragement by various stakeholders in offering the SFP. Poor funding barriers were also reported in the studies of Lambert, Raidl, Carr, Safaii, and Tidwell, (2007), Mensah, (2016). Also, the studies of Falade, Otemuyiwa, Oluwasola, Oladipo, and Adewusi, (2012), Karissa and Orodho (2014), Taylor, and Ogbuogu (2016) among others noted that school feeding programme has greatly improved the nutritional status of school children though poor framework to support the programme were major challenges. Even though few studies have been conducted among food vendors on their view on the programme implementation in the area of meal planning and challenges encountered in Nigeria, none have been done in Ebonyi State. This study tends to fill this gap.

Purpose of the Study

The major purpose of this study was to investigate the views of food vendors on the Home Grown School Feeding Programme (HGSFP) practiced in public primary schools in Ebonyi State. Specifically, the study determined:

1. types of food (dishes) provided for primary school children by HGSFP.
2. meal preparation practices observed by food vendors HGSFP.
3. hygiene practices observed by food vendors of HGSFP.
4. factors militating against the HGSFP.

Research questions

1. What are types of food (dishes) provided children by the HGSFP?
2. What are the meal preparation practices observed by food vendors of the HGSFP?
3. What are the hygiene practices observed by food vendors of the HGSFP.?
4. What are the factors militating against the HGSFP?

Methodology

Design of the study: The study used cross-sectional research design. This design was also used by Akanbi, and Alayande (2011); and Taylor and Ogbuogu, (2016) in their study in the public primary schools in Osun State.

Area of the study: The area of study was Ebonyi State. Southeast, Nigeria. It has a landmass, of 5,533 km2 (2,136 sq mi), a total population of 2,176,947, of (2006 Census), located between latitude N 6° 10' 40.7028" of the equator and longitude E 7° 57' 33.4296") and situated on an altitude of 113m above sea level. Ebonyi state has three senatorial zones namely: Ebonyi North, Ebonyi Central, and Ebonyi South senatorial zone, and a total of 13 local government areas (LGAs). Ebonyi is primarily an Agricultural region and is the leading producer of yam, rice, maize, potatoes, cassava, and beans, and have a notable basket market in Nigeria. This attribute contributes greatly to the implementation of HGSFP in the state as it partakes to local farmers. According to the Ebonyi State Universal Basic Education Board, (2018) There are a total of 1941 approved primary schools (1076 public, 713 private),but only 1066 public primary schools are currently practicing HGSFP (Igboji, Umoke, Umoke, Nwazunku, Nwalieji, Umoke, Onwe, Nwafor, and Nwalieji, 2020).

Population for the study: Ebonyi state has a total population food vendors' population of 1,453 according to Ebonyi State Universal Basic Education Board (UBEB, 2018). These are women caterers that are picked from within the communities in the state, employed to cook food for school children under the scheme, and were provided with utensils to do so.

***Sample for the study*:** The sample size was 333 food vendors in Public Primary Schools. A multistage sampling technique was used to select the respondents: firstly, dividing the state into three zones; secondly purposively selecting seven Local Government Areas, two from Ebonyi North (Abakaliki, and Izzi), two Ebonyi Central(Ikwo, and Ezza South), and three Ebonyi south (Afikpo North, Afikpo South, and Onicha) Senatorial zones currently providing school meals (In-school); and thirdly, random sampling of 333 schools with their 333 food vendors selected for the study. Three LGAs were chosen from Ebonyi South because it has a total of 5 LGAs while North and Central have 4 LGAs each.

Instrument for data collection: An 18-item questionnaire was used to obtain information about HGSFP from food vendors. It was made up of 2 sections. Section 1-contain the 4 items on socio-demographic characteristics of the respondents, 2- contain 15 items on meal management and services practices of the vendors, and challenges vendors encounter in the provision of meals for the children. The content and face validity was established by two experts in the field. The reliability of the instrument was established from four schools selected within the population but outside the sampled schools. A high-reliability co-efficient of 0.734 was obtained hence, the instrument was considered reliable for use in this study.

Data collection methods: There was a one-day training of Headteachers on how to administer the questionnaire to food vendors in their various schools. A total of 333 copies of the questionnaire were administered to the respondents. All the 333 copies were properly completed and retrieved. It gave a 100 percent retrieval rate.

Data analysis techniques: Data generated were analyzed using frequency, and percentages.

Findings of the study

Socio-demographic characteristics of Respondents

Data analysis shows that out of 333 respondents, their ages distribution was: 21-30years 80(24.1%); 31-40 years 192(57.5%); and 41-50 years 61(18.4%). All the vendors are females 333(100.0%), and their level of education were, non-formal 25(7.4%), primary 74(22.2%), secondary 154(46.3%), and tertiary 80(24.1%). The majority were from the rural 216(64.8%), and less from urban 117(35.2%).

Table 1: Percentage Responses of Types and Regularity of Food Provided for the Children

S/N	Types of Foods provided	Yes F (%)	No F (%)
1.	Do you get the food from your community?	216(64.8)	117(35.2)
2.	Do you serve the pupils with these oods such as;		
	Yam	311(96.3)	22(3.7)
	Rice	333(100)	0(0.0)
	Beans porridge	314(94.4)	19(5.6)
	Eggs	197(59.2)	136(40.8)
	Fruits	123(37.0)	210(63.0)
	Meat	99(29.6)	234(70.4)
	Fish	204(61.1)	129(38.9)
	Garri and soup	74(22.2)	259(77.8)
	Okpa	259(77.8)	74(22.2)

Table 2 reveals the types of food and dishes provided for the children while in school. A majority 216(64.8%) got the food from the community. The food served were yam porridge 311(96.3%), rice 333(100%), beans porridge 314(94.4), eggs 197(59.3%), fruits 123(37.0%), meat 99(29.6%), fish 204(61.1%), garri and soup 74(22.2%), and okpa 259(77.8%).

Table 2: Percentage Responses on Meal Preparation Practices Adopted by Food Vendors

S/N	Meal preparation practices	Yes *F* (%)	No *F*(%)
1.	Do you use healthy cooking methods such as steaming, broiling, grilling and roasting**?**	259(77.8)	74(22.2)
2.	Do you use a variety of herbs for additional flavor rather than relying on salt and magi alone?	123(37.0)	210(63.0)
3.	Do you use packaged or processed foods	56(16.7)	277(83.3)
4.	Do you wash all fruits and vegetables before serving?	290(87.0)	43(13.0)
5.	Do you separate raw, cooked, and ready-to-eat foods.	327(98.1)	6(1.9)
6.	Do you cook foods to a safe temperature using a food thermometer	12(3.7)	321(96.3)

Table 2 shows that on meal preparation practices, a majority of the food vendors use healthy cooking methods such as steaming, broiling, grilling, and roasting 259(77.8%), but only a few use a variety of herbs for additional flavor123(37.0%). Most of them reported that they don't use packaged or processed foods 277(83.3%). Most of them wash all fruits and vegetables before serving 290(87.0%), do separate raw, cooked, and ready-to-eat foods 3277(98.1%). However, a majority do not cook foods to a safe temperature using a food thermometer 321(96.3%).

Table 3: Percentage Responses on Hygiene Practices Observed by Food Vendors of the HGSFP.

S/N	Hygiene Practices	Yes *F* (%)	No *F* (%)
1.	Do you wash hands, and cooking surfaces often using hot soapy water, before you handle the cooking utensils and food?	74(22.2)	259(77.8)
2.	Is there proper screening and handling of food before meal preparation**?**	43(13.0)	290(87.0)
3.	Is there any proper plan for food purchasing**?**	56(16.7)	277(83.3)
4.	Do you Stack food in the warehouse for long periods of time before use?	12(3.7)	321(96.3)
5.	Were you asked for any medical report before recruitment	12(3.7)	321(96.3)

Table 3 reveals that on hygiene practices observed by food vendors of the HGSFP, a majority 259(77.8%) do not wash hands, and cooking surfaces often using hot soapy water, before you handle the cooking utensils and food and there were no proper screening and handling of food before meal preparation as revealed by most of them 290(87.0%). Also, a majority of 277(83.3%) stated that there was no proper plan for food purchasing, and no medical report was requested for before recruitment 321(96.3%). However, most of them 321(96.3%) reported that they don't stack food in the warehouse for long periods before use.

Table 4: Percentage Responses on Factors Militating Against the HGSFP

S/N	Factors Militating Against the HGSFP	Yes *F* (%)	No *F* (%)
1.	Do you think Government monitoring of your activities is sufficient?	160(48.1)	173(51.9)
2.	Do you think the fund given for HGSFP is sufficient?	68(20.4)	265(79.6)
3.	Do you think that; Food poisoning may occur?	197(59.3)	136(40.7)
4.	Do you think there may be withdrawal of government / donor support?	314(94.4)	19(5.6)
5.	Do you think there is absence of a legal frame work and policy to support the HGSFP?	333(100)	0(0.0)

Table 4 shows the factors and challenges encountered during HGSFP implementation. Most of the respondents stated that Government monitoring of your activities is not sufficient 173(51.9%). Also, they reported that funds given for HGSFP were not sufficient 79(79.6%). Other factors revealed by the vendors were: food poisoning 197(59.3%), withdrawal of government/donor support 314(94.4%), and absence of legal framework and policy to support the HGSFP 333(100%).

Discussion

The objectives of the National Home Grown School Feeding Program amongst others is to stimulate local agricultural production and boost the income of farmers by creating a viable and ready market via the school feeding programme, and to create jobs along the value chain, and provides a multiplier effect for economic growth and development. These goals will not be achieved if the programme is not properly implemented. The views of Food vendors on meal services and challenges are very crucial because they are one of the stakeholders of the programme whose job is to procure and cook a healthy and nutritious meal for the children in primary schools.

The result of our study revealed that a majority 216(64.8%) of the food vendors got the food from the community, and they served the children local foods such as yam porridge, rice, beans porridge, garri and soup, and okpa. This was supported by Drake et al., (2016) who revealed that HGSFP uses farm produce locally grown by smallholder farmers hence boost local agriculture. Additionally, since one of the goals of HGSFP is to boost the economy of farmers, this is being achieved because food vendors procure food from their community. Procurement of locally produced crops and service of pupils with local foods was also reported in the studies of Sitao, (2018); and Goldsmith, Andrade, Cornelius, Asigbee, Atim, and Tamimie, (2019).

In addition, only a few food vendors in this study reported that they gave eggs, fruits, meat, and fish, which are nutritious and can, boost school children's health. Likewise, and Taylor and Ogbogu (2016) also reported that most of the catering managers in their study explained that meals were usually prepared daily for the pupils and this is in line with the findings of the study. At variance with the result of the study, Day, et al., (2015); Taylor and Ogbogu (2016); Asada, Ziemann, Zatz, and Chriqui, (2017) reported that pupils were served with assorted fish, vegetable fruit, chicken, meat.

Moreover, there were good meal preparation practices by the food vendors in this study; a majority of the food vendors use healthy cooking methods such as steaming, broiling, grilling, and roasting, and most of them reported that they don't use packaged or processed foods, they do wash all fruits and vegetables before serving and separate raw, cooked, and ready-to-eat foods. However, a majority do not cook foods to a safe temperature using a food thermometer as they don't even have a food thermometer. In the same vein, according to the progress report of the programme in 2017 (NHGSFP, 2017), some of the flaws in the program implementation are the engagement of cooks without appropriate utensils, and the cooks were not able to cook effectively. These findings suggested that food vendors are to be enlightened on the importance of cooking food to a safe temperature and they should be provided with appropriate utensils including food thermometers and be trained on how to use them. Healthy cooking helps with healthy eating because it gives when food is properly cooked by various methods, any germ that may cause food poisoning will be eliminated during preparation. Stacking food for a long time in a warehouse may expose the food to spoilage and infestation by pests and rats which can cause illness for the children. However, the reason why foods were not stored long enough in stores is that there are no many purchases done by the vendors.

Furthermore, there were some poor hygiene practices observed by food vendors of the HGSFP, as the majorities do not wash hands, and cooking surfaces often using hot soapy water, before handling the cooking utensils and food; no proper screening and handling of food before meal preparation **no** proper plan for food purchasing, and no medical report requested for before recruitment. At variance with the result of the studies of Day, *et al.,* (2015) in England; and Asada, *et al.* (2017) in USA they reported that there was a proper screening and purchasing plan, policy formulation and implementation of the school feeding programme in their studies. These differences could be due to different populations and regions studied. England and USA are among the developed nations and policies being put in place are also being implemented unlike developing areas like Nigeria.

Furthermore, on the factors militating the provision of meals for the children, most of the respondents stated that Government monitoring of your activities and fund were not sufficient and other challenges were food poisoning, withdrawal of government/donor support and absence of legal framework and policy to support the HGSFP. In the same vein problems of insufficient funding and lack of effective monitoring and evaluation system were also revealed in the studies of Taylor and Ogbuogu, (2016). Ghodsi, Omidvar, Rashidian, Raghfar, Eini-Zinab, and Ebrahimi, (2017); Azubuike, and Mbah, (2019). Regarding the direct benefits of the homegrown school feeding programme, these challenges are to be ameliorated using an integrated approach in support and success of the Home Grown School Feeding Program in the state.

Conclusion

Conclusively, there were proper meal service practices observed in the study like healthy cooking methods, proper food storage, and procurement of locally grown crops. However, gaps still exist in the provision of healthy nutritious meals (fruits, vegetables, meats, and fish), proper planning for food purchase, and screening of food vendors before handling meals. Some of the challenges as viewed were, problem of food poisoning, insufficient government monitoring of their activities and funding, government/ donor withdrawal support for programme implementation., and absence of a legal framework and policy to support the HGSFP.

Recommendations

The following recommendations were made based on the findings of the study.

1. The government and stakeholders of HGSFP should be committed to the adequate funding of the HGSFP through appropriate budgetary allocation for the sustenance of the programme in the state.
2. A national policy framework should be put in place to ensure monitoring on food procurement process, storage and distribution
3. There should be existence of SFP committee that will put up appropriate measures for food stocks records and food treatment so that it does not go bad or face pests attack.
4. There should be screening and monitoring of the health status of the food vendors to ensure healthy feeding of the children.

5. Healthy and balanced meals should be promotion based on locally available produce, such as addition of meat, fish, eggs, fruits, and vegetables.

References

Agency Report, & Kaduna, G., (2017). 2.9 million children benefit from govt's school feeding programme @ https://www.premiumtimesng.com/news/more-news/244181-2-9-million-children-benefit-govts-school-feeding-programme.html

Akanbi, G.O. and Alayande, E. (2011). Home grown school feeding and health program in Nigeria: An innovative approach to boosting enrolment in public primary schools – a study of Osun State 2002 – 2010. *African Symp*. 2011; 11 (2).

Asada, Y., Ziemann M., Zatz, L.Y., &Chriqui, J., (2017). Successes and Challenges in School Meal Reform: Qualitative Insights from Food Service Directors. *Journal of School Health,* 87(8): 608-615, https://doi.org/10.1111/josh.12534

Azubuike, O.C., &Mbah, P.E. (2019). Challenges of Child Nutrition: An Analysis of School Feeding Programmes (SFP) in South Eastern Nigeria. *Savanna Journal of Basic and Applied Sciences,* 1(1): 104-110.

Bundy, D. A. P., Burbano, C., Grosh, M., Gelli, A., Jukes, M., & Drake, L. (2009). Rethinking School Feeding. *Social Safety Nets, Child Development and the Educational Sector. Washington, DC: World Bank.*

Drake, L., Woolnough, A., Burbano, C. & Bundy, D. A. P. (2016). Global school feeding sourcebook: lessons from 14 countries (English). Washington, D.C.: *World Bank Group.***Error! Hyperlink reference not valid.**

Ebonyi State Universal Basic Education Board, (2018). Ebonyi State Universal Basic Education Board, Abakaliki Basic Education Statistics 2016/2017. *Published by Ebonyi State Ministry of Education.*

Falade, O., Otemuyiwa, O., Oluwasola, O., Oladipo, W., &Adewusi, S. (2012). School Feeding Programme in Nigeria: The Nutritional Status of Pupils in a Public Primary School in Ile-Ife, Osun State, Nigeria. *Food and Nutrition Sciences.* 03(05). https://doi.org/10.4236/fns.2012.35082.

Ghodsi, D., Omidvar, N., Rashidian, A., Raghfar, H., Eini-Zinab, H., &Ebrahimi, M., (2017). Key Informants' Perceptions on the Implementation of a National Program for Improving Nutritional Status of Children in Iran. *Food and Nutrition Bulletin.* 38(1): 78-91. https://doi.org/10.1177/0379572116682870.

Goldsmith, P., Andrade, J., Cornelius, M., Asigbee, M., Atim, P., &Tamimie, C., (2019). National School Lunch Nutrition and Cost Profile: A Case Study of the Ghana School Feeding Programme. *Food and Nutrition Bulletin* 2019, 40(1) 41-55 https://doi.org/10.1177/0379572119825960

Government of Nigeria (2018) Investing in Our People: A Brief on the National Social Investment Programmes in Nigeria, p. 13. www.nhgsfp.gov.ng/

Igboji, J.O., Umoke, P.C.I., Umoke, M., Nwazunku, A.A., Nwalieji, C.A., Umoke, U.E., Onwe, R.N., Nwafor, E.I., & Nwalieji., C.N., (2020) Perception of Pupils, on Home Grown School Feeding Programme in Ebonyi State, South-East Nigeria. *Global Journal of Health Science;* Vol. 12, No.

10: 45-59. ISSN 1916-9736 E-ISSN 1916-9744.

Karisa, K.S., &Orodho, J.A. (2014). Assessment of Home Grown School Feeding Programme (HGSFP) Theory in Kinango Sub-County, Kwale County, Kenya. IOSR Journal of Humanities and Social Science, 19, 45-52. https://doi.org/10.9790/0837-19924552

McCain, M., (2009). Serving students: A survey of contracted food service work in New Jersey's K-12 Public Schools. Public Interest. Rutgers, centre for women and work.www. cww.rutgers. edu

Mensah, A. O. (2016). Contract Management, Monitoring and Evaluation of Ghana School Feeding Programme at AtwimaKwanwoma District. *International Journal of Scientific & Technology Research,* 5(04): 268-278.

Muriithi, B. M. W., (2014). Influence of headteachers' school feeding programme practices on pupils' participation in public primary schools in siakago division, mbeere north, kenya A Research Project Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Education in Educational Administration University of Nairobi

National Home Grown School Feeding Programme (2017), progress report: the journey so far; Feeding one million school children. April 2017. **Error! Hyperlink reference not valid.** Accessed 3/8/2020

Nigeria Home Grown School Feeding Programme (2020). Nigerian Home grown School Feeding Strategic Plan 2016-2020

Ogbazi, J.N., &Okpala, J. (1994). *Writing research report: Guide for researchers in education, the social sciences and the humanities.* Enugu: Press Time Ltd.

Sitao V. J. R. (2018). An assessment of school feeding programme - pilot phase and its relationship with enrolment, attendance, retention and the local agricultural production in Nampula province in Mozambique. Submitted in fulfilment of the requirement for the degree Doctor of Philosophiae in Public Health Supervisor: Professor Josephine Kiamba, Co-supervisor: Professor Cheryl M E McCrindle. School of Health Systems and Public Health Faculty of Health Sciences University of Pretoria July 2018. Unpublished PhD dissertation (S28279825).

Taylor, A. D., &Ogbogu, C. O. (2016). "The Effects of School Feeding Programme on Enrolment and Performance of Public Elementary School Pupils in Osun State, Nigeria", *World Journal of Education,* 6 (3): 39–47. **Error! Hyperlink reference not valid.**.

The Nations Education News Update, (2017). Monitors say FG's school feeding programme in Ebonyi in danger Available from **Error! Hyperlink reference not valid.**

World Food Programme-WFP, (2015). School meals and Education. @ documents.wfp.org/stellent/groups/ public/ Accessed August 3, 2020.

World Food Programme-WFP., (2019). The Impact of School Feeding Programme. Schoolfeeding.osf@wfp.orgAccessed August 3, 2020.

HER Vol. 28 No. 2, December 2021, pp. 69-83

Poverty Change and Mobility in Urban and Rural Areas of Geopolitical Zones in Nigeria: A Decomposition Analysis

Idika, E.O.[1]; Nwosu, E. O.[2]; Nji, I. A.[1]& Ejimonye, J. C.[1]
[1]Department of Social Science Education, University of Nigeria, Nsukka
[2]Department of Economics, University of Nigeria, Nsukka

Abstract

This paper analyzed the poverty change and mobility, then decomposition of dynamics in urban and rural areas as well as by other household characteristics. The study applied decomposition techniques proposed by Ravallion and Lokshin (2006), which involves growth, poverty, inequality decomposition, and sectoral decomposition of poverty on General Household Panel Survey collected between 2010 and 2013.The study was carried out using the six Geopolitical zones in Nigeria. The population for the study is in three waves for the three years 162.8, 167.2, 171.8 million respectively. The sample strategy used for data collection is a stratified two-stage probability sample which was designed to be representative at the geopolitical zones (both in urban and rural) level while being nationally representative as well. The results show that poverty increased over the period under review as the change in the headcount index was positive with growth and inequality contributed to this increase overall. When these decompositions were done in the six geopolitical zones in Nigeria, we found reductions in headcount poverty in the North Central and South West mostly accounted for by the growth and distribution components. Sectoral decomposition of poverty also shows increase in the overall headcount index over the two periods for which data were collected and total intra-sect-oral effect, population shift effect, and interaction effect all contribute to the observed change in poverty. The policy implication of these findings is that government should intensify policies efforts towards poverty reduction and these policies must ensure that inequality is reduced and growth will be more inclusive.

Keywords: Poverty, Change, Mobility, Urban, Rural, Decomposition, Predict

Introduction

Poverty has continued to be one of the leading global development challenges for the past three decades after the Millennium Declaration. Before the declaration, it was discovered that large number of households were living on less than $1 a day and this prompted the United Nations and allied institutions to come up with measures to mitigate the rate of poverty and vulnerability worldwide. The Concept led to the failure to achieve certain minimum standards of life. The United Nations (1995) defined Poverty as a condition that portrays some attributes that are necessary for human living such as access to food, safe drinking water, sanitation facilities, health, shelter and education. This indicates mere lack of basic needs that makes a living.Maxwell (1999) described poverty in terms of income or consumption poverty, human under development, social exclusion, ill-being, lack of basic needs and relative deprivation. Poverty is characterized by lack of participation in decision making, in civil, social and cultural life (UN, 1995). Poverty can be viewed as a severe and impairing condition that is caused by many different risk factors working together to affect the mind, body and soul. Thus, poverty can be defined as limitation to accessible basic standard of living which includes food, shelter, health and water which is not constant but changes.

Poverty alleviation programmes have become popular in the developing world and yet not much progress has been made in this regard. Poverty tends to increase over time.Poverty mobility is the movement within the poverty line. The proportion of people moving into poverty year after year is far greater than the proportion that escapes poverty. In countries where households managed to move out of poverty, still remain highly vulnerable to it.

Poverty has an underlining attribute between the rural and urban areas (Titin, 2016). Pateman (2011) identified three characteristics features of urban and rural areas which are population size, population concentration and remoteness. These measure the relationship to each other. This study tends to consider changes in poverty in urban and rural areas considering these characteristics. Literature shows that poverty change focus on the shift in structure of poverty as a result of inequalities (Hills, 1985) and growth components on poverty population (Datt and Ravallion 1992; Kakwani 2000). Poverty change is viewed as that effect on redistribution and growth components on the impact of total population. This study seeks to explore the decomposition effect of poverty, poverty change and mobility in the total population.

Given concern over persistence of poverty changes in length of time spent below the poverty line can be viewed as an important measure of changes in the extent of poverty. Mobility on the other hand reflects on the movement in family's ranking towards becoming wealthier in society though the ranks change continuously (Ellewood, Bogle, Acs, Mikelson, and Popkin, 2016). At a particular period, people tend to escape poverty during periods of aggregate rise in poverty rate and then transit into poverty during periods of aggregate decline in the poverty rate (Dapel, 2018). Thus, in poverty mobility interest to identify the proportion of the entire population that transits in and out of poverty and those that stay in poverty and out of poverty is of almost importance. According to Bane and Ellwood (1986) poverty mobility describes the experiences of people who ever slipped into poverty and of people who currently are poor. Bane and Ellwood identified that although many people have very short spells of poverty few are with very long spells account for the bulk of all poverty and represent the majority of the poor at any given time.

In a study, carried out by Dapel (2018) on three decades of poverty mobility in Nigeria on trapped, the freed and the never trapped found out that both transient and chronic poverty was higher in 1996 to 2010 than in 1980 to 1992. This means that poverty increased from year to year beginning from 1996 few escaped poverty. Sa'idu and Roslan(2010) conducted a study on poverty reduction in Nigeria 20 years using Pooled, Fixed effects, random effects and weighted least square models and found out that a unit increase in per capita gross Domestic Product (GDP) will lead to a 0.6% increase in poverty. Rufai, Ogunniyi, Salman, Oyeyemi, and Salawu (2019) conducted a study on migration, labour mobility and household poverty in Nigeria, the study shows that more male migrants travelled for greener pastures (employment reasons) while marriage arrangements made more flames travel.

In Nigeria, however, very little is known about poverty change and poverty mobility after many years of research on poverty and income distribution, partly because of lack of panel data. Recent waves of panel household surveys have however, made it possible for this kind of analysis to be carried in Nigeria. This paper therefore contributes to knowledge by looking at the dynamics of poverty within the framework of growth and inequality decomposition proposed by Gaurav, Datt and Ravallion (1996).

Objectives of the Study

The general objective of the study was to investigate issues in growth and inequality decomposition of poverty change within households at the national, geopolitical zones and urban-rural levels of Nigeria. Specifically, the study:

1. analyzed the poverty distribution in Nigeria across the Geopolitical Zones
2. analyzed the distribution of poverty in Nigeria's Geopolitical zones by gender
3. predicted the probability of falling into poverty in Urban and Rural areas as moderated by gender.
4. predicted growth and poverty decompositions in Nigeria's Geopolitical Zones.

Methodology

Design of the study: The designs adopted for this analysis is growth and inequality decomposition proposed by Lokshin and Ravallion (2006). According to this approach, the change in poverty between two years could be decomposed into three components.

The growth component is the difference between the two poverty indices keeping the distribution constant. The redistribution component is the change in poverty if the mean of the two distributions is kept constant. The interaction component (residual) shows the change in poverty due to interaction of growth and inequality. This decomposition technique was earlier applied by Gaurav Datt and Martin Ravallion (1992) on a study relating to growth and redistribution components of Changes in Poverty to Brazil and China in the 1980s.

Area of the study: The study was carried out using the six Geopolitical zones in Nigeria. The choice of this area is Nigeria is said to be the biggest economy and the giant of Africa but yet a large number of the population lives below an average life as shown by the World Bank's standard for an average life.

Population of the Study: The population for the study is inthree waves for the three different years used for the study 162.8, 167.2, 171.8 million respectively. This constitutes the population of Nigeria for the years 2011, 2012, and 2013 respectively.

Sample for the study**:** The sample strategy used for data collection is a stratified two-stage probability sample which was designed to be representative at the geopolitical zones (both in urban and rural) level while being nationally representative as well. In the first stage, the enumeration areas (EAs) were the primary sampling units (PSUs). In all 500 EAs were finally selected using this method. The selection was based on probability proportional to size (PPS) of the total EAs in each state and FCT and also based on the total households listed in those EAs. The second stage involves the selection of the households using the systematic selection method in which 10 households were randomly selected from each EA. This resulted in the sample of 5,000 households the panel component of the data. A population weight variable (wght) was calculated and included in both the household and the panel datasets. When applied, the weight will raise the sampled households and individuals to national values by making adjustments for population concentrations in various areas (NBS, 2013).

Source of Data: The dataset used for this study was extracted from the Nigeria General Household (GHS) panel survey waves one and two collected by the National Bureau of Statistics (NBS) Nigeria and was funded by development partners particularly the World Bank. According to the NBS report in 2013, this is a survey covering 22,000 households nationwide that is carried out annually in the country. The panel component of the called GHS-Panel is carried out very two years and applies to 5,000 households of the GHS. The panel component of the survey is based largely on the Harmonized National Living Standards Survey (HNLSS) and the National Agricultural Sample Survey (NASS). The first wave was carried out in two visits to the panel households (which comprises post-planting visit between August and October 2010 and post-harvest visit between February and April 2011). Similarly, the second wave also comprises two visits again to the panel households accordingly in 2012 and 2013. It is important to stress that the GHS survey covered all the 36 states of the federation including the Federal Capital Territory (FCT), Abuja.

***Data collection methods*:** The data collection was largely carried out in the rural areas data were also collected from the urban enumeration areas (EAs). Also, it is important to point out that the household questionnaire which was administered to all households was designed to collect information on household demographic characteristics; education; health; labour and time use; household expenditure; household nonfarm income-generating activities; food security and exposure to shocks; safety nets; housing conditions; assets; information and communication technology; and other sources of household income. Household location is geo-referenced with latitude and longitude which can also be used to produce thematic maps. This dataset is suitable for analyzing poverty dynamics.

Data analysis techniques: The study adopted decomposition analysis using Lokshin and Ravallion (2006) approach and Kakwani (2000), in which poverty change is decomposed into its contributing parts namely the growth component and inequality component over two periods. Further analysis was done by decomposing poverty change by sectors to ascertain inter-sectoral shift effect, population shift effect and interaction effect while probability of falling into poverty was calculate from random probity estimation. Descriptive analyses were used to calculate the distribution of poverty by geopolitical zones and by rural and urban areas.

Results

The decomposition of head count poverty index using FGT approach is reported in Tables 1, 2, and 3. Tables 1 and 2 depict decomposition of head count poverty index by urban and rural areas, Table 3 shows the probability of falling into poverty in a four-way table involving urban and rural, gender of the head, and year.

Table 1: Distribution of Poverty in Nigeria's Geopolitical Zones by Sector and Year

ZONE	Sector and Year			
	Urban		Rural	
	2010-2011	2012-2013	2010-2011	2012-2013
North Central	0.528	0.414	0.819	0.792
North East	0.356	0.463	0.770	0.815
North West	0.545	0.725	0.863	0.918
South East	0.272	0.346	0.639	0.705
South South	0.435	0.459	0.636	0.625
South West	0.424	0.316	0.726	0.572

Source: *Authors'' computations with data from the NBS 2010-2013*

Table 1 shows the distribution of poverty by geopolitical zones and years. It can be observed that in 2010 -2011 poverty was highest in the North Central and lowest in South East. In the year 2012-2013 Poverty was highest in the North West and lowest in the South west while in 2010-2011 poverty was highest in North West and lowest in South South whereas in 2012-2013 poverty was highest in same North West and lowest in South South.

Table 2: Distribution of Poverty in Nigeria's Geopolitical Zones by Gender of the Household Head and Year

ZONE	Sex and Year			
	Male		Female	
	2010-2011	2012-2013	2010-2011	2012-2013
North Central	0.751	0.713	0.644	0.534
North East	0.706	0.768	0.522	0.444
North West	0.807	0.891	0.636	0.556
South East	0.551	0.629	0.527	0.581
South South	0.576	0.583	0.576	0.560
South West	0.494	0.389	0.565	0.406

Source: National Bureau of Statistics (NBS) Nigeria, 2013

Table 2 shows the distribution of poverty by gender of the household head. First it can be observed that in the North Central poverty rate in male-headed households were respectively 75.1 and 71.3 percent in wave 1 and wave 2 of the panel survey, while the corresponding figures for female-headed households were 64.4 and 53.4 percent for the two waves respectively. In the South West, poverty rate in male-headed households were respectively 49.4 and 38.9 percent in wave 1 and wave 2 of the panel survey, while the corresponding figures for female-headed households were 56.5 and 40.6 percent for the two waves respectively. Both sexes experienced poverty decline in their households over the two periods in North Central and South West. The reverse is the case in the other four geopolitical zones as was also reported in urban and rural areas situation.

Table 3: Predicted Probabilities of Falling into Poverty in Urban and Rural Areas of Nigeria by Gender and Year from Random Probity Estimation

SECTOR and ZONE	**Sex and Year**			
	Male		Female	
	2010-2011	2012-2013	2010-2011	2012-2013
Urban				
North Central	0.5301	0.4354	0.5268	0.4988
North East	0.3722	0.3101	0.3669	0.1648
North West	0.7367	0.7347	0.8348	0.7631
South East	0.2447	0.2142	0.2912	0.2197
South South	0.2992	0.2550	0.3383	0.2623
South West	0.2758	0.2360	0.3176	0.2074
Rural				
North Central	0.9101	0.8846	0.8883	0.8605
North East	0.8334	0.8267	0.8146	0.7184
North West	0.9693	0.9746	0.9701	0.9788
South East	0.7581	0.7386	0.7477	0.6932
South South	0.7740	0.7379	0.7592	0.7219
South West	0.7696	0.7592	0.8097	0.7236

Source: National Bureau of Statistics (NBS) Nigeria, 2013

Table 3 shows that the probability of falling into poverty is very high in rural areas compared to the urban areas and this is not surprising giving that rural households are more vulnerable to poverty relative to the urban households. For most of the urban households, the probability of falling into poverty is less than 0.5 regardless of whether it is male or female headed household. On the other hand, for all the rural households, the probability of falling back into poverty is above 0.5 and on average 0.72 and this is true in households that are male-headed or female-headed. These are true for the waves of panel surveys.

Table 4: Growth and Poverty Decompositions in Nigeria's Geopolitical Zones

Growth and Inequality Poverty Decomposition: All Zones			
	2010-2011	2012-2013	Average effect
Poverty rate (P0)	64.806	66.122	
Change in P0	1.316	1.316	1.316
Growth component	1.065	0.662	0.864
Redistribution component	0.654	0.251	0.452
Interaction component	-0.403	-0.403	0
Growth and Inequality Poverty Decomposition: North Central			
Poverty rate (P0)	73.946	69.261	
Change in P0	-4.686	-4.686	-4.686
Growth component	-0.766	-0.778	-0.772
Redistribution component	-3.907	-3.919	-3.913
Interaction component	-0.012	-0.012	0
Growth and Inequality Poverty Decomposition: North East			
Poverty rate (P0)	70.028	75.616	
Change in P0	5.588	5.588	5.588
Growth component	4.972	3.973	4.472
Redistribution component	1.615	0.616	1.116
Interaction component	-0.999	-0.999	0
Growth and Inequality Poverty Decomposition: North West			
Poverty rate (P0)	80.271	88.386	
Change in P0	8.115	8.115	8.115
Growth component	3.495	4.994	4.245
Redistribution component	3.121	4.62	3.87
Interaction component	1.499	1.499	0
Growth and Inequality Poverty Decomposition: South East			
Poverty rate (P0)	54.381	61.26	
Change in P0	6.879	6.879	6.879
Growth component	4.897	5.63	5.263
Redistribution component	1.249	1.982	1.615
Interaction component	0.733	0.733	0
Growth and Inequality Poverty Decomposition: South South			
Poverty rate (P0)	57.584	57.756	
Change in P0	0.172	0.172	0.172
Growth component	-0.268	-0.277	-0.273
Redistribution component	0.449	0.441	0.445

Table 4Contuned			
Interaction component	-0.009	-0.009	0
Growth and Inequality Poverty Decomposition: South West			
Poverty rate (P0)	50.939	39.23	
Change in P0	-11.709	-11.709	-11.709
Growth component	-9.637	-9.843	-9.74
Redistribution component	-1.866	-2.072	-1.969
Interaction component	-0.206	-0.206	0

Table 4 shows the results for growth inequality decomposition using Ravallion and Lokshin (2006) approach in the six geopolitical zones and for the aggregate of all the zones or the national data. As the table shows, the national poverty measured by the headcount poverty index was 64.8 percent in 2010-2011 period and this increased to 66.12 percent in the 2012-2013 period. The average change in the headcount index was 1.316 percent. The growth component contributed 0.864 while the redistribution or inequality component contributed 0.452 and the interaction effect was 0. This implies that economic growth was not pro-poor over this period and hence left the poor on the sideline, while high inequality contributed to higher poverty over this wave of panel household survey in the country. This however, does not tell the entire story of what happened across the six geopolitical zones.

A close look at the table shows that poverty declined in the North Central geopolitical zone from 73.946 percent to 66.122 percent, that is, a decrease of 4.686 percentage points. Of this decrease, growth component on average contributed 0.772 of the decrease, while the inequality or redistribution component on average contributed about 3.913 of the decrease and thus dominated the growth effect. This suggests that the decrease in poverty that we saw in the North central over the two panel surveys was largely due to decrease in inequality or due to more equitable redistribution of income. Another zone that saw a decrease in head count poverty index over the period is the South West where poverty decreased from 50.94 to 39.23 so that the total decline was 11.709 percentage points. The difference between the South West and North Central is that the reduction in poverty in the South West was largely driven by the growth component than by the redistribution component. This suggests that growth was poor and dominant while there was a redistribution of income to the benefit of the poor as well.

The North East, North West and South East all saw an increase in the headcount index over the period and the positive contributions of growth and redistribution components suggests that growth was not pro-poor and income redistribution affected the poor adversely. In all these zones, the growth component dominated the inequality component which implies that growth was not sufficient to carry the poor along but instead was hurting the poor. This may be case if growth was occurring in sectors where the poor were not part of. For example, growth happening in the oil sector, and the like might not benefit the poor more than the growth happening in the agricultural sector. The South-South presents a unique case in which there was marginal increase in head count poverty index from 57.584 to 57.756, that is, an increase of just 0.172. In this zone, while the growth component was benefitting the poor, the dominant redistribution component was hurting the poor. This means high income inequality in the South-South geopolitical zone is the major driver of poverty and not income growth.

Table 5: Sectoral Decomposition of Change in Poverty: Sector and Zones

Sectoral Decomposition of a Change in Poverty:		**Headcount**	
Poverty in period 1	HeadCount	64.8061	
Poverty in period 2	HeadCount	66.1223	
Sector	Population share in period 1	Absolute change	Percentage change
North Central	16.68	-0.7816	-59.39
North East	15	0.8381	63.68
North West	18.9	1.5335	116.51
South East	16.53	1.1372	86.4
South South	15.87	0.0274	2.08
South West	17.02	-1.9931	-151.43
Total Intra-sectoral effect		0.7614	57.85
Population-shift effect		0.3226	24.51
Interaction effect		0.2321	17.64
Change in poverty (HC)		1.3161	100
URBAN	31.89	-0.4102	-31.16
RURAL	68.11	1.1427	86.83
Total Intra-sectoral effect		0.7326	55.66
Population-shift effect		0.5345	40.61
Interaction effect		0.0491	3.73
Change in poverty (HC)		1.3161	100

Table 5 presents the decomposition results from the perspective of sectoral decomposition of change in poverty looking at the rural and urban sectors and in the six zones. the poverty rates for period 1 and period 2 are reported in the first two rows and they are the same as what we reported in table 4 for national poverty. The sector decomposition shows the population share in period 1, the absolute change and percentage change in the headcount poverty index in the geopolitical zones and in urban-rural setting. In each of the decomposition either by geopolitical zones or by urban and rural the total change in headcount index (HC) was decomposed into intra-sect-oral effect, population-shift effect, and the interaction effect. The population shift effect shows how changes in the distribution of poverty across sectors contributed to the change in overall poverty. The decomposition by zone shows that the total change in the headcount poverty was 1.3161. Total intra-sect-oral effect contributed 0.7614, the population shift effect contributed 0.3226, while the interaction effect contributed 0.2321. On the other hand, decomposition by urban and rural arrears shows that Total intra-sect-oral effect contributed 0.7326, the population shift effect contributed 0.5345, while the interaction effect contributed 0.0491. This means that for decomposition by zones, total intra-sect-oral effect contributed 57.85%, the population shift effect contributed 24.51%, while the interaction effect contributed 17.64%. For rural-urban decomposition, total intra-sect-oral effect contributed 55.66%, the population shift effect contributed 40.61%, while the interaction effect contributed 3.73%. Thus, differences across sectors (geopolitical zones and urban-rural compositions) contributed more to national poverty than changes in population. But in rural-urban decomposition the effect of population change on poverty is higher than that of decomposition by geopolitical zones. This suggests that changes in population especially in the rural areas are causing poverty to increase, but differences in economic opportunities across geopolitical zones or between urban and rural areas contribute more to poverty increase than population changes.

Discussions

Table 1 shows distribution of poverty in urban and rural areas in wave 1 and wave 2 of the panel using inflation adjusted 2010 poverty line for Nigeria. It can be seen from the table that poverty is predominantly in rural and much more pronounced in the North geopolitical zones. The finding is in line with the findings of Dapel (2018) that chronic poverty is not as common in oil producing states and more prevalent in the northeast region of the nation. For example, while about 81.9 percent of the rural households in North Central were in poverty in 2010-2011 periods, this decreased marginally to 79.2 percent in 2012-2013 periods when the second wave of the survey was carried out. Probably, the reason for high poverty rate in the Northern part of Nigeria could be as a result poor human capital development. Omoniyi (2018) explained that the reasons for high rate of poverty in the north region was as a result of these factors high level of illiteracy, attitude to economic prosperity, child distinction, income inequality, ethnic clashes and economic road map. Similarly, the corresponding urban households for the North Central experienced a decline in poverty from 52.8 percent to 41.4 percent. According to Dapel, the reason for people to remain in chronic poverty is because they get trapped and transiency to poverty which becomes difficult to get out of poverty. The South West geopolitical zones also experienced decline in poverty over the two waves of the panel, where poverty in the rural areas declined from 72.6 percent to 57.2 percent and for the urban households, it declined from 42.4 percent to 31.6 percent. Though, according to findings of Dapel (2018) was contrary, explained that transient which may be a hidden factor to high poverty in the South west despite their oil. For the North East, this may be attributed to displacement of rural agricultural households by continuous terrorist attacks and farmers-herdsmen clashes in the zone and for the south may be dependent on oil wealth as an asset rather than sorting for other means of living. This findings in a way agrees with Olaniyi and Ikechukwu (2019) that poverty is a significant cause of herdsmen attacks in Nigeria.This may also shows that 74 percent of those never trapped in poverty have more than high school education.Another interesting revelation in the finding is that over the two waves of data and across male and female headed households in urban and rural areas, the probability of falling into poverty declined significantly in the urban areas but marginally in the rural areas. This finding is in line with that of Rufai, Ogunniyi, Salman, Oyeyemi and Salowu (2019) that more male migrant travelled for employment reasons while marriage arrangements made more flames travel, probably that have increased population in the urban area having more than half of the migrants and morehouseholds seekers of jobs where doesn't exist poverty rises. Additionally, the findings with the assertion of Zuhumnan (2018), that chronic poverty tend to be higher for households living in rural areas than those in urban areas. The study shows that labour mobility increases the amount of remittances sent to households and that of labour mobility reduces the extent of poverty. This findings is in line with Rufai, Ogunniyi, Salman, Oyeyemi and Salawu(2019), who opined that variations in labour movements across such that movements influences the amount of remittance sent and reduce poverty levels among households. Therefore, diversification of economic activities and household's consumption expenditure in engaged different activities form different income earning to move away from poverty.

Conclusion

This study has investigated poverty dynamics in Nigeria within the framework of growth-equity decomposition in Nigeria's geopolitical zones and in urban and rural sector. The decomposition was also calculated at the national level. We found that looking at aggregate decomposition masks differences in that exist across the zones with respect to the contributions of growth and inequality components in poverty change over time. We found that for average change in national poverty, the contributions of the growth component and the inequality component were positive suggesting that both contributed to increase in headcount poverty observed over the period under investigation. Decomposition by geopolitical zones shows that the North Central and the South West are where the growth component and inequality component contributed to poverty reduction, whereas in the remaining geopolitical zones both components were the drivers of higher poverty except in the South-South where the growth component or change in the mean income of the households contributed to poverty reduction although this was over shadowed by high inequality in the zone.

The sectoral decomposition shows that differences in economic opportunities contributed more to poverty differences across the geopolitical zones and between urban and rural sectors over time. However, the population shift effect was found to contribute more to urban-rural poverty change than it contributed to poverty change across the geopolitical zones.

Recommendations

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

- This finding should draw the attention of policy makers to the zones where growth is poor and where income inequality is high. In these zones, inclusive growth strategies should be put in place in order to ensure that the poor benefits from economic growth such as entrepreneurial initiatives.
- Also, the gap between the rich and the poor should be narrowed with specific policies such as progressive taxation and revenue generated should be invested in infrastructure other areas that could help the poor and the vulnerable households.
- Finally, there is the need to check population growth in Nigeria which has been exploding over the past two decades. This can be done by implementing birth control measures and by counseling poor households on the need to have the number of children they can maintain. This will help to minimize rising cases of child neglect in the society.

References

Bane,M.J.& Ellwood, D.T.(1986). Slipping into and out of Poverty: The Dynamics of Spells. *The Journal of Human Resources.*21 (1), 1-23

Blackorby C. & Donaldson, D. (1987).Welfare ratios and distributional Sensitive Cost-benefit analysis. *Journal of Public Economics* 34(2), 265-290.

Dapel, Z. (2018). Three Decades of Poverty Mobility in Nigeria: The trapped. The freed, and the Never trapped. *Center for Global Development working paper 485 June 2018.*RetreievedfromResearchgate.*net/ publications/326756601three_decades_of_ poverty_mobility_in_nigeria_the_trapped _the_freed_the_never_trapped*

Datt, G&Ravallion M. (1992). Growth and redistribution Components of change in poverty measures: A decomposition with applications to Brazil and India in the 1980s. *Journal of Development Economics* 38(2), 275-295

Ellwood, D.T., Bogle, M.,Acs,C., Mikelson,K. Popkin,S. (2016).US Partnership on Mobility from Poverty. Retrieved from *2000906-creating-mobility-from-poverty-An-overview-of-strategies(1)pdf-AdobeReader*.

Foster, J.E., Greer,J.&Thorbecke E. (1984). Notes and comments A class of decomposable poverty measures. *Econometrical* .52 (3), 761-766

Gaurav Datt and Martin Ravallion (1992) "Growth and Redistribution Components of Changes in Poverty: A Decomposition with applications to Brazil and China in 1980s", *Journal of Development Economics* 38(1), 275-295

Gordon D. (2005).Indicators of Poverty and Hunger Expert Group Meeting on Youth Development indicators United Nations Headquarters, New York. Retrieved from *https://www.un.org>unyinpdf...*

Hills M.S.(1985). The changing Nature of Poverty. *Annals of America Academy of Political and Social Science Sage Publications.* Retrieved from *deepblue.lib.umich.edu/bitstream/handle/2 027.42/66979/10.//77_0002716285479001 03pdf?sequence=2* Jensen, K. (2021). Teaching with poverty in mind.Retrieved from*http://www.ascd.org>chapter>un*

Kakwani, N. (2000). On measuring Growth and Inequality Components of Poverty with Application to Thailand. Retrieved from **Error! Hyperlink reference not valid.**.

Maxwell, S. (1999). The meaning and measurement of Poverty.*Odi poverty Briefings*.

Mishra, S.(2014). Decomposing Poverty Change: Deciphering Change in Total Population and Beyond. *Review of income and Wealth* 61(4), 21-27.

Omoniyi, B.B (2017). An examination of the causes of poverty on economic growth in Nigeria. Africans *Public Service Delivery and Performance Review (APSDR)*. 6(1), 41-55

Olaniyi E and Ikechukwu, K(2019). The Impact of poverty, unemployment, inequality, corruption and poor governance on Niger DeltaMilitancy, Boko Haram Terrorism and Fulani herdsmen attacks in Nigeria. *International journal of management Economics and social sciences*(IJMESS) 8(2), 58-80

Pateman,T. (2011). Rural and Urban areas. Comparing lives using rural and urban classification Regional Trends 43,11-86.Retrieved from *://linkspringen.com/article/10.1057/rt.201 1.2*

Ravallion M. & Chen S. (2017). Welfare-consistent global poverty measures. Retrieved from *https;//nber.org/papers/w23739.pdf*

Ravallion, M and Lokshin, M(2006). Testing Poverty Lines. Review of Income and wealth. 52(3), 399-421

Sen, A.(1985).A Sociological Approach to the measurement of poverty: A reply to Professor Peter Townsend. *Oxford Economics Paper* 37(1)669-679

Skeat, W. (2005). *An etymological Dictionary of the English Language.* Dove publications

Stevens, A. H. (1994). The dynamics of Poverty Spells: Updating Bane and Ellewood. *The American Economic Review* 84 (2)34-37

Sa'idu, B. &Roslan, A. (2010). Had poverty reduced in Nigeria 20 years after? *European Journal of Social Sciences.* 15. 7-17.

Rufai, M. Ogunniyi, A. Salman, K. K. Oyeyemi, M. &Salawu, M. (2019). Migration, labour mobility and household poverty in Nigeria: a gender analysis. Economies 2019, 7, 101;doi:10.3390/economies7040101, retrieved from *www.mdpi.com/journal/economies*.

Townsend, P. (1979). Poverty in the United Kingdom. Retrieved from *google.com/search?works+on+Townsend+on+poverty&sxsrf=Alekkooe7.vjfSGJUUkqseN-tpv6f-H4WA.1596897422.*

Titin, S. (2016). 5 differences and5 similarities between rural and urban livelihood.Retrieved from*https://brainly.in/question/940760*

United Nations (1995). Eradication of poverty. Department of Economic and Social Affairs Social inclusion. Retrieved from *un.org/development/desaldspd/world-summit-for-social-development-1995/wssd-1995-aggreements/pawssd-chapter*.

World Bank (2015). Distribution of global poor region and country 2015.Washington D.C Retrieved from *http://www.research.worldbank.org/poval.Net*

Zuhumnam, D (2018). Three Decades of poverty Mobility in Nigeria: The Trapped, the Freed, and the Never Trapped. Working paper 485. Center for Global Development; University of Dunde, Scotland and Woodrow Wilson International center for scholars.

HER Vol. 28 No. 2, December 2021, pp.84-95

Factors Influencing Instability within Rural Households in Iseyin Local Government Area, Oyo State, Nigeria

Oyewole, M.F.
Department of Agricultural Extension and
Rural Development, University of Ibadan, Ibadan

Abstract

Family instability has become one of the most prevalent and endemic social challenges ravaging many families and communities in Nigeria. Since the family is the bedrock on which every society is built, the question of achieving national stability must first be addressed from the family unit with special reference to conflicts in marriages. This study assessed the factors influencing family instability among rural households in Iseyin Local Government Area of Oyo State Nigeria. Multistage sampling procedure was used in selecting a total of 120 respondents for the study. Data were collected with questionnaire and analyzed using mens, percentage and inferential statistics. Findings reveal that 56.7% of the respondents had high favourable perception towards family instability. Factors that were found to be influencing family instability in the study area include: religion, family type (β=-0.139, p=0.045), household size (β=0.144, p=0.045), perception towards family instability (β=0.188, p=0.020) and educational background(β=0.554, p=0.000). The study concludes that family instability has more serious consequences on polygamous family and this may also affect their children's education. The study recommends that marital counseling clinics should be established by government, local and religious leaders in major towns and communities to enable couples who are experiencing unresolved conflicts to seek for professional assistance of counselors.

