Journal of Home Economics Research (JHER)

A Multidisciplinary Journal

Volume 29, No. 2, December 2022

ISSN 1118-0021

Published by the
Home Economics Research Association of Nigeria

Submission@jher.cc
https://jher.cc/

In this Issue

JHER Vol. 29 (2), December 2022, pp. 7 -21

Effect of Portfolio Assessment Technique on Transfer of Learning in Agriculture among Economics Students in Secondary Schools in Nsukka Local Government Area

.[1]Nji, I. A. & [2]Chinyelugo, T. C.
[1]Department of Social Science Education, University of Nigeria, Nsukka
[2]Department of Arts Education, University of Nigeria, Nsukka

Corresponding author: tochukwu.chinyelugo@unn.edu.ng

Abstract

The study investigated effect of Portfolio Assessment Technique (PAT) on transfer of learning in Agriculture among Economics Students in Nsukka Local Government Area, (LGA) Enugu State, Nigeria. Specifically, it determined mean transfer of learning scores among Economics students taught with PAT and those taught with conventional assessment; mean transfer of learning scores among rural and urban economics students; and interaction effect of assessment technique and location on transfer of learning among Economics students. The study had three research questions and three hypotheses. Quasi-experimental design was used. Population of 2,565 SS2 students in 30 government secondary schools in Nsukka Local Government Area, had a sample of 169 Senior Secondary two Economics students. Instrument for data collection was Economics Transferability Test (ETT). The ETT instrument had both face and content validation. ETT had a reliability coefficient of 0.74. Mean scores were used to answer the research questions while Analysis of Covariance (ANCOVA) was used to test the null hypotheses at 0.05 level of significance. The findings revealed that PAT was more effective on students transfer of learning than Conventional Assessment Technique (CAT) in Economics. There was no significant influence of location on students' transfer of learning in Economics among others. It was recommended among other things that teachers should be properly guided on the use and benefits of Portfolio Assessment Technique in the classroom to expand students' ability for learning transfer and self-evaluation.

Keywords: Portfolio, Assessment, Economics, Conventional, Transfer, Learning, Location.

Introduction

Transfer of learning is the application of previous knowledge to learning something new when applied to both similar and new situations (Haskel, 2004). Mohalla (2021) further explained transfer of learning as that process of extending knowledge, skills, habits and attitude from one training situation to another training situation. In other words knowledge acquired in one subject is expected to help in the understanding of

a relative new subject. Some studies have proven that knowledge/learning can be transferred from one subject to another. For instance, Obiagu, Mezieobi, Aroh and Akubue (2019) using cooperative concept mapping, found out that students had transfer of learning from conflict concept to peace concept in Social Studies than the use of lecture method. Dixon (2019) identified that students with higher scorers were able to transfer mathematics, science and design concepts making more connections to concepts learned from Project Lead the Way curriculum. Beklenky and Nokes (2009) found that intensive knowledge enhanced better understanding of related concepts in English in Pittsburgh. Knowledge and skills acquired in school subjects help in solving problems, critical thinking, communication and creativity in diverse subjects and areas of life (National Academic of Science, Engineering and Medicine, 2012). It is then relevant that Economics promotes insights to solving problems of present times and also a determinant of success in related subjects. Economics is related with other social sciences and subjects such as Philosophy, Psychology, and Sociology (Pettinger, 2020), as well as Agricultural Science which is an aspect of Economics that deals with business and management specifically on production (Mitchell, 2022).

This study was concerned with students' ability to transfer knowledge in Economics to Agricultural science. It is believed that the knowledge of Economics could boost the understanding of Agricultural Science. This is because some of the contents of Economics curriculum are found in Agricultural science. Both Economics and Agricultural science are to a very large extent practical subjects that tend to solve one of the biggest societal problems which is unemployment, hence the reason for the choice of Agricultural Science in this study. Agricultural practices are largely carried out in rural settings. Nsukka Local Government Area (LGA) has public schools located in rural and urban settings. The geographical land scope determines urban areas which are characterized by physical development in cities and sub-urban cities (McCracken, 2014). On the other hand, rural areas are characterized by underdevelopment, poor access to technology and low means of livelihood and presence of agricultural practices (Morgan, 2022 ; Ford & Chaprasov, 2022). Differences in school location could be seen in methods of teaching and learning (Adu, Ojelabi & Adeyanju, 2009 and Kola, Olanipekan & Ogundele, 2013). For instance, Olatunde (2010) observed that urban students performed better than rural students in the overall general performance of academic achievements which has influence on creativity for future determination. On the contrary Okorie and Eze (2016) reported that students from rural schools did better in Chemistry Bonding Achievement Test than their urban counterparts. This study therefore, sought to determine if students of rural setting who were assumed to be more knowledgeable in farming (agriculture) can easily transfer learning from Economics to Agricultural science more than urban students who were assumed to not have such farming exposure in Nsukka LGA.

This study is necessitated due to students' poor performance in Economics and Agricultural Science in Nsukka LGA, studies such as Nji (2014) reported students' dwindling academic

achievement in Economics and Otekunrin and Ona (2017) reported a retarded students' zeal in Agricultural Science due to students' nonchalant attitude towards the subject both carried out in Nsukka education zone. Furthermore, the statistical reports by the West African Senior Secondary Certificate Examination (WASSCE) chief examiners report on Agriculture Science (2018-2019) stressed on students weakness in the subject, of which Nwakili, Nwankwo, Ekenta, Ameh and Nwokolo (2022) showed students' poor performance in Agricultural Science in five randomly selected schools in Nsukka education. Students' poor performance has mostly been attributed to teachers' approach to teaching and assessment techniques, among others (Karade & Kulkarn, 2005; Al-Zoubi & Younics, 2015; Olajire, 2020).

The teaching of students in Economics requires in-depth knowledge and comprehension which could be assessed and evaluated to reflex transfer of learning to related subjects such as Agriculture. Assessment is the procedure used to know the extent to which teaching and learning have been achieved. Huba and Freed (2000) pined that assessment is the process of gathering information from multiple and diverse sources in order to develop a deep understanding of what students know. Assessment can take the forms of traditional/conventional and authentic assessment (Huba and Freed). Though, assessment of students using traditional or conventional pen and paper assessment using oral questions in classes and written tests are shortfalls of poor performance in public schools in Nsukka LGA. Conventional assessment (CA) is most of the times administered only once or twice during a term. It seems not to showcase the gradual progress of students. It is mainly used for promotion since it is product oriented. The strengths and weaknesses of students are largely not taken up for consolidation and improvements, thereby, ignoring students' capabilities and interests, knowledge and skills. Learners have their own interests, needs, abilities, strengths, and weaknesses and thus, one single method of assessment does not suffice to get a comprehensive picture of students' progress (Shirvan & Golparvar, 2016). Hence the need for this study to try out Portfolio Assessment Technique that is process oriented to determining students' ability to produce and apply knowledge and concepts to real-life situations which is transfer of learning.

Portfolio involves method of documenting students overall learning process that shows how students integrate specific learning or skills to aid progress towards both basic and advanced mastery of students reflection. Portfolios may be in form of files of works, assignment, drawing, teacher's note of lesson, diary, lesson plans in a collection. Sharp (2012) identified that portfolio comprises of weekly journal entries, solution to student-selected homework problems explained in writing, and a synthesis entry relating to previous topics and or to other principles previously studied.

Portfolio Assessment Technique (PAT) is a form of authentic assessment. In, PAT students are assessed based on teaching and self learning by documenting works over time for reflective learning. Alimemaji and Ahmatag (2010) explained that Portfolio Assessment Technique is an orderly way of collecting students' works in a given instruction towards self evaluation over a period of time.