Key words: Factors, Influencing, Family, Instability, Rural, Households, Perceptions

Introduction

There are many institutions that make up the social system, but one that seems most unique and outstanding is the family, because of some vital functions that it performs in the society (Saker 2007). One of the reasons people get married is that they have needs they seek to satisfy. Parts of the needs that couples seek to fulfill in marriage include companionship and intimacy. Family can be described as the basic unit of the society. It is a social group that is characterized by common habitation, economic cooperation and reproduction. It includes adults of both sexes, at least two of whom maintain a socially approved sexual relationship, and one or more children, own or adopted, of the sexually cohabiting couple (Esere, Yusuf and Omotosho, 2011).Gove (2006) also defined family as a set of people related by blood, marriage or some others agreed upon relationship or adoption who shares the primary responsibility for reproduction and caring for the members. Such a family is expected to be stable so that member can live in harmony and perform the responsibilities.

Family stability refers to the absence of transitions in any family structure. This could be seen as a situation where guardians of the students are married at the hour of the central labor with no family change (Craigie, 2009).More recently studies have begun to examine family structure changes over the course of a child's life. These studies have specifically focused on the issue of family stability – that is, whether the parent(s) with whom a child lives have been stable or changing over time. Accounting for family stability is crucial because the positive effect of the traditional family may be in part due to stability rather than family structure (Osborne and McLanahan, 2007).

Sandstrom and Huerta (2013) defined family instability as a situation where the family knows no peace, poor structure and organisation, emotional separation of members and poor relationship with relation in-laws. Family instability has become a thing associated with the contemporary family institution, because of the frequent reoccurrence in recent times in their households. The structure of some families has undergone dramatic change over the past few years. Increases in non-marital fertility, divorce and cohabitation, coupled increase in divorce and remarriage have translated into more complex living arrangements for rural households (Amina 2008).

There are also some social factors that affect the instability of the family within the households. The idea of managing more than one wife might lead to an end of the family. The habits that either the wife or the husband is addicted to smoking or drinking also lead to family dissolution. Lack of trust in many families amongst the couples is wrecking marriages today. Peer influences also threaten the family solidarity if care is not taken couples. As a result of outside influences, irrational decisions are made to the detriment of one's wish and this might lead to a marital crisis. Other factors such as education, illegitimate children, religion, eroding norms and cultural beliefs and infertility of the wife, interference of in-law in decision also initiate instability in the family.

There is no gainsaying the fact that many of the social challenges that are threatening the stability of Nigeria today are seemingly the consequences of marital instability in families. For instance, the challenges in the present school system such as drug addition, high anxiety, emotional instability, cultism, absenteeism, school dropout, depression, lack of concentration, frustration to mention but few, could be traced to marital conflicts in families. In non-school setting, some societal challenges such as rage, outburst of anger, transfer of aggression, insensitivity, uncooperative attitude, restiveness, thuggery, kidnapping and other corrupt practices are easily classified as consequences of marital instability (Duke-Natrebro 2014).

Family instability has permeated the houses of the rich and the poor, the educated and the non-educated, the young and the old, the rural and urban dwellers most especially in rural households in Iseyin LGA of Oyo State. Unfortunately, most of the traditional methods of resolving marital conflicts appear to be failing. The children who are the proverbial grasses are apparently the primary victims and the effects extend steadily to the community and the society at large. The family is the child first place of contact to the world. The child as the result acquires initial education and socialization from parents and other significant persons in the family. Duke-Natrebro (2014) pointed out that the family lays the psychological, moral and spiritual foundation in the overall development of the child. Structurally, family/homes are either broken or intact. A broken family in this context is one that is not structurally intact, as a result of divorce, separation, death of one parent and illegitimacy.

It has been observed that the rise in the divorce rate over the years is one of the fundamental changes in Nigeria society. A substantial number of women and children now spend some fraction of their life in single female-headed households, leading many to be concerned about their socio-economic circumstances (Falola, Oyafunke and Odunaya, 2014). The dynamics of culture and human relationships have made researchers to observe many influences, manifestations, happenings and occurrences in marriage stability within the African society. Dunkins, (2000) posited that there are numbers of factors that are seriously threatening stability of marriage in Nigeria and most of these factors are traceable to some inherited behaviour and thinking from the ancient African society, and imported ideas from other sources that are beyond the African concept of marriage. These factors are the significant causes of marriage instability in Nigeria society; as a result of their functions and effects within a home. In another development, Asare, (2005) also observed that families nowadays seem not to care about their wards' marriages because in most cases, the choice of partner is made by the wards themselves contrary to tradition, where a choice was made by parents..

It is obvious that conflict in every sphere of human life is inevitable but efforts must be made to find ways of coping or resolving them as they occur so as to give room for a healthy living. Since the society bears the cumulative effect of unresolved marital conflicts, culminating in national instability, and since almost all the traditional and conventional methods of resolving family instability appear to have lost the efficacy of conflict resolution in marriages, there must be a deliberate research into finding the study of factors influencing marital instability among rural household has fast become a central point for discussion and research among social scientists.

Objective of the study

The general objective of this study was to investigate the factors influencing family instability among rural households in Iseyin LGA, Oyo State. Specifically, the study:

1. describe socio economic characteristics of respondents in the study area,
2. determine respondents' perception on the factors causing family instability in Iseyin Local Government Area,

Research Questions

The study was guided by the following research questions

1. What are the socio-economic characteristics of respondents in the study area?
2. What are the respondents' perceptions on factors causing family instability in the study area?

Methodology

Design for the study: Survey design was adopted for this study. The survey method normally paves way for a researcher to make use of questionnaire.

Area of Study**:** The study was carried out in Iseyin, Oyo State. Iseyin is a city located in Oyo State, Nigeria. It is approximately 100 kilometers north of Ibadan with a coordinate of 7^{o} 58'N 3^{o} 36'E. There are 11 wards in Iseyin. The city was estimated to have a population of 236,000, per a United Nations2005 estimate, which increased to 302,990 in 2011 (NPC, 2011). Iseyin is centrally located and accessible via road networks from Ibadan, Oyo, Abeokuta, and Ogbomoso. The primary industry of Iseyin is cotton-based textiles, and Iseyin reputed as the home of *AsoOfi or AsoOke* a popular traditional fabric worn on special occasions by the Yoruba usually for coronation, chieftaincy, and other important events. Iseyin is part of the Oke-Ogun towns referred to as the "food basket'' of Nigeria. The major agricultural activities are farming, hunting, fishing, and food processing, among others

Population for the Study: The population study comprised all heads (male or female) of rural households. These head were young, but old enough to understand family instability in the 11 wards of the study area.

Sample for the Study**:** The sample was made up of of120 heads of households. Multi-stage sampling technique was adopted. In the first stage, a simple random sampling technique was used to select 10 percent of the 11 wards in the study area which gave three wards. At the second stage, purposive sampling technique was used to select 20 percent of communities (10 communities) in the wards. The final stage involved simple random sampling of 12 households from each community. This gave a total sample size of 120 households and each of the male or female household heads were selected to give a total sample size of 120 respondents.

***Instrument for Data Collection*:** Data were collected using questionnaire. The questionnaire had both open and close-ended questions based on the objectives of the study. The instrument was validated by three lecturers in the Department of Agricultural Extension and Rural Development, University of Ibadan. A test –retest method of reliability test was employed to determine reliability of the instrument. A reliability index of 0.85 was obtained.

***Data Collection Methods*:** A total of 120 copies of the questionnaire were distributed by hand. The entire 120 copies were properly responded to and retrieved. This represents 100 percent return.

***Date Analysis Techniques*:** Frequency and percentages were used for data analysis, that is descriptive analysis. The dependent variable for this study was made up of the factors influencing family instability. This was measured using Linear regression model was used to determine the factors influencing family instability.

$$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \beta 6X6 + \beta 7X7 + \beta 8X8 + \beta 9X9 + \varepsilon$$

Where:

Y =Family instability (Family instability index)

$\beta 0$ = a constant;

βj =Is the regression coefficient (j = 1 … 11);

$X_{1=}$Age of respondents in years

$X_{2=}$Sex of respondent (male=1, female=0)

$X_{3=}$ Religion (Muslim =1, Christianity=2, Traditional=0)

$X_{4=}$Educational Background (formal education =1, otherwise = 0)

$X_{5=}$ Household size (Number of Persons in a household)

$X_{6=}$Monthly Income (Actual amount in Naira)

$X_{7=}$ family type (monogamous =1, otherwise = 0)

$X_{8=}$eroding norms (eroding index)

$X_{9=}$perception (perception index)

ε = Error term.

Descriptive analysis was used using frequency distribution, mean, percentage and inferential statistics such as chi-square (X^2) and Pearson's Product Moment Correlation (PPMC).

Results

Socio Economic Characteristics of Respondents

Table 1: Distribution of Respondents by Socioeconomic Characteristics (n=120)

Variable	Frequency	Percentage	Mean
Age			
20-34 years	42	35	
35-49 years	65	54.2	
50 years and above	13	10.8	38.2 ±8.85 years
Sex			
Male	56	46.7	
Female	64	53.3	
Marital status			
Single	2	1.7	
Married	116	96.7	
Divorced	2	1.7	
Trading	2	1.7	
Educational Background			
No formal education	5	4.2	
Adult education	10	8.5	
Primary education	30	25.0	
Secondary education	50	41.7	
Tertiary education	25	20.8	
Family type			
Polygamy	68	56.7	
Monogamy	50	41.7	
Single parent	2	1.7	
Household size			
1-5 people	58	48.3	6.47±3.32
6-10 people	51	42.5	
11-15 people	7	5.8	
16-20people	4	3.3	

Table 1 shows that majority (54.2%) of the respondents were between 35-49 years with mean age of 38 years implying that most of the respondents were young and in their active years. Also, majority (53.3%) were male, majority (96.7%) married, majority (95.8%) of them had some form of education, majority (56.7%) were from polygamy family and 48.3% had between 1-5 persons in their households with mean household size of 6 persons.

Perception toward Family Instability

Table 2a: Distribution of Respondents Based on their Perception towards Family Instability N=120

	Perception Indicators	SA/(F)(%)	A(F)(%)	U(F)(%)	D(F)(%)	SD(F)(%)	Mean
1	Unemployment of the husband	46(38.3)	53(44.2)	8(6.7)	10(8.3)	3(2.5)	4.08
2	Situations in which wives are the breadwinner.	85(71.7)	24(19.2)	1(0.8)	9(7.5)	1(0.8)	4.53
3	Interference of in-laws in decision making.	92(76.7)	22(18.3)	3(2.5)	3(2.5)	0 (0)	4.69
4	Couples living in different places/locations.	33(27.5)	59(49.2)	15(12.5)	13(10.8)	0(0)	3.93
5	Lack of understanding of each other's culture.	87(72.5)	25(20.8)	1(0.8)	5(4.2)	2(1,7)	4.58
6	Couples practicing different religion.	48(40.0)	57(47.5)	5(4.2)	10(8.3)	0(0)	4.19
7	Infrequent money flow into the family.	100(83.3)	14(11.7)	1(0.8)	5(4.2)	0(0)	4.74
8	Hatred for each other's friends	90(75.0)	26(21.7)	1(0.8)	3(2.5)	0 (0)	4.69
9	Lack of submission is a form of disrespect.	91(75.8)	25(20.8)	2(1.7)	2(1.7)	0(0)	4.71
10	Pride of either husband/wife in the family.	101(84.2)	1(8.3)	2(1.7)	7(5.8)	1(0.8)	4.68

SA = Strongly agree; A = Agree; U = Undecided; D = Disagree; SD = Strongly Disagree

Table 2, shows that majority of the respondents strongly agreed that pride of either husband/wife in the family (84.4%), infrequent money flow (83.3%),interference of in-laws in decision making (76.7%), lack of submission a form of disrespect (75.8%), hatred for each other friends which can cause misunderstanding (75.0%), lack of understanding of each other culture (72.5%), situations in which wives are the breadwinner (71.7), couples practicing different religion (40.0%) are perception towards family instability. However, more than half of the respondents (50.8%) strongly disagreed that unemployment of the husband is a perception towards family instability.

Table 3: Categorization of respondents according to their perception towards family instability

Variable	Frequency	%	Maximum value	Minimum value	Mean	Standard deviation
Unfavourable perception	52	43.3	110	61	95.14	±9.71
Favourable perception	68	56.7				

Table 3 shows categorization of respondents based on their perception towards family instability. The Table reveals that 56.7% of the respondents had high favourable perception while the remaining 43.3% had unfavourable perception towards family instability.

Table 4: Pearson Product Moment Correlation Analysis (PPMC) between Respondents' Perception towards Family Instability and Factors Influencing of Family Instability

Variable	r value	P value	Decision	Remark
Perception	0.519	0.000	significant	Reject

Table 4 shows PPMC analysis which reveals that a significant relationship exists between respondents' perception towards family instability ($r = 0.519$, $p = 0.000$) and the factors influencing family instability. Thus, the hypothesis is rejected.

Table 5: Regression Analysis of the Independent Variables and the Factors Influencing of Family Instability

Variable	B	Std. err	t	p-value
Age	0.010	0.057	0.086	0.884
Sex	-0.090	0.071	0.146	0.205
Marital status	0.022	0.176	-1.275	0.731
Educational background	0.028	0.029	-2.290	0.691
Family type	-0.139	0.060	0.399	0.045*
Household size	0.144	0.049	-2.031	0.045*
Perception	0.188	0.004	1.086	0.020*

$R= 0.791$, $R^2= 0.625$, Adjusted $R^2= 0.579$, S.E= 3.516

Regression analysis was conducted on the independent variables, to examine the factor influencing respondents' family instability in the study. Table 5 shows an R^2value of 0.58, revealing that the items in the regression model put together could explain 58% of the variance in the determinants of family instability on the respondents. Table 4 further shows that five variables were found to be significant determinants of family instability, these are: secondary occupation (β=-0.160, p=0.024), family type (β=-0.139, p=0.045), household size (β=0.144, p=0.045), perception towards family instability (β=0.188, p=0.020) and the frequency at which certain factors create disharmony within the family (β=0.554, p=0.000).

Discussion

Most of the respondents were still at their reproductive age. This concurs with the findings of Kalmijn and Portman (2006) that the age at which women marry appears to determine the rate of marital instability, with those marrying older facing lower chances of separating compared to those marrying while young. The 2011 Ethiopian Demographic and Health Survey (EDHS) data reported that 11,097 and 5287 women in the reproductive age group (i.e. 15–49 years) living in rural areas go through family instability. From the findings, females are more affected by family instability than males, which could be because women are more vulnerable than their male counterpart. This is in line with the findings of Smith (2001) who reported a higher number of females than males in rural areas.Table1 revealed the distribution of respondents by sex reveals that 53.3% of the respondents were female while 46.7% were male. This implies that females are more affected my family instability than males, which could be because women are more vulnerable than their male counterpart. This is in agreement with Smith (2004) also reported a higher number of females than males in rural areas.

Table 1 also shows that majority (96.7%) of the respondents was married, 1.7% were single and the remaining 1.7 were divorced. This reveals that family instability greatly affects the married couple more than the singe and divorced. Findings by Ogbogu (2012) also reported a higher number of married citizens, compared to those that were single, divorced, separated or widowed in Nigeria. Table 1 reveals that 41.7% of the respondents had secondary education, 25.0% had primary education, 20.8% had tertiary education, and 8.5% had adult education while 4.2% had no formal education. This implies that most of the respondents only finished secondary education because some got pregnant when still in secondary, so for this reason, gets married without furthering their education. Findings by Duke-Natrebo (2014) show that most rural dwellers usually stop education during their adolescent period. Table 1 shows that (56.7%) of the respondents were polygamist, 41.7% were monogamist while the remaining 1.7% were single parents. This implies that most of the women in the study area marry at early age to a young man who later marries more wives later into the family. Table 1 reveals that 48.3% of the respondents had a household size of 1-5 people, 42.5%

had between 6 to10 people, 5.8% had between 11 to 15 people and 3.3% had between 16 to 20 people. The mean household size of the respondent was 6.47±3.32 people. This implies a large household size among respondents in the study area. Availability of family labour, access to cheap food and low/medium livelihood status of the people could possibly be the reasons for a large household size in the study area and which could have an implication of frequent argument among the couples especially polygamous families, irresponsibility of either husband or wife, waywardness of the children, there is hardly any privacy among members of households. Table 1 shows that most (58.3%) of the respondents earned between ₦5,000 - ₦24,000, 25.8% earned ₦25,000 – ₦44,000 while 15.8 earned ₦45,000 and above. The average mean of the respondent was ₦ 24,362.5±₦17, 106.68. This implies that more than half of the respondents earn averagely ₦24, 000 and above.

According to Table 2, majority of the respondents strongly agreed that pride of either husband/wife in the family (84.4%), infrequent money flow (83.3%),interference of in-laws in decision making (76.7%), lack of submission a form of disrespect (75.8%), hatred for each other friends which can cause misunderstanding (75.0%), lack of understanding of each other culture (72.5%), situations in which wives are the breadwinner (71.7), couples practicing different religion (40.0%) are perception towards family instability. However, more than half of the respondents (50.8%) strongly disagreed that unemployment of the husband is a perception towards family instability.

In addition, the categorization of respondents in Table 3, based on their perception towards family instability reveals that 56.7% of the respondents had high favourable perception while the remaining 43.3% had unfavourable perception towards family instability. This implies that different respondents took the perception so serious, some took as something that happens a lot while others disagree totally to some perception of family instability. Ekong (2003) agrees thatrural people would always want to defend themselves from anything that can cause pain due to the family values and solidarity inherent among them.

The PPMC analysis in Table 4 reveals that a significant relationship exists between respondents' perception towards family instability ($r = 0.519$, $p = 0.000$) and the factors influencing family instability. Thus, the hypothesis is rejected. This entails that the effect family instability has on the respondents influence the perceptions they believed in.

Regression analysis was conducted on the independent variables, to examine the factor influencing respondents' family instability in the study. Table 4 shows an R^2value of 0.58, revealing that the items in the regression model put together could explain 58% of the variance in the determinants of family instability on the respondents. Table 4 further shows that five variables were found to be significant determinants of family instability, these are: secondary occupation (β=-0.160, p=0.024), family type (β=-0.139, p=0.045), household size (β=0.144, p=0.045), perception towards family instability (β=0.188, p=0.020) and the frequency at which certain factors create disharmony within the family (β=0.554, p=0.000). This implies that respondents' secondary occupation, family type, household size, perception towards family instability, and the frequency at which certain factors create disharmony within the family, were the major determinants of family instability in the study area.

Conclusion

The study investigated the determinants of family instability among rural households in Iseyin, Oyo State. The study concludes that respondent' socio-economic characteristics, respondents' perceptions towards family instability and frequency at which certain factors create disharmony within the family have profound effects on marriage leading to instability. It concludes that the children always suffer from the marital instability in which may affect their education, their future or turned them to be wayward. It was discovered that although, conflict in marriage is inevitable but when efforts are not made to resolve an identified conflict, it will degenerate into anarchy, confusion, instability, divorce and total collapse of an expected life-long relationship. This study believes that counseling approach can effectively assist couples in crises not only to resolve them but also to cope with conflicts as they arise.

Recommendations

The following recommendations are made from family stability in the area of the study:

1. Family and marital counseling clinics should be established in major towns and cities to enable couples who are experiencing unresolved conflicts to seek for professional assistance of counselors.
2. Couples should always be encouraged at any available forum to develop the sense of openness, trust and mutual respect for each other in marriage.
3. Would-be couples should be encouraged to seek pre-marital counseling before engaging in marriage.
4. Couples should consciously encourages good communication strategy and adapt better skills in crisis management without the interference of a third party.

References

Amina, R. N. (2008). Marital Instability and its Impact on Women and Children of **B**angladesh. ShahidSharawardi College Laxmibazar, Dhaka, Bangladesh.

Asare-Danso, S. (2005). The traditional approach to the management of diseases in Ghana.*Legon Journal of Sociology*, 2(2), 69-80.

Craigie, T. L. (2009). Family structure and stability effects on child cognitive performance. Center for Research on

child well-being Princeton, *NJ* 08544, 1-35.
Duke-Natrebo, N. C. (2014). The impact of marital instability in early childhood development in Nigeria, African Education Indices, 7(1): 1 – 8.
Dunkins B (2000). Ethnic weddings Traditions: Customs and Cultural Differences In Ceremonies and Receptions. *(A presentation at the meeting of the Association of Wedding Professionals).*Washington D. C.
Ekong E. E. (2003): *An Introduction to Rural Sociology*, 2nd Edition. Dove EducaPublisher, Uyo. Pp 18 – 35.
Esere, M. O., Yusuf, J. and Omotosho, J. A. (2011) Influence of spousal communication on marital instability: Implication for conducive home environment, *Edo Journal of Counseling,* 4(1 &2): 50 – 61.
Falola, H.O., Oyafunke, C.O. Odunaya, P.S. (2014. Effect of marital instability on Children in Abeokuta Metropolis. *European Journal of Business Innovation Research*, 2(3), pp. 68-77.
Gove, B (2006). *Webster's third New International Dictionary of the English* LanguageUnabridged. U.S.A. Marrian-Webster Inc.
Halpern-Meekin, Sarah and Turney, Kristin. (2016). Relationship Churning and ParentingStress Among Mothers and Fathers. *Journal of Marriage and Family* 78. n/n/a.10.1111/jomf.12297.
Kalmijn, M and Poortman, A-R (2006). *His or Her Divorce? The Gendered Nature of Divorce and its Determinants*. European Sociological Review.22, 201.
National Population Commission, NPC (2011). Nigerian Population Census. 2006 Populations Census Results.
Ogbogu C.O. (2012)."The Role of Women in Politics and in the Sustenance of Democracy in Nigeria". *International Journal of Business and Social Science*, Vol. 3 No. 18.182pp.
Osborne, C., and McLanahan, S.S. (2007). Partnership instability and child well-being. *Journal of Marriage and the Family,* 69, 1065 – 1083.
Sandstrom, H. and Huerta, S. (2013). The Negative effects of Instability on Child Development: Research Synthesis. Low working Families Discussion Paper.
Sarker, O. (2007). How to be happy in marriage. *Journal of Applied Psychology,* 1(1),32-48.
Smith, M. (2004). Relationships of Children in Step Families with their Non-Resident Fathers, *Family Matters*, 67, 28–35.

HER Vol. 28 No. 2, December 2021, pp. 96-110

Assessment of the Organoleptic Attributes of Fabrics Sized With Starch Extracted from Selected Local Food Substances

Ozougwu, S.U
Department of Home Science and Management,
University of Nigeria, Nsukka, Enugu State.

and

Ogbonnaya, O. B
Department of Home Economics,
Abia State College of Education (Tech),
Arochukwu, Abia State

Abstract

The study assessed the organoleptic attributes of fabrics sized with starch extracted from three selected food substances. Specifically the study: analyzed organoleptic attributes of three samples of fabrics sized with starch extracted from rice, corn and russet potatoes (local food substances). Study used experimental design. Starches samples were extracted following standard procedures. Size solution was prepared following Lata and Mehta (2012) method. Three different 20″x 20″ cotton fabric samples (100% plain white cotton, 100% coloured cotton and cotton blend (cotton/polyester 60/40%) were prepared. Following standard method, the fabric samples were sized, allowed to dry, and pressed for organoleptic evaluation. Data were collected in three phases using rating scales and analyzed using descriptive statistics. Three null hypotheses were tested with t-test at 0.05 level of significance. Results show that 100% coloured cotton organoleptic attributes were the most high of the rice sized samples, mean ranging from 3.32±0.57 to 4.08±0.79. All the corn sized 100% plain white and cotton blend sensory attributes were high top. Sweet potatoes sized coloured cotton was best in crispness (3.48±28), body (3.79±0.94), odour (3.34±0.68), sharp contour (3.75±0.95) and smoothness (3.19±0.76). There were no significant differences (p>0.05) in mean responses of panelists on the organoleptic attributes of all sized fabrics at 0.05 level of significance. It is recommended that rice, maize and russet potato starches should be explored for sustainability in 100% cotton and cotton/polyester blend fabric sizing.

Key words: Organoleptic, Acceptability, Cotton, Fabric, Sizing, Starch.

Introduction

The aesthetic or functional quality of any fabric and other textile products depend largely on the sizing and finishing treatment given either during or after production. In textile and clothing industries, sizing is a very vital process in which starch or other film forming polymer is applied to yarns before weaving as protecting filler, stiffener, or glaze to reduce abrasion, yarn breakage, machine stoppage and other stresses during weaving. Sizing strengthens and lubricates mostly the warp yarn during fabric production. In textile printing, sizing modifies the absorption capacity of those items thus acting as catalysts for oil-base surface platform for gilding in art works.

Sizing is also applied to parts or whole of limp fabrics and apparels during washings to improve their functional and aesthetic or organoleptic properties. The organoleptic attributes such as colour, texture or crispness, luster or gloss, body or hand of fabrics and garments could be restored through sizing (Marshal, Jackson, Stanley, Kefgen & Tochie–Specht, 2000). For any sizing agent or size to be acceptable in fabric or garment sizing, it must be colourless such that the aesthetic value of fabric would not be badly altered. Size should be smooth on sized fabric thereby improving the brightness and glossy or lustrous appearance of the sized fabric. It also improves the texture or feel and adds body to reinforce the weak or limp fabric. A sized fabric should have crisp texture and sharp contour effect. It should have neutral or pleasing odour. Any sized fabric with offensive odour is unacceptable to consumers. Sized fabrics shed soil easily because the dirt slides off the smooth finish as stains attach to the sizing agent making them easier to remove.

Different substances used as textile sizing agents or water soluble polymers include but not all; polyvinyl alcohol (PVA), carboxyl methyl cellulose (CMC), and starch (Altaf, Caroline, Frost, Gary & Robertson, 2006). Starch is a polysaccharide consisting of glucose units linked together to form long chains up to 500 to several 100,000 linked chains depending on the type of starch (BeMiler, 2009). It is a polymer of glucose consisting two type glucose polymers such as amylose and amylopectin (Li and Yeh, 2001) Starch is used in the manufacture of various adhesives for bookbinding, wall paper, paper sack, tube winding, gummed paper, envelopes, school glues and bottle labeling (Stryer, Lubert, Berg, Jeremy, Tymoczko and John, 2002) as well as for sizing for back filling of fabrics. This type of finish increases the stiffness and the capacity of the fabric by filling the interstices with the starch mixture.

Starch is the most common agent utilized in both yarn and fabric sizing. They are classified into inedible or modified and food, edible or native types. Laundry starch is a simple liquid that is used to provide a crisper appearance to various articles of clothing. Laundry starches are natural starches that have been changed in their physical and chemical properties. Surface sizing solution consists mainly of modified starches and sometimes other hydrocolloids such as gelatin, alkyl ketene dimer (AKD) or acrylic copolymers. Surface sizing agents are amphiphilic molecules having both hydrophilic and hydrophobic ends. The sizing agent adheres to the substrate or fibres and forms a film with the hydrophilic tail facing the fibre and the hydrophobic tail facing outwards resulting in a smooth finish that tends to be water-repellent. Native starches work best on natural fibres such as cotton and linen to provide crispness partly due to their similar chemical structure (Lata and Mehta, 2012). The composition of starch solutions used to finish fabrics and garments depend on fabrication and desired fabric properties. For stiffer texture, the starch concentration is increased.

Studies indicate that native starches produced from cereals such as millet, rice, wheat corn are rich in natural starches (Ashhobon, 2012). Ahmed, Peng, Na, Liu and Zhigang (2019), stressed that carbohydrate, mainly starch, is the major component of both the whole brown grain and refined white rice (73-76 and 77-78g/100g respectively) and is highly concentrated in the inner endosperm of rice kernel (Zhou, Robards, Helliwell, & Blanchard, 2002). Rice starch used in laundry work is usually prepared from broken white rice. Corn or maize starch is obtained from the endosperm of the corn karnel. It is a popular food ingredient used in thickening sauces or soups and in making corn syrup and other sugars. Starchy root vegetables including potatoes, yucca and cassava in form of powder or spray made from these are also rich in starch. Winter squashes such as pumpkin, butter nut also contain starches but in smaller quantities than grains and starchy vegetables (Aglaee, 2013). Potatoes store the food plant makes as complex carbohydrates (starch). The cells of root tubers of potato plant contain starch grains (Leucoplasts) and typical oval spherical granules; their size ranges between 5 and 100µm. Potato starch is a very refined starch containing minimal protein or fat. This gives the powder a clear white colour and the cooked starch typical characteristics of neutral taste, good clarity, high binding strength, long texture and a minimal tendency to foaming or yellowing of the solution. Potato starch contains approximately 800 parts per million (ppm) phosphate bound to the starch; this increases the viscosity and gives the solution a slightly anionic character, a low gelatinization temperature approximately 140^0 F (60^0 C). Pure starch is white, tasteless and odorless powder that is insoluble in cold water or alcohol.

Starch is a very important sizing agent in family clothing care and laundry. It is also important in teaching as raw consumable in educational institutions at all levels. The importance of starch in paper and printing as well as textile and clothing industries in Nigeria cannot be over emphasized. Unfortunately, there is presently scarcity of starch to meet these needs. Much utilized imported modified starches presently available locally are not in sustainable supply. They are synthetic, non biodegradable and thus human and eco unfriendly. Scarcity of starch for textile and clothing sizing for either during fabric production or garment finishing or renovation precipitated to closure of many of the clothing and textile industries in Nigeria (Onwualu, 2006). There is therefore need to explore the locally available sources from food substances. They are human and environmental friendly (Temesgen, Murugesan & Gideon, 2019), have low cost of production (Burrel, 2003), are cost effective (Temesgen, Endale, Beraga, Habte & Ahmed, 2019), and can be comparable to synthetic sizing agents (Kovacevic, Dimitrovski and Hadina, 2008). Large quantities of local rice termed rejects are wasted at site of processing. Corn and sweet potatoes also during period of bumper harvest were always great but most often wasted to food insecurity. Processing them into starches for future use is very imperative.

Various studies have been carried out on the effect of rice, corn, potato, cassava starches among others on the functional properties including tensile strength, abrasion resistance, thickness, end breakage, stiffness, weight of yarn during fabric construction have been conducted (Lata and Mehta 2012; Muhammed, Tahir, Shahid, Muhammed, & Bushra, 2014; Temesgen, Murugesan and Gideon, 2019). However, no studies have been documented on the oragnoleptic and aesthetic properties, as well as acceptability of the edible starches for fabric sizing and finishing during utilization. This is a gap which the present study seeks to focus on.

Objective of the study

The major objective of the study was to assess the organoleptic attributes of fabrics sized with starch extracted from selected local food substances. Specifically the study;

1. determined organoleptic attributes of three samples fabric (100% plain white, coloured and cotton blend) (cotton/polyester : 60/40%respectively) sized with starch extracted from rice, corn and russet potatoes local food substances.
2. determined the acceptability of 100% plain white, 100% coloured cotton and cotton blend fabrics sized with starch extracted from rice, corn and russet potatoes local food substances.

Hypotheses: Three null hypotheses were tested by the study:

HO_1: There are no significant differences ($p>0.05$) in mean responses of the panellists on organoleptic attributes of 100% plain white, coloured and cotton blend fabric samples sized with rice starch at 0.05 level of significance.

HO_2: There are no significant differences ($p>0.05$) in mean responses of the panellists on organoleptic attributes of 100% plain white, coloured and cotton blend fabric samples sized with corn starch at 0.05 level of significance.

HO_3: There are no significant differences ($p>0.05$) in mean responses of the panellists on organoleptic attributes of 100% plain white, coloured and cotton blend fabric samples sized with sweet potato starch at 0.05 level of significance.

Materials and Methods

Materials used for the study included broken rice grains, corn, russet potatoes. Three different fairly used cotton fabric samples used were 100% plain white cotton fabric, 100% coloured (dyed) cotton fabric and cotton blend (cotton/polyester 60:40 respectively). Sodium metabisulfite ($Na_2S_20_5$), 0.1M caustic soda (SO_2), 325 mesh screen,

The broken rice grains, corn and russet potatoes were all sourced from Ogige local market Nsukka. Fairly used 100% white medium weight cotton fabric, 100% orange coloured medium weight cotton fabric, cotton blend (cotton/polyester; 60/40% respectively) were accessed from the major distributor of fairly used fabrics and garment at Material Line Ogige market, Nsukka. The fibre percentages were identified through the care labels attached to the neckline or side seams.

Phases of the study: The study was carried out in the following phases:

Phase 1: Preparation of Samples/ Starch Extraction

Rice: Alkaline-steeping method About 1kg broken rice grains were steeped in distilled water in the ratio of 1:10 for about 72 hrs to soften the grain. About 0.1M caustic soda (SO_2) was added to set the pH and I% Sodium metabisulfite ($Na_2S_20_5$) to prevent microbial growth. After, the solution was washed away. The softened grains were wet milled with more water. The resulting mass or starch layer was agitated with water in the ratio 1:3 with additional 01M caustic soda solution. The peak lipid film was removed from the surface including protein. Un-bonded protein was separated with water. It was then filtered with 325 mesh screen and subjected to sedimentation over night. The excess water was decanted leaving the sediment (accumulated starch). It was then air-dried at room temperature for 48 hrs.

Corn: About 1kg of corn was weighed out. Corn kernel was hand-picked and cleaned to remove dirt particles and broken with grinder. The corn was steeped in 1.5litres distilled water and 1% sodium metabisulfite ($Na_2S_20_5$) solution was added to the steeped corn and allowed to stand for 72hr. After, the pericap was removed manually and the germ was separated from the endosperm. The endosperm was wet milled forming slurry then filtered using a 30-µpm nylon filter and washed three times with a litre of water. The filterate comprising starch-protein mixture was then subjected to sedimentation. The sediment (starch) was allowed to dry in open dry air for 48hr

Sweet Potato: About 1kg white russet potato was weighed out, peeled and ground into slurry with addition of water. To isolate the starch, the slurry was filtered using cheese filter cloth. The filtrate was allowed to settle overnight without shaking so that the mass of starch that accumulates will be recovered. The starch was then rinsed three times with water, water decanted and the sediment or starch mass dried under open dry air at room temperature.

Phase II: Fabric Sizing: This involved three different cotton fabric samples (100% plain white, 100% coloured cotton and cotton blend (cotton/polyester 60/40% respectively), each measuring 20″ by 20″ were cut out, washed with soap and water to remove dirt and finishes and dried on a line in open air.

Preparing the Size (Starch) Solution: The gel preparation was done using the best concentration as described in Lata and Mehta (2012) study. About 45g of rice starch was thoroughly dispersed and stirred in water to a smooth paste. The paste was poured in 1.5L of boiling water and stirred continuously until a transparent grey starch jelly was formed. The same process was used for corn and sweet potato jellies.

Fabric sizing: The rice jelly was later mixed properly with more 200ml of water to get the required concentration. The solution was divided into three equal parts and heated separately to 100^{0}C. Then, each of the cotton fabric samples: 100% plain white cotton,, 100% coloured cotton and cotton blend (cotton/polyester 60/40% respectively was immersed in the solution, stirred thoroughly to absorb the starch solution till the fabric got saturated with starch. The samples were taken out, pressed between palms to remove excess starch solution. The samples were then spread out on a line in open air to dry. The same process was repeated for the corn and sweet potato starches. After drying, all the 100% cotton samples were ironed with highest heat (204^{0}C or 400^{0}F) while cotton blend was ironed with moderate heat iron. The resultant prototype sized cotton and cotton blend samples were; labelled as follows: rice sized 100% plain white cotton fabric (RPC), rice sized 100% coloured cotton fabric (RCC), rice sized cotton plain white cotton blend (RCB), corn sized 100% plain white cotton fabric (CPC), corn sized 100% coloured cotton fabric (CCC), corn sized cotton plain white cotton blend (CCB), sweet potato sized 100% plain white cotton fabric (SPC), sweet potato sized coloured cotton fabric (SCC) and sweet potato sized cotton plain white cotton blend (SCB). All together, nine prototype sized samples were produced. An unsized sample that served as control was also pressed and displayed

Phase III: Organoleptic acceptability evaluation of the sized fabric samples

Selection of Panel of evaluators: Two categories of evaluators comprised 22 Lecturers and 18 Postgraduate students all together 40, from the Department of Home Science and Management of University of Nigeria, Nsukka . All evaluators have Home Economics background and were knowledgeable in the organoleptic and aesthetic attributes evaluation sought for.

Instrument for Data Collection: A validated 5-point rating scale was used to assess the acceptability of the quality of the sized fabric samples through visual inspection, feel, smell and rating the attributes. Attributes assessed in the scale included general appearance of starch on fabric, crispness imparted, odour, body, colour, contour and smoothness of sized fabrics using measurement variables and point ranges of: excellent (4.99-5.99), good (4.00-4.99), fairly good (3.00-3.99), poor (2.00-2.99) and extremely poor (<1-1.99)

Data Collection Method: Forty copies of the rating scale were distributed to the panelists to rate each sample piece displayed. Through visual inspection, feel and smell the panellists were asked to rate the aesthetic colour, texture/smoothness, contour, general appearance and smell (odour) of the sized and unsized fabric samples using the rating scale. The samples were labelled accordingly with short descriptions and keys to their meanings.

Data Analysis Technique: Data collected were analyzed using mean and standard deviation. All samples' attributes rated with mean scores <1.00-2.99 were regarded as poor or undesirable while those rated mean 3.00 and above were regarded as having desirable attributes and accepted by the panelists. The three null hypotheses were tested with t-test and accepted at 0.05 level of significance.

Results

Table 1: Mean Ratings and t-test Results Organoleptic Attributes of Three Samples of Fabric (100% Plain White, Coloured and Cotton Blend) Sized with Rice Starch.

Rice Sized Fabric	X_1 Sd_1	X_{II} Sd_{II}	X_{111} Sd_{111}	t-cal	P-value	Sig Level
100% plain white cotton						
General appearance	2.88±0.35	2.58±1.16	2.73±0.76	0.68	13.60	0.50
Texture/crispness	3.63±0.74	3.67±1.07	3.65±0.91	0.66	0.53	0.93
Body	3.50±0.76	3.75±0.87	3.63±0.82	-0.18	0.04	0.52
Odour	3.38±0.52	3.42±0.51	3.40±0.52	-0.18	0.13	0.86
Colour	1.88±1.13	1.83±0.94	1.86±1.04	0.09	0.43	0.93
Sharp contours	3.25±0.71	3.75±0.97	3.50±0.84	-1.25	0.35	0.23
Smoothness	2.75±1.04	3.17±1.11	2.96±1.08	-0.84	0.03	0.41
						0.63
100% plain coloured cotton						

Table 1 Contuned						
General appearance	3.75±0.89	3.92±0.92	3.84±0.91	-0.41	0.00	0.69
Texture/crispness	3.63±0.74	4.08±1.16	3.86±0.95	-0.98	1.75	0.34
Body	3.18±1.04	4.08±1.00	3.63±1.02	-0.72	0.03	0.48
Odour	3.38±0.52	3.25±0.62	3.32±0.57	0.47	0,06	0.64
Colour	3.75±1.16	3.58±1.31	3.67±1.24	0.29	1.28	0.78
Sharp contours	3.88±0.83	4.08±0.79	3.98±0.81	-0.56	0.00	0.58
Smoothness	3.63±0.74	4.00±0.85	3.82±0.80	-1.01	0.23	0.33
						0.55
Plain white cotton blend						
General appearance	2.13±0.99	3.25±1.29	2.69±1.14	-2.09	1.87	0.05
Texture/crispness	3.00±1.20	3.421.24	3.21±2.44	-0.75	0.12	0.47
Body	3.25±0.89	3.42±0.79	3.34±0.84	0.44	0.02	0.67
Odour	3.13±0.64	3.33±0.49	3.32±0.57	-0.82	0.00	0.42
Colour	2.38±1.30	2.92±1.31	2.65±1.31	-0.91	0.01	0.28
Sharp contours	3.00±1.31	3.25±0.87	3.13±1.07	0.52	0.98	0.61
Smoothness	2.88±0.99	3.25±1.14	3.07±1.07	-0.76	1.58	0.46
						0.44

Key: XI Sdi - Mean and Standard deviation for Lecturers, XII SdII - Mean and Standard deviation for Postgraduate students, X111 Sd111 - Grand mean and Standard deviation for Lecturers and Postgraduate students, Df - Degree of freedom, t- cal- t- calculated, Sig - Significant level, ***(N=40, Df-38 XI =20, XII =20)***

Table 1 indicates that both categories of evaluators accepted four out of seven attributes of 100% cotton fabric sized with rice starch, with mean ranging from 3.40±0.52 to 3.65±0.91. The accepted attributes include stiffness (3.65±0.91), closely followed by weight (3.63±0.82). The most poorly and least accepted attribute was the colour of the sized fabric (1.86±1.04). For the rice sized 100% plain coloured cotton fabric, both categories of evaluators accepted all seven attributes since they were rated highly with mean ranging from 3.32±0.57 to 3.98±0.81. Minus general appearance (2.69±1.14) and colour (2.65±1.31) which were rated bellow acceptable mean, all other attributes of rice sized cotton blend were accepted.

HO_1: The t-test results on Table 1 with P-values of 0.63, 0.55 and 0.44 for the panelists on organoleptic attributes of rice starch on 100% plain white cotton, 100% plain colured and cotton blend fabrics respectively had P-values more than 0.05. These values indicate no significant differences supporting the null hypothesis stated that there are no significant differences. The null hypothesis is therefore accepted at $P<.05$ level of significance

Table 2: Mean Ratings and t-test Results on Organoleptic Attributes Three Fabric Samples (100% Plain White, Coloured and Cotton Blend) Sized with Corn Starch.

Corn Sized Fabric	X_1 Sd_1	X_{II} Sd_{II}	X_{111} Sd_{111}	t-cal	P-value	Sig Level
100% plain white cotton						
General appearance	400±0.93	4.00±0.74	4.00±0.84	0.00	0.00	1.00
Texture/crispness	3.75±0.89	3.50±0.67	3.63±0.78	0.72	0.05	0.48
Body	3.75±0.89	3.75±0.75	3.75±0.82	0.00	0.00	1.00
Odour	3.25±0.71	3.67±0.65	3.71±0.68	-1.36	0.00	0.19
Colour	3.13±1.36	3.83±0.94	3.48±1.15	-1.39	2.28	0.18
Sharp contours	3.75±0.46	3.75±1.06	3.75±0.76	0.00	1.45	1,00
Smoothness	3.75±0.89	3.67±0,98	3.48±0.76	0.19	0.80	0.85
						0.67
100% plain coloured cotton						
General appearance	4.13±0.35	3.83±0.83	3.98±0.59	0.93	2.82	0.37
Texture/crispness	2.75±0.25	2.67±0.65	2.71±0.45	0.24	1.66	0.81
Body	3.38±0.52	3.17±0.72	3.28±0.62	0.71	0.02	0.49
Odour	3.13±0.64	3.25±0.62	3.15±1.26	0.71	0.13	0.67
Colour	3.88±0.64	4.00±0.85	3.94±0.75	0.35	0.05	0.73
Sharp contours	3.25±0.46	3.17±1.11	3.21±0.79	0.20	3.18	0.85
Smoothness	4.00±0.54	3.83±0.98	3.92±0.78	0.45	3.93	0.66
						0.65
Plain white cotton blend						
General appearance	3.25±1.16	3.08±0.79	3.17±0.98	0.32	1.88	0.71
Texture/crispness	2.50±0.93	3.08±1.16	2.79±1.05	1.19	0.57	0.25
Body	3.25±1.04	3.17±0.72	3.21±0.88	0.26	1.36	0.83
Odour	3.13±0.64	3.33±0.65	3.23±0.65	-0.71	0.52	0.49
Colour	2.75±1.16	3.33±1.07	3.04±1.12	-1.15	0.23	0.27
Sharp contours	3.25±0.89	3.42±0.79	3.34±0.84	-0.44	0.29	0.67
Smoothness	3.25±1.04	3.75±0.75	3.50±0.90	-1.25	0.66	0.23
						0.49

Key: XI Sdi - Mean and Standard deviation for Lecturers, XII SdII - Mean and Standard deviation for Postgraduate students, X111 Sd111 - Grand mean and Standard deviation for Lecturers and Postgraduate students, Df - Degree of freedom, T- cal- T- calculated, Sig - Significant level, (N=40, Df-38 X_I =20, X_{II} =20)

Table 2 shows that all the seven attributes assessed of corn sized 100% plain white cotton fabric were accepted by both categories of evaluators with general appearance scoring highest (4.00±0.84). Aside from stiffness of 100% coloured cotton (2.71±0.45) and cotton blend (2.79±1.05), all other attributes were accepted. This was shown by the very high mean ratings ranging from 3.48±0.76 to 4.00±0.84 for 100% plain white cotton fabric, 3.21 ± 0.79 to 3.98± 0.59for 100% plain white cotton fabric and 3.04±1.12 to 3.50±0.90 for cotton blend.

HO_2: The t-test results on Table 2 with P-values of 0.67, 0.65 and 0.49 for both categories of evaluators on the organoleptic attributes of corn sized 100% plain white cotton, 100% plain colured and cotton blend fabrics respectively had P-values more than 0.05 indicating no significant differences in the mean responses of the respondents. The null hypothesis stating that there are no significant differences in the mean responses of the evaluators is therefore accepted at P<.05 level of significance.

Table 3: Mean Ratings and t-test Results on Organoleptic Attributes Three Samples of Fabric (100% Plain White, Coloured and cotton blend), Sized with Sweet Potato Starch.

Russet Potato Sized Fabric	X_I Sd_I	X_{II} Sd_{II}	X_{111} Sd_{111}	T	P-value	Sig Level
100% plain white cotton						
General appearance	1.00±0.53	2.17±1.40	1.59±0.97	-1.27	3.88	0.22
Texture/crispness	1.13±1.35	4.00±0.95	2.57±1.15	-1.70	3.03	0.10
Body	3.88±1.55	4.17±0.94	3.94±0.62	-0.53	3.22	0.01
Odour	1.38±1.06	2.92±1.16	2.96±0.85	0.19	7.29	0.85
Colour	1.38±1.06	1.58±1.00	1.48±1.03	-0.45	2.69	0.88
Sharp contours	3.00±1.41	3..08±1.08	3.64±1.25	-0.15	0.23	0.19
Smoothness	2.25±0.71	2.75±0.87	2,50±0.79	-3.36	0.16	0.66
						0.42
100% plain coloured cotton						
General appearance	2.50±0.93	3.17±0.83	2.84±0.88	-1.68	0.47	0.11
Texture/crispness	2.88±1.46	4.08±1.00	3.48±1.28	-2.21	1.64	0.04
Body	3.75±1.04	3.83±0.83	3.79±0.94	-0.20	0.29	0.85
Odour	3.25±0.46	3.42±0.90	3.34±0.68	-0.48	4.78	0.64
Colour	2.50±1.31	3.42±1.00	2.48±1.16	0.16	1.70	0.87
Sharp contours	3.63±1.06	3.83±0.83	3.73±0.95	-0.49	1.38	0.26
Smoothness	2.88±0.99	3,50±0.52	3.19±0.76	-1.85	0.89	0.08
						0.41
Plain white cotton blend						
General appearance	2.50±1.07	3.17±0.83	2.84±0.95	-1.57	0.75	0.14
Texture/crispness	2.63±1.60	3.25±0.83	2.98±1.22	-0.99	1.88	0.33
Body	3.50±1.07	3.83±0.83	3.67±0.95	-0.78	0.75	0.44
Odour	3.00±0.53	3.50±0.67	3.25±0.60	-1.76	3.97	0.10
Colour	1.75±0.89	2. 67±1.44	2.21±1.17	-1.61	3.3	0.13
Sharp contours	3.25±1.16	3.75±0.87	3.50±1.02	-1.10	2.17	0.29
Smoothness	2.50±1.07	3.42±1.00	2.96±1.04	-1.96	0.15	0.07
						0.21

Key: XI Sdi - Mean and Standard deviation for Lecturers, XII SdII - Mean and Standard deviation for Postgraduate students, X111 Sd111 - Grand mean and Standard deviation for

Lecturers and Postgraduate students, Df - Degree of freedom, T- cal- T- calculated, Sig - Significant level, N=40, Df-38 X_I =20, X_{II} =20).

Table 3 shows that only two of the seven attributes of sweet potato sized plain white cotton fabrics were accepted by the evaluators. They included body (3.94±0.62) and sharp contour (3.64±1.25). Contrary to the above, all attributes except general appearance (2.84±0.88) and colour (2.48±1.16) respectively were acceptable for the coloured cotton sample. For the sweet potato starch on cotton blend, the body (3.67±0.95), odour (3.25±0.60) and sharp contours (3.50±1.02) of the fabric samples were good and acceptable to the evaluators.

HO_3: The P-values of 0.42, 0.41 and 0.21 for rice, corn and sweet potato sized 100% plain white cotton, 100% plain coloured and cotton blend fabrics respectively had P-values more than 0.05. The values are more than 0.05 indicating the null hypothesis stating that there are no significant differences in the mean responses of lecturers and Post graduate students on the acceptability of the sized fabrics were accepted at P<.05 level of significance.

Discussion

The results show that most sized fabrics organoleptic aeathetic qualities were improved and accepted by the evaluators while some were unaccepted. Starch functionality is directly related to gelatinization and the properties of the paste which also affect the stability of products, consumer acceptance and production reliability (Šubarić, Ačkar, Babić, Sakač and Jozinović, 2012; Alczar-Alay and Meireles, 2015) For the rice sized fabric samples, the coloured 100% cotton samples' sensory attributes (general appearance, colour, crispness, body, odour, sharp contour and smoothness) were rated exceptionally highly and accepted. Miles in Hebeish, Rekaby, and Abd El-Rahman (2019) affirmed that when cotton fabrics are printed using vat dyes, dye is fixed in an alkaline medium in the presence of a strong reducing agent. The obtained prints are subjected to oxidation and solution compounds are converted to insoluble coloured derivatives. and higher amount of such starch in thickening produces high colour yield. This could explain why the colour and general appearance of rice sized coloured 100% cotton samples yielded better aesthetic results than plain white and cotton blends. The texture was crispy but pliable, smooth and lustrous. The limp fabric hand or body was reinforced, stronger and smoother. The finding by Lata and Mehta (2012) provided baseline data that may be responsible for these. Using different concentrations and temperatures on their study of impact of rice, corn, potato and sago starches on functional properties of cotton fabric, thickness of samples varied with increase in temperature and the variation was attributed to more absorption of the starch due to increased kinetic energy of the particles which resulted in thick film formation on the fabric sample. The solution in granular stage at 100^0 C gives maximum viscosity resulting in thick layer formation on the sample and as yarn diameters and fabric modulus increase, the stiffness of the fabric also increase. Researchers agree that there is direct relationship between warp diameter and fabric stiffness (Yuksekkay, Howard & Adanur, 2008), and that starch depend on relationship between amylase and amylopectin and other constituents found in starch granules including phosphates, lipids, phospholipids among others (Marinuthu, Chandrasekar, Murugan, Perumal & Marimuruthu, 2020)

Findings on corn sized samples revealed positive organoleptic attributes. Temesgen, Murugesan and Gideon (2019), tested the breaking strength, extension of break, work to rupture, strength, unevenness, hairiness, resistance to abrasion and size pick-up. Finding revealed that corn starch had relatively larger thickness and highest end breakage rate. Similarly, Lata and Mehta (2012) assessed fabric weight in grams per square meter (GSM), thickness, stiffness, tensile strength and wash fastness and discovered that corn starch gave more weight at lower temperature compared to the others as absorption of corn is more due to its waxy structure that does not retrograde easily. According to them, this is one of the reasons corn is used for commercial purposes. Kovacevic, Schwarz, Dordevic and Dordevic (2020) studied synthesis of corn starch derivatives and their application in yarn sizing that corn starch should be returned to sizing process for their economic, qualitative and ecological cost effectiveness only by synthesizing and grafting with appropriate initiators which significantly improve their properties. Though, for Temesgen et al, (2012), Ebinowen, Oloye and Daramola, (2018) corn sized yarns' performance was the poorest of other native starches (potato, cassava and yam) studied, results from the present study showed tremendous aesthetic attributes, specially of plain white 100% cotton and cotton blend samples. The colour and general appearance of plain white 100% cotton was rated excellent and highest. Colour value was lighter and chroma brighter without dirty parches. This partly indicates clarity of corn starch. The texture, hand, colour, smoothness and sharp contour were all accepted. Bhargava (1984), stressed that the degree of fabric stiffness is related to its fibre, yarn and fabric structure. Similarly, Afolayan, Omojola, Orijapogun et al (2012), affirmed that starch is effective for cotton sizing because the film has a natural ability to stretch before rupture to a degree that closely parallel the natural stretch of cotton.

With the exception of general appearance and colour, potato sized coloured 100% cotton fabric samples' organoleptic attributes were the most acceptable of all potato sized fabric samples as they were highly rated. The texture was crispy and pliable, smooth, not cracking (producing a chalky line) on flexing the material or folding it, and was odourless. The reason for better aesthetic and organoleptic properties of the coloured cotton fabric samples could be attributed to age long adsorption phenomenon better described by Langmuir equation (Arvind, Thaklar, William and George, 1970). Potato starch contains approximately 800 parts per million (ppm) phosphate bound to the starch which increases the viscosity and gives the solution a slightly anionic character which probably chemically cross-linked with the fabric dye thus improving the brightness of the sample. Potato also contains anthoxanthins pigments belonging to the flavones and flavonol families that contributed to the colour. The plain white and cotton blend samples lack crispy texture, developed cracks, chalky lines. Colour and general appearance ratings were rated from poor to extremely poor. Potato shows the least stiffness than when compared with cassava and corn and wheat but had h (Temesgen et al, 2019). Reports from various researchers indicate that potato starch functional and organoleptic properties could be enhanced by modification, grafting and addition of copolymers among others to achieve improved textile sizing (Djordjevic, Kovacevic & Djordvic, 2018; Fahmi, 2019.

Conclusion

The findings indicate that rice, corn and potato starches can be used as sizing on 100% plain white, coloured cotton and cotton blend (cotton/polyester: 60/40% respectively) fabrics. Though organoleptic aesthetic properties of these sized fabric samples differ, all starches extracted from rice, corn and potato improved more vividly the aesthetic properties of 100% coloured cotton samples. Corn sized plain 100% white cotton sample was also improved next to coloured cotton. This means they can be used as good sizing for revitalizing and renovating limp cotton fabric and cotton blends with appropriate procedures of extraction and application. There were no significant differences in the mean responses of both categories of evaluators on the acceptability of the rice, corn and potato sized fabrics at 0.05 probability level. Since F-values were greater than t-calculed in all instances. Null hypotheses were all accepted.

Recommendations

1. Rather than depend solely on imported synthetic starches that are more expensive, not easily available and which could pose human health and environmental hazards, natural starches from rice, corn and potatoes should be explored for the vast industrial productions and home or family utilizations for textile, clothing finishing and renovation and other uses.
2. Through entrepreneurial efforts, unemployed graduates, home makers and farmers could make fortunes by venturing into starch production and sale in commercial

quantities to textile and clothing and other allied industries.

3. Textile Chemists and scientists in textile and clothing industries should explore the local food substances for their industries since they have been found to be cost effective
4. Home Economics teachers at all levels of education should encourage their students through practical classes and projects to get oriented in the art of exploring the edible starches in both home use and for industrial future ese.
5. The Federal Government through the Raw Materials Research and Development Council (RMRDC), should encourage patenting of such research initiatives by provide bursary allowances to researchers.

References

Afolayan MO, Omojola MO, Orijapogun et al (2012). Further physicochemical characterization of archomanes deforms starch. *Agriculture and Biology Journal of North America* 3 (1): 31-38

Aglaee J, (2013). What are natural starches? Demand Media. Hearst Communi-cations Inc. Hearst Newspapers.

Ahmed SMS, Peng W, Na W, Liu Y, & Zhigang X (2019). Brown rice versus white rice: nutritional quality, potential health benefits, development of food products, and preservation technologies: Comprehensive Reviews in Food Science and Food Safety. *Institute of Food Technologists* Vol.18: 1070-1096

Alcazar-Alay S C and Meireles A A (2015). Physicochemical properties, modifications and applications of starches from different botanical sources. *Food Science Technol, Campinas* 35 (2); 215-236

Altaf H.B, Caroline L., Frost S., Gary S., Robertson M. D (2006). The role of neutral resin-alum size in the production of permanent paper. *Resteurator: International Journal for the Preservation of Library and Archival Material*, 27: 2:67

Arvind L T, William L W, George Z (1970). Adsorption of Methyllene blue by potato starch: Effect on Methanol, Dioxane, Sucrose and Urea in aquos solution *Journal of Pharmaceutical Sciences* Retrieved 25/8/2020 from https://doi.org/10.1002/jps.2600591020.

Ashhobon, A. (2012). Corn chemistry and technology. *Journal of Agricultural and Food chemistry* 56 (11): 3900-3911.

Bhargava GS (1984). Effect of yarn structure on fabric stiffness. *Ind J Text Res* 9: 154-159.

BeMiller, W. (2009). Weaving: Conversion of yarn to fabric. Woodhead Publishing. Cambridge: 700-703

Burrell, M.M. (2003). Starch: The need for improved quality or quantity- an overview. *Journal of Experimental Botany,* 54 (383): 452-456

Djordjevic S, Kovacevic S & Djordvic D (2018). Sizing Process of cotton yarn by size from a copolymer of methacrilic acid and and hydrolyzed potato starch. *Textile Research Journal.* Retrieved from journal.sagepub.com/ doi/abs/10.1177

Ebinowen Y, Oloye M T and Daramola B (2018). Effect of sizing agents on processing of cellulose yarns for wearing apparel. *International Journal of Scientific Research and Innovation Technology* 5 (7): 70-76.

Fahmi F F (2019). Potato starch based warpnyarn sizing; new ray of hope for the rural farmers of Bangladesh. *Textile Today*. www.textiletoday.com. bd/ potatostarch

Hebeish1 A, Rekaby M, and Abd El-Rahman A A (2018). Novel starch based thickeners for cotton printing using vat dyes. *Egypt. J. Chem*. 61, (5); 813 - 824

Kovacevic S, Schwarz I, Dordevic S and Dordevic D (2020). Synthesis of corn starch derivatives and their application in yarn sizing. *Polymers MDPI.* 12 (6) https://doi.org/10.3390/polymer/2061251

Kovacevic S, Dimitrovski K, and Hadina J (2008).The processes of weaving. Book. University of Zagreb, Faculty of Textile Technology Zagreb, Croatia.

Lata K R and Mehta R (2012). Experimental study on application of different sizing agents and its impact of fabric properties. *Int J Multidsc. Edu. Research* 1: 4

Li J-Y. and Yeh A-I. (2001). "Relationships between thermal, rheological characteristics and swelling power for various starches," *J. Food Engineering.* 50: 141-148.

Marinuthu C, Chandrasekar P, Murugan J, Perumal K & Marimuthu I (2020). Ozone modified starch and its application in yarn sizing and advantages. International Journal of Chemistry and Applications 12 (1) 1-11 htt://www.irhouse.com

Marshal SG, Jackson JO, Stanley MS, Kefgen M, Tochie–Specht P (2000). *Individuality in clothing selection and personal appearance.* New Jersey. Prentice Hall Inc. 18:220.

Muhammed UIM, Tahir I, Shahid RM, Muhammed I & Bushra I (2014). Alkaline extraction of starch from broken rice. *International Journal of Innovation and Applied Studies* 7 (1): 146-152

Onwualu P (2006). Role of research and development in industrial raw material sourcing in Nigeria: 2nd, Distinguished Lecture of the School of Postgraduate Studies, University of Nigeria, Nsukka. 22. **Error! Hyperlink reference not valid.**

Ragnar, H. (2011). Production of corn. . "International starch Institute Retreived from Starch.dk. 15/8/2020

Roney, J. (2009). "The beginnings of maize agriculture" Archeology Southwest. 23 (1), Winter:4

Stryer L.B, Lubert, B, Jeremy, M, Tymoczko, and John L, (2002). "Section11.2.2" *Biochemistry* (5th ed). San Francisco: W.H Freeman. ISBN 0.7167-3051-0.

Šubarić, D., Ačkar, D., Babić, J., Sakač, N., & Jozinović, A. (2012). Modification of wheat starch with succinic acid/acetic anhydride and azelaic acid/acetic anhydride mixtures I. Thermophysical and pasting properties. Journal of Food Science and Technology, 51(10), 2616-2623. http://dx.doi.org/10.1007/s13197-012-0790-0. PMid:25328203.

Temesgen S, Endale M, Berega M, Habte M & Ahmed S (2019), Extracton and application of moringa olifera seed karnel for warp sizing in Textile Industry. *Trends Textile Eng Fashion Technol.* 5(3):648-654

Temesgen S, Murugesan B and Gideon R K (2019). Perfomance evaluation of cotton yarnsized with natural starches produced from native corn, cassava and potato starches. *J Textile Sci Eng* 9: 389

Yuksekkay ME, Howard T & Adanur S (2008). Influence of the fabric properties on fabric stiffness for the industrial fabrics. Texstil ve Konfeksiyon 4: 263-276

Zhou Z, Richards K, Helliwell S, & Blanchard C (2002). Ageing of stored rice: changes in chemical and physical attributes. *Journal of Cereal Science*. 35 (1): 65-78.

HER *Vol. 28 No. 2, December 2021, pp. 111-122*

Influence of Corona Virus (COVID-19) Pandemic and Family Relationships among Affected Families in Makurdi Metropolis

Kembe, E. M.; Okonkwo, L.E.
Department of Home Science and Management,
Federal University of Agriculture, Makurdi,

Abstract

This study focused on influence of corona virus (COVID-19) on family relationships in Markudi Metropolis. Specifically, it determined: ways family relationships were influenced during lock-down; expressed effects of lock-down on the family; and the challenges faced by families during lock-down. Research design was a descriptive survey. Area of the study was Makurdi metropolis. Population was made up of people who had fully recovered from COVID-19 in the area. Questionnaire was used for data collection. Data were analyzed using means. Result shows 12 ways family relationships were influenced during the lockdown, including that the family stayed together gladly; communication among members was improved, and so on. Other findings are 16 expressed effects of the COVID-19 lockdown on the family, including that children were bored, idle and sometimes restless; children's education was drastically affected, among others. Further findings are 15 challenges faced by families during the COVID-19 lockdown. These include, among others, providing care during the period was challenging, there was emotional trauma, parents faced uphill tasks of providing E-learning opportunities. Based on the findings it was recommended that government should become more proactive in its social welfare policies and relevant implementation. There should also be change in societal attitude to personal and community health matters.

Keywords: Family, Lockdown, Relationships, Contact-tracing, COVID-19, Pandemic.

Introduction

The world woke up to a global pandemic in the last quarter of the year 2019 and it seem initially like a foreign disease that might not get into Nigeria until in the first quarter of the year 2020, when the index case appeared and affected the 37 states of Nigeria including the Federal Capital Territory(FCT). Families were confronted with new lifestyle changes of being locked down to stay safe and keep safe. At this stage, family relationship is crucial to family stability, harmony, development and peace. A family faced with crisis is bound to encounter some challenges. Family challenges occur in several ways, socially, economically, physically and health wise. The family are the epicenter of the society and its' members are interconnected in several relationships in the family that is both conjugal and consanguine. This makes the family a large group of individuals who stay together and have shared identity, shelter, values and goals in the society. That makes the family the foundation and nucleus of the society, therefore, the lives of family members are most affected in times of crisis and challenges.

A crisis situation is a stressful time in an individual's life when they experience a breakdown or disruption in the normal or daily activities of the family function. Family crisis as a turning point that upsets the normal functioning of the family and requires a new set of responses to the stressor. Any crisis is a blow to the family and all members are affected collectively, even when it is one individual that is involved such as in ill health, however, all members of the family are affected in one way or another when the family is faced in any form of challenges or crisis. Crisis situations include ill health, death of spouse, natural disasters such as flooding, wildfires, tsunamis, volcanoes, pests on farming plantations, drought, and all other disruptions that can affect the family.

The COVID-19 pandemic is a corona-virus disease 2019 caused by acute respiratory syndrome ((SARS-COV 2). The first index confirmed case in Nigeria was announced in February 2020. Shortly after that, the spread to all parts of the 36 states of the federation of Nigeria including Abuja. Families were confronted with new lifestyle changes of being locked down to stay safe and keep safe. There were several measures that were put in place by the National Centre for Disease Control (NDCD), which was charged with the function to prevent, detect and control diseases of public health importance, especially in coordinating states in responding to small outbreaks and lead the response to large disease outbreaks. At the time of this study, Benue state seems to be amongst the lowest state hit by the virus with one thousand, one hundred and eighty eight (1,188) cases, most have been discharged and with twenty two (22) deaths, the highest being Lagos state with fifty eight thousand, three hundred and sixty seven (58,367) cases and four hundred and thirty nine (439) deaths, however, the measures concerning all the protocols set up by the NCDC cuts across all the states of the Federation irrespective of the number of cases and deaths recorded.

COVID-19 affects different people in different ways. Most infected people will develop mild to moderate illness. Serious symptoms include difficulty in breathing, or shortness of breath, chest pain or pressure, loss of speech and movement, (NCDC,2020). The most common symptoms are fever, dry cough and tiredness. On average, it takes 5-6 days from when one is infected for the symptoms to show and up to 14 days of serious ill health. The symptoms of COVID-19 have been misconstrued variously to mean fevers, malaria, cough, high blood pressure and the like. In any way, being sick by any member of the family can be a challenge especially in a lockdown, every member of the family is affected. There is a great deal of speculations and uncertainty about how the pandemic will unfold and the response to it over time. It is this uncertainty as to the duration that the virus will stay with humanity that makes it worrisome.

The measures set up by the Nigeria Cenre for Disease Control (NCDC, 2020) includes but not limited to the following: One is expected to stay at home in a well ventilated room away from other people such as family members with separate toilet and hygiene facilities; while working from home for those who are not adversely affected, it is important to ensure that the necessary communication facilities such as the mobile phones are ready to communicate with other members of the family. Self -isolation also requires everyone has adequate food, water, hygiene provisions and appropriate medical treatment for any medical conditions. Furthermore, wash the hands regularly with water and soap or the use of an alcohol based hand rub, it is necessary to cover the nose and mouth with disposal tissue when coughing and sneezing, clean and disinfect frequently touched surfaces such as door knobs, tables, bed frames and other bedroom furniture daily with regular household disinfectant or soap.

The most important emphasis that has been placed on the people since the outbreak of the COVID-19 pandemic is the lock-down and remain at home strategy for control of the spread. According to Gromada, Richardson & Rees (2020), lock- down has shown negative and positive consequences for families. In some families, violence has increased, especially against women and girls. Increased acts of violence occur as lockdown keep victims inside with their abusers, most affected is women and girls. This affects family relationship negatively.

United Nations Fund for Population Activities (UNFPA, 2020) revealed that the economic and physical disruption caused by the disease has vast consequences for the health of the family members. For example, the consequent on childcare is critical as the closures or lock-down has exposed a deeper crisis for families of young children in the low- and middle-income category. Childcare is essential in providing children with services such as affection, protection, stimulation, nutrition and at the same time enable them develop social, emotional and cognitive skills. Furthermore, the lock -down has affected the economy of most families. Many businesses have closed, staff have been downsized and even some people have lost their jobs as a result of the lock- down. This is generally a challenge to family relationship.

On the positive side, the lockdown has helped the solidarity of family members. Pearlin (1999) has shown that lockdowns help members of the family to eat together, stay together, spend maximum time physically witnessing each other's pain and pleasure. The impact of COVID-19 on family relationships depends upon the strength of the family bond, which depends on the individual strength. Family relationships play a central role in shaping an individual wellbeing across the life course. Wellbeing is generally seen in the dimension of general happiness, life satisfaction and good mental and physical health, (Merz, Consedine, Schulze and Schuengel, 2009).

The quality of family relationships including social support (providing love, advice and care) and strain (argument, being critical, making too many demands) can influence well-being through psychosocial, behavioral and physiological pathways. Those receiving support from their family members may feel a greater sense of self- worth and this enhanced self- esteem may be a psychological resource and eventually promotes positive effect and better mental health. Family members may also regulate each other's behavior (social support) and provide information and encouragement to behave in healthier ways and more effectively utilize health care services (Reczek, Thomer, Lodge, Umberson and Underhill (2014). According to the family stress theory, stress is the periodic, acute events that happen to all families and stress is a disruption to the daily routines of the family and it also affects the family sense of security(Merz, Consedine, Schulze and Schuengel, 2009). So, the social stress theory represents a change in the family's steady state and is the response of the family to demands experienced as a result of a stressor event. Covid19 has been listed as an ailment that is stressful to the family; it has not only caused health challenges but has brought certain economic and social changes to the family affecting routines.

COVID-19 seems to come to stay in the world, since it seems there are no ready cure for the virus. Some countries have continued to speculate the vaccines that may be available in 2021 or thereafter, meanwhile, families are infected, and the figures continue to go and down in both the number infected, number discharged and number deaths. This is worrisome and family relationship is important as people continue to be advised to stay indoors and keep to the distance rule. It has also come to the point that schools are being advised to conduct online teaching and people to work from home. There are bound to be some adjustments in such drastic requirement and changes in the family setting that is expected. This study is therefore, conducted to find out family relationships in the Lock-down and the challenges during this period of COVID-19.

Objectives of the Study

The general objective was to investigate the Influence of COVID-19 and family relationship among affected families in Makurdi metropolis. Specifically, the study determined the following objectives:

1. ways family relationships were influenced by lock- down among families in Makurdi metropolis
2. expressed effects of lock-down on the families in Makurdi metropolis
3. challenges faced by the families during the lock- down in Makurdi metropolis

Methodology

Design of the Study. The descriptive survey research design was used to collect all the relevant data for the study. This is more appropriate because it will describe exactly what it is based on the objectives using a small sample upon which generalization can be made. Most researches in the social sciences find the descriptive research design appropriate.

Area of the Study. Benue state is in the middle of Nigeria and an intersecting state between all the states in the federation from the North and to the South. People travel in and out of the state on a regular and daily basis because of the abundant resources available in the state, therefore it is an attraction for commerce and businesspeople. It is one of the states affected by COVID-19 and has implemented all the protocols of being completely under lockdown over a period of time.

Population of the Study. Benue State has at the time of the study, one thousand, one hundred and eighty-eight cases, (1,188) cases of COVID-19 and 22 deaths. The population was carefully selected from people who have fully recovered from COVID-19.

Sample for the Study. Only 30 respondents who were identified through trace contact formed the sample of the study. The names were mentioned by Nigeria Centre for Disease Control (NCDC) and were made public in Benue state before they were sent on self- isolation in designated hospitals and /or stay at home. Only respondents who engaged in self isolation at home were used for this study.

Instrument for data collection. The instrument of the study was a structured questionnaire titled the family relationship questionnaire (FRQ) and composed of 45 items in a 5- point Likert scale of preference. The instrument was graduated from 5-1, with strongly Agree (5), Agree (4), Mildly Agree (3), Disagree (2) and strongly disagree (1). A mean score of 3.00 was the agreeable mean; therefore any mean less than 3.00 was not agreeable. The instrument was validated by 2 medical personnel who were involved in providing home care monitoring of patients who were on self-isolation at home and an expert Home Economist in family and child development. All irrelevant and ambiguous items were removed to make the instrument suitable for data collection.

Method of data collection. A form soliciting willingness to participate in the study under strict confidentiality was sought from all those who participating in the study. Two research assistants who are staff of the NCDC were used to collect information from the identified location of the respondents, since they were directly involved in routine checkup of these patients. The study covered a period of two weeks.

Data Analysis Techniques: The data was analyzed using simple percentages and means. The result was presented on Tables 1-3.

Findings of the Study

Findings of the study presented on Tables 1-3.

Table1: Mean Responses on Ways Family Relationships were Influence by COVID-19 Lock-down in Makurdi Metropolis.

S/N	Ways Family Relationships were Influenced	$\bar{X}$	Decision
1.	The family stayed together gladly	3.40	Agree
2.	The family worked together as a team to overcome COVID-19	4.00	Agree
3.	Improved spousal relationship	4.20	Agree
4.	Parent-children relationship seem to be better	4.60	Agree
5.	Siblings come to better understanding of one another	4.10	Agree
6.	Communication was improved among family members	4.20	Agree
7.	There were more family arguments and conflict	2.40	Disagree
8.	Better time, financial and energy management	3.50	Agree
9.	Incidence of infighting and violence reported	2.90	Agree
10.	Increased incidence of separation	2.60	Agree
11.	There was negative family social relationship	2.00	Disagree
12.	There were major family changes in recreation, feeding and parenting patterns	3.80	Agree
13.	The family bonded together	4.00	Agree
14.	The family disagreed on so many issues	2.80	Agree

Table 1 shows that fourteen (14) items were listed on Table 1, 12 items indicate ways COVID-19 influence family relationships, while 2 items disagree on the possibility of family conflicts, arguments and negative social relationship. This has implication for the general findings that the lockdown has increased the incidence of domestic abuse.

Table 2: Mean Responses of Expressed Effect of the COVID-19 Lockdown on Families in Makurdi Metropolis

S/N	Expressed Effects of Lockdown on Families	$\overline{X}$	Decision
1	Children were bored, idle and sometimes restless during the lockdown	3.70	Agree
2	Parents had time to hear, talk, work, cook, play and assist children in activities	4.40	Agree
3	Having children at home all day helped in socialization practices	4.20	Agree
4	Adolescents spent more time on TV/internet/social media	4.20	Agree
5	Lockdown ensured most parents fulfill their responsibility	4.00	Agree

	on socialization		
6	Covid-19 lock down increased anti-social behavior of *Table 2 Contuned* adolescents such as robbery, drug abuse illegal sexual activities	3.20	Agree
7	Families experience more siblings conflict during COVID-19 lockdown	3.00	Agree
8	COVID-19 lockdown brought about financial losses in business	4.40	Agree
9	Children education have been drastically affected by COVID-19 lockdown especially in areas where there are no online learning facilities	4.40	Agree
10	Daily nutritional requirement of household is adversely affected by COVID-19 lockdown results to dwindling resources	4.40	Agree
11	More business opportunities were identified and pursued	4.10	Agree
12	Families experience an increase in mental health challenges, domestic violence and child maltreatment	3.30	Agree
13	Lack of peer contact increase anxiety, frustration and feeling of helplessness	4.10	Agree
14	Marital and family adjustments were necessary	4.11	Agree
15	Its impact on the level of preparedness on budgeting and planning	4.11	Agree
16	The family had more unplanned time to manage	4.00	Agree

Table 2 shows result showed expressed effect of COVID-19 lockdown on the family. Sixteen (16) items were listed. All 16 items showed expressed effect of the lockdown on families. Specifically, families expressed increase in mental health challenges, child maltreatment and domestic violence, (3.30). There was also an increase in anti-social behavior of adolescents with a mean of 3.20.

Table 3: Mean Responses of Challenges Faced by Families during COVID-19 Lockdown

S/N	Challenges Faces by Families During Lockdown	$\bar{X}$	Decision
1	Families were completely unprepared for the COVID-19 lockdown	3.50	Agree
2	Families were separated during the COVID-19 lockdown	3.60	Agree
3	Loss of loved ones were experienced leading to double tragedy	4.40	Agree
4	Providing care during the period was challenging	3.60	Agree
5	Wrong perception about the means of transmission of the virus	4.00	Agree
6	Parents had difficulty in providing daily basic needs of family members	4.00	Agree
7	Many parents may have their means of livelihood threatened	4.40	Agree

8	Home schooling program was quite a challenge for parents of young children	4.70	Agree
	Table 3 Contuned		
9	Parents faced uphill tasks of providing E-Learning opportunities and controlling the activities of children on the internet	4.56	Agree
10	COVID-19 lockdown caused reduction in mobility	4.20	Agree
11	Emotional trauma	4.50	Agree
12	There is difficulty in contact tracing and increase in the number of new cases	4.50	Agree
13	Stigmatization of people infected with COVID-19 and poor response to treatment is a challenge	4.50	Agree
14	The symptom of severe headache, loss of appetite, causing high body temperature and incapacitation during ill health is a challenge	4.10	Agree
15	Families exhausted their life savings during the lockdown	3.40	Agree

Table 3 shows challenges faced by families during the COVID-19 lockdown. 15 items were listed, and all items ranged from 3.50 – 4.70 above the cut off mean. Unpreparedness of families to the physical, social and economic effect of the lockdown, loss of loved ones, threat of loss of jobs and parents uphill challenge of providing e-learning opportunities are some of these challenges.

Discussion

For a number of families, the impact of COVID-19 came as a surprise. When it started in China Wuhan precisely, it seems to be far off, until it dawned on Nigerians that COVID-19 has found its way into the country. Gradually the whole world has been affected and COVID-19 has influenced the way of life of peoples. Result on table one shows responses on ways family relationships were influenced during the lockdown in Makurdi metropolis. Fourteen (14) items were listed on this table, 12 items were agreed upon as having influence on family relationships, while only 2 disagree as not having influence on family relationships. Significant to the result are the following items: Improved spousal and parent -children's relationships (4.20 and 4.60) respectively, better time and financial management (3.50), and major family changes in recreation, feeding and parenting patterns were also reported. According to Gromada et al (2020), in the current context of COVID-19, schools were closed, businesses were closed, and families stayed together in an inclusive and enclosed environment. This requires some major changes in lifestyles and family adjustment. The result of this study showed some positive improvement in spousal communication, family recreation, feeding and parenting patterns. This is contrary to United

Nations Fund for Population Activities (UNFPA, 2020) report which revealed that even before the COVID-19 pandemic, the situation of families has been described as a "global crisis". For example, there are cases of family conflicts and disintegration.
Furthermore, United Nations Fund for Population Activities (UNFPA, 2020) revealed a severe toll of COVID-19 on sexual and reproductive health rights. Accordingly, there are widespread losses in access to sexual and reproductive health information and services and increased concerns over gender-based violence. UNICEF (2020) also envisages a situation of increase violence against women and children, harsh child discipline and child labor as issues confronting families in a lockdown situation. Most worrisome is the fact the victims and the abusers are found in an enclosed environment for some time without respite. Nevertheless, the positive influence of COVID-19 was also brought out in the findings of this study and these goes a long way to support family relationship amidst the several deaths that involved the death of loved ones and in some cases, the death of the bread winner of the family with consequential implications for the future in regard to family survival and sustainability.

According to Ejeabukwa & Ezema (2015), parents had always complained of striking a balance between family responsibilities and work which has affected quality time spent at home, however with the lock down, parents have ample time to stay at home and interact more gainfully with the children as families. This gives parents the emotional support to work as a team to overcome the virus infection. This is a positive influence of COVID-19 on family relationships.

Table 2 shows result of the expressed effect of COVID-19 lockdown on the family. Sixteen (16) items were listed. 13 items show positive effect of Covid-19 lockdown with the mean scores ranging from 3.70 – 4.50. 3 items were rejected, indicating that families experience an increase in mental health challenges, child maltreatment and domestic violence. There was also an increase in anti-social behavior of adolescents. According to Reczek et al (2014), the stress of relationship can result in physiological processes that impair immune function, affect the cardiovascular system and increase the risk of depression, whereas positive relationships are associated with lower wear and tear of the body. Stressors and social support are core components of the stress process theory, (Pearlin,1999). Stress can undermine mental health while social support can serve as a protective resource. Mental health challenges promote anger, anxiety, tension, insecurity, frustration and feeling of hopelessness which can lead to a breakdown of family relationship.

Furthermore, since the onset of Covid-19 pandemic, 99% of the world's 2.3bn children, that is about, 60% are in some form of lockdown. This affects the traditional ways of going to school and work, this poses a challenge to parents. Childcare is now seen as a challenge, because families are seeking financial support from government and other employers in the form of palliatives, financial support and some even liquidizing their savings to cushion the effect of the pandemic to safeguard their children's learning and development, (UNICEF, 2020).

Recently, government has provided COVID-19 recovery packages. The COVID-19 vaccinations such as the AstraZeneca, Johnson and Johnson, is available but limited to specific populations. This can be changed if public provision of childcare, subsidies, social protection and incentives are targeted at the most affected. Ruth, Kayleigh & Maddy (2020), states that families with dependent children are more likely to be adversely affected by the financial, emotional and physical implication of COVID-19 lockdown.

Another aspect of the lockdown that calls for concern is the use of the internet especially by adolescents', University students and internet learning by children. Before now, the effect of internet abuse and online surfing has been abused by young adults, however, Children education has continued in some private schools who have institutionalize online learning; and children are kept busy with their educational work and development. In as much as this is an innovative strategy, there seems to be a greater use of mobile phones, long period on the TV and use of the internet by students, whose schools especially the public Universities have not made provisions for online teaching and learning. Alabi (2019) stated that in Nigeria, the internet will soon revolutionize many aspects of home and family life. Access to social media at home as long as there is network connectivity has increased the level of information available especially concerning the pandemic. Kembe&Ifejika(2013), noted that the unguided use of the internet especially by adolescents has contributed to the level of social vices being experienced leading to unhealthy family relationships. Parents have expressed concern on the number of hours adolescents spend on the use of their phones browsing the internet world.

Result on Table 3 shows the challenges faced by families during the COVID-19 lockdown. 15 items were listed, and all items ranged from 3.50 – 4.70 above the cut off mean. Unpreparedness of families to the physical, social and economic effect of the lockdown, loss of loved ones, threat of loss of jobs and parents uphill challenge of providing e-learning opportunities are some of these challenges mentioned during the COVID-19 lockdown. For a number of families, the lockdown could mean making changes in everyday routines especially as it affects finance, for other, it could mean anxiety in children, tension in parenting, relationships and other fears.

COVID-19 seems to be a new pandemic to the non-medical world; many people had little or no knowledge about the virus. The family seems to be unprepared for the complete lockdown and restrictions placed on movement and its consequent effect. Isolation centers where only available for the infected but many people had home care remedies and where avoiding stigmatization associated with the news that one is infected. Loss of loved ones as a result of the pandemic caused shock and emotional instability and this is in line with Awo (2015) who noted that families in crisis situation may experience trauma and various forms pf pressures and challenges. Therefore, the relationship within the family is critical to wellbeing during crisis. Family relationships are enduring and consequential for the wellbeing across the life course and it is important for intergenerational and sibling ties to be enhanced in the course of any crisis.

Conclusion

COVID-19 pandemic is a global and national crisis situation that has influenced and impacted the world community. Before now, not much is known about this dreaded pandemic as such it took the world by surprise at the level of the devastation leading to deaths of many people around the world. Most critical are the protocols for safety that has been attached to the disease to keep families safe, keeping social distance, staying indoors and the use of the face mask among others. These protocols were established by the Nigeria Centre for Disease Control and have implication for family relationship during the lockdown period. The conclusion reached by the findings of this study shows that the lockdown has positive and negative influence on it.

Recommendations

Based on the findings and this conclusion, the following recommendations were made.

1. Government involvement in provision of social security packages for the family. In as much as the government seems to be showing some level of meeting the COVID-19 challenge up front, there is need for a social security policy by the government which is critical to families meeting their daily and family needs during any lockdown period. Government can involve the private sector in a coordinated strategy of providing the social welfare of the populace. The social welfare packages could be in the form of educational, food and recreational, housing and transport palliatives during such periods.
2. Role of the Family. Family relationships are critical at any period of time especially during family crisis. The success of any family is being threatened during such period of family challenge; therefore, support, empathy, understanding and provision by family members are able to forestall adverse effect of a lockdown.

References

Alabi, O. (2019). Investigation in the use of Smart Phones by Home Makers in Zaria, Kaduna State. *Journal of the Society for Home Economists, 1(1), 83-92*

Awo, O.K. (2015). Psycho-cognitive stress Management Approach foe Enhanced Spousal Relationship within Families. *Journal of Home Economics Research, 22*(2), 1-11

Ejeabukwa, C.A. &Ezema, P.N. (2015), Coping Strategies for – Challenges of Career Women in Colleges of Education in Anambra state. *Journal of Home Economics Research, 22* (99), 89-98

Gomada, A., Richarson, D., & Rees,G. (2020). *Children in a global crisis: Impact of Covid19 on work and family life*. NY: UNICEF office of Research.

Kembe, E.M. &Ifejika, L. I. (2013). Strategies for Promoting Healthy Lifestyles in Families. *Journal of Home Economics Research,18, 17*9-188

Merz, E.M., Consedine, N.S., Schulze,H.J.&Schuengel, C. (2009). Well-being of Adult Children and Aging parents: Association with intergenerational support and Relationship Quality. *Aging and Society, 29,783-802*

Nigeria Centre for Disease Control (NCDC) (2020). Public Health Advisory on COVID-19 https://covid19.ncdc.gov.ngl.

Pearlin,L.I. (1999).*A Handbook for the Study of Mental Health: Social Contexts, theories and Systems.* Cambridge: Cambridge University Press.

Reczek, C., Thomer, M.B., Lodge, A.C., Umbersome, D. & Underhill, M. (2014). Diet and Exercise in Parenthood: A Social control perspective. *Journal of Marriage and Family, 76,1047 – 1062*.

Ruth, P. , Kayleigh, G. & Maddy, P. (2020). Covid -19 and its Impact on Families; Some Ethical Challenges. Retrieved 10/8/2020 www.frontline.com

Nigeria Centre Disease Control (NCDC, 2020). *Self - Isolation Guidelines for Nigerians.* Abuja: FGN

Umoru, M.I.,Ike, E. & Mohammed, A.Z. (2019),Effect of Communication Skill Training on

Marital Satisfaction Among Young Dual-career Couples in Ahmadu Bello University, Zaria, Nigeria.*Journal of the Society for Home Economists(JSHE),1(1), 93-101* United Nations Fund for Population Activities (UNFPA), *UNFPA 2020 and Beyond*. Retrieved from https://www.unfpa.org on the 12 August 2020

UNICEF (2020). *Covid-19 and Child labor: A Time of Crisis to Act*. Retrieved labour@ilo.org on the 12 August 2020

UNFPA (2020). Impact of the COVID-19 Pandemic on Family Planning and Ending https://www.unfpa.org

HER Vol. 28 No. 2, December 2021, pp. 123-131

Issues Relating to Utilization of Social Media for Adult Education in Enugu State

Koledoye, U.L.; Osilike, C.C.; Obiozor, E.E.
Department of Adult Education & Extra Mural Studies
University of Nigeria, Nsukka
Enugu State

Abstract

The study focused on issues relating to utilization of social media for adult education in Enugu State. Specifically, it identified the ways social media are being used in adult learning and the challenges encountered in the use of social media in adult education. The study was a descriptive survey research. The population was made up of 3,391 distance education learners in the area of the study. A sample size of 358 was purposively selected for the study. Data were collected through questionnaire. Data were analyzed using mean and standard deviation. Major findings including 12 ways social media are being used in adult education. Among these are M-learning ($\bar{X}$ = 3.27), e-learning ($\bar{X}$ = 3.26), blended learning ($\bar{X}$ = 3.58), distance learning ($\bar{X}$ = 3.61), micro blogging (X = 3.57), youtube ($\bar{X}$ = 3.37). Others findings are 13 challenges encountered in the use of social media in adult education. These include, high cost of materials ($\bar{X}$ = 3.61), resistance to change by learners ($\bar{X}$ = 3.58), poor integration of ICT into the educational structure ($\bar{X}$ = 3.37), learner's lack of knowledge in the use of media (X = 3.23), illiteracy of facilitators in the use o ICT ($\bar{X}$ = 3.27), cost of internet connection ($\bar{X}$ = 3.00), lack of access to devices ($\bar{X}$ = 3.23) and others. Based on these findings, the study recommended that Government should intensify effort in the provision of social media in adult education centres since the cost of procuring them are high, facilitators should be encouraged by the government on the need for professional development training especially in terms of keeping abreast with ICT.

Key words: Issues, Social, Media, Adult, Education, Utilization

Introduction

Learning is perhaps one of the most important procedures for human survival and adaptation. Learning is a lifelong process that begins at birth and continues until death, providing individuals with knowledge, skills, and the ability to modify their attitudes. The acquisition of these skills is primarily accomplished through conventional and traditional learning methods. However, in a knowledge-based society, Information, Communication, and Technology (ICT) did not become an effective means of acquiring skills and competencies until the twenty-first century. Social media is one of the many components of ICT. These media, according to Wiekramanayake and Jika (2018), are the mainstay of collaborative online communication and instant interaction through established accounts and pages for sharing and acquiring information based on people's interests and agendas.

Social media are online tools that allow users to share information, opinions, knowledge, and interests with one another over the internet (Ford & Ravansar, 2017). Learning becomes more participative and lifelong as a result of the use of social media. Raja (2018) stated that social media is concerned with the sharing of communication and communicating with everyone at any time and from any location as internet-based tools. Forums, microblogging, social networking, social bookmarking, wikis, and podcasts are all examples. Facebook, Twitter, blogs, YouTube, Google Docs, Instagram, and Whatsapp are among the others. Looking at these instruments, it's possible to conclude that social media networks have triggered a massive shift in society's learning (Stieglitz & Dang-Xuan, 2013). As a result, according to Akakandelwa (2016), social media include a wide range of web-based and mobile services that allow users to engage in online exchanges, contribute to user-generated content, and join online communities.

Consequently, incorporating social media into adult learning will not only provide adults with opportunities to improve their skills, but will also expose them to the social dynamics and networks that encourage participation, conversion, and community in order to make better decisions (Dunu & Uzochukwu, 2015). They are a powerful platform, according to Islam and Habiba (2015), that can be used for collaborative learning, online social and professional connections, and online information dissemination and gathering. This is due to the fact that it allows users to create, contribute, interact, and cooperate online without requiring specialized programming knowledge. To summarize, social media is better equipped to enable an open-ended learning environment in which learners can engage in a variety of activities (European Commission, 2020). As a result, an open-ended learning environment is one that supports learners' spontaneous engagement in all learning activities. This form of learning acknowledges the importance of adult education in the learning process. Adult education, according to the United Nations Educational, Scientific, and Cultural Organization (UNESCO), consists of parts of lifelong education and learning with no theoretical boundaries aimed at meeting the specific situations created by the specific needs of development, participation in community life, and individual self-fulfillment. It addresses all people, regardless of their level of achievement, and covers all aspects of life and all branches of knowledge (UNESCO as cited in Mbalisi & Ugwu, 2019). It assumes that learners' demands are limitless and has no theoretical bounds. As a result, providing or creating a learning environment capable of embedding the appropriate information in learners becomes a priority. Learners will be involved in meaningful communicative practice, content sharing, collaboration, and a full-filling learning experience as a result of the integration of social media into adult education delivery (Mills, 2011). This is also true, as Raya (2018) correctly pointed out, because one of the advantages of social media is that it allows for the dissemination of information to a large audience, as opposed to traditional outlets such as print media. Furthermore, users of social media create, share, and exchange information and ideas in virtual communities, as well as interact with others who share a common interest, aspirations, and goals (Sharma & Shukla, 2016).

Social media can be grouped into six major categories based on the services it performs: sharing sites, blogs/microblogging, social bookmarking sites, virtual/online communities, social networking sites (SNS), and virtual worlds (Ngai, Moon, Lam, Chin & Tao, 2015). LeNoue, Hall, and Eighmy (2011) identified wikis (websites that allow collaborative content creation), internet forums (online discussion areas for people who share specific interests), blogs (online journals where the most recent entry appears first), and podcasts or pods (audio and video files that are available for download) as examples of social media used in adult learning (communities which allow people to create personal pages and connect with friends to share content). The authors came to the conclusion that social networking sites are more relevant in education than the other media. It encourages connection, communication, and teamwork. In reality, the use of social networking allows learners with very rudimentary computer skills to actively design their own learning process rather than passively consume knowledge.

Furthermore, it is thought that the variety of learning opportunities afforded by social media can aid in the improvement of various teaching approaches. As a result, according to Silvestru and Lupescu (2015), social media platforms can be utilized to enhance blended learning, distant learning, and stand-alone teaching approaches. Similarly, Adetayo (2021) found that using social media can significantly boost research output. Despite these benefits, there are some drawbacks to using social media in adult education. According to Sanusi, Adelabu, and Okanada (2014), some of the obstacles in the use of social media for learning in Nigeria include a lack of basic facilities, unpredictable power supply, a lack of access to gadgets, the expense of internet connection, and the structure of the education system. Weak ICT strategy, excessive or overdependence on foreign technologies, and deficiencies in ICT integration and implementation initiatives and policies are among the other issues (Etim, Tengeh & Iwu, 2018).

Although some scholars have reported that social media has been used to gain knowledge, skills, and competencies necessary for effective participation in society, others have reported that its various platforms have been used to gain knowledge, skills, and competencies required for effective participation in society (Dauda, Mohamad & Muda, 2016). Despite this, there appears to be a paucity of literature on the use of social media in adult education, with few empirical evidences. The paucity of literature in various media for adult education delivery, particularly in Enugu State Nigeria, necessitates an empirical inquiry. As a result, this research provides a basis on issues relating to the use of social media in adult education in Enugu State.

Purpose of the Study

The main purpose of this study was to examine issues relating to use of social media for adult education in Enugu State. Specifically, the study determined:

1. ways social media are being used in adult education in Enugu State;
2. challenges encountered in the use of social media in adult education in Enugu State

Research Questions

The following research questions guided the study

1. What are the different ways social media are being used in adult education in Enugu State?
2. What are the challenges encountered in the use of social media in adult education in Enugu State?

Methodology

Research Design: The study adopted the descriptive survey research design.

Area of the Study: The study was carried out in all distance learning centres in Enugu State.

Population: The population comprised 3,580 from all the eight functional distance education learning centres. These learners are made up of learners who are engaged in economic activities providing for their immediate families. They now decided to enroll into the programme to update their skills and competencies while still working. They are aged between 18 -45, and above.

Sample for the Study: A sample of 358 distance education learners which was 10 percent of the entire population. In five centres that had large population, 46 learners were drawn using the purposive sampling technique, while the remaining three centres with less population, 44 learners were chosen using simple random sampling technique by balloting.

Instrument for Data Collection: A structured questionnaire designed by the researchers was the instrument used for data collection. The questionnaire consisted of two sections; I and II. Section I provided personal information of the respondents while section II was made up of two clusters addressing to the two specific objectives. Responses to the items in the questionnaire were based on a four-point rating scale, ranging from strongly agree (SA) (4 points), agree (A) (3 points), disagree (D) (2 points), to strongly disagree (SD) (1 point). The instrument was duly validated by three experts, two from the Department of Adult Education and Extra-mural Studies, and one from the Department of Science Education, all from the University of Nigeria, Nsukka. The questionnaire was subjected to a reliability testing using the Cronbach Alpha which yielded a reliability coefficient value of 0.86.

***Data Collection*:** Direct method was used by the researchers with the assistant of one researcher in distributing 358 copies of the questionnaire. The research assistant was briefed on the modalities for distributing and collecting the questionnaire from the respondents on the spot. Out of the 358 copies administered, 332 copies representing 93 percent were retrieved and completely filled. While seven percent representing 26 were incorrectly filled as such discarded from the analysis. This ensured that the respondents appropriately completed the questionnaire. Thus, all questionnaire distributed were used for data analysis.

***Data Analysis Techniques*:** The data analysis employed in this study were both descriptive and inferential statistics. Descriptive statistics (mean and standard deviation) were used to answer the research questions. A mean of 2.50 was used as the benchmark for decision making for each item, since a four-point rating scale was used for the study. Thus, any item with a mean of 2.50 and above was considered as agree by the respondents, while any item with a mean below 2.50 was considered as disagree. Meanwhile, all computations were carried out using the Statistical Package for Social Science (SPSS) version 22.0.

Results

The results are presented on the Tables according to the three research questions that guided the study.

Ways Social Media are being used in Adult Education in Enugu State

Table 1: Mean Responses and Standard Deviation on Different Ways Social Media are Being Used In Adult Learning in Enugu State (N=332)

S/N	Ways social media are being used in adult education	$\bar{X}$	SD	Decision
1	Through M-learning (use of mobile devices in education), lessons are delivered in the centre	3.27	.48	Agree
2	Blended learning is used in adult education delivery	3.58	.57	Agree
3	e-learning is adopted in adult education delivery	3.26	.54	Agree
4	Stand-alone teaching is often used in teaching	3.61	.61	Agree

	Table 1 Contuned			
5	Life-centred learning is adopted in adult education delivery	1.83	.50	Disagree
6	Distance learning is mostly used in adult education delivery	3.61	.61	Agree
7	Twitting is used in lesson delivery	2.21	.81	Disagree
8	Facebooking is employed in adult delivery	3.17	.42	Agree
9	Chatting is usually used in lessons delivery	3.28	.53	Agree
10	Video conferencing is employed for teaching	3.01	.85	Agree
11	Whatsapping is adopted in lesson delivery	3.23	.47	Agree
12	Youtube is used for lesson delivery	3.37	.50	Agree
13	Microblogging is employed in adult education delivery	3.57	.60	Agree
14	Internet forums are used in lessons delivery	3.27	.48	Agree
15	Podcasting is employed in adult education delivery	2.12	.89	Disagree
	Cluster mean	**3.09**	**.59**	**Agree**

Note: $\bar{X}$ *= Mean, SD = Standard Deviation*

Table one show that items 1, 2, 3, 4, 6, 8, 9, 10, 11, 12, 13 and 14 were identified some of the ways social media are being used in adult education with mean scores above 2.50, while items 5, 7 and 15 had mean scores below 2.50, indicating that there were social media used for adult education. The cluster mean of 3.09 and standard deviation of 0.59 reveals that different social media are used in adult education in Enugu State.

Challenges Encountered in the Use of Social Media in Adult Education in Enugu State

Table 2: Mean Responses and Standard Deviation on Challenges Encountered in the Use of Social Media in Adult Learning in Enugu State (N=332)

S/N	Challenges	X$\bar{X}$	SD	Decision
1	Lack of smart phones and computers	3.27	.54	Agree
2	High cost of media materials	3.61	.61	Agree
3	Poor knowledge of facilitators in the use of media	3.16	.42	Agree
4	Unstable power supply	3.29	.53	Agree
5	Cost of internet connection	3.00	.86	Agree
6	Learner's lack of knowledge in the use of media	3.23	.46	Agree
7	Over dependence on foreign technologies	2.11	.88	Disagree
8	Lack of access to devices	3.23	.46	Agree
9	Poor integration of ICT in the educational structure	3.37	.50	Agree
10	Dearth of available media	2.11	.88	Disagree
11	Poor maintenance culture of media by administrators	3.57	.60	Agree
12	Illiteracy of facilitators in the use of ICT	3.27	.48	Agree
13	Resistance to change by learners	3.58	.56	Agree

Table 2 Contuned

14	Insecurity in learning environment	2.22	.81	Disagree
15	Poor leadership of organizers in administering ICT to learners in learning centres	1.83	.50	Disagree
16	Inadequate supply of media to centres	2.88	.67	Agree
17	Poor attitude of facilitators in the use of ICT	2.75	.64	Agree
18	Poor location of learning environment	2.34	.55	Disagree
	Cluster mean	**2.93**	**.61**	Agree

Note: $\bar{X}$ = Mean, SD = Standard Deviation

Table 2 shows that items 1-6, 8, 9, and 11-13, 16 and 17 with mean scores above 2.50 were challenges identified in the use of social media in adult education as against items 7, 10, 14 15 and 18 with mean scores below 2.50. The cluster mean of 2.93 and standard deviation 0.61 indicates that there were several challenges encountered in the use of social media in adult education in Enugu State.

Discussions

The findings found that there are different ways social media are being used in adult education in Enugu State. Respondents indicated that distance learning, stand alone teaching, blended learning and micro-blogging were conceived as some of the ways. These numerous approaches are indications that social media have gained preeminence over the convectional mode of learning. This development is not unconnected with the advances in mobile phones, and every form of online learning possible, thereby spreading to a large population. This finding agrees with Raya (2018), who affirmed that the use of social media allows for the dissemination of information to a large audience, as opposed to traditional outlets such as print media. The flexibility and diverse opportunities imbedded in social media has become a window of opportunities for instructors who wished to adopt different teaching methods to their students/learners. Hence, corroborating with the findings of Silvestru and Lupescu (2015) who revealed that social media platforms can be used to support blended teaching methods, distance education and stand-alone teaching methods, which are important for lifelong learning of adults. This goes to show that with the proper integration of social media in adult education delivery, it is likely that participation in teaching – learning will become participatory and motivating. This invariably may serve as a channel to encourage more participation in adult education delivery.

The study also found that several challenges were encountered in the use of social media in adult education. Prominent among these challenges were high cost of materials, resistance to change, poor maintenance culture and epileptic power supply. The high cost of the materials may not be surprising considering the fact that majority of the learners may be seen having low economic capability and, in the bid, to improving their status enrolled into distance education programme in order to improve themselves. This finding is further supported by Sanusi, Adelabu and Okunada (2014) who identified lack of basic amenities, unstable power supply, lack of access to devices, cost of internet connection and structure of education system as some of the challenges encountered in the use of social media in adult education. It is believed that for effective participation in learning activities in a technological age demands adequate provision of media aids in adult education delivery. This will help to cushion the withdrawal rate of learners and also encourage their participation in issues affecting them. The relevance of social media also necessitates the assertion by Dunu and Uzochukwu, (2015) that social media are social dynamics and networks that encourage participation, conversion, and community in order to make better decisions. Consequently, the need to ascertain the issues surrounding the use of social media in adult education in Enugu State.