Portfolio Assessment Technique shows students the progress of their works, achievement and self reflection over a period of time (Tabatabaei & Assefi, 2012). In this study, Portfolio Assessment Technique is the systematic collection of periodic activities (instruction) in Economics by the learner over a period of time for the purpose of expanding students' understanding and learning for assessment purpose on Agricultural science. Therefore, PAT is to encourage learners to become autonomous, take control of their learning, make decisions, participate in evaluation process and solve problems identified individually (Tabatabei & Assefi, 2012). The efficacy of PAT has somehow been proven. For instance, Adeyemi (2015) and Biaike, Schanau and Steers (2009) observed that PAT has a positive benefit on students' learning outcomes. Portfolio assessments were determined to have positive effects on attendants' meta-cognitive skills (Evin-Gencel, 2017). In a study by Powell (2013), it was proven that portfolios utilized concept analysis, helped in developing and also improving self-efficiency and comprehension and thus increasing the level of self efficiency. With PAT, the learner has opportunity to explore the environment, learn new concepts and translate it to similar situations or concepts which will aid transfer of learning.

Objectives of the Study

The general objective of the study was to examine effect of portfolio assessment technique on students' transfer of learning in Agriculture among Economics students in Secondary schools in Nsukka Education Zone. Specifically, the study determined:

1. mean transfer of learning scores among Economics students assessed with PAT and those taught with conventional assessment (CA).
2. mean transfer of learning scores among rural and urban Economics students.
3. interaction effect of assessment technique and location on Economics students' mean transfer of learning scores.

Research Questions

1. What is the mean transfer of learning scores among Economics students assessed with PAT and those taught with CA?
2. What is the mean transfer of learning scores of urban and rural Economics students?
3. What is the interaction effect of technique and location on Economics students' mean transfer of learning scores?

Hypotheses

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

Ho_1: There is no significant difference in the mean transfer of learning scores among Economics students assessed with portfolio assessment technique and those taught with conventional assessment.

$H_{O2:}$ There is no significant difference in the mean transfer of learning scores of urban and rural Economics students.

Ho_3: There is no significant interaction effect of technique and location on Economics students' mean transfer of learning scores.

Methodology

***Design of the study*:** The design used for this study was quasi-experimental pre-test post test non-equivalent control group design. In this study the researchers have the experimental and control groups selected in their intact nature, both groups are given test before and after the experiment.

***Area of the study*:** The study was carried out in Nsukka Local Government Area of Enugu State, Nigeria. The area comprises urban and rural locations. The rural area is characterized by homogeneity population, poor network visibility and has main occupation of agriculture while urban area is characterized by good network visibility, nonagricultural jobs and heterogeneity population. There exist public secondary schools located in both rural areas and urban areas of Nsukka Local Government Area.

***Population of the study*:** The rural area comprises twenty-one government secondary schools while the urban area comprises nine secondary schools from the thirty 30 public secondary schools in Nsukka Local Government Area in the 2016/2017 academic session (Post primary Board, Nsukka). The population was made up of 2,565 senior secondary two students (SS II), of which 1,095 were in the rural and 1,470 were in the area. The choice of SS II students was informed by the fact that the students were expected to have been exposed to a reasonable level of knowledge in Economics but not in Agriculture. The reason is because the study intends to identify the extent students of Economics can transfer learning to Agricultural science that was never taught as a subject in the class.

***Sample for the study*:** A random sample of 169 students was chosen using two stages of sampling procedure. Firstly, a random sample for the selection of four schools (2 urban and 2 rural), secondly, purposive sample was used in selection of intact classes (4) that had no Agriculture science students. The reason for selecting of students is because non-agricultural science students were needed for this study.

***Instrument for Data collection*:** The Economics Transferability Test (ETT) was generated by the researchers from past West African Senior Secondary Certificate (WASSCE) papers in Agricultural science related to the content taught in Economics. (This is done to determine whether students would be able to transfer learning of Economics that has Agricultural contents to understanding and answering Agricultural Science questions). The ETT is a 20 multiple choice achievement test with options A-D and each of the items has five marks each. The contents covered cost concept, theory of consumer demand and agriculture in Economics SSII scheme of work. These topics were chosen to test transferability and integrated nature of some Economics concepts to Agricultural science. Economics Transferability Test (ETT) was face validity by three experts (two Economics and one Agricultural Science teachers) from a college and the corrections were reflected in the final instrument for the study. Content validation of the instrument was determined by the use of table of specification.

The internal consistency of the instrument was determined using Kuder Richardson 20 (KR20). The test was administered to 30 respondents from two schools not represented in the sample of the study. The reliability index was 0.74. The temporal stability of the instrument

was done; test-retest method was used at an interval of two weeks. The scores obtained yielded a correlation coefficient of 0.78 which indicates a high correlation of two scores.

***Method of Data collection*:** A two-day orientation and training was organized for regular Economics teachers on the use of PAT. The students were taught for six weeks. Thereafter, teachers in the experimental group (PAT) gave take-home assignments and quiz to the students. They were asked to prepare their portfolios for self assessment overtime. Teachers and students were allowed to self-evaluate themselves through self-marking of assignments and scripts.

The conventional assessment (CA) technique as used in this study consisted of the normal oral questions asked by the teacher during lesson periods and written tests by students. The teachings lasted for six weeks. The ETT was administered to both the experimental and control groups before (pretest) and after (posttest) treatment. ETT was reshuffled then re – administered for the posttest.

***Technique for Data analysis*:** Mean scores and standard deviations were used to answer the research questions while hypotheses were tested at $p>0.05$ level of significance using Analysis of Covariance (ANCOVA). ANCOVA was used to test non-equivalent nature of the intact classes in the study.

Results

Table 1: Mean Transfer of Learning Scores of Students Assessed with Portfolio Assessment Technique (PAT) and Those Assesses with Conventional Assessment (CA)

20 Multiple Choice ETT (Questions)	**Pretest(*x*)**		Posttest(*x*)	
	PAT	**CA**	PAT	CA
Item 1	64.02	30.60	78.60	44.08
Item 2	62.01	46.80	65.60	55.02
Item 3	68.03	38.20	67.36	45.01
Item 4	5.08	38.90	59.60	53.06
Item 5	6.13	35.12	58.24	50.08
Item 6	58.20	42.28	69.51	47.08
Item 7	57.87	96.70	88.17	32.18
Item 8	60.00	27.07	56.57	52.10
Item 9	4.18	52.28	66.03	45.09
Item 10	62.68	33.58	54.24	43.25
Item 11	52.02	38.68	68.32	55.10
Item 12	67.02	32.72	66.64	45.18
Item 13	61.00	44.66	58.24	44.08
Item 14	4.49	35.70	74.96	38.51
Item 15	7.25	41.68	66.60	46.10
Item 16	69.02	31.70	79.03	51.65
Item 17	7.21	45.70	53.28	23.01
Item 18	53.02	39.40	67.72	45.08
Item 19	52.00	49.90	60.04	39.06

Item 20	9.21	38.70	73.24	46.88
Grand Mean	41.79(SD 11.02)	38.70(SD 12.99)	66.60(SD 10.61)	45.08(SD 10.24)
Mean Gain			24.81	6.38

PAT-Portfolio Assessment Technique, CA-conventional Assessment *The 20 items are in Appendix I, page 17. ETT = Economics Transferability Test.