Conclusion

The study concluded by affirming varieties of ways social media could be applied in adult education delivery in Enugu State. These ways are but not limited to the use of m-learning, distance learning, micro blogging, blended learning. Despite, these avenues of information dissemination, some challenges were found to inhibit the use of the social media in education. These challenges included high cost of materials, resistance to change by learners and epileptic power supply among others.

Recommendations

The following recommendations are made based on the findings of the study

1. Government should intensify effort in the provision of social media in adult education centres since the cost of procuring them are high.
2. Facilitators should be encouraged by the government on the need for professional development training especially in terms of keeping abreast with ICT.
3. Existing media in centres should be subjected to regular maintenance for longevity.

References

Adetayo, A. J. (2021). The nexus of social media use and research productivity of lecturers in private universities in Ogun State, Nigeria. *Learning Philosophy and Practice (e-journal).* 4964. Retrieved from https://digitalcommons.unl.ed/libphilprac/4964.

Akakandelwa, A. (2016). Libraries at the crossroads: Challenges of serving library users in a social media environment: Ethical considerations. In *Leadership and personnel management: Concepts, methodologies, tools and application* (pp.2009-2024). USA: IGI Global.

Dauda, A.S, Mohammad, B. & Muda, S. (2016). *New perspectives to political participation among youth.: The impact of facebook usage.* Paper presented at the international soft science conference held at Langkawi Island, Kedah, Malaysia, 11-13th April.

Dunu, I.V. & Uzochukwu, C.E. (2015). Social media: An effective tool for social mobilization in Nigeria. *IOSR Journal of Humanities and Social Science,* 20(4), 10-21.

Etim, E.S., Tengeh, R.K. & Iwu, C.G. (2018). Integration of information and communication technology into women entrepreneurship in Uyo, Nigeria. *Journal of Economics and Behavioural Studies,* 10(4), 118-134.

European Commission (2020). *Mobile learning and social media in adult learning.* Retrieved from http://eur-lex.european.

Ford, R. & Ravansar, H. (2017). *CPD 12 impact skills social media for academic: Research dissemination.* Retrieved from http:// www. Staffnet.manchester.ac.uk.

Islam, M.M. & Habiba, U. (2015). Use of social media in marketing of library and information services in Bangladesh. *DESIDOC Journal of Library & Information Technology,* 35(4), 299-303.

LeNoue, Hall & Eighmy (2011). Adult education and the social media revolution. *Adult Learning, 22,* 4-12.

Mbalisi, O. F. & Ugwu, A. N. (2019). Adult education. Scope and programmes. In A. N. Ugwu & O. F. Mbalisi (Eds.). *Contemporary issues in adult education: An African perspective* (pp. 1-25). Port Harcourt: Pearl Publishers International Ltd.

Mills, N. (2011). Situated learning through social networking communities: The development of joint enterprise, mutual engagement and a shared repertoire. *CALICO Journal,* 2(8), 345-368.

Ngai, F.W., Moon, K.L.K, Lam, S.S, Chin, E.S., & Tao, S.S. (2015). Social media models, technologies and applications. *Industrial Management & Data Systems.*

Raya, T. (2018). Social media on education. Retrieved from https://www.researchgate.net/ publciation/322636174.

Sanusi, B.O., Adelabu, O. & Okunade, J.K. (2014). Adapting social media for formal learning in Nigeria: Challenges and Prospects. *Arabian Journal of Business and Management Review (OMAN Chapter),* 3(9), 22-30.

Sharma, A. & Shukla, A.K. (2016). Impact of social messengers especially whatsapp on youth. A sociological study. *International Journal of Advance Research and Innovative Ideas in Education,* 2(5), 367-375.

Silvestru, C.L & Lupescu, M. (2015). Using social media in lifelong learning. *Some Studies of Economics Changes*, 55-62

Stieglitz, S. & Dang-Xuan, L. (2013). Social media and political communication: A social media analysis framework. *Social Network Analysis and Mining,* 3(4), 1277-1291.

Wickramanayake, L. & Jika, S.M. (2018). Social media use by undergraduate students of education in Nigeria. *A survey. The Electronic Library, 36(1), 21-37.*

HER Vol. 28 No. 2, December 2021, pp.132-141

Coping Strategies Adopted By Female-Headed Households in Combating Food Insecurity during Corona Virus-19 (COVID-19) Lockdown in Rural Areas in Anambra State

Okoli, T. O.
Federal College of Education (Technical),
Umunze, Anambra State

Abstract

The study focused on coping strategies adopted by female-headed households for combating food insecurity during COVID-19 in the rural areas of Anambra State, Nigeria. Specifically, the study determined coping strategies adopted by female-headed household in combating food unavailability, inaccessibility and challenges of food utilization during COVID-19 in the rural areas. Three research questions guided the study. Population of the study comprised of all the female-headed households in all the four agricultural zones of Anambra state. Multi-stage sampling method was used in selecting 192 female-headed households. Questionnaire was used for data collection. Data were analyzed using mean and standard deviation. Results of the study are 13 coping strategies for combating food unavailability. These include facilitating food system innovations ($\overline{X}$ = 3.55), preserving food stuff using containers ($\overline{X}$ = 2.91), engaging in crop production ($\overline{X}$ = 2.88) and others. There are also six coping strategies for combating food inaccessibility, including storing available food within the houswhold ($\overline{X}$ = 2.82), among others. Other findings are coping strategies for challenges of food utilization. These include, use of improved food preparation methods ($\overline{X}$ = 3.33), consuming more fruits and vegetables found within the home environment ($\overline{X}$ = 3.88), storing of food at home ($\overline{X}$ = 3.28), reduction in food wastage ($\overline{X}$ = 3.66), consumption of low quality food substitutes ($\overline{X}$ = 3.11) and others. The study recommends, among others, that government should give palliatives to women; women should diversify family diets, and women hould source fund for food outside the family.

Key Words: Food, Insecurity, Coping, Strategies, Female-headed, Households, COVID-19

Introduction

Women play a key role in supporting their households and communities in achieving food security, generating income and improving livelihoods and overall well being. According to Nnadi (2010), women provide food and are critical change agents assuming the primary responsibility for children's health and nutrition. Okoli (2010) opined that rural and urban women contribute to household and food security by the time-consuming activities they perform in food processing. Food processing not only contributes to food security by reducing food losses; it also permits greater diet diversity throughout the year.

Food security is the access by all people at all times to enough food all the year round for an active healthy life (Shively et al, 2011). According to Food Crisis Prevention Method (2016), food security exists when all people at all times have physical and economic access to sufficient, safe and nutritious food that meets dietary needs and food preferences for an active and healthy life. World Bank (2011) reported that food security dimensions include availability, which is the availability of sufficient quantities of appropriate quality; access, which is access by individuals to adequate resources for acquiring appropriate foods for a nutritious diet on a regular basis; and utilization of food through adequate diet, clean water, sanitation and healthcare to reach a nutritional well-being where all physiological needs are met. These dimensions include availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports, access by households and individuals to adequate resources to acquire appropriate foods for a nutritious diet and utilization of food.

On the other hand food insecurity is a situation when a household is unable to provide adequate food for its members on a sustainable basis either due to inability to produce its own food or through purchases. Davis (2009) stated that food insecurity implies indeterminate contact with adequate food required for metabolic processes, active and healthy growth of man.

Available reports indicate that female-headed households in most rural areas of the developing countries are mostly prone to food insecurity (Gupta, 2013). A female-headed household occur when a female provides for the up-keep of the household even when the male is available. Dauda (2014) reported that female- headed household is occasioned by the absence of the male-head throughout the year or for a longer period of time. Where this occurs, the woman becomes the main decision maker and economic breadwinner of the household.

Food insecurity results from various factors, some of them are generic such as poor governance and lack of institutional support. Other factors relate to the different elements of food security such as unavailability of food or low production because of drought, flood, post-harvest losses, high poverty level, poor utilization of food because of poor health, poor usage, disaster, low level of nutrition education, diseases such as AIDS, influenza, corona virus (COVID-19) etc. Presently, COVID-19 has become a global pandemic.

Nigeria was affected by the COVID-19 pandemic. Following the exponential increase in the spread of the dreaded COVID-19, the Federal Republic of Nigeria government proclaimed a total lockdown and this was a move to prevent further spread of the virus as well as for the government to trace and isolate persons who might have come in contact with the confirmed cases. This lockdown affected the movement of people, food and other commodities. Borders were closed and those areas that are noted for food production do not have means to bring their agricultural produce to the market. Markets were even closed. Often in times of food shortage, the price of food rises and rising food prices in turn leads to decreased access to food by the poor. As a result of COVID-19, households in Nigeria have been experiencing household food insecurity problem. Demand for food spurred by both population growth and lockdown has begun to outrun food production and distribution capacity. This results in declining food reverses, skyrocketing food prices, placing special burden on the poor hence hunger has remained the lot of a large segment of the people. Household food insecurity in the era of COVID-19 is one of the most serious challenges of the Nigerian women in both urban and rural areas. The rural households face crucial challenges.

In rural areas, population density is very low. The household pattern is community extended family. A female-headed household occur when a female provides for the up-keep of the household even when the male is available. Dauda (2014) observed that female-headed household is occasioned by the absence of the male-head throughout the year or for a long period of time.

It has been documented that female-headed households in most rural areas of the developing countries including Nigeria are prone to food insecurity (Buvinic and Gupta, 2013). The females face enormous challenges and require to adopt coping mechanisms, so as to meet the nutritional needs of their households. Dixnet (2011) opined that food related coping mechanisms adopted by female-headed households in rural areas during crisis include: cooking whatever food is available at home, borrowing money to buy food, and sale of assets.

Rural areas in Anambra state is richly endowed with abundant human and material resources. The area is characterized by high level of poverty, endemically low productivity, smallness of cultivable land owned by a farmer, technical inefficiency of agriculture due to poor production methods, low per capital income of average rural dweller. Rural areas are also noted for comparatively low level of living.

Female-headed have the problems of poor access to productive inputs, assets and services. Many of them have household size range of 7 to 12 persons, have farming experiences, majority of the female-headed households had no access to extension service, literacy level of the majority of them is low and the majority were not members of organization. This implies that they cannot pull resources together to enjoy advantages of large scale production including having access to agricultural training and other production input. All these characteristics of the female-headed households must have contributed to the food insecurity situation in terms of food unavailability, challenges of food utilization and food accessibility.

In the era of COVID-19, many of the rural female-headed were faced with the problems of food insecurity. These women need coping strategies to help them cushion the effects of food insecurity. Coping strategies refers to the ways of dealing successfully with food insecurity.

Purpose of the Study

The main purpose of the study was to find out the coping strategies adopted by female headed households in combating food insecurity during COVID-19 lockdown in rural areas in Anambra state. Specifically, the study determined coping strategies adopted by the female-headed households during the COVID-19 era in combating challenges of:

1. food unavailability.
2. food inaccessibility.
3. food utilization.

Research Questions

The following research questions guides the study:

What are the coping strategies adopted by female-headed households during the COVID-19 era in combating challenges of:

1. food unavailability?
2. food inaccessibility?
3. food utilization?

Methodology

Design of the Study: Descriptive survey design was adopted for the study.

Study Area: The study area was rural areas in Anambra state. The state is situated in the South East geopolitical zone of Nigeria and comprises of 21 local government areas. The area is characterized by the smallness of cultivable land owned by a farmer. Social infrastructure including educational facilities, health facilities, water supply, electricity are poor relative to the level. The urban sector physical facilities including transportation facilities, storage facilities, processing facilities and irrigation facilities are generally poor. Institutional infrastructures including rural credit and financial institutions, farmers' union, agricultural extension services are either weak or ineffective. All these affect food security directly or indirectly.

Population for the Study: The population of the study comprises of all the female- headed households in the four Agricultural zones of Anambra state. The estimated number of these female-headed households are 3,020. Female-headed households are the main decision maker and economic bread winner of the household. Female-headed household is faced with all forms of discriminations to poor access to productive inputs and assets. These groups are engaged in farming and other income generating activities in the study area.

Sample for the Study: Multi-stage sampling was used in selecting respondents for the study. First, two zones were purposively selected from the four Agricultural zones of the state. The selected zones were Aguata and Anambra. In the second stage, four local government areas (LGAs) were selected from each of the two zones. This gave eight LGAs. Thirdly six communities were selected from each of the sampled local government areas. The total number of communities selected for the study were 48. Fourthly, six villages were selected from each of these communities. This gave a total of 96 villages. Finally, two female-headed households were purposively selected from each of the 96 villages. This brought forth a total sample of 192 female-headed households.

Instrument for Data Collection: A 31-item questionnaire was used for data collection. It was developed based on literature review and the purposes of the study. It had a four point scale of Strongly Agree (4), Agree (3), Disagree (2) and Strongly Disagree (1). The instrument was validated by three experts, in Agricultural Education, and two in Home Economics from Colleges of Education. The recommendations of the validates were used to improve the instrument. The reliability of the instrument was determined by administering the instrument to ten (10) female-heads of households outside the study area and who did not constitute the actual subjects for the study. Data collected was analyzed using Cronbach Alpha which yielded reliability co-efficient of 0.79.

Data Collection Method: A total of 192 copies of questionnaire were administered to the respondents by hand. Most of the respondents were illiterates, therefore the questionnaire was used as interview schedule for them. Questionnaire items were explained to them. All 192 copies of the questionnaire administered to the respondents were collected back. This represent 100 percent return rate.

Method of Data Analysis: Data collected from the study were analyzed using mean scores and standard deviations. A cut-off point of 2.50 was adopted for decision making. Items with mean ratings of 2.50 and above were regarded as "Agreed" while those below 2.50 were regarded as "Disagreed".

Results

The results of the study were presented in Tables 1, 2 and 3, as follows:

Table I: Mean Responses of Female-headed Households on Coping Strategies Adopted during COVID-19 Lockdown for Combating Food Unavailability

S/N	Coping Strategies for Combating Food Unavailability	$\overline{X}$	D	Decision
1.	Receiving food from members of extend family members	.99	0.71	Agreed
2	Facilitating food system innovations.	3.55	0.75	Agreed
3	Preserving food stuff using air-tight containers.	2.91	0.46	Agreed
4.	Engaging in crop production.	2.88	0.58	Agreed
5.	Using whatever food that was in season.	3.11	0.39	Agreed
6.	Sale of house properties to buy food.	2.68	0.99	Agreed
7.	Home gardening to improve food supply.	2.77	0.82	Agreed
8.	Skipping meals/reducing number of meals eaten each day in the home.	3.01	0.88	Agreed
9.	Adopting effective farming techniques to raise quality and quantity of products.	3.57	0.56	Agreed
10.	Improved harvesting techniques to prevent food spoilage.	3.51	0.78	Agreed
11.	Engaging in crop diversification.	3.51	0.55	Agreed
12	Borrowing money to buy food.	3.16	0.63	Agreed
13	Collecting food from neighbours.	3.77	0.49	Agreed

$\overline{X}$ = Mean, SD = Standard Deviation, N = 192

Table 1 shows that all the items had mean reponses above the cut-off point of 2.50. This implies that they were all agreed upon by the respondents. The respondents agreed that the items such as, facilitating food system innovations ($\bar{X}$ = 3.55), preserving food using air-tight containers ($\bar{X}$ = 2.91), engaging in crop production ($\bar{X}$ = 2.88), using whatever food that was available ($\bar{X}$= 3.11), sales of house properties ($\bar{X}$ = 2.68), home gardening ($\bar{X}$ = 2.72) etc, were the coping strategies adopted by female-headed households for combating food unavailability during the COVID-19 Lockdown in the area of the study.

Table 2: Mean Responses of Female-Heads Households on Coping Strategies Adopted during COVID-19 Era for Combating Food Unaccessibility.

S/N	Coping Strategies for Combating Food Unaccessibility	$\overline{X}$	SD	Decision
1.	Storing available within the household.	.82	.81	Agreed
2.	Using foods that were in season.	.25	.50	Agreed
3.	Preserving food using traditional methods.	.01	.43	Agreed
4.	Improving post harvest food handling.	.33	.53	Agreed
5.	Consumption of fewer food items each day.	.09	.49	Agreed
6.	Reducing consumption of food for adults family members.	.88	0.61	Agreed

$\overline{X}$ = Mean, SD = Standard Deviation, N = 192

Table 2 shows that the respondents agreed that all the items; including storing food within the household ($\bar{X}$ = 2.82), preserving food using traditional methods ($\bar{X}$ = 3.01), improving post harvest handling ($\bar{X}$ = 3.33), reducing food consumption by adults members of the households ($\bar{X}$ = 2.88) are among the coping strategies adopted by female-headed households in coping with food inaccessibility. These imply that all those items had mean responses above the cut-off point of 2.50 and were all "agreed" upon by the respondents.

Table 3: Mean Responses of Female-headed Households on Coping Strategies Adopted during COVID-19 Lockdown for Combating Challenges of Food Utilization.

S/N	Coping Strategies for Challenges of Food Utilization	$\bar{X}$	SD	Decision
1	Increased dietary diversity.	3.66	0.61	Agreed
2	Using of improved food preparation methods.	3.33	0.79	Agreed
3	Use of available complements to enrich available food items.	3.81	0.92	Agreed
4	Storing of food at home.	3.28	0.90	Agreed
5	Improved meal management practices.	3.39	0.48	Agreed
6	Consuming more fruits and vegetables found within the home enviroment	3.88	0.45	Agreed
7	Decrease frequency of meal preparation and consumption.	3.51	0.63	Agreed
8	Proper packaging of food.	3.02	0.66	Agreed
9	Consumption of low quality food substitutes.	3.11	0.51	Agreed
10	Reduction in food wastage.	3.66	0.71	Agreed
11	Consumption and sharing resources with other households.	3.92	0.59	Agreed

$\bar{X}$ = *Mean,* *SD = Standard Deviation,* *N = 192*

Table 3 reveals that all the items had mean responses above the cut-off point of 2.50. This shows that the respondents agreed that all the strategies in Table 3 were adopted by female- headed households in coping with challenges of food utilization during the COVID-19 Lockdown. These include, increased dietary diversity ($\bar{X}$ = 3.66), use of improved food preparation method ($\bar{X}$ = 3.33), use of available complements to enrich food items ($\bar{X}$ = 3.81), and the others.

Discussion of Findings

Results of research question 1 revealed that the coping strategies adopted by female-headed households in combating food unavailability during COVID-19 lockdown include facilitating food system innovations ($\bar{X}$ = 3.55), preserving food stuff using air-tight containers ($\bar{X}$ = 2.91), engaging in crop production ($\bar{X}$ = 2.88), using whatever food that was in season ($\bar{X}$ = 3.11), sale of household properties to buy food ($\bar{X}$ = 2.68) , home gardening to improve food supply ($\bar{X}$ = 2.77), adopting effective farming techniques ($\bar{X}$ = 3.57), improved harvesting techniques to prevent food spoilage ($\bar{X}$ = 3.51), engaging in crop diversification ($\bar{X}$= 3.51) and borrowing money to buy food ($\bar{X}$ = 3.16). These findings are consistent with the work of Fanzo (2015) who stated that food availability is increased by crop diversification, home gardening system and use of effective farming techniques. Also Thompson (2015) opined that food could be made available at household level through re-engaging in crop production and also engaging in home gardening. Furthermore, the findins of this present study are consistent with those of Webb (2019) who reported that female-headed household can combat food unavailability through cooking whatever food that is available and also can source help from the neighbours.

Research question 2 was dealt with the coping strategies adopted by female-headed households in coping with the challenges of food inaccessibility during COVID-19 lockdown. Results are in Table 2, revealing such strategies as storing available food within the household ($\bar{X}$= 2.82), using foods that were in season ($\bar{X}$ = 3.25), preserving food using traditional methods ($\bar{X}$ = 3.01), improved post harvest food handling ($\bar{X}$ = 3.33), consumpting of fewer food items each day ($\bar{X}$ = 3.09), reducting consumption of food for adults family member ($\bar{X}$ = 2.88). These findings were in line with those of Franzo (2015) who reported that food accessibility could be enhanced through tracking of seasonal food. Davis (2009) also stated that food accessibility could be enhanced during lean period through improved post harvesting handling. Also Dixconet (2011) stated that household combats the challenges of food inaccessibility by allowing the adults to consume limited food.

Research question 3 focused on the coping strategies adopted by female-headed households during COVID-19 lockdown for combating challenges of food utilization. Results of Table 3 revealed that the following strategies were adopted: increased dietary diversity ($\bar{X}$ = 3.66), use of improved food preparation methods ($\bar{X}$ = 3.33), use of available complements to enrich available food items ($\bar{X}$ = 3.81), storing of food at home ($\bar{X}$ = 3.28), reduction in food wastage ($\bar{X}$ = 3.66), etc. These findings are consistent with findings of Gupta (2013) that food utilization could be increased through increased dietary diversity. Also World Health Organization (2009) opined that use se of available complements to enrich available food items could help in food utilization among rural households. Dauda (2014) noted that food utilization could food be encouraged through use of improved food preparation methods and use of available complements to enrich available food items. He also reported that food utilization especially in rural areas can be improved through reduction of food waste and proper packaging of food. The findings also support the work of Webb (2019) who stated that female-headed households should be encouraged to reduce improper food utilization by good food preparation and proper storage of foods.

Conclusion

The study has explored the various coping strategies adopted by female-headed households during the COVID-19 lockdown in coping with the challenges of food unavailability, inaccessibility and challenges of food utilization in the rural areas. Adequate attention should be given to women in form of access to productive inputs, assets and services, since they are mainly responsible for food preparation and processing. Furthermore, policies aimed at improving female-headed household access to education should be enhanced because, this will help them in coping with food insecurity. It becomes necessary that there is the need to foster better use of food grown and purchased at the household level through preservation, cooking, storing and processing.

Recommendations

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

(1) Government should give palliatives to women through their women leaders during the outbreak of diseases.

(2) Women should diversify their diets to ensure a healthy diet that contains a balanced and adequate combination of macronutrients and essential micronutrients.

(3) Female-headed households should source for fund outside to cater for their household food.

(4) Female-headed households with large household size should be encouraged to be actively involved in agriculture.

(5) Female-headed household should have access to education to enable them cope with their families.

(6) Female-headed households who are into farming should form co-operative societies in order to help them obtain assistance from government.

References

Buvinic, M. and Gupta, G.R. (2013) Female headed households and female-maintained families: Are they worth targeting to reduce poverty in developing countries? Economic development and well being in North India, DEP, No.40, STICARD, London School of Economics.

Dauda, S.O.R. (2014) Women status household food security and copying strategies in Nigeria. *Pakistan Journal of Social Sciences 7(3), 262-268.*

Davis, S. (2009). *Adaptable livelihoods coping with food insecurity in the Malian Sahel*, London: Macmillian press.

Dixconet, A.O. (2011). *Food related coping mechanism*. London: Macmillian Press

Eze, P.N. (2002) Achieving food security, national integration

Franzo, J. (2015). *Integrating nutrition into rural advisory services and extension. GFRAS*: Lindua, Switzerland.

Gupta, I.S. (2013) *Coping with food insecurity. London*: Macmillan Press

Food crises Prevention method (2016). Food and Nutrition Insecurity in North East Nigeria. 32nd Annual meeting, Abuja, 12th Dec.

Nnadi, P.C. (2010) Combating food insecurity among rural community. *Journal of Education 1(2), 220-240*

Okoli, T.O. (2010) Strategies for improving the role of women farmers in ensuring sustainable food security. *Journal of Teacher Perspective 4(2), 230-235*

Onyebueke, D.O. (2005) Food security and population explosion. *Nigerian Journal of Teacher Education and Teaching 1(1), 71-75*

Shapouri, S. (2010) Food security and the roles of food. United States Department.

Shively, S., Gars, S. and Sumunthasuk C. (2011) A review of food security and human nutrition issues in Nepal Purdue University, West Lafayette.

Thompson, B. (2015) Micronutrient deficiency. *Global Food Security 12(7), 10-16.*

Webb, C. (2019) Measuring Household Food Insecurity – *Journal of Nutrition 2(1) 616 - 711)*

Winkleby, M.A. and Radiner, K.C. (2011) Dietary intakes and serum nutrients differ between adults from food insufficient and food sufficient families. Third National Health and Nutrition Examination Survey, 1988-1994. *Journal of Nutrition 20(1), 131-133.*

World Bank (2013) Nutrition research: pursuing sustainable solutions. http://relief web.int/sites/reliefweb.int/filusresour ces/fulreport 154 pdf.

World Bank (2011). Food Security and Conflict. Agricultural and rural development department, World Bank, October 22, Background paper.

World Health Organization (WHO) 2009 Global prevalence of vitamin A deficiency in population at Risk www.who.int/wmmis/vitamin/en

Issues Relating to Adolescents' Perception of Family Relationship in Nsukka Urban, Enugu State

Okechukwu, F. O.; Nnodim, E. J. ; Nnubia, U. I., Ezeonyeche, C. L.; Owoh, N. P.; Ikechukwu, C.
Department of Home Science and Management,
University of Nigeria, Nsukka

Abstract

This study focused on issues relating to adolescents' perception of family relationship in Nsukka Urban. Specifically, it determined indicators of adolescents' perception of family relationship; association between adolescents' relationship and their socio-demographic characteristics; factors influencing the relationship. Cross sectional survey design was adopted. Family relationship scale and a structured scale were used to collect data. Population was made up of secondary school students between 16 – 19years in Nsukka Urban. Data were analyzed using means, standard deviation and t-test at $p<0.05$ level of significance. Result shows that respondents had strong adolescent/parent relationship with more family expressiveness than cohesion and conflict. Male respondents had more family cohesion and more expressiveness than the females but experienced more family conflict. Chaotic family environment, amongst other factors, influence adolescents' family relationship. Age of the adolescents was related to their family cohesion and expressiveness. There is strong adolescent/parent relationship in the study area. Expressive aspect of family relationship is experienced more by adolescents compared to cohesion and conflict. Age is associated with family relationship. It was recommended that tips on adolescents/parents relationship be included in the curriculum at secondary school to enable the adolescents understand how they can improve their relationship with their parents thereby contributing to the overall positive home environment.

Keywords: Cohesion, Expressiveness, Conflict, Family, Relationship, Perception, Adolescents

Introduction

The family is the hub of the society and a primary socializing agent whose indispensable role cannot be ruled out in the development of any nation. Pearson (2011) defined the family as a relational transactional group. That implies that not only is a family made up of the individual members, it is largely defined by the relationships between the members which could be husband/wife, parent/child, or sibling/sibling relationship. Family members are linked in important ways through each stage of life, and these relationships are an important source of social connection and social influence for individuals throughout their lives (Umberson, Crosnoe, & Reczek, 2010). Relationships within the family are important for the development of children's well-being, as well as for their overall satisfaction. Family connections can provide a greater sense of meaning and purpose as well as social and tangible resources that benefit well-being (Hartwell & Benson, 2007). Family members may also regulate each other's behaviors (i.e., social control) and provide information and encouragement to behave in healthier ways (Reczek, Thomeer, Lodge, Umberson, & Underhill, 2014).

American Association of Psychologists (2018) defined family relationship as the enduring bond between a caregiver and his child. It may also be defined as any combination of filial or conjugal relationship that indirectly or directly unite people. It encompasses cohesion, expressiveness and conflict. Family cohesion and conflict are widely acknowledged as predictors of child and adolescent adjustment and wellbeing, with low cohesion and high conflict often indicative of higher distress levels, poorer parent-child relationship quality, and increased rates of youth internalizing and externalizing problems (Bradford, Vaughn, & Barber, 2008). According to Kliewer et al., (2006), family cohesion exists when all family members take pleasure in the activity they are doing and are always concerned about each other. Cohesion in a family is essential in assisting children's development and performance (Arshat, Chai Yoke, Ng, & Pai, 2016). Family relationship greatly affects an adolescent life (Farahati, 2011). This is because their mental health is influenced substantially by the family context and interactions among and between family members (Letourneau et al., 2013). Studies have shown that favorable family relationships in childhood were connected with better social relations in adulthood, in terms of more satisfaction with partner relationships, stronger family relations, and a lower risk of experiencing loneliness (Merz & Jak, 2013). This shows the indispensable role of family relationship during adolescence.

According to Crone, Van Duijvenvoorde & Peper (2016), adolescence is a period of rapid biological, neurological and cognitive changes and in which psychosocial functioning and relationships may be influenced.There is also a significant change in interpersonal relationships, particularly with parents and peers. Adolescence is a difficult and challenging period for adolescents and their family members. Mood swings and emotional turmoil can be frequently observed during this stage. Some studies (De Goede, Branje & Meeus, 2009) have shown that adolescents report less parental support in early to middle adolescence, and perception of parents as less powerful and controlling over the course of the period. This may contribute to mood swings which may give rise to many psycho-somatic problems such as anxiety, tensions, frustrations, and emotional upsets in day to day life. During adolescence these biological and psychosocial changes, might have a significant impact on the parent-adolescent relationship. According to Rogers, Padilla-Walker and McLean (2020) adolescents spend more time with friends than with parents, and the parent-child relationship experiences tension around adolescents' emerging independence.

Adolescents thrive more when there is healthy relationship between parents, and when there's respectful communication and great love (Fahey, Keithy & Polek, 2012).According to Bhatti (2011), the role of the family is the first and foremost influence over a child's development, including his or her personality. In most developing countries, there is an increase in crime rate as a result of poor family structure which leads to poor relationships in the family (Sandstrom & Huerta, 2013). That suggests that there have been considerable changes in the roles and functions of family, which is seen to have become more flexible in her roles and functions. For instance, a report by National Population Commission (NPC) (2014) a high proportion of these adolescents might have experienced adversities while growing up. Adolescence seen as a period for identity formation and role of families tends to depreciate as younger people discover themselves at this point. Although the nature of adolescents' family relationship is changing, the continuity of family connections is crucial for the positive development of young people. In the area of this study as in other parts of Nigeria adolescents often exhibit behaviour patterns and challenges that could impact on family relationships and their wellbeing. This scenario could some time be triggered by poor parental involvement and peer pressure. Most families also neglect their caretaking role as well as transfer the breadwinning role to their adolescents who are not yet capable to take such responsibilities. There is therefore need to assess the adolescents' perceived family relationship issues in such families. More so, there is dearth of information on factors that influence adolescents' perceived family relationship. Therefore, this study is pertinent.

Objectives of the Study

The general objective of this study was to assess issues relating to adolescents' perception of family relationship in Nsukka Urban. Specifically, the study determined:

1. indicators of adolescents' perception of family relationship in Nsukka Urban.
2. association between indicators of adolescents' perception of family relationship and their socio-demographic characteristics.
3. factors influencing adolescents' family relationship in the study area.

Hypotheses of the study:

Two null hypotheses guided the study:

HO$_1$: There is no significant difference in the mean responses on indicators of adolescents' perception of family relationship based on gender.

HO$_2$: There is no significant difference in the mean responses on indicators of adolescents' perception of family relationship based on type of school.

Methodology

***Design of the Study*:** This study adopted a cross sectional survey research design.

***Area of the Study*:** The area of the study was Nsukka Urban. Nsukka is one of the Local Government Area (LGA) in Enugu State which lies on the North-West boarder of Enugu State and has a land mass of about 81 and 125km^2. Nsukka is the site of the University of Nigeria (1960), the first university established in Nigeria after independence. It is also the site of a teacher-training college and has a population of 309,633. It has both registered private and public secondary and primary schools. It has 30 registered secondary schools both mixed and only boys/girls school.

***Population for the Study*:** The population comprised of 8,722 male and female adolescent students (16-19 years) in the thirty (30) registered private and public senior secondary schools (SS3) in Nsukka Urban source of information was Post Primary School Management Board (2019).

***Sample for the study*:** Multistage sampling technique was employed in selecting the respondents. Out of the 30 secondary schools in Nsukka urban, nine schools (30%) were selected using simple random sampling without replacement. From the selected schools, simple random sampling was used in selecting 30% of adolescents aged 16-19 years from each school (both male and female). This gave a total of 321 students who served as sample for the study.

***Instrument for Data Collection*:** Two instruments were used for data collection. The first was the Family Relationship subscale of Family Environment Scale-Real Form(FES-Form R; Moos & Moos, 2002). This is a 14 item-instrument used to assess the relationship existing in the families of these adolescents. It has three sections: Cohesion (degrees of commitment, help, and support" provided by family members for one another), Expressiveness (degree to which family members are encouraged to express their feelings directly), and Conflict (degree to which family members openly express feelings of anger or hostility, specifically). The items were measured on a 3-point Likert scale which ranged from "0" not at all to "2" a lot. Scores that ranged from 14-29 were classified as low cohesion and expressiveness while scores of 30-42 were classified as high cohesion and expressiveness. Meanwhile, scores that ranged from 6-11 were classified as low conflict and scores which ranged from 12-18 were classified as high conflict. The other instrument was a structured scale which assessed factors that influence adolescent/parent relationship. This was developed after extensive literature review. It was scored on a 4-piont scale which ranged from "1" strongly disagree to "4" strongly disagree. Cronbach's alpha reliability test of the instruments yielded scores of 0.94 (family relationship scale) and 0.89 (scale of associated family relationship factors) were obtained. The decision rule was placed at mean greater than 3.00 to mean agreed.

***Data Collection Methods*:** A total of 321 copies of the questionnaire were distributed to respondents. They were given orientation on how to complete the instrument. They responded to the instrument immediately and all the 321 were retrieved. This represents a 100 percent return.

***Data Analysis Techniques*:** Data were analyzed using means and standard deviation. The hypotheses were tested using t-test and Chi square to determine the relationships between socio-demographic characteristics and family relationship at $p<0.01$ level of significance.

Results

Socio-demographic characteristics of the respondents: Data on the socio-demographic characteristics of the respondents show that the male students were 44.5% while females were 55.5%. Most of them (36.8%) are within 17 years of age while few (11.5%) are 19 years old. A good number of them (49.5%) came from homes were both parents are married. Respondents who had stressful live events were 43.9% and others who have not had any stressful live events were 56.1%. Also, 34.5% of the respondents came from private school while 65.7% attended public school.

Table 1: Frequency and Percentage Responses on Indicators of Adolescents' Perception of Family Relationship

S/N	Indicators of Adolescents' Perception of Family Relationship	Not at all F(%)	Somewhat F(%)	A lot F(%)	$\overline{X}$	SD
	Cohesion					
1	In our family we really help and support each other.	54(17)	101(32)	166(52)	2.35	.75
2	In our family we spend a lot of time doing things together at home.	55(17)	101(32)	165(51)	2.34	.75
3	In our family there is a feeling of togetherness.	48(15)	94(29)	179(56)	2.41	.74
4	My family members really support each other.	54(17)	95(30)	172(54)	2.37	.76
5	I am proud to be a part of our family.	24(8)	69(22)	228(71)	2.64	.62
	Expressiveness					
6	In our family we can talk openly in our home.	44(14)	88(27)	189(59)	2.45	.72
7	In our family we sometimes tell each other about our personal problems.	45(14)	96(30)	180(56)	2.42	.73
8	In our family we begin discussions	45(14)	94(29)	182(57)	2.43	.73

	easily.					
	Table 1 Contuned					
	Conflict					
9	In our family we argue a lot.	43(13)	115(36)	163(51)	1.63	.71
10	In our family we are really mad at each other a lot.	130(41)	141(44)	50(16)	2.25	.71
11	In our family we lose our tempers a lot.	137(43)	130(41)	54(17)	2.26	.73
12	In our family we often put down each other.	133(41)	132(41)	56(17)	2.24	.73
13	My family members sometimes are violent.	126(39)	131(41)	64(20)	2.19	.75
14	In our family we raise our voice when we are mad.	123(38)	133(41)	63(20)	2.19	.74

Table 1 shows the frequency and percentage responses on adolescents' perception on indicators of family relationship. From the table, majority (70%) of the respondents are very proud to be part of their families. Most (56%) of the respondents also experienced feeling of togetherness. A good number (59%) of the respondents can also express themselves openly in their homes. Forty three percent do not experience temper outburst while only a few (20%) have families who are sometimes violent.

Table 2: Relationship between Indicators of Perceived Adolescents' Family Relationship and Socio-Demographic Characteristics of Respondents

Variables	Low Cohesion F (%)	High Cohesion F (%)	Low Expressiveness F (%)	High Expressiveness F (%)	Low Conflict F (%)	High Conflict F (%)
Gender						
Male	42 (29.4)	101 (10.1)	25 (17.5)	118 (82.5)	69 (48.3)	74 (51.7)
Female	39 (21.9)	139 (78.1)	24 (13.5)	154 (86.5)	100 (56.8)	76 (43.2)
	χ^2 = 2.34, df = 1, p= 0.13		**χ^2 = 0.98, df = 1, p= 0.32**		**χ^2 = 2.23, df = 1, p= 0.13**	
Age						
16 years	24 (28.2)	61 (71.8)	14 (16.5)	71 (83.5)	44 (51.8)	41 (48.2)
17 years	18 (15.3)	100 (84.7)	8 (6.8)	110 (93.2)	68 (57.6)	50 (42.4)
18 years	28 (34.6)	53 (64.5)	20 (24.7)	61 (75.3)	43(54.4)	36 (45.6)
19 years	11 (29.7)	26 (70.3)	7 (18.9)	30 (81.1)	14 (37.8)	23 (62.2)
	χ^2 = 10.77, df = 3, p=0.01		**χ^2 = 12.6, df = 3, p= 0.01**		**χ^2 = 4.55, df = 3, p= 0.21**	
Family type						
Single parent	46 (29.5)	110 (70.5)	25 (16.0)	131 (84.0)	76 (48.7)	80 (51.3)
Married parents	33 (20.8)	126 (79.2)	22 (13.8)	137 (86.2)	89 (56.7)	68 (43.3)
Divorced	2 (33.3)	4 (66.7)	2 (33.3)	4 (66.7)	4 (66.7)	2 (33.3)
	χ^2 = 3.40, df = 2, p= 0.18		**χ^2 = 1.84, df = 2, p= 0.40**		**χ^2 = 2.45, df = 2, p= 0.29**	
Stressful live event						
Yes	39 (27.7)	102 (72.3)	25 (17.7)	116 (82.3)	72 (51.4)	68 (48.6)

No	42 (23.3)	138 (76.7)	24 (13.3)	156 (86.7)	97 (54.2)	82 (45.8)
	χ^2 = 0.78, df = 1, p= 0.37		**χ^2 = 1.18, df = 1, p= 0.27**		**χ^2 = 0.24, df = 1, p= 0.62**	
Type of school						
Private	25 (22.7)	85 (77.3)	17 (15.5)	93 (84.5)	50 (46.3)	58 (53.7)
Public	56 (26.5)	155 (73.5)	32 (15.2)	179 (84.8)	119 (56.4)	92 (43.6)
	χ^2 = 0.56, df = 1, p= 0.46		**χ^2 = 0.01, df = 1, p= 0.95**		**χ^2 = 2.93, df = 1, p= 0.09**	

Table 2 shows the relationship between areas of perceived adolescents' family relationship and socio-demographic characteristics of the respondents. From the table, a positive significant relationship was seen to exist between family cohesion and age of the respondents. The same relationship was also seen to exist between family expressiveness and age. Majority of respondents who experienced high family cohesion (84.7%) and high family expressiveness (93.2%) were those at the peak of middle adolescence -17years. Meanwhile most of those that experienced low expressiveness (6.8%) were those who just entered late adolescence -18 years. However, no significant relationship was seen to exist between perceived family relationship and other socio-demographic characteristics of the respondents.

Table 3: **Mean and Standard Deviation Scores of Respondents on Perceived Factors Affecting Adolescents' Family Relationship**

S/N	Factors Influencing Relationship	Mean score $\bar{x}$	Standard Deviation	Remark
1	Inadequate family time affects family relationship	3.63	5.41	Agreed
2	A chaotic home environment is not good for relationship	3.88	7.60	Agreed
3	Tight work schedule affects family relationship	3.63	5.41	Agreed
4	Weak bond among family members affects their relationship	3.65	5.40	Agreed
5	Family relationship is affected by family type	3.70	5.39	Agreed
6	Families who do not hold meetings normally have weak relationship	3.70	5.39	Agreed
7	Large family size affects family relationship	3.70	5.38	Agreed
8	Family monthly income may likely affect their relationship	3.78	5.38	Agreed

Table 3 shows the mean and standard deviation scores of respondents on perceived factors influencing adolescents' family relationship. From the table, the respondents agreed to the eight items as factors influencing adolescent/parent relationship.

HO₁: There is no significant difference in the mean responses on dimensions of family relationship based on gender.

Table 4: Mean Responses and Standard Deviation on Indicators of Perceived Family Relationship According to Gender

S/N	Dimensions of Adolescents/parents relationship	Gender	
		Male M±SD	**Female M±SD**
1	Cohesion	11.73 ±2.88	12.40 ± 2.85
2	Expressiveness	7.05 ± 1.98	7.50 ± 1.83
3	Conflict	12.46 ± 2.55	12.97 ± 2.70
		t-value = 2.26, p = 0.00	

M= mean, SD= standard deviation, p = level of significance

Table 4 shows the mean responses and standard deviation on indicators of perceived adolescents' family relationship according to gender. From the Table, the female respondents had more family cohesion and more expressiveness than the males but experienced more family conflict. This is shown by t-cal value of 2.26 which was higher than the critical value at $p<0.05$ level of significance, consequently HO_1 is rejected.

HO_2: There is no significant difference in the mean responses on dimensions of family relationship based on type of school.

Table 5: Mean and Standard deviation of respondents on indicators of perceived family relationship according to type of school

S/N	Dimensions of Adolescents/parents relationship	Type of School	
		Public M±SD	**Private M±SD**
1	Cohesion	12.02 ± 2.92	12.26 ± 2.80
2	Expressiveness	7.32 ± 1.94	7.26 ± 1.85
3	Conflict	12.86 ± 2.63	12.52 ± 2.68
		t-value = 0.18, p = 0.64	

M= mean, SD= standard deviation, p = level of significance

Table 5 shows the mean and standard deviation scores of respondents on indicators of perceived adolescents' family relationship according to type of school. Respondents from private schools had more cohesion than those in public schools, but lesser family conflict and expressiveness. Meanwhile, those in public schools had low cohesion, more expressiveness and more family conflict. However, this was not significant. The HO_2 was therefore rejected at P = 0.64

Discussion

From the study, the mean score of indicators of adolescents/parents relationship- expressiveness is lesser than cohesion and conflict which shows that the respondents had more cohesion than expressiveness and less family conflict. This suggests that a favorable climate is provided at home which aids self-expression of the respondents. More so, the proliferation of different social media platforms might contribute to the development of self-awareness through writing of different post as well as commenting on others post. This might have influenced the interaction pattern of the adolescents at home. Supporting this, Rivera *et.al.* (2009) reported high level of perceived family cohesion among the research respondents. The strong emotional bonds measured by family cohesion are expected to promote family support. Similarly, a study by Martin-Biggers, Quick, Zhang, Jin and Bredbenner (2018) which showed low family conflict and high family cohesion among the research participant, corroborate with the findings of this study.

The study revealed a positive significant relationship between family cohesion and age of the respondents. This is explained by the family systems theory, which states that family cohesion could change in response to adolescent development. The theory suggests that family members responding to changes in other members of the family may explain why family cohesion (maternal and paternal warmth) changes over time as adolescents' self-worth changes (Bowen, 1986). The findings of this study supports that of Augseeser, Jekielek, and Brown(2006), which revealed that most parents report having very close relationships with their adolescents, though there are some differences by type of family and the age of the child. Also, a positive relationship was also seen to exist between family expressiveness and age.

From this study, chaotic home environment, parents' occupation, type of bond among family members, family type, family size and monthly income amongst others were identified as associated factors that influence family relationship. Family environment is the first educational environment of a child. According to Carter et al. (2005), the effect of parent-child bonding is life-long and will transfer among different kinds of relationships. This implies that the types of parent-child bonding (the first bonding) will affect one's development of interpersonal relationships as one grows (Giordano, 2003). Maladaptive bonding with parents may lead to negative consequences such as (Lee & LoK, 2012). Vanassche, Sodderman, Matthijs & Swicegood (2014) stated that family type determines the kind of relationship which exists there. Also, a study by Pardini, Fite, and Burke, (2008) family relationship quality and child behaviour were seen to be influenced by demographic characteristics of the respondents such as marital status, age, income and employment. The finding of this study is not surprising as it corroborates with the findings of studies above.

The male respondents in this study had more family cohesion and more expressiveness than the females but experienced more family conflict. This contradicts the findings of Tsai et al., (2013) who revealed that decreases in family cohesion during adolescence are less pronounced for girls than boys. Some studies (Fuligni & Masten, 2010; Tsai et al., 2013) have shown that females tend to identify more with their family and spend more time engaged in daily family leisure activities and familial communication than males throughout the transition from adolescence to young adulthood. In this study, the males experienced more family conflict than the females. This may be as a result of gender stereotype which makes the male folk feel as though they are not to take orders from females. Peer influence may also be an explanation for this high conflict. For instance several studies (Svensson & Oberwittler, 2010; Weerman et al. 2015; Weerman & Hoeve, 2012) have shown that boys spend more time with friends without adult supervision which has also been shown to be associated with offending/ disobedience at home. A study by Wong et al. (2010) showed that conflict between parents and children is associated with offending among both boys and girls as girls are more likely to bond with their parents in ways that prevent or preclude offending (Worthen, 2011).

The findings also revealed that students from public school had more cohesion than those in private school, whereas, those in private schools had comparatively more family expressiveness and more family conflict. Private schools often teach students with some empirical basis which helps them understand a concept and its application in real world. More so, private schools possess racial and ethnic diversity which can enrich the school experiences of students. Knowledge from these experiences is applied in different areas of their lives including family relationship. This might explain why students from private schools in this study had higher family expressiveness. Parents of most students who attend private schools provide little opportunity for their children's' peer relationship and restrictions are placed on leisure time. This affects adolescent's autonomy and independence which is a vital need at that stage of development. This affects the bonding between parents and their children and consequently, parent-child conflict, which has been seen to affect family relationship.

Conclusion

The expressive aspect of family relationship is experienced more by adolescents compared to cohesion and conflict. Age of adolescents is related to their family cohesion and expressiveness. Chaotic family environment, type of family, income, family size amongst others influences their family relationship. The male adolescents had more family cohesion and more expressiveness than the females but experienced more family conflict. Also, those from public school had more cohesion than those in private school, but those in private schools had comparatively more family expressiveness and more family conflict. This is a marker of the changing role of families.

Recommendations

Based on the findings, the following were suggested

1. Parents should create good environment that breeds cohesion among family members.
2. Family time should be created as this will lead to better understanding of the adolescents.
3. Adolescents should be taught how to relate with individuals within and outside the home and best emotion regulation strategies.

References

American Association of Psychologists (2018). Understanding Family Relationships; *International Journal of Psychologists 100;*4

Arshat, Z., Chai, Y., Ng, & Pai, F. S. (2016). Relationship between family cohesion, parental monitoring, peer influence and delinquency among Chinese adolescent. Proceeding of 60thThe IIER International Conference. Paper presented at Malacca, Malaysia, 32-36.

Augseeser, D., Jekielek, S., & Brown, B. (2006). The Family Environment and Adolescent Well-being: Exposure to Positive and Negative Family Influences. Join Child Trends and National Adolescent and Young Adult Health Information Center brief. Available here: https://www.childtrends.org/wp-content/uploads/2014/08/2006-43FamEnvironBrief.pdf

Bhatti, J. R. (2011). *The dynamics of successful personality development and projection*. India: Pearson Education India.

Bowen, M. (1986). *Family therapy in clinical practice*. Northvale, NJ: Jason Aronson Inc.

Bradford, K., Vaughn, L. B., & Barber, B. K. (2008). When there is conflict: Interparental conflict, parent-child conflict, and youth problem behaviors. *Journal of Family Issues,* 29(6); 780-805. doi:10.1177/0192513X07308043

Carter, C. S., Ahnert, L., Grossmann, K. et al., (Eds.) (2005). *Attachment and Bonding: A New Synthesis*, MIT Press, Cambridge, UK

Crone,E.A.,VanDuijvenvoorde,A.C.K.,&Peper,J.S.(2016). Annual research review: Neural contributions to risk-taking in adolescence—Developmental changes and individual differences. *Journal of Child Psychology and Psychiatry*, 57; 353–368. https://doi.org/10.1111/jcpp.12502

De Goede, I., Branje, S., & Meeus, W. (2009). Developmental changes in adolescents' perceptions of relationships with their parents. *Journal of Youth and Adolescence,*38; 75–88. https://doi.org/10.1007/s10964-008-9286-7

Fahey .T, Keithy .P.,& Polek .E. (2012). *Family Relationships and Family Wellbeing: A study of the families of nine year olds in Ireland.* Dublin; University College Dublin

Farahati, M. (2011). Relationship between family communication patterns with locus of control, self esteem, shyness and communication skills in adolescents. *European Psychiatry*, 26(1); 282-290. https://doi.org/10.1016/S0924-9338(11)71992-7

Fuligni, A. J., & Masten, C. L. (2010). Daily family interactions among young adults in the United States from Latin American, Filipino, East Asian, and European backgrounds.International Journal of Behavioral Development.http://dx.doi.org/10.1177/0165025409360303

Giordano, P.C. (2003) "Relationships in adolescence," *Annual Review of Sociology*, 29; 257–281

Hartwell, S. W., & Benson, P. R. (2007). Social integration: Aconceptual overview and two case studies. In W. R. Avison, J. D. McLeod, & B. Pescosolido (Eds.), *Mental health, social mirror* 329–353. New York: Springer. doi:10.1007/978-0-387-36320-2_14

Kliewer, W., Murrelle, L., Prom, E., Ramirez, M., Obando, P., Sandi, L., Karenkeris, M. C. (2006). Violence exposure and drug use in central American youth: Family Cohesion and parental monitoring as protective factors. Journal of Research on Adolescence, 16(3); 455–478.

Lee, T. Y.,& Lok, D. P. (2012). Bonding as a positiveY Development Construct: A Conceptual Review. *Hindawi Scientific World Journal*. https://doi.org/10.1100/2012/481471

Letourneau, N. L., Duffett-Leger, L., Levac, L., Watson, B., & Young-Morris, C. (2013). Socioeconomic status and child development: A meta-analysis. *Journal of Emotional and Behavioral Disorders*, 21(3); 211-224. doi:10.1177/1063426611421007

Martin-Biggers, J., Quick, V., Zhang, M., Jin, Y., &Byrd-Bredbenner, C. (2018). Relationships of family conflict, cohesion, and chaos in the home environment on maternal and child food-related behaviours. *Maternal and Child Nutrition.* 14(2):e12540. doi: 10.1111/mcn.12540.

Merz, E.M., & Jak, S. (2013). The long reach of childhood. Childhood experiences influence close relationships and loneliness across life. *Advanced. Life Course Research*, 18; 212–222. doi: 10.1016/j.alcr.2013.05.002.

Moos, R.H., & Moos, B.S. (1994. *Family Environment* Scale (3rd ed.) Polo Alto, CA: Consulting Psychologists Press (since 2002 – Redwood City, CA: Mind Garden)

National Population Commission of Nigeria, UNICEF Nigeria, the U.S. Centers for Disease Control and Prevention (2016). Violence against children in Nigeria: findings from a national survey, 2014. Retrieved from https://www.unicef.org/nigeria/resources_10185.html

Pardini, D., Fite, P., & Burke, J. (2008). Bidirectional associations between parenting practices and conduct problems in boys from childhood to adolescence: The moderating effect of age and African-American ethnicity. *Journal of Abnormal Child Psychology*, 36; 647–662. doi: 10.1007/s10802-007-9162-z.

Pearson (2011). Expanding family life cycle; *The Individual, Family and Social Perspectives44;* 111.

Reczek, C., Thomeer, M. B., Lodge, A. C., Umberson, D., & Underhill, M. (2014). Diet and exercise in parenthood: A social control perspective. *Journal of Marriage and Family*, 76; 1047–1062. doi:10.1111/jomf.12135.

Rivera, F. I., Guarnaccia, P. I., Mulvaney-Day, N., Lin, J. Y., Torres, M., &Alegria, M. (2009). Family Cohesion and its Relationship to Psychological Distress among Latino Groups. *Hispanic Journal of behavioral sciences, 30*(3); 357-378. doi: 10.1177/0739986308318713

Rogers A.A., Padilla-Walker L.M., &McLean R.D (2020). Trajectories of perceived parental psychological control across adolescence and implications for the development of depressive and anxiety symptoms. *J Youth Adolesc.* 49; 136–149.

Sandstrom .H.,& Huerta .S. (2013). *The Negative Effects of Instability on Child development: A Research Synthesis paper 3.* Washington DC; Urban Institute

Svensson, R., & Oberwittler, D. (2010). It's not the time they spend, it's what they do: the interaction between delinquent friends and unstructured routine activity on delinquency. Findings from two countries. *Journal of Criminal Justice*, 38; 1006–1014. doi: 10.1016/j.jcrimjus.2010.07.002.

Tsai, K. M., Telzer, E. H., & Fuligni, A. J. (2013). Continuity and discontinuity in perceptions of family relationships from adolescence to young adulthood. *Child Development*, 84 (2); 471 - 484.http://dx.doi.org/10.1111/j.1467-8624.2012.01858.x

Umberson, D., Crosnoe, R., & Reczek, C. (2010). Social relationships and health behavior across the life course. *Annual Review of Sociology*, 36(36); 139–157. doi:10.1146/annurev-soc-070308-120011

Vanassche, S., Sodermans, A., Matthijs, K., & Swicegood, G. (2014). The Effects of Family Type, Family Relationships and Parental Role Models on Delinquency and Alcohol Use Among Flemish Adolescents. *Journal of Child and Family Studies*, 23 (1): doi - 10.1007/s10826-012-9699-5

Wong, T. M., Slotboom, A. M., & Bijleveld, C. C. (2010). Risk factors for delinquency in adolescent and young females: a European review. *European Journal of Criminology*,7; 266–284. doi: 10.1177/1477370810363374.

Worthen, M. G. (2011). Gender differences in parent-child bonding: implications for understanding the gender gap in delinquency. *Journal of Crime and Justice,* 34; 3–23. doi: 10.1080/0735648X.2011.554744.

Weerman, F. M., & Hoeve, M. (2012). Peers and delinquency among girls and boys: are sex differences in delinquency explained by peer factors? *European Journal of Criminology*, 9; 228–244. doi: 10.1177/1477370811435736.

Weerman, F. M., Bernasco, W., Bruinsma, G. J., & Pauwels, L. J. (2015). Gender differences in delinquency and situational action theory: a partial test. *Justice Quarterly*, 33; 1–28

HER Vol. 28 No. 2, December 2021, pp. 155-164

Issues Relating to Staff Training Hospitality Industry: A Case Study of Premier Hotel, Ibadan, Oyo State, Nigeria

Oyewole, M.F.[1], Adeniji P.O.[2]& Elisha C.O.[2]
[1]Department of Agricultural Extension and Rural Development, University of Ibadan, Oyo State
[2]Department of Tourism Studies, Redeemer's University, Ede, Osun State.

Abstract
The general objective of the study was to investigate the issues relating to staff training in Hospitality industry using Premier Hotel Ibadan as a case study. Specifically, the study determined: practices employed by management of Premier Hotel in training their staff, and staff expressed benefits of their own training. Design of the study was survey. Area of study was Premier Hotel Ibadan, Oyo State, Nigeria. Population for the study comprised of all staff (both skilled and unskilled) in Premier Hotel, Ibadan. Instrument for data collection was questionnaire. Data were analysed using frequency, percentage and mean. Major findings include that most strategy training employed by the Management of Premier Hotel in training their staff is on– the job training (55%), most targeted for training were the new staff (45%), half (49.5%) of the respondents were trained on a monthly basis. There are 10 skills areas in which training are given. Other findings include nine staff expressed benefits of training. These including that training enhance staff performance in the hotel, makes staff career path to be more focused, improves the social circle of the employee, and others. Based on the findings, it is recommended that the hospitality industry, particularly hotels, should endeavour to train their staff regularly in order to upgrade competency, and staff commitment in the hotel industry.

Keywords: Issues, Hospitality, industry, Benefits, Training, Staff, Premier Hotel

Introduction

The tourism industry is often cited as the largest industry in the world, contributing 10 percent of the world's Gross Domestic Product. In 2016 there were over 1.2 billion international tourists involving a substantial economic impact and movement of goods and services (World Tourism Organization, 2015). Tourism is one of the world's largest and rapidly growing industries in the 21st century (Anyalem, *et al*. 2016). It is said to be the largest employer of labour as it employs skilled, semi-skilled and unskilled workers. Employee is an asset for an organization because the success and failure of any organization depends upon its employee (Abdul Hameed 2011). In hospitality industry, particularly the hotel sector it is very important for organizations to focus on how to enhance employee performance in the industry (Tedla, 2016). Employee performance is important because they have direct interaction with guests. So it is important for the manager in hospitality industry to know the factors that affect employee performance (Tharenou, Saks and Moore 2007). Training is very important.

Training has been defined as a systematic acquisition and development of the knowledge, skills and attitudes required by employee to adequately perform a task or job or improve performance in the job environment (Tharenon, Saks and Moore, 2007). Staff training is an essential and indispensable part of human resource management. The importance and value of staff training has long been recognized (Olusanya *et.al.* 2012). The level of service quality depends on the qualities of employee. These qualities deal with knowledge, skills and thoughts which lead to a hotel's survival and development.

It is a method to assist employees to become more professional at what they do. With the help of Human Resources Management, business success is partly guaranteed. (Yang, 2010). Therefore, staff training is essential in many ways, it increases productivity while employee are armed with professional knowledge, experienced skills and valid thoughts, staff training also motivates and inspires workers by providing employee all needed information in work as well as help to recognize how important their jobs are (Dennis and Joyride, 2018).

According to Ahmmed (2013), every organization should provide training to all employees irrespective of their qualifications and skills. Specifically, the need for training may arises due to environmental changes, organizational complexity, and human relation. Change in the job assignment and to match employee specifications with the job requirements and organizational needs. Some training referred to a planned effort by a company to facilitate employees' learning on the job related competencies (James and Lucky, 2015). These competencies include knowledge, skills, or behaviours that are critical for successful job performance. For a company to gain a competitive advantage, its training has to involve more than just basic skill development (Nassazi, 2013). This means that a company can use training to gain a competitive advantage, a company should therefore view training broadly as a way to create intellectual capital. Intellectual capital includes basic skill to perform one's job and advanced skills such as how to use technology to share information with other employee. Olaniyan and Ojo (2008) posited that the considerations for training vary in organization. Some of these organizations may not consider training as necessary.

When there is an economy decline, organizations cut their training budget and the cost in hiring new employee which reduces organizations profitability. It is therefore become pertnent that the study determines the issues relating to staff training in Hospitality industry using Premier Hotel Ibadan, Nigeria as a case study.

Premier Hotel is located on the crest of famous Mokola Hill, Ibadan. It is one of the oldest and the best hotel in West Africa. It is jointly owned by the Odua states namely Ekiti, Oyo, Ondo, Ogun and Osun States. Premier hotel, a subsidiary of Odu'a Investment Company Limited was incorporated in 1966 as a resort, amusement, pleasure and relaxation center. The Mokola hill site gives it a unique feature of a ''night watch lantern'' welcoming into a haven built on top of the ancient city and with over three decades in hotel business. The hotel's location provides an easy access to major attractions, thus making it a one stop destination for business executives and tourists. Premier Hotel has put into use its vast experience and understanding of what today's hotel business is all about with a view to ensuring customer satisfaction which has made it to remain the Hospitality King (Oodua, 2020).

Objectives of the study

The general purpose of the study was to investigate the issues relating to staff training in Hospitality Industry using Premier Hotel, Ibadan, Oyo State, Nigeria as a case study. Specifically the study determined:

1. practices employed by management of Premier Hotel in training their staff
2. staff expressed benefits of their own training.

Research Questions

The following research questions were answered by this study.

1. What are the training practices employed by management of Premier Hotel in training their staff?
2. What are the staff expressed benefits of their own training?

Methodology

Design of the study: The study adopted descriptive survey design. The survey method normally paves way for a researcher to make use of questionnaire

Area of Study: Area of the study was Oyo state. The study was conducted in Premier Hotel Ibadan, Oyo State Nigeria. It is located at Mokola Hill, 14km away from Ibadan Airport. The hotel's location also provides easy access to major attractions and business districts, making it a good place to stay for tourists and business travelers. It is a subsidiary of the Odua group of companies. Premier hotel's building has an elevator installed, well furnished and spacious rooms. The terrace garden also presents a perfect relaxation spot and a coffee/tea/pastry shop open to guests. Other facilities include an outdoor swimming pool, a body spa and fitness centers, Banquet halls with different seating arrangements and layouts are available at fixed rates. Airport shuttle, safety deposits, laundry, car hire, room service, business center services are available

Population for Study: The population of study comprised of all staff (both skilled and unskilled) in Premier Hotel Ibadan. The hotel has five departments with with a total of 241 staff as the time of data collection for the study. These include 74 in Front office department where customers first arrive at the hotel for reservation, registration, finance and cashiering and inquiry, 67 in Housekeeping department which is responsible for cleanliness, upkeep and maintenance of the rooms, 51 in Kitchen department which is responsible for production of food for restaurants, banquets and in-room service, 49 in Food and Beverages department which focuses on food and drinks. There is also a Maintenance department which ensures that various systems, facilities, equipment and components used in the hospitality industry are in good condition and are functioning smoothly. This study did not however cover the Maintence department.

Sample for the Study**:** Purposive simpling technique was used to select up to 50 percent of staff in each of the four departments of concern for the study. The staff selected were those who had participated in any form of staff training at any time. A total of 120 staff members were selected as follows 38, 33, 25 and 24 in departments of Front office, Housekeeping, Kitchen and Food/Beverage respectively. Thus, the sample was made up of 120 staff members.

Instrument for Data Collection: Questionnaire was used for data collection. The section of the instrument on "staff expressed benefits of training" was based on five-point Likert scale of Strongly agree (5), Agree (4), Undecided (3), Disagree (2), and Strongly disagree (1). The questionnaire was face-validated by five university based experts in Hospitality Industry. The split-half method of reliability test was used to establish the reliability of the instrument. The reliability index of 0.75 was obtained.

Method of Data Collection: One hundred and twenty copies of questionnaires were administered by hand with the help of two trained research assistants. Out of the 120 copies of the administered questionnaire, only 107 were properly completed and retrieved. This represents 89.16 percent return.

Method of Data Analysis: Frequency and percentages were used to analyse data on training practices employed by the hotel management. Mean was used to analyze data on expressed benefits of training. Decision on benefits of training was based on mean score of 4.00. Any benefit indicator with a mean ($\overline{X}$) of 4.00 and above was regarded as a "benefit of staff training".

Results

Personal Characteristics of Respondents: Data analysis reveals that 51 percent of the respondents were between the ages of 31 and 40 years, 34 percent were between 20 and 30 years of age, 10 percent were between 41- 50years while only 5 percent were 50 years and above. More than half of the respondents are adults in the study area. It was also found that 70 percent of the respondents were females while 30 percent were males, 60% percent of the respondents were married, 25 percent were single, and 10 percent of the respondents were divorce while only 5 percent were widow. Majority (70%) of the respondents had OND/ NCE certificate, 29 percent had HND/BSc while only one candidate possessed PhD. It can therefore be stated that all the respondents were educated.

Table 1: Frequency and Percentage Responses on Training Strategies Employed by Management in Training Staff (n= 107)

Training Strategies	Frequency	Percentage (%)
On - the - Job training	59	55
Simulation training	32	30
Off- the- Job training	16	15

Table 1 shows that 55 percent of the respondents indicated that they received On –the job training, 30 percent of them received simulation while only 15 percent of them received Off- the - job training. The most strategy training employed by the Management of Premier Hotel in training their staff is on– the Job training.

Table 2: Frequency and Percent of Target Group that undergo training in the Hotel (n=107)

Group	Frequency	Percentage (%)
Top Managers	12	11
Middle level Managers	19	18
Junior Staff	28	26
New Staff	48	45

Table 2 reveals that 45 percent the group of workers that are most targeted for training were the new staff. The were followed by the junior staff (26%), then the middle level managers (18%) and the top managers (11%).

Table 3: Frequency and Percentage of Duration of training in the Hotel (n=107)

Duration	Frequency	Percentage (%)
Weekly	25	23.4
Monthly	53	49.5
Quarterly	19	17.8
Yearly	10	9.3

Table 3 shows that nearly half (49.5%) of the respondents were trained on a monthly basis. This is followed by weekly basis (23.4%), quarterly (17.8%), and then on a yearly basis (9.3%).

Frequency of Training in the Hotel: Data analysis shows that majority (72.9%) of the respondents were trained on a regular basis in the hotel while 27.1 percent of them were trained only occasionally in the hotel.

Table 4: Frequency and Percentage Responses on Skill areas on which Training is Given in the Hotel (n=107)

S/N	Skill area	Frequency	Percentage
1	Team work	9	8.4
2	Multi-tasking	3	2.8
3	Flexibility	4	3.7
4	Attention to detail	5	4.7
5	Industry awareness	2	1.8
6	Time management	32	29.9
7	Communication	10	9.4
8	Interpersonal skills	21	19.6
9	Problem solving	15	14.1
10	Hazard awareness	6	5.6

Result of skill areas on which training is given in the hotel as presented in Table 5 shows that 29.9 percent of the respondents acquired skills on time management, 19.9 percent on interpersonal skills, 14.1 percent on problem solving, 8.4 percent on team work, while they least acquired skill area is industry awareness (1.8%).

Table 5: Mean Responses on Staff Expressed Benefits of their Training.

S/N	Benefits Indicators	SA	A	U	D	SD	Mean
	Staff Training in the Hotel:						
1	has helped the staff in improving their overall required skills for work.	0	2	10	58	37	4.21
2	motivates employee to be more committed to work towards organization goals.	39	54	10	2	0	4.19

Table 5Contuned

3	enhances staff performance.	32	56	15	4	0	4.18
4	makes staff career path to be more focused.	32	54	17	4	0	3.19
5	improves the social circle of the employee.	35	48	17	7	0	4.04
6	enhances staff performance in the hotel.	28	58	20	1	0	4.06
7	promotes team spirit among staff.	34	58	19	3	0	4.08
8	promotes learning of new concepts, ideas, methods and techniques.	33	56	19	3	0	4.08
9	enhances achievement of organizational goals.	36	51	15	4	1	4.09
10	encourages increased productivity through follow-up.	42	51	12	2	1	4.24
11	can be stressful for staff.	32	48	21	5	1	3.18

Table 5 reveals the mean (X) responses of the staff on the benefits of their training. Nine of the benefits indicators obtained mean of 4.04 to 4.24. These represent the items they regarded as benefits. The Table also shows that item 4 (X = 3.19) and item 11 (X = 3.18) are not benefits of the staff training, since their mean scores are less than 4.00

Discussion

The findings of the study on respondents' personal characteristics shows that more than half of the staffs in the hotel were adults. This implies that age is an important factor that can influence attitude of an employee in discharging their duties diligently in the hotel. This finding agrees with Vetrakova (2019), who reported that respondent's turnover is focused by taking account of their age. The finding that most of the respondents were educated and are qualified employees. This finding is corroborated with the assertion of Davis *et.al.*2012 that the road to hotel management begins with an educational background in hospitality management and that in general higher professional education is required for a hotel career. On the job training was identified as the strategy employed by management of the hotel in training their staff, this in accordance with study of Yang, 2010 that On-the-job training strategy will bring out the employees‟ professional quality which is the key of hotel services, the rules and principles of work are taught in this kind of training, besides, courtesy, manners and techniques of handling interpersonal relations are taught as well. This kind of training aims to train employees to learn the best way to do the work in the most quick and effective way. The group of workers that are most targeted for training were the new staff, followed by the junior staff) then the middle level managers and the top managers. It was revealed in the study that respondents acquired skills on time management, interpersonal skills, problem solving, team work while the least acquired skills on industry awareness. Caster – Lotto and Barrington (2006), identified teamwork, professionalism, problem solving and managing resources as the main practical skills employees need. Hospitality management industries should aim to improve employees' knowledge and understanding of employability skills (Ogbeide, 2009). A large number of employees can appear dissatisfied due to being assigned responsibilities without-having the right knowledge and skills in that area. It is believed that some employees have some weakness in their work place so a training program strengthen those skills that each employee needs to improve. Training is an essential process which should be cautiously designed and implemented within all firms (Ahmmad, 2013),

Most of the respondents agreed that follow up after training should encourage increase in productivity. This may also mean that they have favourable attitude towards training. This findings is in line with Ahmmad, (2013) who opined that training plays a key role in ensuring that staff is equipped with skills and knowledge required to deliver good customer services and that qualified employee trained to work in hospitality industry are able to meet the customers need. This further corroborated in the findings of Gazija (2011) that the vision of making any hospitality brand grow is to focus on satisfaction of guest because if guest remembera how warm the treatment they receivedin a particular hotel was, they will not hesitate to patronize the hotel again. Chang and James (2017) posited that Career development (training) and psychosocial support were antecedents of employee promotional attitude. Findings in Table 5 indicate that staff training has numerous benefits to both the staff and the hotel. This finings is consistent with the views of Olusanya et.al. (2012). This shows that staff training needs to be encouraged.

Conclusions

The study concludes that On- the Job training strategy was the most employed by the management in training their staff in the study area. The most targeted groups trained were the newly employed staff. Training was not regularly organized for staff and also follow up after training were not carried out by the hotel management. Finally, respondents had favourable attitude towards training in the study area.

Recommendations

1. Hotels should employ the use of different strategies in training their staff as a way to create intellectual capital.
2. Training of staff by the Hotel Management should not be restricted to new employee alone. All staff should be trained and retrained for better performance.
3. Since respondents had favourable attitude towards training, therefore staff training should be conducted on regular intervals as this will create opportunities for career development and upgrade competency, commitment of employee in the hotel industry.
4. Follow up after training by Hotel management should be

encouraged to attain the organization desire goals, which in turn increase profitability.

References

Abdul Hameed A. W/ (2011).Employee Development and It'sAffect on Employee Performance Conceptual Framework. *International Journal of Business and Social Science* Vol. No.13 Pp 224

Abdul Hameed Aamer WaheedAlshuwairekh K. (2016). The Effectiveness of the Training Programs on Employees Performance: an Empirical Study at Private Sector Companies in Saudi Arabia . International Journal *of Business and Management Review* Vol.4, Issue 9, pp.1-23.

Ahmmad, S.(2013). Importance of Training in Hotel Industry: A case study of Hilton Hotel Cyprus. A Master Thesis submitted to School of Business Studies, Sodertons University.

Aynalem, Kassegn Birhanu and Sewent Tesefay (2016). Employment Opportunities and ChallengesinTourism and Hospitality Sectors. *Journal of Tourism & Hospitality*, Volume 5(6) Issue 6 DOI: 10.4172/2167-0269.1000257, ISSN: 2167-0269.

Caster- Lotto and Barrington L. (2006). Are they ready to work? Employers' Perspectives on the basic knowledge and applied skills of new entrants to the 21st century workforce. New York: The Conferences Broad.

Chang Wen and Busser James (2017). Hospitality Employee Promotional Attitude. Findings from graduates of twelve- month management training program. International*Journal of Hospitality Management*, vol. 60 Pp 48-57

Davis, B., Lockwood, A., Pantelids,I.and Alcott, P.(2012). Food and Beverages Management: Routledge: Oxon, U.K

Dennis K. A. and Joydrine N. N. (2018). Staff Training In the Hospitality Industry in Kenya; the Only Competitive Edge In The Current Competitive Environment. *International Journal of Business and Management Invention* (IJBMI) ISSN (Online): 2319 – 8028, ISSN: 2319 – 801X www.ijbmi.org || Volume 7 Issue 9 Ver. 3 Pp—26-29. www.ijbmi.org 26 | Page Staff Training in the Hospitality Industry in Kenya; The Only Competitive Edge in the Current Competitive Environment.

Gazija A. (2011) : Importance of Staff training in Hotel industry. Case Study: Hotel Dukagjiri. *ILIRIA International Review*, 1(2). Doi: 1021113/lir.v ½ .191.

James, O. and Lucky, O (2015). The Impact of Training on Employees Job performance. An Empirical study of selected organizations in Warri, Delta State. Journal of Policy and Development studies, Vol. 9 No 3. ISSN: 157-9885

Nassazi, A. (2013). Effects of Training on Employee Performance. Evidence from Uganda. B.Sc. Project in Business and Tourism, VAASAN AMMATTIKORKEAKOULU University of Applied Sciences.

Ogbeide, G.C (2009). Perception of green hotels in the 21st Century. Journal of Tourism Insights(3)(1). Htpps://doi.org//10.9707/2328.0824.1032.

Oodua(2020). Descendants worldwide celebrate Ooni on 5th anniversary". vanguardngr.com. newsagency. 26 November 2020. Retrieved 19 July, 2021.

Olaniyan D. A .and Ojo, L.B.(2008). Staff Training and Development : a vital tool for organizational effectiveness, European Journal of Scientific Research 24 (3)

Olusanya, S. O. ,Awotungase, S. A. , Ohadebere E. C. (2012). Training and Development, A Vital Tool for Organizational Effectiveness. (A Case Study of Sterling Bank Nigeria Plc. *IOSR Journal of Business and Management* (IOSR-JBM) ISSN: 2278-487X.Volume 6, Issue 2, PP 48-57 www.iosrjournals.org www.iosrjournals.org.

Tharenou, P., Saks, M. and Moore,(2007). A review and critique of research on training and organizational- level outcomes, Human Resources Management Review (17): 251-27**3**

Tedla,T. B. (2016). The Impact of Organisational Culture on Corporate Performance. Doctoral Study in Business Administration, Walden University.

World Tourism Organization UNWTO (2015). "Why Tourism?" Retrieved from: http://www2.unwto.org/content /why-tourism

Vetrakova , M, Simockova I, and Pompurova K. (2019). Age and Educational Diversification of Hotel Employees and Its Impact on Turnover Sustainability.

Yang, X (2010). The Importance of Staff Training in Hotel Industry. Case Study: Renaissance Shanghai Yuyvan Hotel. Degree Project in Hotel and Restaurant Business of VAASAN University of Applied Science. VASA YRKSHOGSKOLA.

HER Vol. 28 No. 2, December 2021, pp.165-176

Enhancing Utilization of Student-Centred Instructional Delivery Strategies for Metal Work Programmes in Universities

Obe P.I.
Department of Industrial Technical Education
University of Nigeria, Nsukka, Enugu state.

Madu, M.A.
Department of Business Education
University of Nigeria, Nsukka, Enugu state.

Onah E.N.
Department of Computer & Robotics Education,
University of Nigeria Nsukka, Enugu state.

Abstract

This study focused on utilization of student-centred instructional delivery strategies for metal work programmes in public universities in Enugu state, Nigeria. Three research questions and three hypotheses guided the study. The study used survey research design. Population comprised 21 metal work educators, made up 12 lecturers and nine instructors drawn from public universities offering metal work programmes in Enugu State. Questionnaire was used for data collection. Data were analyzed using mean, standard deviation and t-test. Major findings include 15 student-centred instructional delivery strategies. These are problem based learning with ICT, project based learning with ICT, and others. Other findings are 10 hindrances to use of student-centred instructional strategies, including, poor awareness of innovations in the system, poor infrastructure, refusal to yield to instructional delivery innovations, inadequate manpower, among others. Further findings are 12 ways of ameliorating challenges to use student-centred instructional delivery strategies. These include, there should be availability of innovation tools and equipment, and others. The paper recommends, among others, that metal work stakeholders (metal work educators) should collectively use methodologies and competencies in instructional delivery that will improve acquisition of knowledge and skills in metal work programmes.

Keywords: Metal, Work, Universities, Programmes, Instructional, Delivery Strategies, Student-Centred.

Introduction

Adequate instructional delivery approach is necessary for training appropriate technical manpower. The global technological changes have brought about numerous challenges and demands on metal work programmes which has effected its instructional delivery strategies. Thus the need for enhancements for adequate and effective operations in high changing environment of metal work programmes in the universities (Ezeji&Okorie in Magnus 2015). Universities are describe as the important sources of knowledge, technology and skilled human capital, that canprovide valuable ideas and support to new industries and are engaged in innovation and entrepreneurship (Ranga, Temel, Ar, Yesilay& Vardar-Sukan 2016). Universities are setup to train individuals, develop and to conduct researches that could lead to innovations of society (Jimoh et al 2020). The Nigeria University is one of the institutions that offer education or training for the acquisition of knowledge and skills of metal work. These universities can be public or privately owned. Public university as it concerns this study is the university that is owned and managed by the state or federal Government while the private universities are the one that is owned by individuals (Eze and Okorafor, 2012).

Metal work beingone of the programmes offered in Nigeria universities is concerned with the ability of using metal to create parts and assemble large scale structures.Audu, Kamin & Balash, (2013) sees Metal work as education for work or occupation geared towards the needs of the industries and work force. Obe (2019) viewed metal work as the science involved in shaping things or part of objects out of metals in a very skilful way for the use of mankind and benefits of the society. Villaton (2010) describe metal work as the activities of using metals or metal based materials for the purpose of fabrication, construction and other associate project. Metalwork is also described as an entrepreneurial based and skill oriented field of study that is expected to equip learners with sellable skills and make for self-reliance and paid employment (Ugbelu, 2015). Having knowledge of Metal work and acquisition of appropriate skills, abilities and competencies both intellectual and physical are important for all Nigerians to live and subsidise to the development of their society (Federal Republic of Nigeria – FRN in Magnus, 2015). Metal work programmes in the universities consist of some occupational component or areas (scope) such as machine work technology, forging/ foundry work, welding work and auto mobile (Obe2019). This study looked at the instructional delivery of metal work as a whole since the instructional delivery system is same in all the occupational areas.

Instructional delivery is the art of teaching that create impact in the intellectual, economic and social development of a learner. Chapuis (2003) defines instructional delivery as a combination of knowledge and skills required for effective teaching. Adirika and Alike, (2010) suggested that instructional delivery in metal work programmes in universities should be done with traits like persistence, determination, self-confidence among others.The scopes to a good instructional delivery as described by Chapuisin Omeje, Odogwu and Omeje (2015) should include; High degree of intellectual quality; High level of demonstrable relevance or connectedness; highly supportive classroom environments; and **s**trong recognition of individual difference. The instructional delivery strategies of metal work in the public universities is based on teachers-centred instructional delivery with a little shift to student-centred instructional strategies. The teachers-centred instructional delivery strategy sees students as respondents to external stimuli where the teachers are considered as the experts who must impart all the relevant information to the students.Student-centred instructional (SCI) strategy is a kind of instructional delivery that consider the students as the main agents of the instruction. Solaiman, (2016) defined student centered instructional (SCI) delivery strategy as an approach where students are in the center of the learning process and influence the learning. The SCI approach includes such techniques as critical or creative thinking, using self-paced and cooperative learning thus increasing motivation to learn, greater retention of knowledge, deeper understanding, and more positive attitudes towards the subject being taught (Collins & O'Brien, in Solaiman, 2016).Angela (2010) noted that SCL approach varies according to the type of students involved in the learning process, teaching materials, type of environment in which such learning takes place, amongst other things.

The global advance in technology has brought about several changes and innovations in the learning environment and in the labour market of metal work. The students-centred instructional delivery strategies used in metal work programmes in universities has been affected by the global technological advancement thus does not bring about the transformation needed to meet the rapidly technological change in the world of work. This has led to job insecurity, skill mismatched and the growing youth unemployment amongst metal work graduates universities. Jummai, Aishatu, Ibrahim & Conrad (2013) noted that the youths (metal work graduates inclusive) are unemployed and unutilizeddue to lack of skills that would make them take up gainful employment or become self-reliance.Barr and Miller (2013) is of the view that students-centred instructional delivery strategies can only be made possible if the physical environment and facilities that promotes learning is put in place and sustained. Magnus, (2015) noted also that lack of skills relevant to the workplace, lack of information and connections among youth, especially youth of metal work are the major reasons why metal work graduates are unemployed in today's industrial world.This is in contrary with the purpose of metal work programmes in the universities which is for acquisition of knowledge and skill for gainful employment in the related industries and for self-reliance. Hence there is need to enhance the student-centred learning strategies of metal work for adequate acquisition of skills for effective performance in the world of work. Jimoh et al (2020) suggested the use of mobile communication technologies to execute given tasks as the answer to cope with the several changes and innovations in learning environment and employment situations. Oecd in Jimoh et al (2020),also stated that the demands for skills towards more erudite tasks suggest that metal work graduates with poor 21st century skills are more likely to find themselves at risk of unemployment and community elimination. Yalams, (2016) is of the view that the 21st century innovations in teaching and learning that gives room for more effective instructional delivery as well as technical competence should be integrated into metal work instructional delivery system. These innovations provide for problem based learning with ICT, project based learning with ICT, inquiry based learning with ICT among others.Bukhari, 2010 suggested the hindrances to the use of students-centred instructional delivery strategies to include limited resources, poor awareness, inadequate manpower and training among others. Sunday, Vera, Chinedu&Adenike (2018), enumerated some of the ways of getting these innovations in the students-centred instructional strategies to include: availability of the innovation equipment, retraining of teachers, provision and effective utilization of funds among others. These innovations will help in facing out the job insecurity, skill mismatch and youth unemployment among metal work graduates (Yalams, 2016). The absence of these 21th century innovation in student-centred instructional delivery strategies of metal work programmes remains a problem that hinders adequate skill acquisitions for employment and self-reliance after graduation. There is need therefor to enhance the student-centred instructional delivery strategies in metal work programmes in public universities in Enugu State.

Purpose of the study

This study focused on students-centred instructional delivery strategies for metal work programmes in public universities of Enugu State.

Specifically the study determined:

1. various student-centred instructional delivery strategies that could be used in metal work programmes.
2. factors that could hinder use of student-centred instructional strategies in metal work programmes.
3. ways of ameliorating the challenges to use of students-centred instructional delivery

strategies of metal work programmes.

Research Questions

The following research questions guided the study:

1 What are the various student-centred instructional delivery strategies that could be used in metal work programmes?
2. What factors could hinder the use of the student-centred instructional strategies?
3. What are the ways of ameliorating hindrances to use of students-centred instructional delivery strategies for metal work programmes?

Research Hypotheses

There is no significant difference in the mean responses of lecturers and instructors on:

HO_1: Various student-centred instructional delivery strategies that could be used in metal work programmes.

HO_2: The hindrances to the use of the student-centred instructional strategies

HO_3: The ways of ameliorating the challenges to use the students-centred instructional delivery strategies of metal work programmes

Methodology

The study adopted survey research design and was carried out in Enugu state, Nigeria. Three research questions and one hypothesis guided the study.

***Area of the study*:** The study was done in Enugu state. This was due to the fact that there are two public universities offering metal work technology in the state. These are University of Nigeria Nsukka (UNN) and Enugu State University of Science and Technology (ESUT).

Population of the study: The population of the study was 21 metal work educators made up of 12 lecturers and nine instructors of metal work programme from both UNN and ESUT. Source of information were the Academic Planning Offices of both Universities for the period of 2019-2020. There was no sampling considering the manageable size of the population.

Instrument for Data Collection: questionnaire was used for data collection. It had a four point scale of Strongly Agree, Agree, Disagree and Strongly Disagree with their nominal values of 4, 3, 2 and 1 respectively. The instrumentwas validated by three experts in Metal Work Education. Cronbach Apha method was used to establish the reliability of the instrument. Reliability coefficient of .89 was obtained.

Data Collection Techniques: The 21 copies of the questionnaire administered by hand to the respondents. All the 21 copies were properly filled and retrieved. This represents 100 percent return.

Method of Data Analysis: Mean and standard deviation were used to answer the research questions while t-test was employed to test the null hypotheses at 0.05 level of significance.

Any mean value that is greater than or equal to 2.50 (≥2.50) was regarded as "Agree" while mean values less than 2.50 were regarded as "Disagree". The null hypothesis was accepted if the p-value (t-calculated) is greater than 0.05 level (t-critical) but the null hypotheses was rejected if the p-value (t-calculated) is less than 0.05 level value of the t-critical.

Findings of the Study

Table 1: Mean Responses and Standard Deviation of Lecturers and Instructors on Various Student-Centred Instructional Delivery Strategies (IDS) that Could be Used in Metal Work Programmes.

S/N	Student-centred IDS	Mean	S.D	P-value	Remarks	SIG
1	problem based learning with ICT	2.60	0.71	0.14	Agree	NS
2	project based learning with ICT	2.57	0.77	0.18	Agree	NS
3	Inquiry based learning with ICT.	2.66	0.76	0.19	Agree	NS
4	Instruction that involves participatory and interaction.	2.73	0.61	0.17	Agree	NS
5	Instruction that are flexible and have blended approach	2.63	0.79	0.37	Agree	NS
6	Instruction that have Competency-based approaches	2.57	0.66	0.07	Agree	NS
7	Instruction that support intellectual engagement	2.53	0.77	0.16	Agree	NS
8	Instruction that support connectedness to the wider world,	2.73	0.61	0.17	Agree	NS
9	Enhanced critical or creative thinking form of instructions	2.54	0.67	0.31	Agree	NS
10	Enhanced use of self-paced and cooperative learning	2.63	0.79	0.37	Agree	NS
11	Enhanced motivation to learn.	2.75	0.69	0.09	Agree	NS
12	Use of instructive games, drills and practice in instructions.	2.51	0.72	0.1 9	Agree	NS
13	Use of simulations and instructional exercises	2.57	0.66	0.07	Agree	NS
14	Use of virtual lab perceptions and illustrations in instructions	2.53	0.77	0.16	Agree	NS
15	Use of representations of unique ideas, musical piece and master frameworks	2.73	0.64	0.17	Agree	NS

***Keys**: SD- Standard deviation; REM-Remark; NS-Not significant.*

Table 1 reveals that all the 15 items have their mean values above the cut-off point of 2.50 indicating that the 15 items pointed outthe various student-centred instructional delivery strategies that could be used in metal work programmes.

In other hand, the standard deviations of all the 15 items in table 1 range from 0.79-0.61 showing that the respondents were not far from each other in their responses. On the other hand, the hypothesis showed that all the 15 items in table 1 have their p-values greater than 0.05 level of significance. The null hypothesis was therefore accepted meaning that there is no significance difference in the mean responses of the lecturers and the instructors on the items suggested for the various student-centred instructional delivery strategies that could be used in metal work programmes (by metal work lecturers).

Table 2: Mean Response and Standard Deviation of Lecturers and Instructor on Hindrances to Use of Student-Centred Instructional Strategies.

S/N	Hindrances to Use of IDS	Mean	S.D	P-value	Remarks	SIG
1	Poor awareness of innovations in the system.	2.88	0.74	0.14	Agree	NS
2	Poor infrastructure	2.68	0.74	0.09	Agree	NS
3	Refusal to yield to instructional delivery innovations	2.96	0.76	0.19	Agree	NS
4	Poor management of the system	2.78	0.78	0.27	Agree	NS
5	Poor commitment to interactive knowledge environment	2.81	0.78	0.07	Agree	NS
6	Inadequate manpower	2.58	0.75	0.24	Agree	NS
7	Inadequate training	2.56	0.77	0.16	Agree	NS
8	Instability in energy	2.66	0.82	0.21	Agree	NS
9	Poor internet	2.67	0.83	0.21	Agree	NS
10	Poor network facilities	2.57	0.85	0.17	Agree	NS

Keys*: SD- Standard deviation; REM-Remark, NS-Not significant.*

Table 2 reveals that the 10 items listed as the hindrances or factors that could hinder the use of the student-centred instructional strategies have their mean values all above the cut-off point of 2.50 indicating that the items suggested are the hindrances or factors that could hinder the use of the student-centred instructional strategies. The standard deviation of the 10 itemsin table 2 ranges from 0.07-0.27 which shows that the respondents were not far from each other in their responses. On the other hand, the hypothesis showed that all the 10 items in table 2 have their p-values greater than 0.05 level of significance. The null hypothesis was therefore accepted meaning that there is no significance difference in the mean responses of the lecturers and the instructors on the items suggested that hinder the use of the student-centred instructional strategies of metal work in public universities in Enugu State.

Table 3: Mean Responses and Standard Deviation of Lecturers and Instructor on the Ways of Ameliorating Challenges to Use Students-Centred Instructional Delivery Strategies for Metal Work Programmes

S/N	Item Statements	Mean	SD	P-Values	Remarks	SIG
1	There should be availability of innovation tools and equipment.	2.88	0.74	0.37	Agree	NS
2	The metal work curriculum of the universities should incorporate the new innovations in SCI delivery.	2.68	0.66	0.17	Agree	NS
3	SCI should be done with trait like persi-stence, self-confidence, among others.	2.96	0.76	0.19	Agree	NS
4	SCI should incorporate supportive class room environment.	2.78	0.78	0.18	Agree	NS
5	There should be retraining of teachers on the innovation tools and equipment.	2.81	0.79	0.14	Agree	NS
6	There should be effective utilization of funds and equipment.	2.58	0.75	0.07	Agree	NS
7	SCI should incorporate competency-based instructions	2.72	0.67	0.16	Agree	NS
8	SCI should incorporate flexible and blended approach of instruction.	2.70	0.61	0.17	Agree	NS
9	SCI should be supported and well-funded by the metal work stakeholder.	2.56	0.77	0.31	Agree	NS
10	There should be effective enhancement of curriculum as it concern metal work programmes in innovation era.	2.66	0.82	0.37	Agree	NS
11	SCI should implement evaluation of the graduates in the field of work to determine skill gap.	2.67	0.83	0.09	Agree	NS
12	SCI should emphasize on creativity of the students as part of mastering the ski	2.57	0.85	0.19	Agree	NS

***Keys**: SD- Standard deviation; REM-Remark, NS-Not significant.*

Table 3 reveals that the 12 items listed as the ways of ameliorating the challenges of using the students-centred instructional delivery strategies of metal work programmes have their mean values all above the cut-off point of 2.50 indicating that the items suggested are necessary ways for enhancing students-centred instructional delivery strategies of metal work programmes in public universities in Enugu State. The standard deviation of the 12 items ranges from 0.61-0.85 showing that the respondents were not far from each other in their responses. The hypothesis also showed that all the 12 items in table3 have their p-values greater than 0.05 level of significance. The null hypothesis was therefore accepted meaning that there is no significance difference in the mean responses of the lecturers and the instructors on the ways of ameliorating the challenges of using the students-centred instructional delivery strategies of metal work programmes in public universities in Enugu State.

Discussion

The finding of the study in table 1 revealed that the 15items that were suggested for on the various student-centred instructional delivery strategies that could be used in metal work programmes were all accepted and this indicated that the various student-centred instructional delivery strategies suggested are in order for enhancement of student centred instruction

The implication of this finding is that adequate acquisition of knowledge and skills in metal work programmes in this world of technological advancement can be achieved if the students-centred instructional delivery strategies suggested are applied. This is in line with Yalams, (2016) who is of the view that the 21st century innovations in teaching and learning that gives room for more effective instructional delivery as well as technical competence should be integrated into metal work instructional delivery system. Jimoh et al (2020) also suggested that Acquisition of skills and knowledge through the use of mobile communication technologies to execute tasks is the answer to cope with the several changes and innovations in today's employment situations. Paul (2019) in his study also supported that the current instructional method employed by most metal work educators during instructional delivery seems ineffective for equipping the learner for better skill acquisition, performance and interest. There is need therefore to enhance students-centred instructional delivery of metal work for effective skill acquisition and employment after graduation.

The finding on Table 2 revealed that all the items presented as thehindrances or factors that could hinder the use of the student-centred instructional strategies were all accepted as the factors that could hinder the use of the student-centred instructional strategies delivery in metal work programme in public universities in Enugu State. The implication of this finding is that acquisition of skills in metal work cannot be achieve adequately because of some hindrances that needed to be treated to yield dividends and enhance productivity. This is in line with Bukhari, 2010 who viewed the hindrances to the use of instructional delivery strategies aslimited resources, poor awareness, among others. Magnus, (2015) also noted that lack of skills relevant to the workplace, lack of information and connections among youth, especially youth of metal work are the major reasons why metal work graduates are unemployed in today's industrial world.

The finding on Table 3 revealed that all the items presented indicated the ways of ameliorating the challenges of using the students-centred instructional delivery strategies of metal work programmes. The finding is in line with Sunday, Vera, Chinedu&Adenike (2018), who enumerated some of the ways of getting these innovations in the students-centred instructional strategies to include: availability of the innovation equipment among others. Barr and Miller (2013) also is of the view that students-centred instructional delivery strategies can only be made possible if the physical environment and facilities that promotes learning is put in place and sustained.

The findings also showed that enhancing the students-centred instructional delivery of metal work should be done with traits like persistence, determination, self-confidence, creativity, organization, among others as supported by (Adirika and Alike, 2010). The SCI approach therefore should include such techniques as critical or creative thinking, using self-paced and cooperative learning thus increasing motivation to learn, greater retention of knowledge, deeper understanding, and more positive attitudes towards the subject being taught (Collins & O'Brien, in Solaiman, 2016).Furthermore, the result of the hypothesis indicated that there is no significant difference in the mean response of the lecturers and the instructors of metalwork in public university on the items in Tables 1, 2 and 3. This indicated that the respondents had similar agreement on the items suggested.

Conclusion

The students-centred instructional delivery strategies in metal work do not bring about the transformation needed to meet the rapidly technological change in the world of work. This is so because it does not capture the modern technology in its instructional delivery method. These have being indicated in job insecurity, skill mismatched and the growing youth unemployment amongst metal workers. The 21st century innovations in teaching and learning that give room for more effective instructional delivery as well as technical competence have being suggested above for enhancement of students-centred instructional delivery of metal work in public universities. There is need therefore for student-centred instructional delivery to capture the new innovations in technology for adequate skill acquisition in metal work programmes in universities. This is the only way the instructional delivery strategies can respond to the demands of modern technology and be able to face out the job insecurity, skill mismatch and youth unemployment among metal work personnel.

Recommendations

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

1. Metal work educator should collectively use methodologies and competencies in instructional delivery that will aid adequate skill acquisition in metal work programmes.
2. Metal work stakeholders should enhance the students-centred instructional delivery of metal work programmes to match the trends of 21st century skills.
3. Metal work stakeholders should organized an innovation lessons and capacity building training for metal work educators in other to update their skills and knowledge.
4. Metal work curriculum should be revisited to incorporate innovative skill for enhancing students-centred instructional delivery strategies that embraces new technology

References

Adirika, B. N. & Alike, G. (2010). Technological innovations as enhancement tool for competitive and entrepreneurship in Nigerian Teacher Education. *UNIZIK Orient Journal of Education*, 5(1), 25-29.

Angele, A. (2010) Student Centered Learning An Insight Into Theory And Practice, Educational international. Retrieve from https://www.esu-online.org/wp-content/uploads/2016/07/2010-T4SCL-Stakeholders-Forum-Leuven-An-Insight-Into-Theory-And-Practice.pdf. 22/3/2021.

Audu, R., Kamim Y. B. &Balash, F. (2013) Technical Vocational Education: as a veritable tool for Eradicating youth unemployment. *Journal of Humanities and Social Sciences 5*(2). 10-17.

Barr, B. A., & Miller, S. F. (2013). Higher education: The online teaching and learning experience. Retrieved from http://files.eric.ed.gov/fulltext/ED543912.pdf.

Bukhari, R. A. (2010). *Information technology for e-Learning in Developing countries*, (pp. 1–85). School of Business and Informatics: University of Boras.

Chapuis, L. (2003). Pedagogy: Embedding learning technologies. Australian Capital Territory Education and Training. Retrieved on 21/7/2020 from http://www.principals.in/uploads/pdf/Pedagogy.pdf.

Eze, T. I., &Okorafor, A. O. (2012a). Trends in technical, vocational education and training (TVET) for improving the Nigerian workforce. *EbonyiTechology and Vocational Education Journal.*

Jimoh, B., Hyginus, O. O., Samson, O. A., Samson, I. N., Obe, P. I., Olusesan, J. O., Ojo, A. O. (2020) Innovations into industrial-technology programmes of

Nigerianuniversities for quality assurance. *Indonesian Journal of Electrical Engineering and Computer Science, 20(3)1315-1324.*

Magnus P. U., (2015)Techniques for Improving Practical Skill Acquisition In Vocational Business Education (Vbe) For Sustainable Development In Nigeria, *European Journal of Research and Reflection in Educational Sciences.* 3(1)

Jummai, M., Aishatu. M. C., Ibrahim, M. J., Conrad, M. M. (2013) The Role of Vocational and Technical Education in Skill Acquisition in Nigeria. *Journal of Education and Practice www.iiste.org ISSN 2222-288X* (Online) 4(10).

Magnus P. U., (2015)Techniques for Improving Practical Skill Acquisition In Vocational Business Education (Vbe) For Sustainable Development In Nigeria, *European Journal of Research and Reflection in Educational Sciences.* 3(1).

M Ranga, S Temel, İM Ar, RB Yesilay, F Vardar-Sukan. (2016). Building Technology Transfer Capacity In Turkish, Universities: A Critical Analysis *European Journal Of Education* 15 (1), 90-106.

Obe, P. I., Ezeama, A. O., Ogbuanya T. C. and Ede E. O.(2019) Development and Validation of Competency-Based Instrument for Assessing Mechanical Metalwork Technology operations of Technical Colleges. *Nigeria journal of Technology* Vol. 38, No.4, pp 884-895.

Ogundele, A. G., (2013) The Place of Technical Education towards Skill Acquisition to National Development. *Journal of Research & Method in Education (IOSR-JRME) 3(5) 73-76.*

Omeje H. O, Odogwu I.C and Omeje B. A., (2015) Best Practices in Pedagogical Applications: A Solution to the Challenges of Instructional Delivery in Technical and Vocational Education and Training (TVET) at the Tertiary Levels in Nigeria, Technology and Science Education Today (T-SET) *A Multi-disciplinary Journal of School of Industrial Technical Education.*FCE(T) Umunze Nigeria. 8th-11thSeptember, 2015.

Paul B. I. (2019) Effects of computer assisted instructional technique on student's achievement in entrepreneurship studies in Bayelsa state Nigeria, *Industrial technical education journal, 1(1) 24-31.*

Solaiman, J, (2016) Student Centered Instruction for Interactive and Effective Teaching Learning: Perceptions of Teachers in Bangladesh. *International Journal of Advanced Research in Education & Technology (IJARET) 172, 3(3).*

Sunday. C., Vera, C., Chinedu .E.,&Adenike.O. (2018), Theutilisation of e-learning facilities in the educational delivery system of Nigeria: a study of M-University. *International Journal of Educational Technology in Higher Education*. 15(34).

Ugbelu, N. M. (2015). Development and validation of metalwork process evaluation scheme for NCE (Tech.) students. *Journal of Education and Practice,* 7 (11), 63-72.

Villaton, A. (2010) metal working. Retrieved from www.google.com.org.ng (search) school+workshop&client=n. 18th may 2020.

Yalams S. M. (2016), 21th century global changes in Education: implication for sustainable development, A lead paper presented and published in a book of proceedings for the fourth international conference for school of science and Technology Education, Federal University of Technology Mina, Niger State, Nigeria on 4th_7th October 2016.

JHER Vol. 28, No. 2, December 2021, pp. 177 – 188

Consumers' Attitude towards Indigenous Rice in Lokoja Metropolis, Kogi State, Nigeria

Onoja N.M. [1], Meludu, N.T. [2] & Omale, S.A.[3]
[1&3]Department of Agricultural Economics and Extension, Faculty of Agriculture, Kogi State University, P.M.B. 1008, Anyigba, Kogi State, Nigeria
[2]Department of Agricultural Economics and Extension, Faculty of Agriculture, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria

Abstract

This study investigated consumers' attitude towards indigenous rice in Lokoja Metropolis, Kogi state, Nigeria. Specifically, it determined socio-economic characteristics of rice consumers; their attitude towards indigenous rice; rice attributes that are of interest to consumers; and challenges faced in consumption of indigenous rice in the area. The study adopted a descriptive survey research design. Multistage sampling procedure was used to select a total of 125 consumers for the study. Data were collected using structured questionnaire and analyzed using descriptive statistics. The consumers strongly believed that indigenous rice is mainly for poor people ($\bar{x}$=3.47, S.D=1.09), less attractive than foreign rice ($\bar{x}$=3.28, S.D=0.91) but has higher health benefits ($\bar{x}$=3.10, S.D=1.09). They strongly declined their support on federal Government's ban on rice importation ($\bar{x}$=1.40, S.D=0.49). Summarily, about 51.7% of the respondents have negative attitude towards indigenous rice. The rice attributes of important to consumers are: neatness of rice grains ($\bar{x}$=1.67), price ($\bar{x}$=1.59), taste and aroma of the grains ($\bar{x}$=1.57), swelling capacity of rice grains after cooking ($\bar{x}$=1.57), grains consistency after cooking ($\bar{x}$=1.39), packaging/labelling ($\bar{x}$=1.20). The challenges faced by consumers include presence of stones, broken grains, sands/debris ($\bar{x}$=1.66±0.62), and unpleasant odour ($\bar{x}$=1.48±0.77). The study recommends among others the need to sensitise the public on the health and economic benefits attached to consumption of indigenous rice in the country.