Table 1 shows transfer of learning mean scores of PAT and CA students item by item. It shows that CA students however, had higher learning transfer mean scores than PAT students on some of the items (4, 5, 9, 14, 15, 17 and 20) in pretest. In posttest, PAT students had higher learning transfer mean scores than CA students on all the 20 items. Furthermore, under the grand mean, the table shows that students taught with PAT had pre-test mean transfer of learning score of 41.79 and post-test mean transfer of learning score 66.60. Those that were taught with CA had pre-test mean score of 38.70 and post test mean score of 45.08. The mean gain scores of 24.81 and 6.38 were recorded for the two groups respectively. This shows that students that used PAT achieved higher than their counterparts who used CA.

Table 2: ANCOVA on Economics Students' Mean Transfer of Learning Scores

Sources of Variation	**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig**
Corrected Model	19615.536[a]	2	9807.768	89.909	.000
Intercept	398779.342	1	39879.342	365.578	.000
Pre-transfer	54.717	1	54.717	.502	.480
Technique	**18977.266**	**1**	**18977.266**	**173.966**	**.000**
Error	18108.251	166	109.086		
Total	568380.000	169			
Corrected Total	37723.787	168			

Significant at Alpha Level of $\leq$ .05 [b] computed using alpha = .05

Table 2 shows the main effect of transfer of learning scores in Economics as F(173.966) with probability value of 0.00. Since the probability value is less than 0.05 level of significance at which the hypothesis was tested, the null hypothesis therefore, is rejected. Hence, there is a significant difference in the mean transfer of learning scores among Economics students taught with portfolio assessment technique and those taught with conventional assessment.

Table 3: Mean Transfer of learning scores of Urban and Rural Economics Students

20 Multiple Choice ETT (Questions)	**Pretest**		**Posttest**	
	Urban	**Rural**	**Urban**	**Rural**
Item 1	38.04	30.05	50.21	51.31
Item 2	41.50	40.20	59.00	53.82
Item 3	30.04	30.85	60.01	57.01
Item 4	39.24	35.05	55.41	55.01
Item 5	49.02	57.98	58.22	58.70

Item 6	48.61	43.05	56.22	53.01
Item 7	26.52	42.90	55.91	50.03
Item 8	30.24	39.02	60.41	53.00
Item 9	40.26	32.82	41.21	58.80
Item 10	40.22	31.22	53.21	58.71
Item 11	39.12	33.60	55.31	58.11
Item 12	39.60	52.00	59.01	53.22
Item 13	40.12	50.41	52.22	52.00
Item 14	39.04	33.22	74.58	53.01
Item 15	36.58	49.06	51.00	61.00
Item 16	43.01	41.22	62.11	54.01
Item 17	69.02	51.00	54.31	53.31
Item 18	37.27	40.02	55.62	58.61
Item 19	72.13	45.22	51.22	57.53
Item 20	41.21	39.05	53.01	61.00
Grand Mean	39.54(SD 10.49)	40.90(SD 13.35)	56.41(SD 16.92)	55.71(SD 13.19)
Mean Gain			16.67	14.81

PAT-Portfolio Assessment Technique, CA-conventional Assessment *The 20 items are in Appendix I, page 17. ETT = Economics Transferability Test.

Table 3 shows the transfer of learning mean scores of urban and rural students item by item. The data show that rural students had higher learning transfer mean scores than urban students on nine of the items (3, 5, 7, 8, 12, 13, 15, 17 and 20) in pretest. In posttest, rural students also had higher learning transfer mean scores than urban students on nine of the items (1, 5, 9, 10, 11, 15, 18, 19 and 20).

The table also shows that students in urban school had mean transfer of learning scores of 39.54 in pretest and 56.41 in post test. Those in rural school had mean transfer of learning score of 40.90 and 55.71 in pre test and post test respectively. This showed that students in urban school had high transfer of learning than their counterparts in rural school location. Also, the table showed that urban school students had a standard deviation score of 10.49 and 16.92 for pretest and post test respectively.

Table 4: ANCOVA for Urban and Rural Economics Students' Mean Transfer of Learning Scores

Sources of Variation	**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig**
Corrected Model	673.590[a]	2	336.795	1.509	.224
Intercept	34027.935	1	34027.935	152.459	.000
Pre Transfer	653.246	1	653.246	2.927	.089
Location	**35.320**	**1**	**35.320**	**.158**	**.691**
Error	37050.197	166	223.194		
Total	568380.000	169			
Corrected Total	37723.787	168			

Table 4 shows that the calculated value of **F(0.158)** for the influence of school location on students' transfer of learning in Economics is significant at 0.691. Since, the probability value of 0.691 is greater than the 0.05 level of significance (p>0.05) at which the null hypothesis was tested, the null hypothesis is accepted. Therefore, there is no significant difference in mean transfer of learning scores of urban and rural Economics students.

Table 5: Mean and standard deviation on interaction effect of technique and location on Economics students' mean transfer of learning scores

Group/location	N	Mean	Standard deviation	Mean gain
PAT Urban	40	69.13	10.47	26.985
Rural	46	63.84	8.90	
CAT Urban	38	42.15	10.25	16.495
Rural	45	47.35	10.53	

Table 5 shows urban school students when exposed to PAT had a mean transfer of learning score of 69.13 while rural school students had a mean score of 63.84. Similarly urban school students who were exposed to conventional assessment had a mean of 42.15 and rural school students had a score of 47.35. This implies that both urban and rural school students transfer of learning scores were high when exposed to PAT, than those who were exposed CA. It is also shown in the table that there is a high standard deviation for PAT group at 10.47 and 8.91 for urban and rural school locations respectively while CA had standard deviations of 10.25 and 10.53 for urban and rural school location respectively.

Table 6: ANCOVA of Interaction Effect of Technique and Location on Economics Students' Mean Transfer of Learning Scores

Sources of Variation	Sum of Squares	Df	Mean Square	F	Sig
Corrected Model	21017.49[a]	8	2627.187	25.161	.000
Intercept	37002.897	1	37002.897	354.385	.000
Pre transfer	64.377	1	64.377	.617	.433
Technique	17103.291	1	17103.291	163.802	.000
Location	1.034	1	1.034	.010	.921
Technique *Location	**1051.951**	**1**	**1051.951**	**10.075**	**.002**
Error	16706.294	160	104.414		
Total	56838.00	169			
Corrected Total	37723.787	168			

Table 6 shows the main interaction effect of technique and location on students transfer of learning scores in Economics as F(10.075) with probability level of 0.002. Since the Probability value (0.002) is less than 0.05 level of significance at which the hypothesis was tested, the null hypothesis is rejected. Therefore, there is a significant interaction effect of technique and location on Economics students' mean transfer of learning scores.

Discussion

The result of this study revealed that students were able to transfer learning using Portfolio assessment technique (PAT) with grand mean score 66.60 while students that used Continuous Assessment technique (CAT) had grand mean of 45.08. Based on the finding PAT was more effective on students' learning transfer than the conventional assessment technique. This suggests that the introduction of PAT for assessing students would improve students' general knowledge. The findings concur with Tabatabaei and Assefi (2012) who reported that the use of Portfolio Assessment Techniques on writing was more efficacious than traditional approach to writing. The findings further uphold Adeyemi (2015) report that PAT has a positive benefit on students' learning outcomes. Thus, in order for students to perform exceptionally different there is need for self evaluation and monitoring of assessments overtime to identify strengths and weakness which could be of benefit to the use of PAT. According to Obiagu (2015), students were able to transfer learning from Social Studies to English such that intensive knowledge enhanced better understanding of related concepts. This finding affirmed the study of Shirvan and Golparvar (2016) that portfolio assessment significantly improved General English students' Locus of Control and affected their achievement in Iran. Furthermore, Javanmard and Farahani (2012) found out that the use of the portfolio had significant positive influence on students' language. Therefore, the product-oriented traditional assessments had limited possibility to influence teaching and learning positively and are no longer fit with current classroom practices (Javanmard & Farahani ,2012).

The observation made in this study is expected as PAT aids the acquisition of intensive and authentic knowledge and students' involvement in their own study and evaluation process. Under PAT, students master content through deep learning and become responsible for their learning through self reflection (Tiwari, 2009). In PAT, students actively participate in their learning through engagement, interactive process and feedback. The benefit of portfolio assessment technique is feedback which has given students opportunity to understand the subject clearly. This is partly due to the fact that PAT taps into the process of learning as well as its product and integrate teaching and testing activities (Yurdabakan and Erdughan, 2009). Also, teachers, students and administrators have opportunities to view students learning progress (Heidi, Kasten & Georgia, 2012). Accordingly, Powell (2013) observed that a portfolio assessment enabled participants to develop a progressive attitude towards self-enhancement because the experiments associated portfolios with the creation of mental images among its users. These images are practical in fostering cognitive skills in the users because they create a lasting impression on the brains of the students thus facilitating communication as well as understanding.

The findings of the study revealed that rural students had higher learning transfer mean scores for nine items in both pretest and posttest than their urban counterparts. Yohanna and Muhammad (2022) observed that students from rural secondary schools performing better is

probably due to experience gathered from farming activities they are fully involved with from childhood, as farming is the major occupation of the rural populace and also the availability of vast farm plots for practical agricultural science, which are limited in most urban schools. On grand mean however, the findings revealed that students taught in urban location had a very slight higher grand mean than their counterparts in rural area; however, the difference was not statistically significant. This observation is unexpected as the researchers suspected that since students in the urban school are already exposed they would outperform their rural counterparts out rightly.

However, the low and insignificant difference in urban and rural students' mean scores could be attributed to the fact that rural students are already familiar with agricultural terms since it is assumed that they do actual farming in their rural settlements. Onwunali, Muhammad and Balogun (2022) found out that location had a strong influence on the performance of agricultural science. Yohanna and Muhammad (2022) found out that the mean scores of rural students (43.69) were relatively higher than urban students (39.19) Agricultural Science. Okorie and Eze (2016) found out that students from rural schools did better than their urban counterparts in Chemistry. Furthermore, Owoeye and Yara (2011) found out that students in urban areas had better learning outcome than their rural counterparts. This could be as a result of exposure of students in urban schools to good network facilities and Information Communication Technology available. This finding affirmed the study of Abamba (2021) that there is no significant difference between rural and urban students' achievement in Physics using 5E learning circle.

Furthermore, the findings revealed a significant interaction effect of assessment technique and location on students' learning transfer. This shows that assessment technique and school location combined to effect students' transfer of learning scores in Economics. On the contrary, Nji (2014) and Ezeudu, Olawei and Umeifekwem (2014) reported a no significant interaction effect of method and location on students' achievement. The finding of this study shows that with the right assessment techniques, both rural and urban students can do well in transferring learning from Economics to other subjects and areas.

Conclusion

The most important aspect of learning is the ability to transfer what has been learnt to real life experiences and lifelong learning, thus Portfolio Assessment Technique is an alternative assessment that has been found out to help students have in-depth knowledge and ability to transfer learning from one subject area to other. This would automatically boost their creativity. PAT gives students the avenue to assess themselves (self-evaluation) on a regular basis and constantly providing opportunity to their teachers to monitor their growth and provide feedback unlike the conventional or traditional assessment (CA) which is one shot test with no adequate follow-up or feedback. The researchers observed that there was slight difference between urban and rural students assessment using PAT which was not significant. Therefore, indication shows that no matter the area of school location PAT is of great importance on students'

assessment. The researchers therefore, conclude that PAT aids transfer of learning in Economics to agriculture more than conventional Assessment.

Recommendations

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

1. Curriculum planners should incorporate PAT as an assessment into Economics curriculum.
2. Teachers should be motivated to adopt PAT in their teaching rather than adopting only conventional assessment technique in the classroom.
3. Students in the rural should be given extra attention, basic facilities that can enhance learning and care to meet up with their urban counterparts with the right assessment techniques such as PAT.

References

Abamba, I. (2021). The effects of school location on students' academic achievement in senior secondary physics based on the 5E learning cycle in Delta State, Nigeria. *International Journal on Math, Science and Technology Education, 9*(1); 56–76.

Adeyemi, B. (2015). The *efficacy of authentic assessment and portfolio assessment in learning of Social studies in junior Secondary schools in Osun State, Nigeria*. *An International Journal of Psychology 23*(2); 125-132.

Adu, E.O., Ojelabi, S.A., & Adeyanju, H. (2009). *Quantitative Ability as correlates of students' academic achievement in secondary school Economics in Oyo state, Nigeria*. *African Research Review, 3*(2); 129-136.

Alimemaji, Z. & Ahmatag L.(2010). Implementation of portfolio assessment in class writing. *Retrieved from https//repositioryusd.ac.id/.../061214100*

Al-Zoubi, S.M. & Younics, M.A. (2015). *Low academic achievements: causes and results. Theory and practice in language studies,* 5(11); 2262- 2268.

Beklenky, D. M. & Nokes, I.J. (2009). Motivation and transfer: The role of achievement goals in preparation for future learning. *Proceedings of 31st Annual Conference of Cognitive Science Society.* 1163-1168.

Disha, M. (2020). Evaluation in teaching and learning process/ education. Retrieved from *https://www.yourarticlelibrary.com/statistics-2/evaluation-in-teaching-and-learning-process-education/92476*

Dixon, R. (2019). *Transfer of learning: connecting concepts during problem solving. Journal of Technology Education, 24*(1); 11-17.

Ezeudu, S.A., Olaowo, G. & Umiefekwem, J.E. (2014). School location verse academic achievement in Geography. Retrieved from *www.unn.edu.ng/interals/staff/.../5*

Federal Republic of Nigeria, (2013). *National policy on education.* Abuja: NERDC.

Ford, A. & Cheprasov A.(2022).Rural Community characteristics & example. Retrieved from *https://study.com>learn>lesson>r...*

Evin-Gencel, İ. (2017). The effect of portfolio assessments on metacognitive skills and on attitudes toward a course. *Educational Sciences: Theory & Practice, 17*; 293–319.

Haskel,P.E. (2004). Transfer of Learning. *Applied Psychology,* (1); 575-586. Retrieved from https://doi.org/10.1016/BO-12-657410-3/00834-5

Hayek, F.A. (2018). *Individualism and Economics order.* Chicago: University of Chicago press.

Heidi, A., Kristen, H. & Georgia, B. (2012). Student–centered assessment guide: Process portfolio. Retrieved from *Studentsatthecenterhub.org/resource/student-centered-assessement-guideprocess-portfolios.*

Huba, V. & Freed, I. (2000). Assessment on colleges. Retrieved from *www.pearson.com/us/higher-education/program/Huba-Learner-centered.*

Javanmard, Y. & Farahani, H. (2012). Investigating using portfolio assessment and learning English Language in Qom secondary schools. *Global Journal of Human Social Science, Linguistics & Education, 12*(12); 53-59.

Khadka, C.B. (2016). *Effectiveness of teaching Economics in higher secondary school level, Nepal. Economic Journal of Development, 21&22*(1-2); 99-126.

Kola, J.A., Ogundele, A.,G., & Olanipekan, S.S. (2013). *Students' proficiency in English language relationship with academic performance in science and technical education. American Journal of Educational Research 1*(9); 355-358.