Key words: Indigenous, Rice, Consumption, Attitude, Challenges, Consumers

Introduction

Market competition orchestrated by globalisation has made consumers across the world to become more aware of the quality assurance and attributes of different commodities found in the market. Consumers often choices of goods with attributes that best appeal to their personal desires and taste (Mhlanga, 2010). The consumers often express their preferences for product quality by paying premium for the commodities with the desired attributes. These premiums give producers a motivation to improve product quality and quantity consequently enhancing the welfare of both the producers and consumers. No wonder, Lancaster cited in Miškolci (2011) noted that all goods possess characteristics or attributes that are demanded by the consumers, not the goods themselves; adding that consumers do not demand for food in itself, but rather the nutrients, flavours and satisfaction in the food. For example, in the case of rice, the characteristics (attributes) have important price based implications in terms of incentives for both the producers and consumers.

Rice (*Oryza Sativa*) has risen to a position of pre-eminence among other crops in the world; it is a staple food to more than half of the world populations; human consumption accounts for about 78 percent of the world's production while the balance serves other purposes such as feed for animals (Udemezue, 2018). At the global market, rice has continued to top the chart as it provides food, income and source of livelihoods to many. According to Seck et al. (2013) rice has become a highly strategic and priority commodity for food security in Africa and the consumption is growing faster than that of any other major staple on the continent because of high population growth, rapid urbanization and changes in eating habits.

Rice is widely consumed and there is hardly any country in the world where it is not utilized in one form or the other (Isa et al., 2012). It is consumed by over 4.8 billion people in 176 countries and is the most important food crop for over 2.89 billion people in Asia, over 40 million people in Africa and over 150.3 million people in America (Busari and Idris-Adeniyi, 2015). In Nigeria to be specific, rice is one of the few food items whose consumption has no cultural, gender, socioeconomics, religious, ethnic or geographical boundary (Isa et al., 2012 and Osabuohien, Okorie, and Osabohien, 2018). An average Nigerian consumes about 24.8 kg of rice per annum, representing 9 percent of annual calorie intake (Bamidele et al, 2010).

More than 90 percent of global rice production occurs in tropical and semi-tropical Asia (Daramola, 2005). It is cultivated in all agro ecological zones of Nigeria even though, the quantity and quality of production varies across regions. The common production system in the country include rainfed upland, lowland, irrigated lowland, deep water floating, and mangrove swamp (Ezedinma, 2005; Obianefo, Nwigwe, Meludu, 2020). Due to its increasing contribution to the per capita calorie consumption of Nigerians, the demand for rice has been on the steady increase even at a much faster rate than domestic production and more than in any other African countries since mid 1970s (Bamidele et al., 2010; and Diako et al., 2010).

However, domestic production in Nigeria has never been able to match the demand; which has made Nigeria one of the largest food importers in the world with annual food import bill of about $10 billion (Obayelu, 2015). Statistically, Nigeria's rice consumption rate has increased from 5.5 million metric tons in 2015 to 7.9 million metric tons annually. Meanwhile, the production rate currently stands at 5.8 metric tons per annum; with importation making up for the production deficit (Udemezue, 2018).The rice consumption figure in Nigeria has even been estimated to rise to 35million metric tons by 2050 (Onu, Obike, Ebe and Okpara, 2015). In 2016 for instance, national rice demand was estimated at 6.3 million metric tons while domestic supply stands at 2.3 million metric tons (Federal Ministry of Agriculture and Rural Development, 2016).

This further conforms to an earlier assertion by Ogunsumi, Ajayi, Amire and Williams (2013) on the gap between local demand and supply of rice in Nigeria. The authors stressed that the level of rice consumption in Nigeria increases with about 10 percent per annum as a result of changing consumer preferences amidst other factors. Hence, government had to retort to massive importation in order to bridge the supply-demand gap. The consumption figure is even expected to reach 36 million metric tons by 2050 with 5.1 percent annual growth (Abbas, Agada and Kolade, 2018). They further report that the Nigerian Government spent a whopping $2.41 billion on rice importation between January 2012 and May 2015.

Continuous importation of rice is detrimental to Nigeria's economy in so many ways: Firstly, excessive importation of rice into the country will make life difficult for smallholder rice farmers thereby, aggravating their poverty level. Secondly, huge level of imported milled rice on regular basis into the country means that more jobs will be created in those countries where rice is being imported from leading to high level of unemployment and food insecurity in Nigeria. Thirdly, it gives room for dumping of low quality, sub-standard and sometimes expired rice into any country that allows it (Abbas, Agada and Kolade, 2018). Fourthly, the rising bills of rice importation over the years contribute to depleting of the country's foreign reserves and had also affected domestic production and patronage of Nigeria's local rice.

In spite of Government's efforts towards making Nigeria self-sufficient in rice production; the country has continued to suffer set-back (Adeyeye et al., 2011; Basorun, 2009; Alfred and Adekayode, 2014; and Mohammed et al, 2019). The rice farmers in Nigeria appear so worried and frustrated due to poor patronage of indigenous ice occassioned by several factors ranging from continuous changes in customers' attitude and behaviour, poor processing facilities resulting in unpleasant smell, unappealing appearances and presence of foreign materials such as stones, sand and pebbles. It is therefore important to evolove ways of enhancing that consumer attitude towards indigenous rice, including that consumers in Lokoja Metropolis. For this to be done, it is necessary to determine consumer attitudes and behaviours toward indigenous rice. Empirical evidence detailing the consumers' attitude and behaviour that will guide the rice farmers and policy makers in the country are presently relatively inadequate.

Objectives of the study

The main objective of this study was to investigate issues related to consumption of indigenous rice in Lokoja Metropolis. Specifically the study determined:

1. socio-economic characteristics of respondents;
2. respondents' attitude towards indigenous rice in the area;
3. rice attributes that are of interest to consumers in the area;
4. constraints militating against consumption of indigenous rice in the study area

Methodology

***Research Design*:** The descriptive survey research design was adopted for this study. This design was adequate because it sought the opinions of selected rice consumers in the study area.

***Area of the Study*:** This study was carried out in Lokoja Metropolis which is the state capital of Kogi state, Nigeria. The state was created on 27th August, 1991 (Meludu and Onoja, 2018). Lokoja is an ancient city, a former capital of British Northern Protectorate and the first administrative town for the British colonial government after the amalgamation of the northern and southern protectorates in 1914 by the then Governor General, Lord Luggard. The area was selected for the study because of the high level of commercial activities necessitated by influx of people from different parts of the state and from neighbouring states of Nigeria. The Metropolis has three major daily (Monday - Saturday) markets, namely: International Market (New market), Old market and Kpata market. The people in the area are mainly civil servants and rely on the market for most of the food items they consume, rice inclusive.

***Population for the Study*:** The population of the study was made up all the rice consumers living within Lokoja Metropolis. These consumers purchase rice for household consumption purposes from markets within within the area of the study. It was estimated that 1,250 rice consumers go to markets daily to purchase rice for household consumption. An average of 500, 400 and 350 rice consumers daily where recorded for New market, old market and Kpata market respectively.

***Sample for the Study*:** A multi-stage sampling procedure was adopted to select respondents for this study. This was done in two stages. In the first stage, the three major markets in Lokoja Metropolis (namely: New market, Old market and Kpata market) were purposively selected. They were selected due to high levels of commercial activities that go on in them. The second stage was simple random selection of 10 percent of rice consumers (New market 50, Old market 40, and Kpata market 35) who reside within the Lokoja Metropolis and came to the markets to purchase rice for household consumption purposes on regular basis. These gave a total of 125 rice consumers for the study.

***Instrument for Data Collection*:** Questionnaire was used for data collection. The questionnaire was divided into four sections: Section A, B, C, and D, covering demographic variables, attitude towards indigenous rice; rice attributes encouraging consumers' patronage and constraints militating against consumption of indigenous rice in the area. It was validated by three Agricultural Economists in a University. The instrument was also pretested to determine the internal consistency (reliability) using Cronbach's Alpha method which yielded reliability coefficient of 0.71.

***Data collection techniques*:** A total of 125 copies of questionnaire were administered to respondents by hand with the help of three research assistants. They served as interpreters where necessary. Only 120 copies were properly filled and returned. This represented 96 percent return rate.

***Method of Data Analysis*:** Data were analyzed using frequency and percents for demographic characters of rice consumers; means for specific objectives Nos 2, 3 and 4. Items on Objective No. 2 (Consumers' towards indigenous rice) had a 5-point Likert type scale with response options of strongly agree (SA), agree (A), undecided (U), disagree (D) and strongly disagree (SD). A score of 5, 4, 3, 2, and 1, respectively were awarded for positively worded statements starting from SD and reversed order for negatively worded statements; giving a maximum obtainable score of 55 and a minimum of 11. Also, overall attitudinal mean score was computed from the respondents' attitudinal scores, and used as benchmark for categorising respondents into having positive and negative attitudes towards indigenous rice in the area. Such that, respondents whose scores are below the attitudinal mean score was categorised in "unfavourable group"; while those whose scores were equal or greater than the attitudinal mean score was categorised in "favourable group".

The items on objective No 3 (rice attributes that are of interest to consumers) had a 3-point Likert type rating scale with response options of "not important" (0), "somewhat important" (1) and "very important" (2). The mean value for each of the attributes were computed and used to rank the attributes in order of importance.

Results of the study

Selected personal characteristics of the respondents

Age categorisation of the respondents' revealed that high proportion (45%) were 31-40years, *22.5% were* 30years or less, 17.5% were 41-50years and 15% were 51years or more. On the aggregates, the respondents' mean age was computed as *39.1±11.3* years. Gender of the respondents revealed that both sexes were fairly represented in the study as 53.3% were females while 46.7% were males. Marital status of the respondents revealed that half (50%) of the respondents were reported married, 40.8% indicate single, while 2.5% and 1.5% indicate widowed and divorced respectively. Religion background of the respondents revealed that majority (54.2%) of the respondents were Christians, 43.3% were Muslims while only 2.5% practice African traditional religion.

Education background of the respondents revealed that the respondents are learned as *81.7*% of them were educated up to the tertiary educational level; 13.3% and 1.7% had O'level and first school leaving certificates respectively. Only 3.3% of them do not have formal educational background. Occupation of the respondents revealed that they were more of (40%) civil servants, students (26.7%), traders (20%), farmers (9.2%) and artisans (4.2). Estimated monthly income of the respondents revealed that majority (42.5%) earned ₦ 30'001-50'000 only, 34.2% of them earned as much as ₦ 50'001 or more while 23% of them earned as low as ₦30'000 or less. On the aggregate, the mean income was calculated as ₦49, 341.7±29,570.2 per month. Respondents' household size revealed that majority (55.8%) were in the range of 4-9persons, 17.5% had 3persons or less and others 0.8%. On the aggregate, the mean household size of 5.1±1.9 was obtained.

Respondents' Attitude towards Indigenous Rice

Table 1: Mean Responses on Consumers' Attitude towards Indigenous Rice (n = 120)

S/N	Attitudinal statements	Mean ($\bar{X}$)	SD	Remark
1.	They are mainly for poor people around us	3.62	1.41	SA
2.	I feel uncomfortable buying them in public	3.47	1.09	A
3.	I am in support of Federal Govt's ban on foreign rice	1.40	0.49	SD
4.	Satisfaction is less compared to foreign	2.38	1.34	D
5.	I feel proud eating them in a public gathering	2.27	0.34	D
6.	My patronage on the rice creates employment	2.10	1.14	D
7.	They taste better as compared to foreign	2.03	1.34	D
8.	They are less poisonous than foreign rice	1.94	0.11	D
9.	Higher health benefits compared to foreign rice	3.10	1.09	A
10.	They are more nutritious than foreign rice	1.78	1.09	D
11.	They less attractive than the foreign rice	3.28	0.91	A

Note: SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree and SD = Strongly Disagree. Numbers in parentheses are percentage. *Source: Field survey, 2019.*

The participants were asked to express their attitudes towards indigenous rice in their area to 11 indicators of attitude on a 5-point Likert type scale. Table 1 shows that consumers strongly believed that the indigenous rice are mainly for poor people around us ($\bar{x}$ = 3.47, S.D = 1.09) and added that indigenous rice are less attractive than the foreign rice ($\bar{x}$ = 3.28, S.D = 0.91). They however agreed that the health benefits derived from the consumption of indigenous rice are higher compared to foreign rice ($\bar{x}$ = 3.10, S.D = 1.09), even though they strongly declined their support on the federal Government of Nigeria's ban on foreign rice ($\bar{x}$ = 1.40, S.D = 0.49).

Respondents' Categorisation by Attitude towards Indigenous Rice

Table 2: Respondents' Categorisation by Attitude towards Indigenous Rice

Attitude (n=120)	Frequency	Percent (%)	Mean ($\bar{x}$)
Negative (14.00 - 25.79)	62	51.7	25.80
Positive (25.80 - 42.00) 58	48.3		
Total	120	100	

Source: Field survey, 2019

Table 2, shows categorization of respondents into two groups of those having positive and negative attitude; using their overall attitudinal mean score as benchmark. The Table reveals the maximum attitudinal score as 42, and the minimum as 14, with the overall mean score of 25.80. Respondents with scores of 25.79 and below were therefore categorized as having negative attitude while those with scores of 25.80 and above were categorized as having positive attitude. Therefore, the study reveals that slightly above half (51.7%) of the respondents were categorized as having negative attitude towards indigenous rice.

Rice Attributes that are of Interest to Consumers in the Area

Table 3: Mean Responses on Rice Attributes that are of Interest to Consumers in the Area

S/N	Rice Attributes	Not Important F (%)	Somewhat Important F (%)	Very Important F (%)	Mean ($\bar{x}$)	Remarks
1.	Neatness of the grains	08 (6.7)	24 (20.0)	88 (73.3)	1.67±0.60	A
2.	Price of the rice	12 (10.0)	25 (20.8)	83 (69.2)	1.59±0.67	A
3.	Swelling capacity after cooking	12 (10.0)	28 (23.3)	80 (66.7)	1.58±0.68	A

Table 3 Contuned

4.	Taste and aroma of the grains	13(10.8)	26 (21.7)	81 (67.5)	1.57±0.68	A
5.	Grains cohesion after cooking	21(17.5)	31 (25.8)	68 (56.7)	1.39±0.77	A
6.	Packaging and labeling	36 (30.0)	24 (20.0)	60 (50.0)	1.20±0.88	A
7.	Size of the grains	36 (30.0)	26 (21.7)	58 (48.3)	1.20±0.87	A
8.	Colour of the grains	39 (32.5)	26 (21.7)	55 (45.8)	1.13±0.88	A
9.	Ease of cooking	48 (40.0)	28 (23.3)	44 (36.7)	0.97±0.88	D
10.	Hardness of the grains	55 (45.8)	30 (25.0)	35 (29.2)	0.83±0.85	D

Note: Numbers in parentheses are percentage, A = Agreed, D = Disagree. Source: *Field survey, 2019*

Table 3 presents the result of rice attributes that are of major interest to consumers in the study area. The mean **(**$\bar{x}$**)** scores of their responses ranged from 0.83-1.67 and with the standard deviation (SD) of0.60-0.88. Item no 1, neatness of the grains had the highest mean $\bar{x}$**)** score of 1.67±0.60 while item no 10, hardness of the grains had the least mean **(**$\bar{x}$**)**score of 0.83±0.85. The mean **(**$\bar{x}$**)** scores in 8 items out of the 10 items examined were above the criterion level ($\bar{x} \geq 1.0$), indicating that the respondents actually utilised 8 items identified as rice attributes they often watch-out for when buying rice in the market. Meanwhile, item no 9and 10 which are ease of cooking ($\bar{x}$ **=** 0.97±0.88) and hardness of the grains($\bar{x}$ **=** 0.83±0.85) were rejected because their mean ($\bar{x}$) responses were below the criterion level, which implies that these items have little or no impact on their choice of rice varieties purchased from the market. Also, the standard deviations were low in all the responses, indicating that the values were close to the mean ($\bar{x}$).

Constraints to consumption of indigenous rice

Table 4: Mean Responses on Constraints to Consumption of Indigenous Rice (n=120)

S/N	Constraints	Not a Constraint F (%)	Mildly a Constraint F (%)	Seriously a Constraint F (%)	Mean ($\bar{x}$)	Rank
1.	Presence of stones, broken grains, sands and debris etc	09 (7.5)	23 (19.2)	88 (73.3)	1.66±0.62	1st
2.	Unpleasant odour	20(16.7)	22 (18.3)	78 (65.0)	1.48±0.77	2nd
3.	Cost of rice in the market	26 (21.7)	18 (15.0)	76 (63.3)	1.42±0.83	3rd
4.	Poor taste and flavour	18 (15.0)	37 (30.8)	65 (54.2)	1.39±0.74	4th
5.	Difficulty in cooking	19 (15.8)	38 (31.7)	63 (52.5)	1.37±0.74	5th
6.	Poor storage ability	20 (16.7)	37 (30.8)	63 (52.5)	1.36±0.75	6th

Table 4 Contuned

7.	Seasonality of the rice	28 (23.3)	38 (31.7)	54 (45.0)	1.22±0.80	7th
8.	Stickiness of grains after cooking	34 (28.3)	28 (23.3)	58 (48.3)	1.21±0.86	8th
9.	Unattractive appearance	35 (29.2)	31 (25.8)	54 (45.0)	1.16±0.85	9th
10.	Size of the grains	43 (35.8)	37 (30.8)	40 (33.3)	0.98±0.84	10th
11.	Colour of the grains	48 (40.0)	41 (34.2)	31 (25.8)	0.87±0.81	11th

Note: *Numbers in parentheses are percentage.* ***Source:*** Field survey, 2019

Table 4 shows that the major challenged faced by consumers in the consumption of indigenous rice in the study area include presence of stones, broken grains, sands and debris ($\bar{x}$ = 1.66±0.62, ranked 1st), unpleasant odour ($\bar{x}$ = 1.48±0.77, ranked 2nd) amongst others.

Discussion of findings

The results of this study revealed that slightly above half (51.7%) of the respondents had negative attitudinal disposition towards indigenous rice. For instance, more than half (72.5%) of the respondents disagreed that the indigenous rice tastes better than foreign rice. In short, 68.4 percent of them confessed that they feel uncomfortable buying indigenous rice in public places. While 64.1% of the respondents claimed that the satisfaction they derived from consumption of indigenous rice is less as compared to foreign rice and more than half (53.4%) of them strongly declined their support on the federal Government of Nigeria' ban on foreign rice.

These suggest that the quality of indigenous rice in the area is yet to meet the consumers' specifications. These findings concur with Opeyemi et al (2015), who reported that the Nigerian rice is of a lower quality when compared with foreign rice. The findings also uphold Alfred and Adekayode (2014) report that consumer showed favourable attitudes towards importation of rice at the expense of the locally produced rice given the favourable natural resources at the nation's disposal. Thus, in order to expand the patronage there is need for rice farmers and the government at all levels to step-up not just the quantity of production but also the quality of rice produced in the country as well as to organise regular public enlightenment campaign on the health and economic benefits attached to patronage of indigenous rice.

According to Udemezue (2018), for consumers to accept and pay for a product, that particular product must possess attributes that are considered most important and attractive to consumers' attention. Hence, in this present study, the respondents were asked to indicate the rice attributes they considered very important when buying rice as demonstrated in Table 2. The study noted that consumers are so much interested in rice with neat grains but affordable prices. This finding affirmed the study of Oyinbo et al. (2013) that households preferred imported rice to local rice because of their neatness and high quality standard. Usually, consumers are more concerned about the favourable pricing in their choice of items in the market and the indigenous rice appears to be cheaper as compared to imported rice reason being that they are produced and marketed within the country without extra cost such as import duties and so on (Diako et al., 2010; Nwanze et al., 2006). Other attributes pointed out by the respondents were swelling capacity of the rice grains after cooking; taste and aroma of the grains; grains cohesion after cooking; packaging and labelling; size of the rice grains and colour of the grains. The study also upholds the submission of and Tomlins et al. (2005) and Akaeze (2010) who found that consumers in Ghana and Nigeria respectively prefer imported rice to locally produced rice due to their cleanliness and swelling capacity, taste, availability and grain shape.

The challenges faced by consumers in the consumption of indigenous rice in the area include: presence of stones, broken grains, sands and debris, unpleasant odour, cost of rice in the market, and poor taste/flavour. The findings corroborates with the study of Bamidele et al (2010), who argued that the local Nigerian rice is of low quality and less tasty like the imported rice; it is broken and usually accompanied by little stones and other debris like rice husks. Others are difficulty in cooking, poor storage ability, seasonality of rice in the area, stickiness of the grains after cooking and unattractive appearance of the grains.

Conclusion

It was observed that rice consumption is a common practice among consumers in the area just like every other place in the country. Although more than half of them still display unfavourable attitude towards the indigenous rice in the area; suggesting that the quantity and quality of the rice is yet to meet the consumers' standards. The study further noted that rice consumers frequently watch out for neat grains with affordable prices in the market. Others attributes that were of major concern to them are taste and aroma of the grains, swelling capacity of rice grains after cooking, grains cohesion after cooking, packaging and labelling. The study identified the major barriers limiting the patronage and consumption of indigenous rice in the area to include presence of stones, broken grains, sands and debris; unpleasant odour; cost of rice in the market and poor taste/flavour.

Recommendation

Following the findings of this study, it is recommended that:

1. The rice farmers should pool their resources together through cooperative groups to buy processing plants in locations closer to them so as to improve the quality of rice produce and make them more attractive and nutritious to consumers in the state
2. The government should invest in rice industries and initiate policies that will reduce rice supply-demand gap

which will eventually phase out rice importation gradually.

3. Efforts should be made by governments to stablise prices of locally produced staple foods.
4. There is need for extension agents and the nutritionists to educate the general public on the health and economic benefits attached to patronage of indigenous rice in country.

References

Abbas, A.M., Agada, I. G. and Kolade, O. (2018). Impacts of rice importation on Nigeria's economy.*Journal of Scientific Agriculture*; vol. 2: 71-75

Alfred, S. D. Y. and Adekayode, A. B. (2014). Consumers' attitude towards local rice production and consumption in Ondo State, Nigeria. *Journal of Agric. Ext. & Rural Dev.*, 6(7): 242-248

Adeyeye, J. A., Navesero, E. P, Ariyo, J. O. and Adeyeye, S. A. (2011). Consumer preference for rice consumption in Nigeria. *Journal of Human., Social Sc. and Creative Arts*, 5(1):26-36

Akaeze, Q. O. (2010). Consumer Preference for Imported Rice in Nigeria – Perceived Quality Differences or Habit Persistence?. Unpublished Master Thesis, Michigan State University. Pp. 1-48.

Basorun, J. O. (2009). Analysis of the relationships of factors affecting rice consumption in a targeted region in Ekiti State, Nigeria. *Journal of applied quantitative methods Recession Prediction Modelling*, 4(2):145-153

Bamidele, F. S., Abayomi, O. O. and Esther, O. A. (2010). Economic Analysis of Rice Consumption Patterns in Nigeria. *Journal of Agricultural Science Technology.* Vol.*12: 1-11*

Busari, A. O and Idris-Adeniyi, K.M. (2015).Trade Policy and Nigeria Rice Economy. *International Journal of Agricultural Research and Review.* 3(1): pp 152-156,

Daramola B (2005). 'Government policies and competitiveness of Nigerian rice economy'.Paper presented at the workshop on rice policy and food security in Sub- Saharan Africa organized by Africa Rice Centre (WARDA), Cotonou, Republic of Benin, November 7-9, 2005.

Diako, C., Sakyi-Dawson, E., Bediako-Amoa, B., Saalia, F. K. and Manful, J. T. (2010). Consumer perceptions, knowledge and preferences for aromatic rice types in Ghana. Nature and Science, 8(12):12-19.

Ezedinma, C.I. (2005). Impact of trade on domestic rice production and the challenge of self-sufficiency in Nigeria. International Institute of Tropical Agriculture, Ibadan, Nigeria.

Federal Ministry of Agriculture and Rural Development (2016). The Agriculture Promotion Policy (2016-2020). Federal Ministry of Agriculture & Rural Development, Abuja, Nigeria. Pp.1-59.

Isa, J. O., Cyprian, C. A. and Sam, O. O. (2012). Resource use efficiency and rice production in Guma Local Government Area of Benue State: An application of stochastic frontier production function. *International Review of Social Sciences and Humanities,* 3(1):108-116

Miškolci. S. (2011). Consumer preferences and willingness to pay for the health aspects of food.Acta univ. agric. Et Silvic. Mendel. Brun., LIX, No. 4, pp. 167–176

Meludu, N.T. and Onoja, M. N. (2018). Determinants of edible insects consumption level in Kogi state, Nigeria. *Journal of Agricultural Extension Society of Nigeria (AESON).* 22(1): 156-170.

Mhlanga, S. (2010). Economic analysis of consumer based attributes for rice in Benin. Being a thesis submitted to the Department of Agricultural Economics, McGill University, in partial fulfilment of the requirements for the award of the Degree of Master of Science. Pp. 1-11.

Mohammed, U. A., Ibrahim, S., Hayatu, M., Mohammed, F. A (2019). Rice (Oryza Sativa L.)

Production in Nigeria: Challenges and Prospects. Dutse Journal of Pure and Applied Sciences (DUJOPAS), 5(2b): 67-73.

Nwanze, K.F., Mohapatra S, Kormawa P, Keya S, Bruce-Oliver S. (2006). Rice development in sub-Saharan Africa. *J. Sci. Food Agric.* 86:675-677

Obayelu, E., A (2015). Transformation from Subsistence to Commercial Agriculture in Nigeria: The Effects of Large-Scale Land Acquisition on Smallholder Farmers. In Osabuohien, E. (Ed.), Handbook of Research on In-Country Determinants and Implications of Foreign Land Acquisitions Hershey, PA: Business Science Reference. Pp. 409-431.

Obianefo Chukwujekwu A., Cecilia Nwigwe, Nkiru Theresa Meludu (2020): Comparative Analysis Of Rainfed and Dry Season Rice Farming in Value Chain Development Programme in Ayamelum Local Government Area. Anambra State. *Journal of Development and Agricultural Economics*. 12(2):67-74.

Ogunsumi, L.O, Ajayi, A., Amire C.M. & Williams, S. (2013). Sustainability of AgriculturalTransformation Agenda. The place of Rice Farmers in Ogun State Nigeria. *Research on Humanities and Social Sciences*, *3*(13), 66-78.

Opeyemi, G., Adedeji, S.O., Komolafe, S.E., Arotiba, K. and Ifabiyi, J. O. (2015).Analysis of consumers' preference in patronizing locally produced and imported rice in Niger state, Nigeria. *Nigerian Journal of Agriculture, Food and Environment*. 11(3):38-43

Onu, D.O., Obike, K.C., Ebe, F.E. and Okpara, B.O.(2015). Empirical assessment of the trend in rice production and imports in Nigeria (1980 – 2013). *International Research Journal of Agricultural Science and Soil Science*. Vol. 5(6). Pp. 150-158.

Osabuohien, E., Okorie, U. and Osabohien, R. (2018). Rice Production and Processing in Ogun State, Nigeria: Qualitative Insights from Farmers' Association. In Obayelu, E. (Eds). *Food Systems Sustainability and Envir. Policies in Modern Economics,* Hershey, PA:IGI, pp.188-215

Oyinbo O., Omolehin R.A. and Abdulsalam Z. (2013). Household Consumption Preference for Imported and Domestic Rice in KadunaState, Nigeria: Implication for Rice Quality Improvement. *Production Agriculture and Technology Journal*, *9 (1):29-37*

Tomlins, K., Manful, J. T., Larwer, P.and Hammond, L. (2005). "Urban consumer preferences and sensory evaluation of locally produced and import rice in West Africa." *Food quality and preference,* 16: 79-89

Seck, P.A., Toure, A. A., Coulibaly, J. Y., Diagne. A. and Wopereis, M. C. S. (2013). Impact of rice research on income, poverty and food security in Africa: an ex-ante analysis. In Wopereis, M. C. S., Johnson, D. E., Ahmadi, N., Tollens, E., and Jalloh, A. (Eds.), Realizing Africa's Rice Promise. CABInternational, Wallingford, UK. pp. 24-33.

Udemezue, J.C. (2018). Analysis of Rice Production and Consumption Trends in Nigeria. *Journal of Plant Science and Crop Protection*, 1(3):305.

JHER Vol. 28, No. 2, December 2021, pp. 189 – 203

Community Development Strategies for Enhancing Human Capital Development in Rural Areas of Anambra State, Nigeria

Ekwealor, N.E.; Ozurumba, I. G.; Okeke, P.M.
Department of Adult Education and Extra-Mural Studies,
University of Nigeria, Nsukka.

Abstract

The study investigated community development strategies for enhancing human capital development in rural areas of Anambra State, Nigeria. Specifically, it identified strategies related to education, communication and mobilization. The study was a descriptive survey. Three research questions and three hypotheses guided the study. Population of the study comprised all the 1,701 executive members of the 189 registered Autonomous Community Based Organizations (ACBOs) in the area of the study. Multi stage sampling procedure was used to select 351 respondents. Questionnaire was used for data collection. Data were analyzed using mean and analysis of variance (ANOVA)at 0.05 level of significance. Results reveal nine education-related strategies for enhancing human capital development in rural areas. These include provision of literacy education ($\overline{X}$ = 3.14), skill acquisition ($\overline{X}$ = 3.05) and health education programmes ($\overline{X}$ = 3.63), among others. Other findings are 15 communication-related strategies. These include, among others, provision of mass media ($\overline{X}$ = 3.10), establishment of group action ($\overline{X}$ = 3.26) and provision of social media as communication skills ($\overline{X}$ = 2.95). Also, 10 mobilization- related strategies for enhancing human capacity development in rural areas were identified. They include, involvement of community members in project processes ($\overline{X}$ = 3.04), formation of community-based organizations ($\overline{X}$ = 2.98) and the use of NGOs ($\overline{X}$ = 3.03) among others. Based on the findings, three recommendations were made, including, creating more awareness among community members on variety of adult education programmes available to them.

Key words: Community, Development, Strategies, Communication, Mobilization, Education, Human, Capital.

Introduction

Improving the quality of life of people especially those living in the rural communities has been a concern to various people and governments. This is a concern for healthy living that stems from the fact that people are often deprived of enjoying social amenities needed to make life comfortable. In order to address and improve this condition, people come together, identity their challenges and available resources, then work toward transforming their conditions. Community development therefore involves the identification of needs of people with little or no assistance from external bodies. According to Ugwu (2009), community development is a social process by which human beings become more competent to live and gain social control over local conditions and the challenging world. As a social process, the people organize themselves for planning an action; define their common and individual need and problems. They also execute plans with a maximum reliance upon community resources than materials from governmental and non-governmental agencies outside the communities. Thus, it is a grassroots process by which members of a community come together to become more responsible, organize themselves, evolve development options, improve themselves, overcome poverty and suffering, create employment and set and work toward meaningful economic, cultural and environmental goals (Frank & Smith, 2012). It is a structured intervention that gives communities greater controls over the conditions that affect their lives (Anam, 2014). Community development is associated with such words as community capacity building, community vitality, empowerment, rural development or self-reliance. It includes all strategies, or coordinated activities at the community level aimed at bringing about social and economic development.

Community development is a process that seeks to empower individuals and groups of people with skills needed to effect change within their communities (Centre for Sustainable Development, 2017). Thus, community development is a process of mobilization of community members to actively participate in the initiative aimed at poverty alleviation, solving social problems and achieving socio economic development (Ugwuzor, 2020). The outcome of the above participation towards achieving development brings about peoples' empowerment. Little wonder, community involvement is concerned with the combined influence of a community commitment, resources and skills that are displayed to build community strength and address community problems as well as potential opportunity (Atkinson & Willis, 2005). This action towards peoples' growth is termed human capital development.

Human capital development is one of the fundamental solutions to challenges confronting every society. Although literature tend to use human capital as interchangeably with human resources, however slight difference abound as human capital refers to the abilities and skills of human resources of a given country. Ejere (2011) stipulated that it consists of a combine knowledge skills or competencies and ability of the workforce. Human resources on the other hand refer to the values, knowledge, skills and competencies possess by the people of a nation. Accordingly, human capital development could be seen as the process of acquiring and increasing the number of persons with skills, education and experiences that are crucial for economic growth and the development of a country's economy (Okojie, 2014). Thus, this development is the deliberate and continuous process of acquiring requisite knowledge, skills and experiences that are applied to produce economic value for driving sustainable national development. A distinct look at this concept suggests that there is a direct link between community development and human capital development.

Furthermore, human capital development occupies a strategic place in the development of the rural areas. These areas are characterized by pervasive and endemic poverty which is manifested through widespread hunger, malnutrition, and poor health, general lack of access of formal education, modern housing and various forms of social and political solution. This deplorable state is more pitiable in rural communities particularly Anambra State where the low ebb of development is manifested in different forms such as absence of quality road network, epileptic power supply, decaying infrastructure with low presence of the government. To improve this poor condition, community development becomes a coordinated approach whereby members of the community undertake programmes and projects in order to better the living condition of the people residing in that community (Seya, 2014). It is also the participation of the people themselves in efforts to improve their level of living and the provision of technical and social services in ways which promote initiative and self-help (Nwoye & Olori, 2018). This clearly explains the various elements that are associated within community development. These are community participation, collaboration, capacity building and empowerment.

Community participation is an element of community development that is purported at bringing various stakeholders together for problem solving and decision making. It is the continuous involvement of people in decision making processes, implementing programmes, and their efforts in evaluating such programmes (Olori & Okide, 2014). The realization of the above goal is premised on collaboration which is another element of community development. Collaboration involves listening, discussing areas of need and coming to terms with parties involved for the achievement of stipulated objectives. Capacity building on the other hand is the mechanism by which stakeholders come to realize their common goal of attaining improved quality of life (Okide, 2020). This goes to show that where the needs of the people are met, the people are said to be empowered. Thus, leading to the fourth element, which is, empowerment. Empowerment entails a continuous process of gaining confidence, self-esteem, understanding and power necessary to articulate peoples concern, and actions taken to address them. According to Olori and Okide (2014), empowerment is the process whereby authority is given to an individual or group to take a particular self-fulling course of action. Consequently, the efforts to improve human capital development of rural communities require the utilization of community development strategies.

The provision of community development strategies is seen as a measure for empowering the rural communities who are relegated to the background owing to the absence of basic social amenities. By acquiring these skills, knowledge and competencies, their participation in the development process is enhanced. These strategies are but not limited to educational, communication and mobilization. The provision of educational strategies is based on the fact that education is aimed at empowering and equipping people to meet their needs in the society. This is made possible through the application of various educational opportunities. The presence of these learning opportunities is what explains adult education as multifaceted. Olori and Olori (2021) saw this education as any learning activity organized for adults to introduce them into new way of life through the provision of relevant skills, competencies, knowledge, information and attitude required to excel in that aspect of life. This is borne out of the fact that learning could take place in different modes such as formal, non-formal and informal.

Thus, adult education is a lifelong process of learning activities that is opened for people from different background to improve their knowledge, skills, values and competencies in a given area (Koper, Giesbers, Rosmalen, Sloep, Bruggen, Tattersall, Vogten & Brounds, 2005). These skills and knowledge are achieved through various adult education programmes such as extension education, literacy education, entrepreneurship education, vocational training among others. In addition to education, communication is another strategy that could enhance human capital development of rural areas of Anambra State.

Communication is a veritable tool for promoting community development. Adedokuin, Adeyemo and Olorinsola (2010) observed that to mobilize people for development action, communication helps in solving problems and misunderstandings that may arise during the plan. Thus, effective communication promotes participation of every community member towards the achievement of the goals of community. As a powerful tool in development process, communication encourages community participation with a strategic utilization of various communication strategies. In rural communities, communication is used for people's participations, community mobilization, decision making and action as well as confidence building for raising awareness. In community development, communication provides the opportunity of involving and motivating people of the community to define, identify, analyse and solve problems that members feel are important. This is however achieved through inter-personal channels, ICTs, audio-visuals and mass media. Thussu (2000) added that for electronic communication to be effectively used in rural development, the issue of connectivity, content and context must be addressed and assured to realize the potential of information technologies. This invariably implies that effective communication would lead to active participation of members in community development. Consequently, community strategies depict the use of both traditional and electronic media for information dissemination relating to activities and projects directed at improving the wellbeing of the rural communities.

In addition to communication, mobilization is another strategy for enhancing human capital development in Anambra State. It is the process of putting people into readiness for active service or arousing the interest and consciousness of a group of people in a programme which would be of benefit to them and their society (Imhabekhai, 2009). Community mobilization therefore is a continuous process that is aimed at bringing the people together for the sole aim of generating ideas in relationship to the problems they face or meeting their needs with the help of facilitators (Okide, 2020). These facilitators as relate to the study are the executives of Autonomous Community Based Organizations (ACBOs) in Anambra State. Anambra is one of the states in south East Nigeria notable for embarking on self-help projects. These projects are usually executed through the aid of executives of ACBOs who are mandated by the various rural communities in the State. They provide valued programmes and services to members of their communities because of the trust given to them. As community based organizations, they provide services and support to the most marginalized and disadvantaged especially the rural settings. Chillag, Bartholow, Cordeiro, Swanson, Patterson, Stebbins et al (2002) reported that they are well positioned to deliver such services because they understand their local communities and are connected to the groups they serve. Furthermore, they are increasingly involved in the development and production of research to reform the development of policy, programmes and services in rural communities. However, while the importance of ACBOs has been articulated in enhancing human capital development among the rural areas in Anambra State, there appears to be little or no consensus about their core functions following the pervasive and endemic poverty faced in the rural areas of the State. This study therefore attempts to investigate the community development strategies necessary for enhancing human capital development in rural areas of Anambra State.

Purpose of the Study

The main purpose of this study was to investigate community development strategies necessary for enhancing human capital development in rural areas of Anambra State. Specifically, the study determined those strategies for enhancing human capital development in rural areas of Anambra State that are related to:

1. education
2. communication
3. mobilization

Research Questions

The following questions guided the study:

What are the strategies for enhancing human capital development in rural areas of Anambra State in relation to:

1. education?
2. communication?
3. mobilization?

Hypotheses

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

There is no significant difference in the mean responses of executive members of ACBOs in the three LGAs (Aguata, Orumba South and Nnewi South) on human capital development strategies related to:

HO_1: Education
HO_2: Communication
HO_3: Mobilization

Methodology

***Research Design*:** The study adopted a descriptive survey research design.

***Area of the Study*:** The study was carried out in rural areas in the three senatorial zones that make up 21 local government areas in Anambra State. The people living in these areas are predominantly farmers, traders, with few civil servants. There are little or no social amenities in the area with government's absence. This invariably led to search for community development strategies.

***Population*:** The population of the study comprised all the 1,701 executive members from the 189 registered Autonomous Community Based Organizations (ACBOs) within the 21 local government areas in the state. These are organizations that are constituted in rural communities to oversee the developmental activities in a given community. To achieve these roles of carrying out various developmental activities, executives are constituted from among the organization to plan, mediate, and coordinate resources for the general wellbeing of the rural communities. Some of these executives have senior secondary certificate as their highest qualifications, and very few numbers with first degree.

***Sample for the study*:** The sample size of 351 executive members was chosen using the multi stage sampling procedure. The multi- stage was carried out in three stages. At the first stage, one local government area was selected from each of the three senatorial zones using the random sampling technique by balloting. At the second stage, 12 rural communities were selected from the chosen the local government areas in each senatorial zone. The purposive sampling technique was used in selecting the communities. The third stage involves the selection of the respondents from the registered ACBSs in those communities using the simple random sampling technique.

Instrument for Data Collection: A structured questionnaire was used for data collection. The questionnaire consisted of two sections I and II. Section I provided personal information of the respondents while section II was made up of three clusters according to the three specific objectives/research questions. Responses to the items in the questionnaire were based on a four-point rating scale, ranging from strongly agree (SA) (4 points), agree (A) (3 points), disagree (D) (2 points), to strongly disagree (SD) (1 points). The instrument was duly validated by three adult educators in a University. Reliability of the instrument was ascertained using Cronbach Alpha. A reliability coefficient of 0.88 was established which signified very high reliability of the instrument.

Data Collection Methods: Three hundred and fifty one (351) copies of the questionnaire were administered by hand to the executive members of the ACBOs. All the 351 were properly responded and retrieved. This gave 100 percent return.

Data Analysis Techniques: Mean and standard deviation were used for quantitative data analysis. A mean of 2.50 was used as the benchmark for decision making for each item. Any items with a mean of 2.50 and above were considered as "agree" while any item with a mean below 2.50 was considered as "disagree". Analysis of variance (ANOVA) was used to test the differences among the mean responses of the executive members across the three Local Government Areas (LGAs) at $P < 0.05$.

Results

Educational Strategies for Enhancing Human Capital Development in Rural Areas of Anambra State

Table 1: Mean Responses of the Respondents on the Educational Strategies Necessary for Enhancing Human Capital Development of Rural Areas in Anambra State (n=351)

S/N	Educational strategies	X	SD	Decision
	Provision of:			
1	community education for human development	3.27	0.64	Agree
2	agricultural extension education for boosting of farm produce	3.03	0.71	Agree
3	literacy education for acquisition of skills of reading, writing and numeracy	3.14	0.39	Agree
4	training for skill acquisition by adult educators and facilitators for economic empowerment	3.05	0.22	Agree
5	civic adult education for political development	2. 88	0.54	Agree

Table 1 Contuned

6	vocational adult education for skill acquisition of learners	2.00	0.62	Disagree
7	cooperative education for business expansion of learners	2.94	0.51	Agree
8	adult and non formal education for all round development of learners	2.48	0.72	Disagree
9	citizenship education for cultural alertness of learners	3.23	0.66	Agree
10	health education for proper child spacing in family size	3.63	0.48	Agree
11	environmental education for acquisition of waste management technique	2.84	0.44	Agree

X = Mean, SD = Standard Deviation

Table 1 shows that items 1, 2,3,4,5,7, 9,10,11 had mean scores above 2.50. It follows that these nine education strategies are necessary for enhancing human capital development in rural areas of Anambra State. They are provision of community education ($\overline{X}$ = 3.27), agricultural extension education ($\overline{X}$ = 3.03), literacy education ($\overline{X}$ = 3.14), and training for skill acquisition (X = 3.05), civic education, cooperative education, citizenship education, health education programmes and environmental education were noted as community development strategies used for enhancing human capital development of rural areas of Anambra State.

Communication for Participation Strategies in Enhancing Human Capital Development of Rural Areas in Anambra State

Table 2: Mean Responses on Communication Strategies for Enhancing Human Capital Development in Rural Areas of Anambra State (N=351)

S/N	Communication for participation strategies	X	SD	Decision
1	Organizing public talks on community development issues	2.95	0.73	Agree
2	Promoting partnership between community based organizations and faith based organizations for scholarship sponsorship.	2.94	0.55	Agree
3	Organizing Public talk/shows on the importance of education	2.99	0.36	Agree
4	Encouraging cooperation members of the community in the implementation of water project	3.32	0.54	Agree
5	Educating members of the community through group action grassroots development	3.26	0.57	Agree
6	Arousing the consciousness of the members in the community on the need to actively participate in skill acquisition project	2.82	0.32	Agree
7	Exposing members of the community to scholarship opportunities through social media interaction	3.14	0.39	Agree

Table 2 Contuned

8	Promoting dialogues with the government on the need for the construction of roads in the community	2.42	0.60	Disagree
9	Using radio programmes and Jingles to educate members of the community on the health enlightenment programmes	3.03	0.42	Agree
10	Promoting cultural heritage through the use of local newspapers	3.56	0.62	Agree
11	Organizing participatory folk theatre to expose members to need identification of the community	3.06	0.44	Agree
12	Creating communication centres for dissemination of information on development projects	2.96	0.49	Agree
13	Creating awareness in communication on emerging issues such as covid-19, climate changes among others in the area	3.00	0.53	Agree
14	Establishing feedback mechanisms on development projects	2.79	0.41	Agree
15	Using television programmes to sensitize members of the community on the importance of environmental sanitation	2.83	0.54	Agree
16	Organizing Public talk/shows on the establishment of small and medium scale business enterprises	3.17	0.39	Agree

X = Mean, SD = Standard Deviation

Table 2 shows that all items except item 8 had mean scores above 2.50. This indicates 15 of the items are communication strategies necessary for enhancing human capacity development of rural areas in Anambra State.

Mobilization Strategies for Enhancing Human Capital Development of Rural Areas in Anambra State

Table 3: Mean Responses on Mobilization Strategies for Enhancing Human Capital Development in Rural Areas of Anambra State (N=351)

S/N	Mobilization strategies	X	SD	Decision
1	Involving community members in the planning of electricity project	3.04	0.47	Agree
2	Forming different community-based organizations for the implementation scholarship scheme	2.98	0.53	Agree
3	Constituting committees for the supervision of construction of lock up shops	3.09	0.57	Agree
4	Using mass media as means of communication to disseminate health related information in the community	3.10	0.49	Agree
5	Involving in a Face-to-face discussion with government for the provision of pipe borne water in the community	3.07	0.26	Agree

Table 3 Contuned

6	Engaging in dialogue with government to compensate community members whose goods were damaged in the course of project execution	3.21	0.66	Agree
7	Encouraging cooperative societies to initiate empowerment programmes for members of the community	3.32	0.74	Agree
8	Mediating between faith based organizations to undertake environmental sanitation in the community	2. 36	0.50	Disagree
9	Engaging the services of philanthropies in the execution of road projects	2. 13	0.62	Disagree
10	Persuading community based organizations to take up construction of link roads in the community	2.96	0.52	Agree
11	Employing door to door mobilization to sensitize community members on health related projects	2.78	0.45	Agree
12	Engaging the services of NGOs in taking electricity project	3.03	0.17	Agree

N= 351, X = Mean, SD = Standard Deviation

Table 3, shows that items 1, 2, 3, 4, 5, 6,7, 10, 11, 12 were identified as mobilization strategies used for enhancing human capacity development of rural communities (X > 2.50). Items 8 & 9 however had mean scores below 2.50. There are thus not strategies for enhancing human capital development in the area of the study.

HO_1: Education Strategies

Table 4: Analysis of Variance on Differences in Mean Responses of Executive Members of ACBOs in Rural Area of the Three LGAs on Education Strategies for Enhancing Human Capital Development

L.G.A	N	X	SS	Df	MS	$F_{cal.}$	$F_{crit.}$	Decision
Aguata	126	3.22	1.18	2	0.59	1.82	1.96	Not Rejected
Orumba South	135	3.08	112.32	348	0.32			
Nnewi South	90	3.13						
Total	351		113.49	350				

F-crit. = F- critical, F-cal. = F-calculated, X = Mean, SD = Standard deviation, N = Sample, SS=Sum of Squares, MS= Mean Squares.

Table 4 indicates that executive members of ACBOs in Aguata L.GA had higher mean response (3.22) relative to the mean response of executive members of Nnewi South L.G.A (3.13) and Orumba South L.G.A (3.08). The difference in the mean response was not significant at 0.05 level of significance with calculated F-value (1.82) < table F-value (1.96). This shows that there was no significant difference in the mean response of the executive members of ACBOs in the three LGAs. Therefore, the null hypothesis was retained.

HO2: Communication Strategies

Table 5: Analysis of Variance on Differences in Mean Responses of Executive Members of ACBOs in Rural Area of the Three LGAs on Communication Strategies for Enhancing Human Capital Development

L.G.As	N	X	SS	Df	MS	$F_{cal.}$	$F_{crit.}$	Decision
Aguata	126	3.13	0.41	2	0.21	1.26	1.96	Not
Orumba South	135	3.05	56.68	348	0.16			Rejected
Nnewi South	90	3.09						
Total	351		57.09	350				

F-crit. = F- critical, F-cal. = F-calculated, X = Mean, SD = Standard deviation, N = Sample, SS=Sum of Squares, MS= Mean Squares.

Table 5 shows the mean (3.13) response of executive members of ACBOs in Aguata L.G.A greater than the mean (3.09) response of those of Nnewi South L.G.A and also the mean (3.05) response of those of Orumba South L.G.A. However, the difference in the mean response was not significant at 0.05 level of significance with calculated F-value (1.26) < table F-value (1.96). This shows that there was no significant difference in the mean response of the executive members of ACBOs in the three LGAs. Therefore, the null hypothesis was not rejected.

HOs3: Mobilization Strategies

Table 6: Analysis of Variance on Differences in Mean Responses of Executive Members of ACBOs in Rural Area of the Three LGAs on Mobilization Strategies for Enhancing Human Capital Development

L.G.As	N	X	SS	Df	MS	$F_{cal.}$	$F_{crit.}$	Decision
Aguata	126	3.06	0.31	2	0.16	1.31	1.96	Not Rejected
Orumba South	135	3.11	41.72	348	0.12			
Nnewi South	90	3.03						
Total	351		42.03	350				

F-crit. = F- critical, F-cal. = F-calculated, X = Mean, SD = Standard deviation, N = Sample, SS=Sum of Squares, MS= Mean Squares.

Table 6 shows the mean responses of executive members of ACBOs and how their responses vary across Aguata (3.06), Orumba South (3.11) and Nnewi South (3.03) local government areas of Anambra State. The variation in their mean responses was insignificant at 0.05 level of significance with calculated F-value (1.31) < table F-value (1.96)). This shows that there was no significant difference in the mean response of the executive members of ACBOs in the three local government areas. Therefore, the null hypothesis was not rejected.

Discussion

The study revealed that various educational strategies were found as enhancing human capital development of rural areas in Anambra State. Some of these strategies are the various programmes made available through adult education. These programmes are but not limited to health education, community education and literacy education. Knowledge on health is informed by the alarming state in the spread of contagious diseases in rural communities. This knowledge provides the adults with health related needed to handle health issues in every situation. Thus, stressing the importance of adult education, Olori and Olori (2021) observed that it is a learning activity that provides the adults with relevant skills and competencies to advance in life.

Furthermore, community education as a programme capable of enhancing human capacity development stems from the fact the use of local resources for empowerment of members of the community is the sole aim of community development. Olori and Okide (2014) held similar view when she submitted that the capability of people to take full course of action about themselves is only possible when they are empowered. With regard to literacy education, the acquisition of literacy skills is believed to unlock the inherent potentials of the individuals, as they could participate in activities purported at improving their quality of life. This is further supported by Nwoye and Olori (2018) who saw community development as the participation of people in efforts to improve their level of living. The improved level of participation for a worthwhile living is closely related with human capital development which encompasses increase in skills and competencies required for the promotion of the economy.

The null hypothesis was accepted as respondents from the three local government areas held similar views on the contribution of educational strategies to the improvement of human capacity development of rural areas in Anambra State.