McCracken, P. (2014). Medieval and early modern studies. Retrieved from *https://www.collegeforcreativestudies.edu.*

Mitchell, P. (2022). Economics of Agriculture. Retrieved from *https://aae.wisc.edu.>Research*

Mohalla, R.(2021). Define Transfer of Learning, it's concept and types, as a teacher how will you use it in teaching leaning?. B.ED Notes English Medium Pune University. Retrieved from *https://www.yoyiray.co<define-tr...*

Morgan,S. (2022). Rural Area. Retrieved from *https://www.nationalgeographic.org>...*

National Academies of Sciences, Engineering and Medicine (NASEM), (2012). Transferable learning and skills key to success in education and work. Retrieved from *www.eurekalert .org/pub releases/2012/07/naos-tk070102.php*

Nji, I. A. (2014). Evaluation and implementation of senior secondary school Economics curriculum in Nsukka education zone of Enugu state. An unpublished Masters' thesis University Nigeria Nsukka.

Nwakili, T. C., Nwankwo, C. U., Ekenta, L. U., Ameh, H. I. & Nwokolo, E. (2022). Comparative effects of demonstration method and blended learning on academic achievement and interest of Agricultural Science students in Nsukka Education Zone of Nigeria. *International Journal of Research in Social Sciences and Humanities, 3*(6); 9-15.

Obiagu, A.N., Mezieobi, D.I., Aroh, P.N & Akubue F.N (2019). Effect of cooperative concept mapping on misconceptions, knowledge achievement, and transfer of learning in Peace Education. The Social Studies. Routledge, Taylor & Francis group. Retrieved from *https://doi.org/10101080/00377996.2019.1652139.*

Okorie, E.U. & Ezeh D.N. (2016). Influence of gender and location on students' achievement in Chemistry bonding. Retrieved from *www.mcser.org/journal/index.php/msss/articule/viewfile/9017/8746*

Olajire, B. (2020). 5 effective ways to cause your students to learn. Retrieved from *https;//servantboy.com/effective-ways-to-cause-students-to-learn/.*

Olatunde, Y.P. (2010). School location in secondary school in Ekiti State Nigeria. *Asian Social Science Journal 7*(5); 170-175.

Onwunali, M. R. O., Muhammad, H. B., & Balogun, B. I. (2022). Comparative performance of senior secondary school Agricultural Science students in Zaria and Sabon Gari Local Government Areas of Kaduna State, Nigeria. *Open Journal of Social Sciences, 10;* 509-523.

Otekunrin, O. A. & Ona, L. O. (2017). Challenges, attitudes and academic performance of Agricultural Science students in public secondary schools of Ibadan North, Nigeria. *Journal of Scientific Research and Report, 13*(1); 1-11.

Owoeye, J.C. & Yara, P.O. (2011). *School location and academic achievement secondary school in Ekiti State, Nigeria. Asian Social Science, 7*(5); 12-19.

Perkins, D.N.& Salomon,G.(2015).Transfer of learning. *International Journal Education, 2(1); 301-304.*

Pettinger, T. (2020). Economics Essays. Retrieved from *https://www.healtheconomics.com/blog/economics-essay*

Powell, T. (2013). The importance of assessments: How portfolios can impact students' self-efficacy and comprehension in an online graphic design course. Retrieved from *https://files.eric.ed.gov/fulltext/ED543853.pdf.*

Shirvan, M. E. & Golparvar, S. E. (2016). The Effect of portfolio assessment on General English learners' locus of control and achievement. *Khazar Journal of Humanities and Social Sciences, 19*(1); 70-87.

Sweet, D. (1993). Students Portfolios: classroom uses. Retrieved from *https://www2.ed.gov/pubs/OR/consumerGuides/classuse.html*

Stanford, J. (2008). *Economics for everyone: A short guide to the Economics of Capitalism*. London: Pluto Press.

Tabataber & Assefi, (2012). The effect of PAT on writing performance of EFl Learners. Retrieved from *www.ccsenet.org.journal/index.php/elt/article/view l16665.*

Tiwari, A. (2009*). Does Portfolio Assessment encourage students to adopt different assessment preparation strategies*? Retrieved from www.ugu.ed.hk/Hqproi/site/abstracts/068-tiwaiil.hmt.

West African Examination Council (WAEC) Chief Examiners Report (2017-2018). Agricultural Science paper 2 &3, May/June. Retrieved from *waeconline.org.ng/e - learning/economics/econs222mw.html*

Yohanna, J.1 & Muhammad, H. B. (2022). Location and gender as determinants of students' academic performance in Agricultural Science in Zaria Education Zone, Kaduna

State. *International Journal of Innovative Science and Research Technology,* 7(2); 95-99.

Yurdabakan, I. & Erdoghan, T. (2009). The effect of portfolio assessment on reading, listening, and writing skills of secondary school prep class students. *The Journal of International Social Research, 2*(9); 526-538.

Appendix 1: Multiple Choice Questions: ETT

1. A piece of land is said to be on lease to a farmer when it is (a) Given as compensation (b) purchased on credit (c) rented for a period (d) Given as a gift. (Ans = c)
2. Farm mechanization does not (a) involves the use of motorized equipment (b) require much capital (c) promote employment (d) involve the use of heavy machinery (Ans = c)
3. Land is said to be fixed asset. This means that a) its features and topography are fixed (b) soil nutrients and its Vegetative cover can be replaced (c) its size remains fixed over time (d) its micro organic composition is constant over time. (Ans = a)
4. Determine the price elasticity of demand if the price of yam tuber rises by 10% (0.1) and the quantity demanded falls by 5% (0.05). (a) 0.5 (b) 0.4 (c) 0.3 (d) 0.1 (Ans = a)
5. An agricultural extension officer should be able to a) create new jobs for farmers (b) raise funds for farmers (c) cultivate a large farm (d) guide and educate farmers (Ans = d)
6. Which of the following benefits of agriculture is of least importance to the peasant farmer (a) materials for shelter (b) employment (c) foreign exchange (d) income (Ans = c)
7. Which of the following is not a government programme? (a) operation feed the nation (b) Agricultural development projects (c) farm settlement schemes (d) West Africa Rice Development Agency (Ans = d)
8. Agricultural business is difficult to insure in West Africa mainly because (a) agricultural production is not very profitable (b) agricultural production is highly risky (c) many farmers are very poor (d) the premium is high (Ans = b)
9. A farm business makes profit when (a) total revenue equals total cost (b) total cost exceed total revenue (c) total revenue exceeds total cost (d) average cost equals total revenue. (Ans = c)
10. Which of the following factors of production has profit as its reward? (a) land (b) labour (c) capital (d) management. (Ans = c)

Use of following information to answer questions 11 and 12. A farmer sold all his harvested maize totaling 360kg at N5.50/kg thereby making profit at N430.00.

11. Calculate the production cost of maize per kg (a) N4.05 (b) N3.85 (c) N3.75 (d) N3.65 (Ans = b)
12. Determine the percentage profit per kg of maize sold (a) 35% (b) 40% (c) 43% (d) 52% (Ans = c)
13. The demand for agricultural produce is generally (a) Elastic (b) inelastic (c) unitary (d) static (Ans = a)
14. Agricultural credits should be put to the following uses except (a) purchase of inputs (b) meeting family needs (c) improvement of structures (d) adoption of innovations. (Ans = b)
15. Agricultural education programmes for rural youth will reduce the (a) rate of adoption of innovations (b) population of youth in rural areas (c) age at which youth will venture into family life (d) Dependency of youth on parents. (Ans = d)
16. Which of the following types of labour is commonly used in peasant agriculture? (a) co-operation (b) casual (c) migratory (d) family (Ans = d)
17. The quantity of food crop available for sale at the current market price over a period of time is known as (a) demand (b) joint supply (c) supply (d) competitive demand (Ans = c)
18. Agriculture contributes to the economy of West African countries through the following means except a) reduction of poverty through job creation (b) supply of armament for territorial defense (c) provision of foreign exchange (d) supply of raw materials to industries. (Ans = b)

19.The most important factor which determines the demand for cowpea by consumers is the (a) income of consumers (b) price of cowpea (c) supply of cowpea (d) taste of consumer. (Ans = b)

20. Government finances agriculture through the following means except (a) reduction of tariffs on agricultural inputs (b) granting of subsidies to farmers (c) establishment of agricultural colleges (d) establishment of credit sources. (Ans = c)

JHER Vol. 29 (2), December 2022, pp. 22 -34

Comparative Analysis of Efficiency of Balloon Whisk and Wooden Spoon in Preparing Cakes in Schools and Colleges in Ghana

[1]Cobbah Linda; [2]Ashun E. K. & [3]Akunor- Sackey R.J.
[1] Department of Integrated Home Economics Education,
University of Education, Winneba, Ghana
[2&3] Department of Food and Nutrition Education,
University of Education, Winneba, Ghana.

Corresponding author: lcobbah@uw.edu.gh

Abstract

This study compared the efficiency of balloon whisk and wooden spoon in preparation of queen and ginger cakes in food laboratories in schools and Colleges in Ghana. Experimental design was employed for the study. Ten (10) experimenters were purposively sampled to use the two tools for queen and ginger cakes alternatively whiles being timed. Ten trained panelists were involved in the study. A questionnaire was used to collect data prepared samples. Data was analyzed using Mean, Standard Deviation, and Independent. Findings indicate among others, that less time was expended in the preparation of the experimental products: ginger cake balloon whisk (*GCBW*) (= 2.911 Minutes) and queen cake balloon whisk (*QCBW)* (= 46.89 Minutes) as compared to the control: ginger cake wooden spoon (*GCWS)* (= 4.811) and queen cake wooden spoon (*QCWS)* (= 57.92). With a P- value of 0.00 there was a statistically significant difference in time expended when using the wooden spoon and the balloon whisk for making queen and ginger cakes. Consequently, the average P value obtained for the three texture attributes (springiness, softness and cohesiveness) was 0.03 for *GCBW* and *GCWS* and 0.02 for QCBW and *QCWS* indicating significant difference in the texture of both products. Balloon whisk can therefore be conveniently used as an efficient alternative tool to wooden spoon in preparation of queen and ginger cakes. It is therefore recommended that it be accepted as a correct tool for creaming and mixing in flour cookery for both internal and external practical for Food and Nutrition examinations.

Keywords: Batters, Cohesiveness, Creaming, Softness, Springiness, Whisking, Efficiency.

Introduction

The advent of science and technology has resulted in development of various labour-saving devices including robotic cooking (Junge, Hughes, Thuruthel & Iida, 2020). One may assume that the advent of labour-saving devices in the kitchen will make certain manual tools remain redundant and subsequently go extinct. On the contrary, tools like balloon whisk and wooden spoon are still popular in almost every kitchen (domestic and commercial) globally possibly due to their efficiency which

cannot be over emphasized (Buettner, 2020; Bittman, 2011).These two simple manual tools have been widely used by almost all households, commercial confectioners, Catering and Home Economics students.

The wooden spoon is an inexpensive, simple and heat resistant tool usually used to combine dry ingredients, liquid ingredients, or a combination of dry and liquid ingredients in the preparation of variety of dishes especially cakes and batter products. The wooden spoon is naturally strong and poor conductor of heat and the shape of its head determines the effectiveness of its use. The use of a wide round wooden spoon helps trap air into creamed mixture in the form of tiny bubbles which act as a raising agent (Adigbo & Madah 2011). Its firm strong handle makes stirring easier and more effective. Wooden spoons are useful for a variety of tasks, such as mixing stiff doughs for cakes, pastries and cookies, creaming fat and sugar, etc. In the preparation of cakes by creaming method and making of batters on a small scale, wooden spoon is an indispensable tool but one is also sure of the fatigue and discomfort that accompanies its use (Adigbo &Madah, 2011; Foskett & Paskins 2012).

The balloon whisk has been another useful manual tool in the food laboratory. The balloon whisk is designed to efficiently beat or blend ingredients together; that is, either to aerate a mixture or thoroughly blend ingredients together thus making it so versatile (Cheng, 2015). The tool is designed with steel wires which are flexible with lessened resistance reducing the degree of wrist action needed and has the shape like a wide teardrop which enables creaming and mixing in round mixing bowls much easier (Kapoor, 2018). In the preparation of cakes and batters, the additional motion is very effective for bringing extra air into the mixture due to the loose teardrop shape which allows air to flow through during creaming and mixing. The balloon whisk creates more movement when mixing ingredients together because of the springy nature of it wires and a broad, rounded end. This movement is especially useful for incorporating more air into the mixture which is a prerequisite for a perfect texture in cakes and batters. Despite the fact that balloon whisk is light in weight compared to wooden spoon and can aerate mixtures better, it seems to be reserved just for beating or whisking eggs during cooking. The selection and use of the right kitchen tools minimize the time needed for a task and whittle away fatigue

In schools and colleges in Ghana, wooden spoon is the only recommended tool for manual creaming and mixing of batters in flour cookery for both practical class and examinations, Food and Nutrition work and examinations at both pre-tertiary and tertiary levels of education. The balloon whisk on the other hand is reserved solely for whisking eggs. Observation of students over many years, show that the use of the wooden spoon in creaming fat and sugar when preparing cakes and biscuits is energy sapping and time consuming. In the preparation of batter mixtures, the same wooden spoon is employed and one has to be cautious otherwise the mixture becomes lumpy. When this occurs any attempt to get rid of the lumps causes gluten in the flour to develop and the product quality is compromised. For this reason, most confectioners resort to the use of labour-saving equipment like the

food processors. However, Home Economics and Catering students are not permitted to use these tools during practical lessons and examinations but are to strictly use the manual tools aforementioned in order to earn their marks for the use of the right tools and exhibition of required skills. Users of these tools are wondering about the efficiency of the wooden spoon and the possibility of using balloon whisk for creaming fat and sugar as in creamed cakes or prepare batters as an alternative to the wooden spoon. This has necessitated the study to experiment and explore the efficiency of the balloon whisk as an alternative tool to the wooden spoon in the preparation of creamed cakes and batter mixtures.

The findings of this study are expected to be of immense benefit to Home Economics teachers, tutors and lecturers in the area of study during their practical demonstration lessons. Study findings would enable them to select most efficient and result-oriented tool. All Home Economics and Catering students would also stand to benefit by having an alternative tool and further saving themselves some time and energy. The West African Examination Council (WAEC) would review their marking schemes and accept tools on the merit of their efficiency in task performance.

Objectives of the study: The general objective of the study was to compare the efficiency of balloon whisk and wooden spoon in preparation of creamed cakes and batters. Specifically, the study compared:

1. time efficiency of balloon whisk and wooden spoon in preparation of queen and ginger cakes.
2. Texture of creamed cakes and batters made with wooden spoon and balloon whisk.

Hypotheses (H_0)

H_{01}: There is no significant difference between the means of time used in the preparation of queen and ginger cakes using wooden spoon and balloon whisk at 0.05 level of significance.

H_{02}: There is no significant difference between means of texture of queen and ginger cakes made with wooden spoon and the balloon whisk at 0.05 level of significance.

Materials and Methods

Design of the study: The study employed experimental design.