The study further showed that various communication strategies are employed for active participation towards human capacity development of rural areas in Anambra State. It goes to show that for people to enroll into any learning activity needed to improve them, effective communication is said to have taken place. This communication occupies a strategic place in every community development activity. Adedokun, Adeyemo and Olorunsola (2010) affirmed the relevance of communication as it mobilizes people for development action. Respondents observed that some of the strategies include holding up of public talks, the use of group action as well as media both traditionally and electronically. Commenting on the use of electronic media in rural development, Thussu

(2000) indicated that its connectivity, content, and context must be addressed and assured to realize the potential of information technologies. The use of electronic media is borne out of the fact that in a digital age various media have emerged and used for dissemination of information to wide range of people. It is also believed that through the use of these media, members of the community are equipped with knowledge and competencies without necessarily going through the formal system of education. This further benefits the contribution of adult education in the use of various modes of learning to impact positive change on the individual. This view is collaborated with Koper et al (2005) who saw adult education as a lifelong process of learning for different categories of people with different background to improve their knowledge, skills, values and competencies. It is this acquisition of knowledge that gives rise to human capacity development as Ejere (2011) reported that this capacity comprised knowledge, skills or competencies and ability of the work force. This idea may have further led to the acceptance of the null hypothesis in the mean responses of respondents from the three local government areas on communication strategies for participation in enhancing human capacity development of rural areas in Anambra State.

The study further showed that various mobilization strategies are employed for enhancing human capacity development of rural areas in Anambra State. The use of different strategies is based on the fact effective community development adopts various approaches. These approaches ranged from the application door to door, philanthropists to community based organizations among others. The identification of an appropriate strategy is conceived as a measure for empowering the rural communities. Collaborating with the findings, Imhabekhai (2009) reported that mobilization is a process of putting people together into readiness for active service into programmes that are beneficial to the society. A look at this view suggests that for people to be involved in activities for their growth, they may have also been exposed, and when exposed could be said to be empowered. In other words, capacity building is achieved through the coming together of people to strive for attainment of quality of life (Okide, 2020). Consequently, for people to come together there should be some act of confidence on the leaders who serve as the eye piece of the various communities. This informs the use of ACBOs for projects directed at enhancing the capacity development of the rural communities. Thus, the acceptance of the null hypothesis.

Conclusion

The application of community development strategies in rural areas is purported at enhancing their capacity capital development in Anambra State. Some of these strategies are educational, communication and mobilization. The acquisition of knowledge through education was evident in the variety of programmes being made through adult education to meet the needs of learners. The study therefore identified the provision of community education, literacy education and skill acquisition as some of the educational strategies for achieving human capacity development. Furthermore, active participation in development process is hinged on the application of effective communication strategies. These strategies as revealed in the study are but not limited to the use of mass media both print and electronic, and holding of public talks to members of the community about a given project. The use of various means to reach out to the people for development was mobilization strategies. Some of these strategies are formation of committees for development projects, the use of community based organization and philanthropists.

Recommendations

The following recommendations were made based on the findings of the study:

1. More awareness should be created among members of the community on variety of adult education programmes that can help in the achievement of human capacity development of rural communities,
2. Efforts should be intensified by the government in ensuring the use of appropriate communication strategy that will spur participation for adequate development of members of the community.
3. Community based organizations should be sensitized on their roles in the development of the people through strategizing other avenue that will encourage participation for human capacity development.

References

Adedokun, M.O.; Adeyemo, C.W & Olorinsola, E. O. (2010). The impact of communication on community development. *Journal of Communication, 1(2)*, 101-105).

Atkinson, R. & Willis, P. (2005). *Community capacity building- A practical guide.* Hobart: Housing and Community Research Unit, University of Tasmania.

Anam, B. (2014). *Understanding community and rural development.* CRS: Ethereal Bliss.

Centre for Sustainable Development (2017). *What is sustainable community development*? https://www.sfu.ca/sustainabledevelopment/about-us/what-is-sustainable-community-development.html.

Chillag, K.; Bartholow, K.; Cordeiro, M,; Swunson, S.; Patterson, J.; Tebbins, S. et al (2002). Factors affecting delivery of HIV/AIDs Prevention programmes by community based organizations. *AIDS Educ. Prev, 14*, 27-37.

Ejere, S.I. (2011). Human capital formation as catalyst for national development: Nigeria in perspective. *International Business and Management, 2(2),* 98-104.

Frank, F & Smith, A. (2012). *What is community development*? Retrieved from http://www.hrdc-drhc.gc.ca/community.http://www.d vv-international.de/index.php?article-id=230&clang=1.

Imhabekhai, C. I. (2009). *Management of community development programmes and projects*. Benin city: Uniben Press.

Koper, R., Giesbers, B., Rosmalen, P. V., Sloep, P., Bruggen, J. V., Tattersall, C., Vogten, H., & Brouns, F. (2005). A design model for lifelong learning networks. *Interactive LearningEnvironment*, *13 (1 & 2)*, 71-92.

Nwoye, V.A. & Olori, C.N. (2018). Evaluation of the implementation of community driven development (CDD) approach on poverty reduction in communitites in South East Nigeria. *International Journal of Continuing and Non formal Education, 9(1)*, 226-240.

Okide, C.C. (2020). Capacity building for stakeholders: A community mobilization strategy for implementation of community development projects in South East, Nigeria, Rivers State University. *Journal of Education (RSUJOE), 23(1 & 2)*, 66-77.

Okojie, J.A. (2014). Welcome address delivered by Prof. Julius A. Okojie, OON, Executive secretary, National universities commission at the opening ceremony of the first national conference of educators in banking and finance, organized by the national universities commission (NUC)in collaboration with the chartered Institute of bankers of Nigeria.

Olori, C.N. & Okide, C.C. (2014). Achieving sustainable community development projects through community participation in Rivers State, Nigeria. *Journal of Education and Practice, 5(24)*, 93-99.

Olori, C.N. & Olori, G.I. (2021). Adult education and conflict management. In R. Igbo, K. Kazeen, P Nwamuo & S. Obih (Eds.), *Fundamental issues in adult education (pp.500-506).* Owerri: Citihall International.

Seya P. T. (2014). *Adult Education and African development in the contest of globalization.*

Thussu, D.K. (2000). *International communication: Continuity and change.* London: Arnold.

Ugwu, C.E. (2009).*The dynamics of community development programmes in Enugu State: Reflections on the role of Ekete Local Government Council 2005-2007.* Onitsha: Austino Publishers.

Ugwuzor, S.O. (2020). Factors influencing community participation in community development programs in Nigeria. implications for sustainable development gals. In K.K. Kazeem, A. A. Haladu & S.C. Nwizu (Eds.), *Reinventing education and lifelong learning practice for sustainable development,* (pp.187-210). Ibadan: St. Paul's Publishing House.

JHER Vol. 28, No. 2, December 2021, pp. 204 – 216

Improving Household Food Security in Ayamelum Local Government Area of Anambra State

Nomeh B. C.
Department of Home Economics
Nwafor Orizu College of Education, Nsugbe
Anambra State

Abstract

The study focused on food security among households in rural communities of Anambra State, Nigeria. Specifically, it determined food items that are available to the rural households throughout the year; extent to which the food items are accessible throughout the year; factors that hinder availability and accessibility throughout the year; and ways of improving food availability and accessibility to households throughout the year. The study was survey. Area of study was Ayamelum Local Government Area (LGA) of Anambra State. Population comprised of 158, 152 households in LGA. Data were collected through focus group discussion (FGD) guide. Data collected were summarized and organized based on specific purposes. Findings reveal, among others, that only two food items (cassava and maize) were available to households throughout the year. These can be processed into a variety of dishes; access to food is limited; eleven factors hinder household food security including flooding, activities of herdsmen and their animals eating up their crops. Further findings reveal 10 ways of improving food security among households which include; food borrowing and young children depending on school lunch. Study concluded that households are not food secured. Based on the findings, six recommendations were made for improving household food security including; improved agricultural practices, and Home Economics bodies should organize trainings and workshops regularly on ways of improving food management practices.

Key words: Availability, Accessibility, Food, Security, Households, Rural Communities.

Introduction

Household food insecurity is the bane of existence for many households in Nigeria, especially those in rural areas. The right to an adequate standard of living including food security is recognized in the Universal Declaration of Human Right (United Nations, 2021). Food security should be a fundamental objective of developmental policy as well as a measure of its success. Household food security affects a wide cross-section of the population in both rural and urban areas. The food insecure social-economic groups include: farmers of which main population are women with limited access to natural resources and input: landless labourers; rural artisan temporary workers; the elderly; refugees and displaced unemployed and female head of household etc. According to Food and Agricultural Organisation (2010) 925 million people were approximately undernourished in 2010 with about 900 million of them living in developing countries, while FAO (2015) with respect to the World Food Summit (WFS) target (halving the number of undernourished people by 2015). Despite the overall progress made in reducing the prevalence of hunger; there is room for improvement. Since 1990 – 92, approximately 42 million people were added to the total number of undernourished people in sub-Saharan Africa, with an estimated 217.8 million in 2014 – 16 compared to 176 million in 1990 – 92.

World Food Summit gave a holistic definition of food security which incorporates four domains of food security namely; availability, access, utilization and stability (United Nations, 1996). Food security was also defined as the ability of all people to have physical and economic access at all times to safe nutritious food to maintain a healthy and active life (Akukwe & Ogunniyi, Omotoso, Salman, Omotayo, Olagunju and Aremu, 2020). Food availability has to do with "sufficient food" and is associated with physical quantities of food while food accessibility is a measure of ability to obtain/secure food (Akukwe, 2020). Food availability also connotes that food must be readily available for consumption through improved agricultural production, market access, uniform distribution to all (Ogunniyi *et al.,* 2021). Access to quality nutritious food is equally fundamental to human existence. Secure access to food can produce wide range of positive impact which includes: economic growth and job creation, poverty reduction, trade opportunities, increase global security and improved health. Irohibe and Agwu (2014) also noted that food availability does not ensure food accessibility. For food to be accessible individual or families must have sufficient purchasing power or ability to acquire quality food at all times.

Household food insecurity thus occurs when food is not available or cannot be accessed with certainty in terms of quality, quantity, safety and in culturally acceptable ways at the level of household (Gupta, Singh, Soth, Agaraval and Mathur, 2015). Household food insecurity may affect dietary diversity by limiting access to and procurement of food of higher quality and food insecure households (Ezeama, Ibeh, Adimma, Echendu, Emelumadu and Adogu, 2015). Food insecure households often adopt ways of coping with food shortage in their household. Such ways include, among others, as reduction of the number of meals in a day, reducing the amount of food cooked for meals, material buffering (a mother limiting her own food intake to ensure her child has enough to eat), borrowing from relatives, borrowing outside one's kinship network and sale of land to procure food items for households (Ezeama *et al.,* 2015).A study carried out in India found significant associations of food insure households with borrowing money/food and selling of valuable materials (Gupta et al., 2015). Ezeama *et al.,* (2015) reported in their study in Anambra state that the households major staple were cassava and rice while Anuawa and Agwu (2019) reported maize and rice as major staple food consumed in their study area in Kano State. They also commented that households understanding of having enough food mean having enough of maize and rice. An indication of diet that is largely starch based (Anuawa and Agwu, 2019). This runs contrary with goal two of the sustainable development goal which strives for "zero hunger" by 2030. Food insecurity, under nutrition and malnutrition is a barrier to the development of many regions including Africa (African Hunger and Poverty Facts, 2018).

Anambra State is one of the states in Nigeria with the ability to attain self-sufficiency in basic food production, with a land mass of 4,844km^2 (National Population Commission, 2006). Prior to the 70s, agriculture occupied a prime position in the economy of the state which is blessed with arable soil. However, over the past decades; rural urban migration has been the trend as 60% of an estimated 4,177.828 inhabitants of the state live in urban areas in search of better stand and of living, making the state one of the most urbanized states in Nigeria (National Population Commission, 2006) thereby decreasing food productions. It is also important to note that despite the numerous resources available for agricultural development; the state is still limited by low level agricultural technology.

Ayamelum local government is one of the LGA in Anambra State with agriculture as the major economy of the people. Substance agriculture is the predominant occupation of the area (Udemezue, Ede and Udesi, 2018). Rainfall occurs seasonally with average dry season, and this brings about the dynamics in the ecosystem between killer herdsmen and farmers. The implications of this land use by herdsmen have brought about an incessant loss of soil fertility (Udemezue *et al.,* 2018).Apart from grazing in their farm lands, issue of kidnapping of farmers in their farm lands, conflict and extreme weather condition such as intense rainfall caused by climate change which is beyond what the farmers are familiar with and can handle in order to remain productive (Nnamdi, Ligwnga, Lyimg and Madukwe, 2019). These have left the agricultural communities less food secured.

Purpose of the Study

The main purpose of the study was to evolve ways of improving food security within households in rural communities of Anambra State. Specifically, the study determined:

1. food items that are available to the rural households in Ayamelum LGA throughout the year.
2. extent to which the available food items are accessible to households throughout the year.
3. factors that hinder availability and accessibility of food to households throughout the year.
4. ways of improving food availability and accessibility to the household throughout the year.

Research Questions

The following research questions were raised to guide the study:

1. What food items are available to the rural households in Ayamelum LGA throughout the year?
2. To what extent are foods accessible to household throughout the year?
3. What are the factors that hinder availability and accessibility of food to households throughout the year?
4. What are ways of improving food availability and accessibility to the household?

Methodology

Area of the Study**:** The study was carried out in Ayamelum LGA of Anambra State. Ayamelum has its headquarters at Anaku. The LGA is located in south-central zone of Anambra State. It has eight communities. It is located at the left bank of Anambra River. The communities have their local markets where they sell and purchase their farm produce, but have no access roads.

Design for the Study**:** The design used for the study was qualitative survey.

Population for the Study**:** The estimated population of the households in the LGA based on the last population census is 158,152 (National Population Commission, 2006). There are literate and both illiterate households. They were predominantly farmers and few civil servants.

Sample for the Study**:** The sample size for the study was made up of 48 persons. This sample size was chosen because foucs group discussion was used to collect qualitative data. The study adopted multi-stage and purposive sample techniques. At first stage, the four communities were selected out of the eight communities that made up the LGA. Four households were purposively selected from each of the four communities to give a total of 16 households. Only households with at least four members and had at least a child of not less than 10 years of age were selected. From each household the father, mother and grown up were selected. These gave a total of 48 members of households who made up the sample of the study.

Instrument for Data Collection**:** The instrument for data collection was a focus group discussion (FGD) guide. It was developed based on the specific purposes of the study. It was validated by three experts in Food and Nutrition in a University.

Data Collection Method**:** Four sessions of FGD each made up of 12 discussants were conducted in the Primary Health Care facilities in the study area. All these sessions were conducted in Igbo language. The researcher facilitated each of the four FGD sessions with the help of two assistants. Each session of FGD lasted for an average of one hour. Discussions were duly recoreded and necessary notes were taken by research assistants.

Data Analysis Techniques**:** The video recording was in Igbo and was later translated verbatim into English language. It was read several times and compared with the notes obtained during the discussion. The FGD data were then organized and summarized based on the specific purposes.

Findings of the Study

Table 1: Summary of FGD Information on Food Items Available to Rural Households throughout the Year

S/No	Food Items	Availability Ranking
	Food Availability throughout the year	
1.	Cassava (*Manihot esculenta*)	1st
2.	Maize (*Zea mays*)	1st
3.	*Garri* (cassava product)	2nd
4.	Cassava *fufu* (cassava product)	3rd
5.	Cassava flour (cassava product)	3rd
6.	*Abacha* (cassava flakes) (cassava product)	4th
7.	*Akamu* (corn Porridge) (Maize product)	5th
8.	*Igbagwu* (corn dish)	6th
	Food that have Seasonal variation in availability	
9.	Yam (*Marihot esculenta*)	1st
10.	Cocoyam (*Colocasia esculenta*)	2nd
11.	*Fio fio* (pigeon pea) (*Cajanus cajan*)	3rd
12.	*Akidi* (green runner beans) (*Vigna unguiculata*)	4th
13.	Rice (*Oryza sativa*)	5th
14.	*Ukwa* (Bread fruit) (*Treculia africana*)	6th
15.	Plantain (*Musa paradisiacal*)	7th
16.	Fruits/vegetables (assorted)	8th
17.	Fish/meat	9th

Table1 reveales that cassava and maize were available to the households throughout the year with an availability ranking of first (1st), follow by garri with the availability ranking of second (2nd), cassava flour third (3rd), Abacha fourth (4th), Akamu (corn portage) fifth (5th) and Igbagwu (corn dish) sixth (6th).

Table 1 also shows that there is seasonal variations in food availability with yam ranking number first (1st), followed by cocoyam second (2nd), fio fio (pigeon pea), third (3rd), Akidi (green runner beans) fourth (4th). The table also reveals that rice ranked fifith (5th), ukwa (bread fruit) sixth (6th), plantain seventh (7th) and fruits/vegetables ranked eight (8th) while fish/meat had the lowest ranking of nineth (9th).

Table 2: Summary of FGD Information on Extent to Which the Food is Accessible to Household throughout the Year

S/No	Extent of accessibility	Very High	High	Average	Low	Very Low
1.	Cassava (*Manihot esculenta*)	x				
2.	Maize (*Zea mays*)	x				
3.	Cassava *Fufu* (cassava product)		x			
4.	*Garri* (cassava product)		x			
5.	Cassava flour (cassava product)		x			
6.	*Abacha* (cassava flakes) (cassava product)		x			
7.	*Akamu* (corn porridge) (Maize product)		x			
8.	*Igbagwu* (corn dish)		x			
	Seasonal Variation in Accessibility					
9.	Yam (*Manihot esculenta*)			x		
10.	Cocoyam (*Colocasia esculenta*)			x		
11.	*Fio fio* (pigeon pea) (*Cajanus cajan*)			x		
12.	*Akidi* (green runner beans) (*Vigna unguicalata*)			x		
13.	Rice (*Oryza sativa*)				x	
14.	*Ukwa* (bread fruit) (*Teculia africana*)				x	
15.	Plantain (*Musa paradisiaca*)				x	
16.	Fruit/vegetable (Assorted)				x	
17.	Fish/meat					x

Table 2 reveals that cassava and maize were very high on extent of accessibility to households. It also shows that items 3,4,5,6,7 and 8 which are products of cassava and maize are high in excessibiity. These really show that cassava and mazie are key food items in the area of the study.

Table 2 also shows the extent of accessibility of food items characteristized by seasonal variation. It shows that yam, cocoyam, *fio fio* and *akidi* rank average accessibility while rice, *ukwa*, plantain and fruit/vegetable rank low in level of accessibility, fish and meat were very low.

Table 3: Summary of FGD Information on Factors that Hinder Availability and Accessibility of Food Items to Households throughout the Year

S/No	Factors that Hinder Availability and Accessibility of Food	Ranking
1.	Lack of fund/high food price (poverty)	1st
2.	Climate change (flooding)	2nd
3.	Insecurity (kidnapping/killer herdsmen activities)	3rd
4.	Poor access to farm land	4th
5.	Conflict/terrorism	5th
6.	Government policies	6th
7.	Poor access road to farmland/market	7th
8.	Food storage/processing problems	8th
9.	Poor access to credit facilities	9th
10.	Mechanization/high cost of farm implements/hiring of tractors	10th
11.	High cost of improved yielding verities of seedling	11th

Table 3 shows 11 factors that hinder availability and accessibility of food items to households throughout the year. The Table shows that lack of funding /high food price/poverty ranked highest, followed by climate change/flooding, insecurity (kidnapping/killer herdsmen activities), access to farmland. Other factors are conflict, terrorism, government policy, access road to farmland/market, storage/processing problem, access to credit facilities, mechanized mechanization/high cost of farm implements/hiring of tractors and high cost of improved yielding verities of seedling respectively.

Table 4: Summary of FGD Information on Ways of Improving Food Availability and Accessibility of the Households throughout the Year

S/No	Ways of Improving Food Availability and Accessibility for the Household	Ranking
1.	Food borrowing from neighbours	1st
2.	Mothers forfeit their own meals/going without food, so as to feed their children	2nd
3.	Reduction of portion size of food consumed by members of household	3rd
4.	Buying food on credit	4th
5.	Young children depending on school lunch	5th
6.	Reducing quantity of food cooked by household	6th
7	Skipping meals by members of household	7th
8	Increased reliance on wild food that is, food items growing in forests.	8th
9	Borrowing money from cooperative society/money lenders	9th
10	Mothers sell valuables to purchase food	10th

Table 4 reveals ways households improve their food availability and accessibility throughout the year. The result shows that food borrowing from neighours have highest ranking, followed by Mothers forfeit their own meals/going without food, so as to feed their children, reduction of portion size, buying food on credit and young children depending on school lunch programme where and when it is available. The Table also reveals reducing quantity of food, followed by skipping meals, increased reliance on wild food and borrowing money from cooperative society/money lenders as other ways household suggested as ways improving households' food availability and accessibility. Selling valuables to purchase food was the least in rank.

Discussion

The result of the study revealed that cassava and maize were the food items available to the households throughout the year. From these food items households produce verities of food items such as abacha (cassava flask), garri, cassava flour, cassava fufu, akamu (corn portage) and igbagwu (corn food). This shows that household understanding of food availability means having enough of these carbohydrate based foods. Consumption of carbohydrate based food will supply the households with energy but will rub them of adequate nutrition which will encourage malnutrition. This is in line with other studies done in other part of the country where carbohydrate giving food were the major food items available and consumed in their area of study (Ezeama et al., 2015 &Anugwa et al., 2019). Households equally reported seasonal variation in some food items such as yam, fiofio (pigeon pea), akidi (green runner bean), rice and cocoyam which is usually scarce and expensive during the planting season to even buy from the market.

This is in line with the finding of Ezeama et al., (2015) who reported season variation in household food availability for some food items and noted that supply was less during the planting season. This goes to show that households in the study area were food insecured as food items were available in limited quantity and quality that is not socially acceptable as food security pattern.

The study revealed that only two food items were accessible to the household throughout the year. This runs contrary to the 1996 World Food Summit definition of food security, which said that food security is the ability of all people to have physical and economic access, at all times, to safe nutritious food to maintain a healthy and active life (Akukwe, 2020, Ogunniyi et al, 2021). The households also reported that foods like pigeon pea (fiofio), green runner beans (Akidi) cocoyam, fish and vegetables, that they have average access to these foods as they are affected by seasonal variations. This agrees with the finding of Ezeama et al., (2015) who reported limited access to some food items due to seasonal variations in food supply and relatively expensive nature of some food items at certain periods of the year, majorly during the planting season. This situation will have a negative effect on dietary diversification of household, food choices and consumption pattern which is hindered by both physical and economic access to food items especially the protein and vitamin giving foods.

This will also have a negative effect on the nutritional status of household and may lead to malnutrition especially among the most vulnerable groups which are mainly women and their children as dietary diversity is positively related to nutrient adequacy and proper diet which is required for proper growth and development.

The respondents reported that their social-economic status was the major factor hindering their availability and accessibility to food items. This shows that most origin of food insecurity have an element of economic availability and accessibility to food directly or indirectly. Access and availability is not limited to monetary access and availability, it includes access and availability of land, credit facility and education on ways of improving food security in term of storage and processing of food items. This is in line with the Malpass (2021) report of World Bank which reported social-economic conditions as one of the factors hindering availability and accessibility to food items. This has a high impact which leads to global food insecurity and in most cases affects the most vulnerable households in most rural communities. According to Malpass (2021) report the primary risk of food security are at the country level. Higher retail price, combined with reduced income, mean that more and more households have to cut down on the quantity and quality of food consumed (Malpass, 2021).

The households also reported climate change/flooding, conflict/ terrorism, insecurity as some of the factors that hinder availability and accessibility throughout the year. Flooding is the major factor that hinders availability and accessibility of food items throughout the year among households in Ayamelum local government area, especially in June, July even in September and October. Majority of foods will be harvested before maturity and can not be stored as they will spoil easily. This leads to the households selling the food items off with minimal profits which make it impossible for them to have money to buy during scarcity. This report is in line with Malpass (2021) World Bank Report which identified climates change/flooding as one of the factors hindering availability and accessibility of food items. This is in term with the report of Irohibe et al., (2014) who reported that for food to be available and accessible, individuals and families must have sufficient purchasing power or ability to process and store already produced food that will make food available and accessible round the year. Other factors hindering food security in this area is the insecurity level in the area which includes kidnapping and killer herdsmen, animals eating up their crops and conflict/terrorism. This is in line with the finding of Ojelade (2019) who reported that unfriendly and conflictual relationship between the two parties in the conflict has greatly affected food security especially food for immediate consumption. They suggested that government should come to their aid by providing security and making a law that will prohibit these herders from grazing around their farming areas.

Apart from grazing in their farm, they reported of insecurity around the farming areas which includes rape, killing of farmers in their farm land. This is in line with the report of Idris, Otekunrin, Akinbode &Ofekunrim (2020) who reported that corruption and poverty have made the incidence of conflicts/terrorism and kidnapping a major hinderance to food security.

Some of the participants reported of high cost of farm implements, hiring of tractors and high cost of improved yielding verities of seedling. This agree with the observation of Anuagwu et al., (2019) who observed that access to various inputs needed for agricultural production was limited in their study area. This shows that there is need for the government to adopt a twin-track approach, both encouraging agric-business and supporting the large population of smallholder farmers. This is critical to rural food security, social cohesion and poverty alleviation. There is equally need for technological development than the sectors relay on labour for farm power which stagnate domestic agricultural innovation, especially in mechanization that is appropriate to the economy. Rural farmers cannot afford the available equipment and in turn there is lack of local maintenance capacity (Nwagiube, 2020). Also access to farmland was also observed as one of the factors hindering food security in Ayamelum local government area. This is in line with the observation of Dirorimwe in Anuagwu et al., (2019) who also observed that fragmentation of agricultural land resulting from population growth as well as limited access to labour-saving farm and food processing implements are some of the underlying causes of food insecurity. The fragmentation of agricultural land, the results of increase in population and issue of land acquisition via inheritance causes inadequate food production (Anuagwu et al., 2019). Food production in fragmented portions of land results in inadequate food availability and accessibility to meet the needs of the population in the area.

The respondents also suggested ways of improving food security among households; this includes food borrowing from neighbours or relatives, maternal buffering, reduction of portion size and buying food on credit. This is in line with the findings of Ezeama *et al.,* (2015) who equally reported borrowing, purchasing food on credit as ways of improving their food security. This also agrees with the report of the study carried out in India which found significant association of food insecure households with borrowing money/food and selling of valuable materials (Gupta *et al.,* 2015). The household also reported of young children depending on school lunch as a way of improving availability and accessibility of food. This is not in line with the finding of Gupta *et al.,* (2015) who in their study area children withdraw school to save money on school fees. Instead send them to work as domestic help or as helpers at shops and offices. Other ways households suggested as ways of improving availability and accessibility to food items were reducing quantity of food cooked, selling of valuables to purchase food, borrowing money from cooperative/money lender, skipping meals and increased reliance on wild food. This is inline with the findings of Otilia *et al.,* (2018) that household, in their study area were skipping meal (56.10%), restricting consumption of adults to secure small children's intake (52.85%) and limiting portion size at meal time as a short term measures for food availability. This also agrees with Ezeama et al., (2015).

Some households suggested borrow money from cooperative society while some borrow from money lenders but complained of high interest charges of the lenders. This is inline with the findings of Otilia et al., (2018). Skipping of meals and increased reliance on wild food was a measure taking in extreme cases and this is common among the most vulnerable groups in the area of study.

Conclusion

The study concludes that households in Ayamelum local government area are not food secured. Basically, the area is one of the agrarian communities in Anambra State but due to the issue of seasonal variations in crop production, insecurity and natural disasters households were not food secured as they do not have both physical and economic access and availability of food supply throughout the year.

Recommendations

Based on the findings, the following recommendation were made for improving household food security:

1. Improved agricultural practices by encouraging the use of modern technologies and mechanization of agricultural practices.
2. Ensuring institution credit sources and reduction of high interest rates on agricultural loan.
3. Encourage households to join grocery cooperative society.
4. Improved post-harvest handling including storage, preservation, transportation and distribution of food to reduce losses at all stages.
5. Government should provide high yielding verities of seedlings to farmers at a subsidized rate.
6. Home economics bodies should organize training and workshops on ways of improving food management practices.

References

Africa Hunger and Poverty Facts (2018). African Poverty Facts-world Hunger News. https://www.wpr;dhunger.org/africa hunger-poverty-facts-2018

Akukwe, T.I. (2020). Household Food Sy and Its Determinants in Agrarian Communities of South-eastern Nigeria. *Journal of Tropical Agriculture, Food, Environment and Extension.* Vol.19, Number 1, pp.54 – 60.

Anugwa, I.O. &agwu, E.A (2019). Perceived Causes of Household Food Insecurity and Policy Implications for food Production in Kano State, Nigeria. *Journal of Applied Sciences*, 19(6): 513 – 519.

Ezeama, N.N., Ibeh, C., Echendu, A., Emelumadu, O. &Adogu, P. (2015). "Coping with household food insecurity: Perspective of mother's in Anambra State, Nigeria". *Journal of Food Security,* Vol. 3, No. 6:145 – 154.doi=10.12691/IFS-3-6-2.

FAO (2010). *The State of Food Insecurity in the World: Addressing Food Insecurity in Protracted Crises*. Rome: Food and Agricultural organization of the United Nations.

FAO (2015). *Regional Overview of Food Insecurity: African Food Security Prospects Brighter than Ever*. Accra: FAO.

Gupta, P. Singh, K., Seth, V., Agarwelu, S. & Mathur, P. (2015). Coping strategies adopted by households to prevent food insecurity in urban Shum of Delhi, India. *Journal of food security.* 3(1) pp. 6 – 10.

Idiris, A., Otekunrin, O.A., Akinbode, S.O. & Otekunrin, O.A. (2020). Food insecurity in Nigeria: Impetus for growth and development. *Journal of Agriculture Economics and Rural Development* 6(2): 808 – 820.

IFAD (2001). The rural poverty report, 2001. International fund for agricultural development: Rome, Italy. Retrieved from http://www.ifad.org/poverty/ index.htm(Accessed November, 2020)

Irohibe, I.J. &Agwu, E.A. (2014). Assessment of food security situation among farming households in rural areas of Kano State, Nigeria. *Journal of Central European Agriculture*. 13(1), 94 – 107. DOI:10.5513/JCEAO1/15/.1418

Kuku-Shittu .O., Mathiassen, A., Wadhwa, A., Myles, L. &Ajibola, A. (2015). Comprehensive food security and vulnerability Analysis, Nigeria. IFPRI Discussion Paper 01275 (E-book) Available: hppt://ebary.ifpri.org/wt./s/getfile/ collection/P1573c0112/ id/127747/ filename/12958.pdf (Accessed, 2015).

Malpass, D. (2021). COVID Crises is Fueling Food Price Rises for World's Poorest. Blog.worldbank.org

National Population Commission (2006*). Population Figure Federal Republic of Nigeria*, Abuja, Nigeria.

Nnadi, O.I., Liwenga, E.T., Lyimo, J.G. &Madukwe, M,C. (2019). Impact of variability and change in rainfall on gender of farmers in Anambra Southeast Nigeria. www.researchgate.net.Heliyon5(f):e02 085. DOI:1016/j.heliyon.2019.e02085

Nwajiuba, C. (2020). Nigeria's Agriculture and Food Security Challenges. chinedumnwajiuba@imsuni.edu-ng

Ogunniyi, A.I. Omotoso, S.O, Salman, K.K., Omotayo, A.O., Olagunju, K.O. & Aremus, A.O. (2021). Social-economic drivers of Food Security amonf Rural Households in Nigeria: Evidence from Smallholder Maize Farmers. Social Indicators Research

(2021) 155:583-599. https://doi.org/10.1007/511205-020-02590-7.

Ojelade, S.E. (2019). Effect of herdsmen and farmers crises on food security in Nigeria. International Journal of Law and Politics Studies. 1(1) 15 – 26. Retrieved from https://al-lcindipublisha.com/inder.php/ijips/article/ view/44

Otilia, V.C., Educerdo, S. & Alberto, G. (2018). Food Access and Coping Strategies Adopted by Households to Fight Hunger among Indigenous Communities of Sierra Tarahamara in Mexico. Sustainability 2018, 10, 473; doi:10-3390ISuU1002473.www.mdpi.com/journal/sustainability.

Shetty, P.S. (2015). *Food and nutrition in Detel R, (ed), Oxford Textbook of Global Public Health (sixth edition),* Oxford University Press, Great Clarendon, United Kingdom.

Udemezue, J.C., Eche, O.N. &Udefi, I.O. (2018). *Farmers perceptions of dangers of grazing on farmland and coping strategies: Evidence from Ayamelum local government area of Anambra State*. Current trends Bonomedical engineering & Biosciences, 15(3):55594, DOI:10.19080/CTBEB.

United Nations (1996). *Roma declaration on world food security and world food summit plan of action: world food summit*, 13-17 Nov. 1996, Roma Italy United Nations Digital Library.

United Nations (2021). Peace, dignity and equality on a healthy planet universal declaration human rights. www.un.org Retrieved Oct., 2021.

JHER Vol. 28, No. 2, December 2021, pp. 217 – 228

Qualitative and Quantitative Analyses of Phytochemicals in traditional Mixed Dishes Commonly Consumed in Enugu State, Nigeria

Davidson, G.I.[1]; Udenta, E.A.[2]; Mbah, B. O.[1]& Emeh, P. E[2].
[1] Department of Home Science and Management,
University of Nigeria, Nsukka, Enugu State
[2] Department of Nutrition and Dietetics,
University of Nigeria, Nsukka, Enugu State

Abstract

The objectives of the study were to carry out qualitative and quantitative analysis of phytochemicals in traditional mixed dishes (*Ebiriebiji, Igbangwu, Ayarayaoka,* and*Okpa*) commonly consumed in urban and rural communities in Enugu State. Recipes of the dishes were obtained from the communities through focus group discussion (FGD). Recipes were used to prepare dishes which were homogenized and screened analysis for alkanoids, tannin, saponin, steroids, teponoids, glycoside, flavonoid, and phenol. The phytochemicals present were also quantified. Phytates and oxalates were directly quantified (not screened). Data were analyzed using percentages. Results indicate that none of the screen phytochemicals was present in appreciable amount (+++) in the samples with the exception alkaloids in *Okpa*. Glycosides were present in minimal amount (+) in all the samples while teponoids were not detected in *ayarayaoka and okpa*. Saponin concentration ranged from 0.98 to 3.00% being lowest in *Igbangwuoka* and highest in *Ebiriebi ji*. *Igbangwuoka* had the highest steroids and flavonoids values (4.87% and 4.17% respectively). All the dishes had low oxalate values which ranged from 0.00 to 0.03%. it was thus concluded that traditional mixed dishes consumed in Enugu State had moderate to minimal amounts of phytochemicals though there were some exceptions. Most of the quantified phytochemicals were seen to be within their tolerable limit. The consumption of these dishes should therefore be encouraged.

Key words: Mixed Dishes, Phytochemicals, Commonly Consumed, Traditional, Analysis

Introduction

Foods can be consumed as single or mixed/multi-ingredient dishes. A single dish as the name implies is a one ingredient dish while a mixed or multi-ingredients dish is prepared with two or more ingredients (Davidson, Ene-Obong&Chinma,

2017). According to Ayogu*et al.,* (2017), commonly consumed foods in an area are those foods that have high consumption frequencies of more than three times per week. Population groups of any area always depend on such foods as their main meal and most often these foods are of traditional origin.

Traditional foods can be defined as foods that are passed through generations or which have been consumed by many generations. Such foods are said to have been consumed throughout history before the modernization and industrialization of the food supply (Katie, 2019). The foods are not only free from additives, chemicals and many of the things found in food today, but they are exceptionally nourishing. Traditional foods are valued because they showcase the culinary tradition of the people and have a lot of benefits on health (Agomuo *et al*, 2017). Specific features that distinguish traditional foods from other similar products of the same category include the use of "traditional ingredients" and traditional methods of production. The traditional foods characterize a given community and form part of their cultural heritage. Such dishes in Enugu State include *Okpa* **(**Bambara nut pudding**),** *Ebiriebiji*, *Igbangwu* and *Ayarayaoka.*

Okpa is made from Bambara flour, mixed with palm oil, salt, water and steamed into a pudding (Madukwe&Ene-Obong, 2012). According to Eze (2021), okpa is consumed by 23 percent of the population in Enugu. *Ebiriebiji* is a yam (*Dioscoreaalata*) based dish. Davidson (2017) reported that yam-based dishes were consumed daily by 54 and 76 percent of urban and rural households respectively in south-east Nigeria. *Igbangwu* and *Ayarayaoka* are both corn (*Zea mays*) based dishes of Enugu State origin. Traditional foods are mostly associated with health benefits as identified by their categories; green leafy vegetables, roots and tubers, fruit, legumes, cereals, seeds and nuts (Majova, 2011). This is because most of the plant-based dishes contain some healthful compounds known as phytochemicals attributable to their being prepared in their natural forms without much processing (Majova, 2011).

Naturally occurring biologically active chemical compounds, known as phytochemicals are thought to be largely responsible for the protective health benefits of plant-based foods and beverages, beyond those conferred by their vitamin and mineral contents (Kumari &Khatkar, 2012). These phytochemicals, which are part of a large and varied group of chemical compounds, are responsible also for the color, flavor, and odor of plant foods. The benefits of phytochemicals such as flavonoids, phytates, tannins, oxalates and carotenoids, includes reducing the risk of chronic diseases by protecting against free radical damage, modifying metabolic activation and detoxification of carcinogens, or even influencing processes that alter the course of tumor cells (Herrera *et al*, 2009).

The traditional diet in Nigeria is largely made of fiber-rich carbohydrates, minimal fat and moderate protein. However, this profile has seen a gradual change over the years, starting from the period of colonization by the British due to nutrition transition (Maiyaki&Garbati, 2014). Traditional diets, which are rich in carbohydrates, protein, vitamins, mineral, dietary fibre and phytochemical, are being neglected and with preference being given to highly processed fat and sugar-rich foods that are low in fibre and phytochemical. Highly processed foods predispose the consumers to overweight and obesity which are considered risk factors to many chronic non-communicable diseases (NCDs). The Nigerian population is becoming more overweight and obese as shown by recent data from World Health Organization (WHO, 2018). Overweight and obesity may increase the risk of many health problems, including type 2 diabetes, high blood pressure, heart diseases and strokes, certain types of cancer, sleep apnea, osteoarthritis, fatty liver disease, kidney disease and pregnancy problems such as high blood sugar during pregnancy, high blood pressure, and increased risk for cesarean delivery (National Institute of Diabetes and Digestive and Kidney Diseases, 2015). Although these changes affect both rural and urban dwellers, it is more pronounced among the urban populace. These changes are brought about by changes in dietary habit, with the adoption of a westernized diet. Facilitation of social acceptance of fast food by the global media outlets and advert billboards has potentiated this nutritional transition (Maiyaki&Garbati, 2010).

Urbanization is not merely a modern phenomenon, but a rapid and historic transformation of human social roots on a global scale, where predominantly rural culture is being rapidly replaced by predominantly urban culture. This created changes in food consumption patterns with more processed foods being available in cities, hence resulting in the use of fewer species, decreased dietary diversity leading to household food insecurity and consequently poor health statues (Yetunde &Ene-Obong, 2016). Consequently, in many cases, some indigenous foods have been removed from circulation despite the potential health benefits due to their natural and non-toxic or non-chemical nature. There appears to be a dearth of knowledge on the nutrients and phytochemical potentials of traditional dishes. Lack of information is, therefore, a problem to the consumption of traditional dishes. Lack of nutrition education contributes to the inappropriate uses of foods or wrong choice of food and also contributes to malnutrition and ill-health. This study is therefore expexred to document the phytochemicals present in traditional dishes commonly consumed by rural and urban dwellers in Enugu state, to provide evidence-based information that can be used by nutrition educators to promote healthy consumption pattern among urban and rural dwellers in South-eastern Nigeria.

Objectives of the study

The general objective of the study focused on qualitative and quantitative evaluation of phytochemicals in traditional mixed dishes commonly consumed in Enugu State, Nigeria.

Specifically, the study carried out:

1. qualitative analyses of phytochemicals in traditional mixed dishes(*Ebiriebi ji, Igbangwu, Ayarayaoka* and *Okpa*) commonly consumed by rural and urban community in Enugu state.
2. quantitative analyses of phytochemical in the traditional mixed dishes(*Ebiriebiji, Igbangwu, Ayarayaoka* and *Okpa*) commonly consumed by rural and urban community in Enugu state.

Materials and methods

***Study design*:** Experimental study design was employed in this study.

Purchase of ingredients: All the ingredients used in preparing the dishes were purchased from the local market in each of the communities where the recipes were collected.

Food sample preparation

The traditional mixed dishes documented in each community were prepared by women from those communities using the recipes collected through Focus Group Discussion (FGD), as detailed below. The food preparation was done in the Diet Therapy Laboratory, Home Science, Nutrition and Dietetics Department, University of Nigeria Nsukka, Enugu State.

Recipe name: *Ayarayaoka*

Ingredients	**Quantity (g)**
Corn	960
Pigeon pea	552
Bitter leaves	96
African spinach	650
Palm oil	340
Fermented oil bean seed	144
Onions	132
Pepper	30
Maggi	8
Salt	42
Water	400
Yield	2568

Method of Preparation

1. Boil the corn for 10 minutes and soak over night
2. Drain the water and grind to coarse texture
3. Pick, wash the pigeon pea and bring to boil
4. Add the bitter leaves (washed just once) and cook till the pigeon pea is almost done
5. Wash and cut the vegetables
6. Mix the ground corn with one table spoon of the palm oil
7. Turn a small local basket upside down inside the pot of pigeon pea, spread the vegetables on it and spread the ground corn on the vegetables so that it does not come in contact with the boiling water.
8. Cover the pot and cook for about 30 minutes, turn intermittently to ensureuniform cooking until the corn is cooked.

9. Remove the corn and vegetables and drain the pigeon pea and biter leaves
10. Heat the oil, add the onion and fry gently
11. Add water, bring to boil and add the pepper, fermented oil bean seeds, maggi cubes and salt
12. Simmer for five minutes to properly cook the local stew
13. Add the cooked corn, vegetables and pigeon peainto the local stew and mix very well

Recipe name: *Igbagwuoka*

Ingredients	Quantity (g)
Corn	1280
Fluted pumpkin leaves	186
Garden egg leaves	432
Fermented oil bean seed	222
Palm oil	340
Water	604
Onions	170
Pepper	32
Maggi	8
Salt	48
Yield	2485

Method of Preparation

1. Boil and soak the corn over night
2. Drain and wet mill to fine texture
3. Wash, drain and slice the vegetables
4. Add oil to the corn and mix very well.
5. Add the vegetable and other ingredients and mix very well
6. Scoop spoonful into cellophane bags, wrap and cook till done

Recipe name: *Ebiriebi ji*

Ingredients	Quantity (g)
Yam	1411
Africanspinach	279
Palm oil	170
Fermented oil bean seed	128
Fresh pepper	25
Onion	107
Maggi	4
Salt	15
Yield	1953

Method of Preparation

1. Peel, slice, wash the yam and cook till done
2. Drain the cooked yam and set aside
3. Wash and slice the vegetable
4. Heat the oil and fry the onion
5. Add other ingredients and simmer till the vegetable is tender
6. Add the boiled yam and stir to a uniform mixture

Recipe name: *Okpa*

Ingredients	Quantity (g)
Okpa flour	700
Palm oil	175
Fresh pepper	26
Uziza seed	8
Salt	28
Water	1100
Yield	2000

1. Heat enough water in a pot and bring out 1100g
2. Put the okpa flour in a bowl, add oil and mix
3. Add the pepper, ground *uziza*seed and salt and mix as well
4. Add the water gradually and continue to mix until all the water is added

5. Scoop spoonful into cellophane bags and cook till done

Preparation of samples for chemical analysis: After cooking, the food samples were homogenized, properly packaged, labelled and taken to the Food Analytic Laboratory, Department of Home Science, Nutrition and Dietetics University of Nigeria Nsukka for quali tative and quantitative evaluation of p hytochemicals.

Chemical analysis

Quantitative and qualitative evaluation of phytochemicals in all samples where done in duplicate.

Phytochemical screening: For the presence of an alkaloid, Mayer's test described by Ajuru, Williams &Ajueonru, (2017) was used. Ejikeme, Eneonu & Eboatu (2014) test was used to detect the presence of terpernoids. The test solution was shaken with water. Copious lather formation after shaking the test solution in water, indicated the presence of saponin. For tannin, test solution was mixed with basic lead acetate solution. Formation of White precipitate indicated the presence of tannin. For glycosides test, the exatract was boiled with dilute sulphuric acid, chloroform was added and shaken well. The organic layer was separated to which ammonia was added slowly. Presence of glycoside was denoted by pink to red colour. To 2ml of the test solution, a few magnesium turning and a few drops of concentration hydrochloride acid were added and boiled for 5 minutes. Appearance of red or orange colour indicates the presence of flavonoid. To 2ml of the test solution, a few drops of ferric chloride solution were added. Bluish green colour indicates the presence of phenol. To 2ml of the test solution, a few drops of chloroform, 3-4 drops of acetic anhydride and one drop of concentrate sulphuric acid were added. Appearance of purple colour, which changes to blue or green colour, showed the presence of steroid.

Quantitative analysis of phytochemicals

Alkaloids content was determined by the alkaline precipitation-gravimetric method described by Harborne (1973). Total oxalate in the sample was assayed using the method of AOAC (1995) while AOAC, (2010) was used for tannin and phytate determination. Saponin was determined according to the Ochuko and Obadni method (2001). Boham and kocipia-Abyazan method (1994) was used for flavonoids determination. Method of analysis of analytical methods committee of royal society of chemistry, A.M.C.R.S was used for phenols determination.

Statistical analysis: Data obtained from chemical analysis were analyzed using percentage.

Results

Table 1: Qualitative analysis of phytochemicals in traditional mixed dishes

Samples	Alkaloids	Saponin	Terponoids	Steroid	Glycosides	Flavonoids	Tannin	phenols
Ebirebi ji	++	++	+	+	+	++	-	++
Ayarayaoka	++	++	-	+	+	++	++	+
Igbangwu	+	+	+	+	+	+	++	-
Okpa	+++	++	-	-	+	-	-	+

Key- Absent, + present in minimal amount, ++ present in moderate amount , +++ present in appreciable amount Ebirebi ji: Yam and vegetable porridge. Ayarayaoka: Corn and pigeon pea porridge. Igbagwu: Corn pudding. Okpa: Bambara nut pudding

Table 1 revealed the phytochemicals that were screened in the mixed dishes. Alkaloids were present in appreciable amount (+++) in *okpa*. Alkloids, saponin and tannin were present in moderate amount in a good number of the dishes while glycosides were present in minimal amount (+) in all the dishes. Steroids and phenol were also present in minimal amounts in most of the dishes, however, teponoids were not detected in most of them.

Table2: Quantitative phytochemical analysis of some traditional mixed dishes

S	Alk (%)	Sap (%)	Phe (%)	Phy (%)	Ste (%)	Ter (%)	Tan (%)	Fla (%)	Gly (MG)	Ox (%)
Eji	0.00	3.00	0.58	0.16	0.16	4.15	-	3.10	1.64	0.00
Ay	2.97	5.59	0.52	0.10	-	-	0.31	2.15	-	0.00
Igb	0.01	0.98	0.58	0.15	4.87	-	0.17	4.17	-	0.03
Ok	0.77	0.99	-	0.15	-	-	-	-	-	0.01

S = sample; Alk = Aikalodis; Sap = Saponin; Phe = Phenols; Phy = Phytate; Ste = Steroids; Ter = Terpeniods; Tan = Tannin; Fla = Flavonoids; Gly = Glycoside; Ox = Oxalate

Table 2 shows thatb alkalodis and saponin values ranged from 0.00-2.97 and 0.98-5.59% respectively. Oxalate was within the range of 0.00-0.3% while phytate ranged from 0.10-0.16. Okpa had no alkaloids, saponin, steroids, terpenoids, tannin, flavonoids and glycosides values. The highest steroids and flavoids values were in *Igbangwu (*4.87 and 4.14% respectively).

Discussion

Ebirebi ji (yam-based dish) had moderate amount (++) of alkaloids, saponin, flavonoidsand phenol. Apart from phenol, these phytochemicals were found to be in minimal amountsin raw trifoliate/bitter yam from Agenebode farm in Edo State.It could be that vegetablesused in preparing the dish might have boosted its phytochemical composition. Leafy vegetables are considered as sources of human health promoting components such as phytochemicals (Duma et al, 2014). The differences observed could also be due to location and the variety of the yam used. The age, cultivar, geographical location of plant or the storage condition after harvest could affect phytochemical and anti-nutritional content in yam. Phytochemical compositions of plants are mostly found to differ both qualitatively and quantitatively depending on exposure to stimuli, geographical location and soil type.

Ayarayaoka and *Igbangwu* are corn-based traditional dishes. It is however interesting to note that *Ayarayaoka* contained moderate amounts of alkaloids, saponin and flavonoids as against the minimal presence observed in *Igbangwu*.A legume such as pigeon pea or cowpea is a major ingredient in *Ayarayaoka* and must have accounted for the higher phytochemical screening results observed in the dish in relation to *Igbangwu*where pigeon pea or cowpea is not added. Mbagwu*et al*., (2011) found varying amounts of alkaloids, saponin and flavonoids in four different legumes. This result disagrees with findings ofAmadi, Ayalogu and Onyeike (2011) who reported the phytochemical contents of *Onunu* and *Mgbam*- traditional dishes of Ikwere ethnic nationality of South-southern Nigeria which revealed that in *Onunu*, tannins and phytates were moderately present (++), saponins, cyanogenic glycosides, alkaloids and oxalates were present (+) and flavonoids were absent (-) while in *Mgbam*, tannins and phytates were highly present (+++), saponins, cyanogenic glycosides, alkaloids and oxalates were present (+) and flavonoids were absent (-). The differences could be as a result of the type of food analyzed as well as the ingredients used in their preparation.

Okpa contained appreciable amount (+++) of alkaloids moderate amount (++) of saponin and minimal amount (+) of glycoside. Other phytochemicals such as terponiods, steroids, flavonoids, tannin and phenols were not detected. Though *Okpa* and *Uza-akwuagworagwo* are legume-based dishes, the result of this study disagrees with that of Agomuo, Eboagwu, Nwadike, Ezekwe and Onedibe (2017) who reported the presence of alkaloid (++), Flavonoid (++), tannin (+), saponin (+) and phenols (+) in *Uza-akwuagworagwo*- a traditional food of Nkanu people of Enugu State, Nigeria. The observed differences could be attributed to food type, cooking time, added ingredients as well as processing involved. Atli, (2017), noted that cooking and certain food processing method reduces the amount of phytochemical in foods.