Materials (Ingredients): The materials used included wheat flour (100%) (Takoradi flour mill), margarine (Cook brand), granulated sugar, double-action baking powder (Pearce duff), baking soda (Danes foods), treacle, vanilla essence, and fresh ginger. These were bought from the Winneba local market, in the Central Region of Ghana. The fresh exotic chicken' eggs were bought from the University farms (University of Education, Winneba).

***Preparation of Materials*:**

Ginger: Fresh ginger was washed, peeled, rewashed and then grounded. The recipe of Campbell et al, (2008) was adapted for the preparation of the treacle as indicated below.

Caramel: place three-quarters of water (250ml) in a thick-based pan, add sugar (200g) and allow to boil gently, without shaking or stirring the pan, add the remaining quarter of the water, reboil until the sugar and water mix.

Cake batter preparation: A queen and ginger cake batters were prepared using a wooden spoon and a balloon whisk alternatively. The recipes for the preparation of the cakes were adopted from Adigbo and Madah (2011).

Recipe for Queen and Ginger Cakes

Ingredients	Creamed cake Quantity	Ginger bread cake Quantity
Soft wheat flour	200g	200g
Margarine	200g	50g
Sugar	200g	50g
Baking powder	2g	2g
Eggs	4 medium sizes	1 medium size
Treacle		100ml
Milk		125ml
Bicarbonate of soda		2g
Salt		3g
Essence (optional)	1tsp	
Ginger (grinded)		3tsp

Queen cakes

1. Grease cake tins
2. Cream margarine and sugar together till light and fluffy.
3. Whisk egg and add in bits to creamed mixture creaming between additions.
4. Add essence
5. Sift flour and baking powder together and fold into the creamed mixture.
6. Spoon into cake tins and bake in a preheated at 180°C (gas mark 4) for 15 to 20 minutes

Ginger cake

1. Grease cake tins
2. Sift flour, bicarbonate of soda, baking powder and salt together into a bowl.
3. Make a well in the middle drop in the egg.
4. Melt the margarine and allow to cool slightly; add to sugar and treacle.
5. Add grinded ginger and mix well without forming lumps.
6. Spoon into greased cake tins and bake in a preheated at 160°C (gas mark 3) for 35 to 40 minutes

The wooden spoon was used for creaming of queen's cake and mixing of the ginger cake batter for the control products code-named Queen Cake Wooden *Spoon **(QCWS)*** and Ginger Cake Wooden Spoon ***(GCWS)*** while balloon whisk was used for experimental products code-named Queen Cake Balloon Whisk ***(QCBW)*** and Ginger Cake Balloon Whisk ***(GCBW).***

Measurement of Time Efficiency: In determining the time efficiency of the tools, 10 experimenters who were Food and Nutrition teachers and two assessors who were experts in cake preparation were involved. For the queen cake, all the experimenters were given the same quantity of ingredients (sugar and margarine) which were measured into same sized bowls and with the same type and size of wooden spoon and whisk. The starting time for creaming was

recorded and assessors went around to check for paleness and fluffiness of the mixtures after which the clock was stopped immediately. The experimenter with the fluffy mixture was given green light to go ahead with the other procedures. The other experimenters followed the same procedure once their mixtures were assessed. The stop watch was used to time, record and calculate period of preparation.

In determining the time expended in making the ginger cake, all 10 experimenters were given the same quantity of ingredients aforementioned in the recipe. The tools (wooden spoon and whisk) were used to mix the ingredients in making the batter alternatively. Time used by each experimenter was recorded from commencement of mixing of ingredients to point where a lump-free consistency was attained as determined by assessors. All the determinations were done in triplicates and averages recorded for analysis.

***Selection of panelists*:** Fifteen Panelists aged 25-45 years were purposively selected for the experiment. The panelists were recruited from the students, staff, and lecturers of the Faculty of Home Economics Education at the University of Education, Winneba. The panelists were taken through a training session. A mock texture profile analysis was conducted. After which, five (5) of the panelists were dropped remaining 10 (three males and seven females) for the final texture analysis.

***Instrument for Data Collection*:** Questionnaire was used to collect data on the texture acceptability of the samples. It was validated by three experts. Reliability of the texture profile analysis questionnaire was measured by Cronbach's alpha coefficient. Which yielded 0.80.

Data Collection Procedure

Texture Profile Analysis: Indicator (attributes) of texture are springiness, softness and cohesiveness. The testing for texture of the samples were adapted from Chueamchaitrakun et al., (2011). The panelists after a discussion came to a consensus on the definition of each indicator (descriptive term) that were used for the texture attribute or indicator of the samples Queen Cake Wooden Spoon *(QCWS)* and Ginger Cake Wooden Spoon *(GCWS)*as the control while Queen Cake Balloon Whisk *(QCBW)* and Ginger Cake Balloon Whisk *(GCBW)*.

The Texture Profile Analysis (TPA) evaluation session was carried out in the Food Laboratory of the Department of Food and Nutrition Education. Each panelist was seated at individual tables. The samples were made ready an hour before the analysis and kept at room temperature. They were served the cake samples in coded plates covered with cling film to prevent it from drying out. The intensity of texture attribute was recorded on an unstructured 10 cm long linear scale anchored with "weak" (0) and "strong" (10) (Curica et al., 2008). The panelists made a mark on the line to show degree of intensity. Numerical values were attributed by measuring the distance in centimeters between the marks made by panelists after the exercise and recorded for analysis, discussion and conclusions to be drawn. The coded samples were given at the same time and evaluated in random order among the panelists. Soap and water were provided to the panelists to wash their hands after testing each sample before moving to the next sample. Each cake sample was evaluated thrice

then the average mean was calculated for analysis.

***Data Analysis Techniques*:** Mean and standard deviation were used to analyze the data. One-way ANOVA was used to compare the significant differences between the samples.

Findings of the Study:

Mean (scores on the time expenditure of queen and ginger cakes are presented on Table 1.

Table 1: Mean (Scores on Time Efficiency of Balloon Whisk and Wooden Spoon in Preparation of Queen and Ginger Cakes

S/N	Indicators of Time	Queen Cake		Ginger Cake	
		BW	**WS**	**BW**	**WS**
1	EXPERIMENTOR	45.00	50.03	3.00	5.00
2	EXPERIMENTOR	48.30	58.35	3.00	5.59
3	EXPERIMENTOR	46.45	56.00	3.00	5.30
4	EXPERIMENTOR	48.25	60.00	3.00	4.56
5	EXPERIMENTOR	49.00	60.00	2.58	4.40
6	EXPERIMENTOR	50.00	59.25	3.05	4.30
7	EXPERIMENTOR	45.00	58.08	3.02	5.25
8	EXPERIMENTOR	45.35	60.00	3.01	5.21
9	EXPERIMENTOR	47.25	59.00	3.00	4.50
10	EXPERIMENTOR	44.30	58.45	2.45	4.00
	Mean	46.89	57.916	2.911	4.811

Values are averages of triplicate determinations. Data is represented as mean**(** and standard deviation.The mean difference is significant at the 0.05 level. Samples are represented in codes BW=Mean **(** of Balloon Whisk; WS=Means**(** of Wooden Spoon.

Table 1 presents the time expenditure by the ten (10) experimenters for the four (4) samples: Queen Cake Balloon Whisk *(QCBW)*; Queen Cakes Wooden Spoon (*QCWS)*and Ginger Cake Balloon Whisk *(GCBW*); Ginger Cake Wooden Spoon (*GCWS).* In the preparation of sample *GCBW* the time expenditure ranged between 2:45 and 3:05 minutes with a mean duration of 2:91 minutes while sample *QCBW* recorded a time expenditure ranging from 44:30 to 50:00 minutes with a mean duration of 46:89 minutes. On the other hand, sample *GCWS* recorded a mean duration of 4:81 minutes (4:00 – 5:59 minutes) while sample *QCWS* had a mean duration of 57:92 minutes (50:03 – 60:00).