The alkaloid and oxalate content of *Ebirebi ji* was 0.00% each. Tannin was not detected while saponin was 3.00%. This disagrees with the result of Olajumoke*et al.,* (2014), who showed that pounded yam contains phytate (4.37%), oxalate (0.54%), tannin (0.38%), saponin (12.71%) and alkaloids (2.02%). The disparity in these results could be due to effect of variety and other conditions that affect the phytochemical content of foods. The age, cultivar, geographical location of plant or the storage condition after harvest could affect phytochemical and anti-nutritional content in yam (Polycarp *et al*., 2012).

The alkaloids and saponin content of *Ayarayaoka* were quite higher than what was obtained in *Igbaingwu* which could be explained by the additional ingredient (pigeon pea/cowpea) found in *Ayarayaoka*. This finding reveals that a slight change in the ingredient composition of a recipe reflect automatically not just in its nutrient composition as reported by Davidson, et al (2017) but in its phytochemical composition as well.

Phytate, oxalate and saponin content of *okpa* were 0.15, 0.01 and 0.99% respectively while tannin was not detected. These values were all lower than what were obtained (phytate (5.768mg), alkaloids (0.340%), oxalate (8.56mg), saponin (1.45%), tannin (0.790mg)) by Aniebet and Olanrewaju, (2018) from Bambara groundnut. It could be that the researchers analyzed the whole Bambara nut seed instead of the flour which was used in*Okpa* preparation. Various studies have shown that processing methods such as boiling, milling, fermentation and roasting can significantly reduce phytochemicals such as phytate and tannin to a low level (Wada, Feyissa&Tesfaya, 2019). Phytic acid content may also vary depending on the crop variety, climatic conditions, irrigation conditions, soil type and growing season of the plant (Lewu, Adebola &Afolayan, 2010).

The alkaloids content of *Okpa* (0.77%) found in this study was higher than that reported by Mbangwu, Okonkwo &Ekeanyanwu, (2011) for bambaranut (Vigna subterranean) flour (0.41%). *Uziza*(*Piper guineense*), a traditional spice added to *Okpa*might have boosted the alkaloid content of the dish since spices are phytochemical rich food ingredients.

Nutritional/health implications of the study

In all the dishes, alkaloids, phenols, tannin and oxalate values were within their tolerable limit of 20% (Cantwell, 2001), 2% (Micalowicz & Duda, 2007), 3.3% (Elfadil *et al.*, 2013) and 5% (Caser, 2003) respectively, except for the alkaloids value of *Ayarayaoka*. Alkaloids have many pharmacological activities including antihypertensive effects, antiarrhythmic effect, antimalarial activity and anticancer actions. Polyphenols may help to reduce the risk of developing type 2 diabetes. Polyphenol significantly lowers level of chemicals that signal inflammation and muscle damage in the blood. It also decreases blood pressure, decreases LDL or 'bad' cholesterol, and raises HDL or 'good' cholesterol (Ware, 2017). Phytic acid reduces iron-induced oxidative injury and reverses stimulation colorectal tumorigenesis (tumor formation) due to its mineral chelating potential (Gemede&Ratta, 2014). Oxalate is a potent antinutrient in foods. However, oxalate functions as chelating agent when present in foods at tolerable limit (2mg or 5% per 100g food) and may chelate many toxic metals such as mercury and lead (EgbunaandIfemeje, 2015). The traditional mixed dishes, therefore, contain some phytochemicals that have potentials for the control and prevention of some nutrition-related diseases if traditional dietary habits are maintained.

However, saponin and phytate rich ingredients should be used with caution since they exceeded their tolerable limit of 0.2 (Codex Akimentarius, 2017) and 0.035% (Onomi, *et al*. 2004) respectively, in all the dishes.

Conclusion

Traditional mixed dishes consumed in Enugu State had moderate to minimal amounts of phytochemicals except for okpa where terpenoids, steroids, flavonoids and tannin were not detected while saponin was found in appreciable amount. Most of the quantified phytochemicals were seen to be within their tolerable limit except for saponin and phytate. The consumption of these dishes should therefore be encouraged.

Recommendation

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

1. Appropriate processing method for saponin and phytate rich ingredients should beidentified and adopted to reduce their levels in the traditional mixed dishes.
2. Due to the health benefits of phytochemicals, consumption of traditional mixed dishes (particularly those that had tolerable limits of phytochemicals) should be encouraged.
3. Indebt studies on traditional dishes are needed to help Nutritionists and Dieticians compact the problem of nutrition transition through evidence-based nutrition counselling.

References

Agomuo, E., Eboagwu, I., Nwadike, C., Ezekwe, A.&Onedibe, O. (2017). Proximate, phytochemical, and sensory evaluation of "Uza-akwuagworagwo" traditional food of Nkanu people in Enugu State, Nigeria. *Food Biology*, 6; 16-22.

Ajuru, M.G., Williams, L.F., &Ajuru, G. (2017). Qualitative and quantitative phytochemical screening of some plants used in ethnomedicine in the Niger Delta region of Nigeria. *Journal of Food and Nutrition Sciences*, 5(5); 198-205.

Amadi, B.A., Ayalogu, E.O. &Onyeike, E.N. (2011). Nutrient and antinutrient composition of "Onunu" and "Mgbam", traditional foods of Ikwerre ethnic nationality in South-southern Nigeria. *Journal of Emerging Trends in Engineering and Applied Sciences*, 2(3); 551-555.

Aniebet, T.A & Olanrewaju, O.I (2018). Nutrients, Phytochemicals Composition of moin-moin made from different varieties of leguminous plants.

AOAC (1995). Official Methods of Analysis (15th edition). Association of Analytical Chemistry, Washington D.C., USA.

AOAC (2010). Official Methods of Analysis (15th edition). Association of Analytical Chemistry, Washington D.C., USA.

Ayogu, R., Edeh, R., Madukwe, E., &Ene-Obong, H. (2017). Commonly Consumed Foods: Nutritional Quality and Contributions to Recommended Nutrient Intakes of Schoolchildren in Rural Southeastern Nigeria. *Food and Nutrition Bulletin*, *38*(1); 65–77.

Baham, B.A. & Kocipai, A.R. (1994). "Flavonoids and Condensed Tannins from leaves of Hawaiian Vaccinium

Vaticulatum and V, calycinium". Pacific Science, 48; 458-463

Cantwell, M. A. (2001). Review of important facts about potato glycoalkaloids. *Perishables Handling Newsletter*, 87; 26-27.

Caser, M. (2003). *Low oxalate diet.* University of Pittsburgh Medical Center Information for Patients. Pittsburgh, USA.

Codex Alimentarius (2017).Request for comments at step 3 on the proposed draft standard for quinoa.Codex Alimentarius Commission, Joint FAO/WHO Food Standards Programme. Italy, Rome.

Davidson, G. I., Ene-Obong, H. N. &Chinma, C. E. (2017) variations in Nutrients Composition of most Commonly Consumed Cassava (manihot esculenta) mixed dishes in south Eastern Nigeria. *Jornal of food quality*, Article (1) 6390592, 15pages https://doi.org/10.1155/2017/6390592.

Davidson, G. I. (2017). Documentation, standardization of recipes and evaluation of commonly consumed dishes in south-east Nigeria for use in food composition database. Unpublished PhD thesis, Department of Home Science, Nutrition and Dietetics, University of Nigeria Nsukka.

Duma, M., Alsina, I., Zeipina, S., Lepse, L. and Dubova, L (2014). Leafy vegetables as sources of phytocheimcals. http://llufb.llu.lv>foodbalt.

Egbuna, C., &Ifemeje, J.C. (2015). Biological Functions and Anti-nutritional Effects of Phytochemicals in Living System. IOSR *Journal of Pharmacy and Biological Sciences (IOSR-JPBS)*, 10 (2); 10-19.

Ejikeme, C.M., Ezeonu, C.S., & Eboatu, A.N. (2014). Determination of physical and phytochemical constituents of some tropical timber indigenous to Niger Delta Area of Nigeria. European Scientific Journals. 10(18); 247-270

Elfadil, A.G., Sabahelkhier, M.K., Rayan, M.Y., Daa, M.O., Nagla, A.H., &Israa, S.B. (2013). Effect of Tannin and Plant Tannins on some Organs and Physic-Chemical Characters of Diabetic Wistar Rat.*International Journal of Advanced Research*, 1 (10); 165-170.

Eyasu, Wada, Tileye, Feyissa, A. & Kassahun, Tesfaya, (2019). Proximate, Mineral and Anti-nutrient content of Cocoyam (Xanthosoma Sagittofolium (L.) schott) from Ethopia. *International Journal of food science*, Article ID8965476, 7 pages. https://doi.org/10.1155/2019/8965476.

Eze, E. L. (2021). Documentation of Bambara nut dishes commonly consumed in Enugu State. A BSC project, Department of Home Science and Management, University of Nigeria Nsukka, Enugu State.

Gemede, H. F. &Ratta, N. (2014). Antinutritional Factor in Plant Food: Potential Health Benefits and Adverse Effect. *International Journal of Nutrition and Food Science,* 3(4); 284-289.

Harbone, J.B. (1973). *Phytochemical methods: a guide to modern techniques of plant analysis*. Chapman and Hall, London: Uk.

Herrera, E., Jimenez, R., Aruoma, O.I., Hercberg, S., Sanchez-Garcia, I & C. Fraga (2009). Aspects of Antioxidant Foods and Supplements Health and Disease.*Nutrition Reviews*, 67(1); S140-S144.

Katie, W. (2019). Importance of Traditional Foods. https//wellnessmama.com/8487/traditional-foods/

Kumari, P. &Khatkar, B. S. (2012). Health benefits of phytochemicals. International Conference and Exhibition on Food Processing & Technology. *Journal of Food Processing and Technology*, 3; 10.

Lewu, M.N., Adebola, P.O. &Afolayan, A.J. (2010). Comparative Assessment of the Nutritional value of Commercially Available Cocoyam and Potato Tubers in South Africa. Journal of food quality. https://doi.org/ 10.1111/j.1745-4557.003325.x

Lewu, M.N., Adebola, P.O. &Afolayan, A.J. (2010). Comparative Assessment of the Nutritional value of Commercially Available Cocoyam and Potato Tubers in South Africa. Journal of food quality. https://doi.org/10.1111/j.174ni4557.003325.x

Madukwe, E. U. &Ene-Obong, H. N. (2012). Adequacy of micronutrient content of south eastern Nigerian meals in meeting the nutritional needs of vulnerable groups. *Journal of Agriculture, Food, Environment and Extension*, 3 (2);

Maiyaki, M. B. &Garbati, M.A. (2014). The burden of non-communicable diseases in Nigeria; in the context of globalization. Volume 13, Ann Afr. Med.1-10

Majova, V.D (2011). *The rural-urban linkage in the use of traditional foods by peri-urban households in Nompumelelo community in East london, Eastern Cape: a comparative study.* A thesis submitted in accordance with the requirementsfor the degree of Master in Human Ecologyat the University of South Africa

Mbagwu F. N., Okafor V. U. and Ekeanyanwu J. (2011). Phytochemical screening on four edible legumes (Vigna subterranean, Glycine max, Arachis hypogea, and Vigna uniguiculata) E*astern Nigeria African Journal of Plant Science,* 5(6); 370-372

Michałowicz, J., & Duda, W. (2007). Phenols – Sources and Toxicity. *Polish Journal of Environmental Study*, 16 (3); 347-362.

National Institute of Diabetes and Digestive and Kidney Diseases (2015). Health risk of being overweight.https://www.niddk.nih.gov/health-information/weight-management/health-risks-overweight

Ochukao, P.O. & Obadoni, B.O. (2002). "Phytochemical studies and comparative efficacy of the crude extracts of some haemostatic plants in Edo and Delat States of Nigeria". Global Journal of Pure and Apllied Science, 8(2); 203-208.

Onomi, S., Okazaki, Y., & Katayama, T. (2004). Effect of dietary level of phytic acid on hepatic and serum lipid status in rats fed a high-sucrose diet. *Bio-science, Biotechnology and Biochemistry*, 68; 1379-1381.

Ware, M, (2017). Why are polyphenols good for you? Retrieved on June 14th, 2019 from https://www.medicalnewstoday.com/articles/319728.php

WHO, (2018) World Health Organization - Noncommunicable Diseases (NCD) Country Profileshttps://www.who.int/nmh/countries/2018/nga_en.pdf?ua=1

Yetunde, E.A. &Ene-Obong, H.N. (2018). Recipe standardization, nutrient composition and sensory evaluation of waterleaf (Talinumtriangulare) and wild spinach (Gnetumafricanum) soup "afang" commonly consumed in South-south Nigeria. *Food Chemistry*, 238; 65–72

JHER Vol. 28, No. 2, December 2021, pp. 229 – 235

Strategies for Reducing Micro-Nutrient Deficiencies among Rural Households in Anambra State

Nwabunwanne C.C. and Arinze, A.U.
Federal College of Education (Technical),
Umunze

Abstract

This study was designed to evolve the strategies for reducing micro-nutrient deficiencies among rural households in Anambra State. Specifically, the study determined the causes of micronutrient deficiency and ways of curbing micro-nutrient deficiency among rural households in Anambra State. Two research questions guided the study. The study adopted descriptive survey research design. Population for the study comprises of 22 Home Economics lecturers in two Colleges of Education in Anambra State that offer Home Economics. Questionnaire was used for data collection. Data were analysed using mean and standard deviations. The results of the study revealed 11 causes of micro-nutrient deficiency. These include insufficient consumption of nutrient–rich food ($\overline{X}$ = 2.88), poor utilization food ($\overline{X}$ = 3.00), poor method of food preparation ($\overline{X}$ = 2.88), improper food storage ($\overline{X}$ = 3.22) and among others. Other findings are 10 strategies for redu~~cei~~ng micro-nutrient deficiency. These include adopting cooking methods that presever food nutrients ($\overline{X}$ = 3.21), rural women should use bio-fortified food ($\overline{X}$ = 3.11), eating vegetables and fruits frequently by members of the household ($\overline{X}$ = 2.77), creating awareness for food sources of micro-nutrients among the rural women ($\overline{X}$ = 3.17) and others. The study recommended among others that women should embark on home gardening should also adopt better preservation storage and processing method.

Key words: Strategies, Micro-nutrient, Deficiency, Causes, Households, Reducing, Rural.

Introduction

Micro nutrients are those nutrients required by the body in small or minute amounts in milligrams and micrograms. They are minerals and vitamins. The minerals and most of the vitamins the body needs most be obtained from foods since the body cannot make them. These essential dietary elements are vital for normal growth and development. Micronutrient deficiencies have various serious negative health implicationa (Adelekan, 2007, Ray, 2016 & Weisenberger 2020).

Micro-nutrients are those nutrients vital to the body (vitamins, minerals and trade elements). These micro nutrients are essential to the mental and physical development of children and adult (Adelekan, 2007). Micro-nutrient deficiencies inflict anemia, cretinism and blindness on tens of millions of people. Levels of mineral and vitamin deficiency that have no clinical symptoms can impair intellectual development, compromise immune system, provoke birth defects and cause individuals to live below their physical and mental potential which ultimately impairs their capabilities and the prospects of nations. Micro-nutrient deficiency is the world most prevalent and most devastating nutritional problem. Rush, (2000) reported higher rate of maternal, mortality rate due to micro-nutrient deficiency in the developing countries. International Food Policy Research Institutes (IFPRI) (2016), documented the ability for the micro-nutrient deficiency impairing physical growth and learning, limits productivity and ultimately perpetrates poverty in a continuous cycle. Countries where a large share of the population is affected by vitamin and mineral deficiency cannot realize their economic potentials.

According to USAID micro nutrient initiative (2009) micro-nutrient deficiencies inflict anaemia, crentinism and blindness on tens of millions of people causing individuals to live below their physical and mental potentials which ultimately impairs their capabilities and the prospects of nation. Graham (2006) demonstrated that micronutrient deficiency is responsible in part for the global malnutrition burden. Micro-nutrient deficiency interacts with repeated bolts of infectious disease causing preventable maternal and child deaths annually. It is a serious issue that attracts public health concern in most developing countries. World Health Organization (2011), stated that one in three people in developing nations ae affected by deficiencies in micro-nutrients.

In Nigeria, micro-nutrient deficiency among people is blamed on the insufficient consumption of nutritious food especially among the rural dwellers (Ministry of Budget and Planning, 2016). The rural people because of their low socio-economic status consume more of cheap and readily available staple food. They relied much on starchy food such as cassava, cassava products and yam, while those that are high in vitamins, minerals and iron are rarely eaten because of the cost associated with it. Onyia, (2013), observed that rural households do not take the right proportion of nutrition rather insisting on those foods consisting mainly of carbohydrates with less protein and vitamins.

The nutrition situation in Anambra State is not different. The food intake analysis according to Okeke (2018), showed that most people in the state generally lack food sufficient in protein, calcium, vitamin A and other minerals. Lack of nutritional knowledge is a serious challenge in the state. Inability of eating the right food has brought untold diseases condition, intellectual poverty, retarded mental development and poor living standards. Micro-nutrient deficiency is one of the world's most serious but least addressed health problem especially in the rural areas. These rural areas need to be enlightened on the need for good nutritional behavior and this can be done by medical practitioners and home Economics teachers/extension workers.

Home Economics teachers are trained in the area of nutrition, child care, meal planning/management and (balanced diet) among others. These trained Home economics teachers should in better position to determine the strategies for reducing micro-nutrient deficiency among rural household.

Purpose of the study

The main focus of the study was to evolve on the strategies for reducing micro-nutrient deficiency among rural households in Anambra State. Specifically, the study determines:

1. causes of micro-nutrient deficiency among rural households in Anambra State.
2. ways of reducing micro-nutrient deficiency among rural household in Anambra State.

Research questions

1. what are the causes of micro-nutrient deficiency among rural household in Anambra State?
2. What are the ways of reducing micro-nutrient deficiency among rural household in Anambra State?

Methodology

***Design of the study*:** A descriptive survey research design was adopted for the study.

***Area of the study*:** The area of the study was Anambra State. The study was however carried out in Umunze and Nsugbe towns in Anambra state. Each of the two towns has colleges of education and rural environmjents. So there are two government owned colleges of education (COE), COE Umunze owned by Federal Government aqnd COE Nsugbe owned by Anambra state government. These colleges offer Home Economics.

***The population and sample for the study*:** The population of the study was made up of all 22 Home Economics lecturers in the two government (Source: Statistics units of Nwafor Orizu College of Education Nsugbe (NOCE) and Federal College of Education (T) Umunze (F.C.E.T., 2020). Home Economics lecturers were chosen for the study because they live in the rural areas and interact with some of the rural households. Most of the Home Economics lecturers are familiar with the conditions of household nutrition in rural areas. All the 22 Home Economics lecturers in the two Colleges of Education were involved in the study bcause of the small size of the population.

***Instrument for data collection*:** The instrument for data collection was questionnaire. The items of the questionnaire were structured on a four-point scale thus strongly Agree (SA), Agree (A), Disagree (D), and

Strongly Disagree (SD) representing 4, 3, 2, and 1 respectively. The instrument was validated by three University lecturers in Food and Nutrition.. The reliability of the instrument was determined by administering the instrument to 15 lecturers of Home Economics from Federal College of Education (Technical) Asaba. They were out of the study area and were not part of the population for the study. Data collected from the study were analyzed using Crombach Alpha which yielded a correlation of 0.85.

***Data collection method*:** data collected from the study were analyzed using means and standard deviation. Any item with mean score of 2.50 and above was regarded as "Agree" cause of micro-nutrient deficiency/ way of reduction micro-nutrient deficiency. Any item with a mean less than 2.50 was regarded as "Disagree".

Findings of the Study

Table 1: Mean Responses and Standard Deviation on causes of Micro-nutrients Deficiency Among Rural Households.

S/N	**Causes of Micro-nutrient Deficiency**	$\overline{X}$	**SD**	**Remarks**
1	insufficient consumption of nutritional food	2.88	0.66	Agreed
2	poor utilization food	3.00	0.88	Agreed
3	financial constraints of rural women	2.77	0.58	Agreed
4	poor method of food preparation	2.88	0.82	Agreed
5	food preference of family members	2.55	0.41	Agreed
6	poor accessibility of food	3.11	0.41	Agreed
7	poor preservation of food	3.22	0.56	Agreed
8	improper food storage	3.22	0.55	Agreed
9	family standard	3.01	0.72	Agreed
10	Ignorance	3.20	0.63	Agreed
11	unavailability of food	3.45	0.65	Agreed

$\overline{X}$ *= mean; SD = standard deviation*

Table 1 indicates that all the items had mean scores above the cut-off point of 2.50 and each has the "Agreed" remark. This means that all the 11 items are causes of micro-nutrient deficiency on rural household ($\overline{X}$ = 2.55-3.22).

Table 2: Mean Responses and Standard Deviation on the Ways of Reducing Micro-nutrient Deficiency mong Rural Households in Anambra state.

S/N	Ways of Reducing Micro-Nutrient Deficiency among Rural Households	$\overline{X}$	SD	Remark
1	Creating awareness for the food sources of micro-nutrients among the rural women.	3.17	0.72	Agreed
2	Including the food sources of micro-nutrients in the family meal by women.	2.88	0.55	Agreed
3	Eating vegetables and fruits frequently by members of household.	2.77	0.92	Agreed
4	Rural women should raise vegetable gardens.	3.12	0.62	Agreed
5	Adopting cooking methods that preserve food nutrients.	3.21	0.67	Agreed
6	Rural women should use bio-fortified food.	3.11	0.67	Agreed
7	Rural women empowering themselves to have access to food.	2.88	0.45	Agreed
8	Rural women should increase their dietary diversity.	2.51	0.68	Agreed
9	Rural women should learn and use good food preparation methods.	2.56	0.55	Agreed
10	Reural women should adopt proper food storage techniques.	3.09	0.71	Agreed

Note: *X= Mean; SD= Standard Deviation1*

Table 2 shows that each of the 10 items has a mean of 2.50 and above. The mean scores of all the 10 items range from 2.51-3.21. This means that the respondents agreed on the items as the ways of reducing micro-nutrients in the area of the study.

Discussion of findings

Findings in Table 1 indicates that the causes include: insufficient consumption of nutritious food, poor utilization food, poor method of food preparation, financial constraints of rural women, unavailability of food, poor preservation of food, poor accessibility of food, improper food storage, food preference of family members, family standard, and ignorance. The findings consistent with the findings of Okafor (2017), who reported that micro-nutrient deficiency among rural households is caused by poor food preparation by the rural women. Also Kennedy (2007), stated that micro-nutrient deficiency among Africans include: population explosion, poor communication, lack of access to markets, poor transportation, lack of infrastructure which makes food to be hardly transported from regions of plenty to famine stricken areas, poor food preparation and eating habits natural calamities and lack of planning.

Ekpenyong and Alfred (2001), opined that economic conditions of the rural woman reduces their purchasing power, making it difficult for them to acquire their daily minimum requirement of food. Also Idahaba (2006), stated that improper food storage leads to excess spoilage of food making it possible for the rural areas to be exposed to food insecurity.

Findings in Table 2 reveal the mean ratings of respondents on the ways of reducing micro-nutrient deficiency among rural household, their responses includes Creating awareness for the food sources of micro-nutrients among the rural women, Including the food sources of micro-nutrients in the family meal by women, eating vegetables and fruits frequently by members of the household, rural women to raise vegetable garden, adopt cooking methods that preserve food nutrients, rural women to use bio-fortified food, empower themselves to have access to food, increase their dietary diversity, good food preservation by the rural women, and proper food storage. Some of these findings are consistent with those of Kuku-shittle (2016), who pointed out that increasing dietary intake o food sources of the micro-nutrients is one of the most effective ways to sustainably preventing micro-nutrients deficiency. He also observed that dietary diversification ensures a healthy diet that contains a balanced and adequate combination of nutrients. Popkin (2001), also stated that women should be empowered to gain access to food. This he pointed out will make them to be effective food of providers. He further stated that there should be proper storage facilities to enable farmers to store their post-harvest crops. Furthermore Food and Agricultural Organization (2014), opined that the effective way of reducing micro-nutrient deficiency includes home gardening, food preparation, storage and preservation methods to prevent nutrient loss. Thomposon and Brown (2010), also stated that micro-nutrient deficiency of the rural households could be reduced by eating vegetables and fruits regularly this will help to boost their nutrition.

Conclusion

The paper identifies the causes and ways of reducing hidden micro-nutrient deficiency among rural households. Women are to be major providers of family meals. They therefore play very ctitical part in reducing hunger and malnutrition in households. All hands should be on desk to reduce micro-nutrient deficiency; the government in collaboration with the extension agents can play a role in promoting nutritional security of household members and ensuring sustainable food systems that promote healthy diets. A coherent and multi-sectoral approach including health, food security and Agriculture is of prime importance.

Recommendations

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

1. Women should embark on Home gardening where they will raise vegetables for the family consumption.
2. There should be periodic provision of vitamin A Supplement by Health workers.

3. Women to adopt better preservation, storage processing and cooking good methods.
4. Women empowering themselves to have better access to food
5. Extension agents and Health Workers should sensitize the rural households on the sources of micro-nutrients.

References

Adelekan, D.A.C (2007), *Comparative effects of malnutrition on plasms concentration of Anti-oxidation micro-nutrients in children.* Annals of Tropical Paediatris 17(3), 223-227.

Ekpenyong, S and Alfred R (20II) Food importance and rural economy, the challenges. *Journal of Environment 2 (1) 22-40*

Food and Agricultural Organisation FAO (2014), *The State of food and Agriculture*. Food Ssystems for better Nutrition, Rome.

Grahan, R.O.W (2006), *Nutritious substances food systems* Advances in Agronomy 9 (2) 11-72

Idachaba, F.S (2006), *Strategies and Policies of Food Security and Economic Development in Nigeria.* Lagos: CBN

International food policy Research Institute (2006) *Global Nutrition, Report, from promise to impact. International food policy Research institute* Washington D.C Https:// do:. Org/10.217/9750 896295841

Kennedy G.L (2007) Dictionary diversity score is a useful indicator of micro-nutrient intake. *Journal of nutrition 13+(2), 472-474*

Kuku-shittu, O (2016) *Child Nutrition in Nigeria*. International food policy Research institute working paper 33

Micro-nutrient initiative (2009) *Investing in the future.* A united call to action on vitamin and mineral deficiencies. World Bank Ontario, Canada.

Ministry of Budget and Planning (2016), *National Policy on food and Nutrition in Nigeria*

Okeke, N.O (2018) food security. A global issue. *Journal of Biotechnology 2 (1), 377-381*

Onyia, C.C (2013). *Comparative Analysis of Nutritional Behaviour of Urbaan and Rural Households in Ebonyi State*, Unpublished Ph.D. Thesis Ebonyi State University, Abakaliki.

Popkin, B (2001), The Nutrition transition and obesity in the developing world. *Journal of Nutrition 131(3), 8715-8735*

Ray, (2016), *Hunger and Malnutrition*. Londan. Mauthem ltd

Rush, I.K (2000) *Food Security and Poverty*. Finance and Development 22 (1), 60-72.

Thomposon, B and Brown, K.H. (2010), *Combating Micro-nutrient Defunds:* Food based Approaches. Rome: FAO.

Weisenberger, J. (2020). *Micronutrients* Innerbody Research. www.innwebody.

World Health Organization (2011), *Global Databased on body mass index*.

JHER Vol. 28, No. 2, December 2021, pp. 177 – 18

JHER Vol. 28, No. 2, December 2021, pp. 236 – 247

Coverage of Mental Disorder in Selected Nigerian Newspapers from 2015-2019

Odenigbo, C.I. & Anyakoha, B.U.
Department of Mass Communication,
University of Nigeria, Nsukka

Abstract

The general objective of the study was to ascertain how selected Nigerian newspapers covered mental illness stories from 2015-2019. Specifically, the study determined frequency of coverage of mental illness in the newspapers; level of prominence given to reports on mental illness; frames used in mental illness reportage; and subject matters under which stories were covered in the newspapers. Four national dailies in Nigeria were purposively selected for the study. They include *Daily Sun, The Guardian, The Nation, and Vanguard* newspapers. Constructed week sampling technique was used to select stories from the four newspapers from 2015 to 2019. Findings of the study reveal that only 51 stories were found from the 224 analysed editions. This is an indication that mental disorder lacks adequate coverage. Furthermore, no priority was given, as 92 percent of the stories were on the inside pages of the newspapers. The dominant story genre was straight news stories, indicating that the newspapers kept the audience abreast of the latest news on the subject. However, zero efforts were made to enlighten and broaden public knowledge of the intrinsic factors of mental disorders. Based on the findings, it was recommended that the media pay adequate attention to mental illness stories by publicising the topic through media education, awareness campaigns, and holistic reportage. The media's agenda-setting role, if implemented, could promulgate policies that enhance government allocation of resources towards mental health facilities across the country.

Keywords: Mental, Disorder, Suicide, Depression, Newspapers, Coverage

Introduction

Mental disorders are conditions that negatively affect human cognitive and behavioural activities. They interfere with one's ability to learn and function appropriately in the family, at work, and in the broader society. Hyman, Chisholm, Kessler, Patel, and Whiteford (2006) believe that mental disorders may begin early in life and often run a chronic recurrent course.

The psychological well-being of every individual is undoubtedly cardinal. Being in the right frame of mind becomes evident in interactions with others and invariably in the love of self. A psychological disorder can decelerate one's future if not properly managed. Mental illness is not gender-specific or restricted to any social class, race, religion, belief, or culture; anyone could be prone to a psychiatric disorder. The major challenge lies in the stigmatisation and stereotyping of people with mental ailments in society.

Statistics from a Global Burden of Disease study in 2013 (cited in Mental Health Foundation, 2016) indicate that depression, anxiety, schizophrenia, and bipolar disorder are prevailing mental health conditions worldwide. Depressive disorders, according to Mental Health Foundation (2016), contribute significantly to the burden of suicide and heart disease, mortality and disability. These disabilities also have both a direct and an indirect impact on the length and quality of life.

Mental, bodily, and social well-being are all entwined strands of life. Mental health is critical to the overall well-being of people, societies, and countries. Unfortunately, in most areas of the globe, mental health and mental illnesses are not regarded as seriously as physical health; they are overlooked and mistreated {World Health Organization (WHO), 2003}.

Available report also shows that as many as 450 million people suffer from a mental or behavioural disorder, and approximately one million people commit suicide yearly. Four of the six leading causes of periods lived with disability are neuropsychiatric disorders (individuals, alcohol-use, schizophrenia and bipolar disorder). One in four households has at least one member with a mental ailment (WHO, 2003).

According to World Health Organization-Assessment Instrument for Mental Health Systems (WHO-AIMS), 2006), mental health disorders are becoming common, and the global burden of mental health disorders will probably increase over the years. It is expected that common mental diseases, including depression, anxiety, and drug abuse-related disorders, would disable more people than AIDS, heart disease, accidents, and conflicts combined.

Although mental health has become a global public health concern and a preeminent United Nations (UN) sustainable development priority today, a truncated treatment gap persists in many low and middle-income countries. Narasimhan, Gopikumar, Jayakumar, Bunders, and Regeer (2019) posit that despite the development of evidence-based interventions, 75–90 percent of people with mental illness in low and medium-income countries (LMICs) are not in treatment.

The WHO, thus urges all countries and regions of the world to devote more attention to mental health prevention and promotion at the policy, legislative, decision-making, and resource allocation levels within the entire healthcare system to minimise mental illnesses' health, social, and economic costs (WHO, 2003). Newspaper coverage of issues related to mental disorder can contribute in various ways to promotion of awareness on such issues (Elzersdorfer and Sonneck 1998, McCombs 2011).

In a study of newspaper coverage of mental illness in the UK from 1992 to 2008, Goulden et al. (2011) observed that media coverage of mental illness in the UK altered from 1992 to 2008, comparing coverage across a variety of psychiatric disorders. Improved coverage of depression, eating disorders, and bipolar disease has provided hope to people who have sought to enhance their awareness of mental illness in recent decades. In related study, Chen and Lawire (2017) reported that over a month, mental health reporting takes up a fifth of all health-related items in a sample of UK print media.

Subramanian (2019) study on mental illness frames in an Indian newspaper uncovered that *the Times of India*, India's largest-selling English newspaper, used two predominant frames in the editions studied. These frames had a mix of positive and negative aspects, with some challenging the stigma against people with mental conditions, while the others reinforced them.

Comparably, 216 articles on mental health were analysed by Chandan et al. (2020) in four newspapers (three English and one Tamli) in Chennai. The quantitative analysis of the articles on language of reportage showed that various articles on suicide did not adhere to the guidelines of suicide reportage.

According to Nawkova et al. (2012), half of the articles in three central European nations analysed for five weeks in 2007 from six of the most frequently read newspapers and magazines in each country featured negative sentiments stigmatising persons with mental illnesses. The most common mental illness addressed in all three nations was substance abuse disorder (22%).

Coming down to Africa, Dzokoto, Barnett, Osei-Tutu and Briggs (2018) studied the mental health reportage in Ghanaian newspapers between 2000 to 2015 and found that the Ghanaian media act as a means for disseminating societal portrayals of mental illness in the country. It discovered among other things, that Ghanaian newspapers promoted awareness about mental illness.

Miller, Napakol and Kujak (2019) analysed the two largest circulating newspapers in Uganda (*The Monitor and The New Vision)* from January 1, 2017, to June 30, 2019, and discovered a substandard level of poor coverage. These newspapers recorded only 53 articles on mental illness.

A study conducted by WHO-AIMS conducted between 2005/2006 in six geopolitical zones in Nigeria- Calabar (South-South), Enugu (South-East), Kaduna (North-Central), Lagos (South-West), Maiduguri (North-East), and Sokoto (North-West), where six of the eight federal psychiatric hospitals are located, revealed a significant amount of neglect of mental health issues in the country. The study indicated that the Mental Health Policy of 1991 is highly unimplemented and yet to be revised. The report further stated that although essential medicine exists, they are not readily available to health centres. Besides, only four per cent of government expenditures on health are dedicated to mental health. The findings show that mental health issues have not received any direct attention from non-governmental organisations, invariably implying a low national priority (WHO-AIMS, 2006).

According to a study by Ciboh(2010) on newspaper coverage of health issues in Nigeria, the four most mentioned health challenges by the newspapers studied (*The Guardian, Leadership, This day and Daily Independence*) were HIV/AIDS (46 times), Cardiovascular Maladies (42 times), Cancer (24 times) and Reproduction health problems (23 times). However, mental illness was 7th on the list of frequently featured articles and appeared 13 times. He further discovered that out of 378 newspaper stories published by the sampled newspapers, 254 were straight news stories, while 62 were articles.

Although there are several kinds of research on mental health, there is a dearth of studies on newspaper coverage of mental illness across the globe. Newspaper coverage of mental illness is yet to give an exhaustive analysis of this pertinent public health concern. In Nigeria, however, there is little or no newspaper coverage of mental illness. Some researchers have focused on several aspects of mental disorder, discussing the knowledge, attitude, practices, challenges, treatments, prevention, and management of mental illness, but nothing significant to media coverage of this menace. This is a gap thi study intends to cover.

Objectives of the Study

This study focused on newspapers coverage of mental illness stories in Nigeria from 2015-2019. Specifically, the study determined:

1. frequency of coverage of mental illness in selected Nigerian newspapers from 2015-2019.
2. prominence given to reports on mental illness in selected newspapers.
3. frames used in reportage of mental illness in newspapers.
4. subject matters under which mental illness stories were reported in newspapers.

Methodology

***Design of the study*:** The study adopted the content analysis research design for examining the manifest and semiotic contents of publications.

***Population for the study*:** According to Nigerian Press Council (2021) the number of newspapers and magazines in circulation across the 36 states and the Federal Capital Territory is 509, however, there are 46 print and online newspapers that have a national outlook or major local newspapers

(Fung, 2010). The population for the study includes all the editions published by the 46 national newspapers in Nigeria for four years (January 2015 to December 2019) amounting to 67,160 editions.The figure above was calculated by multiplying the total number of national newspapers46 x 1460 (which is the number of publications each year (365) multiplied by the four newspapers chosen for the study). Hence, a total number of 67,160 editions will constitute the population for the study.

***Sample for the study*:** A purposive sample of four newspapers was draw out of the 46 national newspapers. The sample for the study includes all the editions published by the four selected newspapers: *Daily Sun, The Guardian, The Nation and Vanguard* newspapers for four years (January 2015 to December 2019).

The newspapers selected for this study are among the top ten newspapers in the country and are listed among the 46 national newspapers. Moreover, these newspapers have national outlook, wide readership, daily publications and strong circulation strength.

This study adopted the constructed week sampling technique to select 224 editions(Two weeks per year) of the four newspapers for four years(14days x 4newspapers x 4years = 224 editions). Previous studies have effectively used the constructed week sampling technique (Hester &Dougall, 2007).

***Instrument for data collection*:** Instrument for data collection was the code sheet because it is the most appropriate tool for analysing the contents of the selected newspapers. The validated code sheet containing the prepared content categories was employed to objectively record and organise the relevant data available on the articles and place them accordingly.

***Data collection method*:** Quantitative research method was utilised to retrieve recorded communication (hard copies of the newspapers) from the archives of Nnamdi Azkiwe Library of University of Nigeria Nsukka.

Data analysis techniques: Data were organized and analyzed usng frequency and percentages. The Tables comprise data from the mental disorder stories collected from the selected newspapers for this study.

Findings of the study

Table 1: Frequency and Percentage (%) of Coverage of Mental Illness in Selected Nigerian Newspapers

Newspapers	Frequency	Percentage (%)
Daily Sun	21	41
The Guardian	15	29
The Nation	6	12
Vanguard	9	18
Total	51	100

Table 1 shows the rate at which stories on mental illness appeared in *Daily Sun, The Guardian, The Nation and Vanguard* newspapers. The total number of times stories on mental illness appeared in the four selected newspapers were 51 times, with *Daily Sun* having the most articles.

The Table shows that the coverage was deficient, as only 51 reports surfaced from the 224 issues analysed.

Table 2: Percentage (%) of Story Genres Employed by the Newspapers in Reportage of Mental Illness

Story Genres	*Daily Sun*	*The Guardian*	*The Nation*	*Vanguard*	Total	Percentage (%)
Editorial	1	-	-	-	1	2
Features	6	4	-	2	12	24
Letter-to-the-Editor	-	-	-	-	-	-
Opinion article	4	4	4	3	15	29
Straight News	10	7	2	4	23	45
Total	21	15	6	9	51	100

Table focuses on story genre. The story genre is used to examine the level of importance attached to a story. A feature story, opinion article or editorial usually adopt an in-depth analysis and descriptive style, written explicitly to inform and educate. However, straight news is often brief and to the point with the sole aim of informing the public about the latest happening.

Table 2 indicates that almost half of the stories were straight news reports against opinion articles and features. This shows that the stories lacked exhaustive analysis.

Table 3: Frequency and Percentage (%) on Page Placement of Stories onMental Illness in Selected Newspapers (indicating prominence given)

Placement	*Daily Sun*	*The Guardian*	*The Nation*	*Vanguard*	Total	Percentage (%)
Front Page	1	-	-	-	1	2
Back Page	-	-	-	-	-	-
Centre Spread	2	1	-	-	3	6
Inside Page	18	14	6	9	47	92
Total	21	15	6	9	51	100

Table 3 focuses on page placement which ascertaining the level of significance given to mental illness stories. In newspaper placement, the front page, back page and centre spread are the most strategic in the newspaper layout. Therefore, articles found on these pages are considered relevant by the newspaper houses.

Table 3 shows that (92%) of the stories were inside the pages of the sampled newspapers, indicating zero prominences which will result in low readership.

Table 4: Frequency and Percentage (%) on Depth of Coverage of Mental Illness Stories in Sampled Nigerian Newspapers

Depth of Coverage	***Daily Sun***	***The Guardian***	***The Nation***	***Vanguard***	**Total**	**Percentage (%)**
Full page	6	4	3	4	17	33
Half page	5	3	2	1	11	22
Quarter page	2	5		2	9	18
Below quarter	8	3	1	2	14	27
Total	21	15	6	9	51	100

Table 4 shows the depth of coverage of mental illness stories, often determined by the column/inches each of the stories occupies. The depth of coverage also shows the level of prominence a story received because a comprehensive analysis cannot fit into a quarter page. Consequently, the more space allotted to a story, the more the article stretches. The table clearly shows that close to half of the stories fit into full pages in the sampled newspapers, indicating that the available articles received extensive analysis.

Table 5: Frequency and Percentage (%) Aspects of Subject Matters under which Mental Illness Stories Appeared

Subject Matter	***Daily Sun***	***The Guardian***	***The Nation***	***Vanguard***	**Total**	**%**
Drug/substance addiction	-	-	3	1	4	8
Suicide	13	6	1	4	24	47
Depression	1	-	-	2	3	6
Coping mechanism	-	1	-	1	2	4
Socio-environmental factor	-	2	-	-	2	4
Mental health education	7	6	2	1	16	31
Total	21	15	6	9	51	100

Table 5 shows that the subject matters category explored the different mental illness topics addressed in the selected newspapers. These topics were the most frequently mentioned subject under which stories on mental illness appeared. The data analysed show that the most prominent subject matter was suicide.

Table 6: Frequency and Percentage (%) on Types of Frames used for Reportage of Mental Illnesses in Nigerian Newspapers

Frames	*Daily Sun*	*The Guardian*	*The Nation*	*Vanguard*	Total	%
Human Interest Frame	4	2	1	2	9	18
Responsibility Frame	9	2	2	1	14	27
Morality Frame	7	9	2	5	23	45
Consequence Frame	1	2	1	1	5	10
Conflict Frame	-	-	-	-	-	-
Total	21	15	6	9	51	100

Table 6 deals with frames which give stories direction. Frames help organize thoughts and present the article in a way that enhances understanding.Table 6 shows the diverse frames used in analysing the stories. The dominant one was the morality frame. It implies that the article incorporated a cultural, religious, or human-interest aspect in the storywhile suggesting social prescriptions on how to behave towards the problem.

Discussion of Findings

The objective of the analysis was to examine the coverage of mental illness between 2015 and 2019. Studies conducted by Goulden et al. (2011), Chen and Lawire (2017) and, Dzokoto et al. (2018) on Newspaper coverage of mental illness in the UK and Ghana reported an advanced reportage of depression, eating disorders, and bipolar disorder. Moreover, these studies indicate an overall increase in non-stigmatising articles.

Dzokoto et al. (2018) discovered that Ghanaian newspapers promoted awareness about the mental disorder, advocated for those with a mental complication, provided mostly accurate basic knowledge about specific ailments, and informed the public about mental health care in Ghana. These reports are contrary to the finding of this study, as only 51 articles were obtained from the 224 editions sampled.

Studies by Nawkova et al. (2012), Chandan et al. (2020) and Miller, Napakol and Kujak (2019) discovered a deficient level of poor coverage of public health issues in their analyses; which is similar to the finding of this research objective. Consequently, it would be appropriate to conclude that mental illness lacked encyclopaedic reportage in the sampled Nigerian newspapers.

The predominant story genre was straight news stories. It implies that the newspapers were keeping the public abreast with the latest news on mental illness; without diverging into the causes, effects, challenges, consequences, prevention, and management of mental illness, which will further broaden people's knowledge on mental health.

Studies by Goulen et al. (2011) and Dzokoto, Barnett, Osei-Tutu & Briggs (2011) indicate an improved reportage of mental conditions such as depression, eating disorders, and bipolar disorder. A detailed analysis would not be possible through straight news stories. Invariably, the researchers employed a more thorough approach to communicating these ideas to the public. The finding is contrary to this study, as the reports were mainly straight news, showing leakage in coverage.

Nawkova et al. (2012) and Chandan et al. (2020) also pointed out poor reporting of public health issues in their findings. Ciboh (2010) further added that out of 378 newspaper stories published by the sampled newspapers, 254 were straight news stories, while 62 were articles. The findings by Nawkova et al. (2012), Chandan et al. (2020) and Ciboh (2010) correspond with the discovery of this research objective intimating mental health and health-related topics are often reported as news stories as they unfold without an exhaustive look into pertinent factors surrounding the problems.

Page placement customarily ascertains the level of importance conferred to a story. From the data analysed on the page placement of mental illness, it was discovered that most of the stories (92%) were inside the respective pages of the sampled newspapers. It is an indication that the sampled newspapers failed to give priority to mental illness stories. Moreover, these articles buried inside the pages of the sampled newspapers will minimise the readership. Stories on mental health and health-related topics are generally of poor quality in placement, analysis and language, as was proven by researchers such as Chandan et al. (2020), Nawkova et al. (2012) and Ciboh (2010).

The column and inches each story fit into were determines the depth of coverage. The finding shows that nearly half of the stories were on complete pages of the sampled newspapers, which shows that these newspapers gave the available reports an exhaustive analysis. This finding was strongly supported by Goulden et al. (2011), Chen and Lawire (2017) and Dzokoto, Barnett, Osei-Tutu & Briggs (2011), as these studies commended the media for an improved reportage. These publications acted as a vehicle for disseminating societal images of mental illness throughout society. The articles raised awareness about mental illness, campaigned for persons suffering from it, offered correct fundamental information about various diseases, and informed the public about mental health treatment.

The subject Matters category explored different mental illness-related issues treated in the selected newspapers. The data showed that suicide was the most prominent subject matter. According to Nawkova et al. (2012), the most common mental illness theme addressed in all three newspapers was substance abuse disorder (22%). Chen and Lawire

(2017) study showed suicide at 15% at 31 stories, as the second most prevalent subject matter, just slightly lower than Dementia, which sits at number one with 32 articles (16%). The study by Chen and Lawire (2017) was the most related to the finding of this study as the predominant theme spotted was suicide at 47% (24 articles).

The dominant frame used for the reportage was the morality frame. Miller, Napakol and Kujak (2019) spotted thematic frames as the dominant frame, demonstrating that the topic was viewed as a social issue, not an individual problem. Subramanian (2019) study used two predominant frames in the editions studied. These frames had a mix of positive and negative aspects, with some challenging the stigma against people with mental conditions, while the others reinforced them. The dominant frame discovered in this study was the morality frame, which shares the same tenets as the frame employed by Miller, Napakol and Kujak (2019). These frames approach mental illness as a social anomaly, offering cultural, religious, or human-interest perspectives to the available stories, with social prescriptions on how to behave towards the problem.

Conclusion

Based on the findings of this study, it is evident that the media failed to live up to its agenda-settings responsibility because the level of coverage discovered on the topic showed that priority was not given to mental illness stories. Only one story was discovered on the front page, with the rest of the stories buried inside the pages of the respective newspapers. Topical issues are placed strategically on the cover page, centre spread or back cover to increase readership. Space allotment is another essential aspect that denotes the level of prominence because a detailed report cannot fit into a quarter page. For the public to change their perception about mental disorders, stigmatization of people with mental illness, an exhaustive analysis must be made available to the public on the said topic. Language of reportage and height of discrimination identified in some newspapers showed a lack of professionalism. Furthermore, the findings show that the studied newspapers failed to uphold media principles and to give this pertinent topic holistic coverage.

Recommendations

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

1. The media should pay more attention to mental health by using its agenda-setting function to project and publicise this issue to the public through holistic reportage, media education, and awareness campaigns.
2. The media should promulgate programmes that will query the government's decision-making on mental health, which will unalterably promote policy formulation on resource allocation within the overall health sector,

especially the mental health care system.

References

Chandan, A.K., Sridhar, U., Jain, S.G., Ramalakshmi, C.S., Gopal, S., Raghavan, V. (2020). Portrayal of mental health in the newspapers from Chennai: A cross-sectional survey.*Indian Journal of Social Psychiatry*.36:258-261. DOI:10.4103/ijsp.ijsp_69_19.

Chen, M., &Lawire, S. (2017).Newspaper depictions of mental and physical health.*BJPsych Bulletin*, Doi: 10.1192/pb.bp.116.054775.

Ciboh, Rodney. (2010). Newspaper Coverage of Health Issues in Nigeria.*The Nigerian Journal of Communication*.8. 220 - 241.

Dzokoto, V., Barnett, C., Osei-Tutu & Briggs, A. (2018).Mental health reportage in Ghanaian newspapers between 2000 and 2015: A qualitative analysis.*International Journal of Mental Health*, DOI: 10.1080/00207411.2018. 1488557.

Etzersdorfer, E. &Sonneck, G. (1998). Preventing suicide by influencing mass-media reporting:The Viennese experience 1980–1996. *Arch Suicide Res*;4:67-74.

Fung, K. (2010). "*Countries: Nigeria:News*". *African Collection Stanford University Libraries.* https://web.archive.org/web/20101104202824/http://library.stanford.edu/depts/ssrg/arica/nigeria/nigerianews.html

Goulden, R.,Corker, E., Evans-Lacko, S., Rose D., Thornicroft, G., & Henderson C. (2011). Newspaper coverage of mental illness in the UK, 1992-2008.*BMC Public Health,* 1471-2458/11/796.

Hester, J., &Dougall, E. (2007).The efficiency of constructed week sampling for content analysis of online news. *Journalism & mass communication*, quarterly 84(4):811-824.

Hyman, S., Chisholm, D., Kessler, R., Patel, V., &Whiteford, H. (2006).*Mental Disorder*.New York: Oxford University Press.

McCombs, M. (2011).*The Agenda-Setting Role of the Mass Media in the Shaping of Public Opinion*.University of Texas at Austin.

Mental Health Foundation. (2016). *Fundamental Facts About Mental Health* 2016.London: Mental Health Foundation.

Miller, A.N., Napakol, A. &Kujak, M.K. (2019).Representation of Mental Illness in Leading Ugandan Daily Newspapers: A Content Analysis.*Health Communication* 35(14): 17821790.

Narasimhan, L., Gopikumar,V., Jayakumar, V., Bunders, J., &Regeer, B. (2019). Responsive mental health systems to address the poverty, homelessness and mental illness nexus: The Banyan experience from India.*International Journal of Mental Health Systems,* 13:54.

Nigerian Press Council (2021). Inventory. https://tinyurl.com/5h2yp43n.

Nawková, L., Nawka, A., Adámková, T., Rukavina, T., Holcnerová, P., Kuzman, M., Jovanović, N., Brborović, O., Bednárová, B., Žuchová, S., Miovský, M., &Raboch, J. (2012). The Picture of Mental Health/Illness in the Printed Media in Three Central European Countries. *Journal of Health Communication*.17 (1):22-40.

Subramanian, R. (2019). Frames of Mental I llness in an Indian Daily Newspaper. *Health Communication.* 35(14):

18061815. **Error! Hyperlink reference not valid.**

WHO-AIMS. (2006). WHO-AIMS Report on Mental Health System in Ibadan.Nigeria: WHO.

World Health Organization (WHO). (2003). *Investing in Mental Health*. Geneva: WHO