Table 2: ANOVA Results on Time Efficiency of Balloon Whisk and Wooden Spoon

	Queen Cakes		**Ginger Cakes**	
	BW	**WS**	**BW**	**WS**
Mean	46.89	57.916	2.911	4.811
Variance	3.83433	9.14936	0.04474	0.27568
Observation	10	10	10	10
P(T<=t) two-tail	0.00		0.00	

Table 2 presents the ANOVA results on time efficiency of balloon and wooden spoon in the preparation of queen and ginger cakes. The results indicate that there was a statistically significance difference (P=0.00<0.05)between the time expenditure in the use of the wooden spoon and balloon whisk. Hence, it was revealed that, using the balloon whisk for creaming or making the batter for ginger cakes was time efficient than using the wooden spoon for the same products.

Mean (X) Scores on Texture

Three attributes (springiness, softness and cohesiveness) were evaluated in the Texture Profile Analysis. The results of the springiness are shown in Table 3.

Table 3: Mean (Score on Springiness Attributes of Ginger and Queen Cakes

Texture Attributes	Ginger Cake		Queen Cake	
	BW	**WS**	**BW**	**WS**
Springiness	7.90	7.00	8.60	7.90
	9.50	8.10	9.60	4.40
	9.00	8.90	8.00	7.60
	7.30	7.50	9.40	9.00
	9.50	7.00	6.60	3.10
	8.00	6.50	8.60	8.60
	9.50	7.00	6.60	5.90
	9.70	7.40	8.40	4.50
	9.90	7.30	6.60	4.40
	9.60	7.70	7.60	7.20
Mean	**8.99**	**7.44**	**8.00**	**6.29**

Values are averages of triplicate determinations. Data is represented as mean (and standard deviation.The mean difference is significant at the 0.05 level. Samples are represented in codes BW=Mean (of Balloon Whisk; WS=Means (of Wooden Spoon.

Springiness measures elasticity by determining the extent of recovery between the first and second compressions. Table 3 shows springiness was observed to be low amongst two of the four samples *GCWS* and *QCWS*. However, higher values were noted in samples *GCBW*) and *QCBW* with mean values ranging between 8.00 and 8.99.

Table 4: ANOVA Results on Springiness Attributes of Ginger and Queen Cakes

	Ginger Cake		Queen Cake	
Texture Attributes	**BW**	**WS**	**BW**	**WS**
Mean	8.99	7.44	8.00	6.29
Variance	0.83433	0.45822	1.27111	4.161
Observations	10	10	10	10
P(T<=t) two-tail		0.00091		0.01408

Table 4 indicates that there was a significance difference (P=0.00) in the mean results on the springiness. The magnitude of the springiness was significantly higher in comparison to the samples.

Table 5: Mean (Scores on Softness Attributes of Ginger and Queen Cakes

Texture Attributes		GCWS	QCBW	QCWS
Softness	8.00	7.10	9.00	7.50
	9.60	8.00	8.00	9.00
	6.50	7.40	9.20	8.50
	8.20	7.00	9.00	7.60
	7.60	8.10	7.80	7.30
	5.50	4.50	8.10	9.00
	9.00	7.00	7.60	5.50
	9.40	7.30	8.70	7.30
	8.80	7.70	8.10	5.50
	9.50	7.90	8.50	7.60
Mean	**8.21**	**7.2**	**8.4**	**7.48**

Values are averages of triplicate determinations. Data is represented as mean(and standard deviation.The mean difference is significant at the 0.05 level. Samples are represented in codes BW=Mean(of Balloon Whisk; WS=Means(of Wooden Spoon.

Table 5 summarizes the results of the softness attribute present in the descriptive texture profile of the four samples *(GCBW, GCWS, QCBW, QCWS).* The results show that sample *GCBW* recorded a mean range of 5.50-9.60 with an average mean *(* 8.21whereas sample *GCWS* had the means ranging from 4.50-8.10 with an average mean *(* . Sample *QCBW* recorded a mean range between 7.60-9.20 with an average mean of 8.4 with sample *QCWS* recording 5.50- and an average mean of 7.48.

Table 6: ANOVA Results on Softness Attributes of Ginger and Queen Cakes

	Ginger Cake		Queen Cake	
Texture Attributes	**BW**	**WS**	**BW**	**WS**
Mean	8.21	7.2	8.4	7.48
Variance	1.85211	1.06889	0.31111	1.51067
Observations	10		10	10
P(T<+t) two-tail	0.01047		0.03413	

Table 6 indicates a statistically significant difference between the samples at P-value < 0.05.

Table 7: Mean (Scores on Cohesiveness Attributes of Ginger and Queen Cakes

	Ginger Cake		Queen Cake	
Texture Attributes	**BW**	**WS**	**BW**	**WS**
Cohesiveness	7.00	5.50	7.00	6.80
	9.40	9.00	7.60	7.30
	5.90	7.10	8.00	9.60
	8.30	6.60	8.00	9.60
	8.20	8.00	7.50	9.10

	8.20	3.00	6.60	8.30
	7.90	7.00	6.00	7.90
	9.50	7.70	6.90	8.90
	9.00	7.80	8.50	8.60
	8.70	9.60	7.30	8.10
Mean	**8.21**	**7.13**	**7.34**	**8.42**

Values are averages of triplicate determinations. Data is represented as mean ± and standard deviation. The mean difference is significant at the 0.05 level. Samples are represented in codes BW=Mean (±) of Balloon Whisk; WS=Means (of Wooden Spoon.

Table 7 indicates that the cohesiveness of samples measured showed that sample *GCWS* had the least cohesiveness mean value of 7.13 followed by sample *QCBW* with 7.34.On the contrary, sample GCBW had 8.21 cohesiveness mean value while sample *QCWS* recorded the highest cohesiveness mean value of 8.42

.

Table 8: ANOVA Results on Cohesiveness Attributes of Ginger and Queen Cakes

	Ginger Cake		**Queen Cake**	
Texture Attributes	**BW**	**WS**	**BW**	**WS**
Mean	8.21	7.13	7.34	8.42
Variance	1.20544	3.46011	0.55156	0.864
Observations	10	10	10	10
P(T<=t) two-tail		0.08696		0.00426

Table 8 shows statistically significant difference in cohesiveness (*P<0.08*) of the samples *(GCBW*) and *GCWS*. Meanwhile, sample*(GCBW*) and *QCWS* hadno statistically significant difference in cohesiveness as indicated by the value of *P=0.00<0.05.*

Discussion of Findings

The study was conducted to firstly compare the time efficiency of the balloon whisk and wooden spoon in the preparation of queen and ginger cakes. Data were collected and analysed to find out the efficiency of balloon whisk and wooden spoon. The findings indicated that, the balloon whisk was more time efficient in comparison to the wooden spoon in the manual creaming and mixing of the batters on small scale. In this light, an assertion that, tools that are time efficient are also efficient in reducing fatigue would not be far from right (Janusz, 2016; Halson, 2014). Singh and Khan, (2021) concludes that the choice and use of efficient tools correlates significantly with physical fatigue to corroborate the above discourse. Similarly, El-Amir and Omar (2019) also discovered significant relationship between ergonomics dimensions (including the design and ease of use of tools) and the work efficiency of users.

Texture and other organoleptic properties of food still plays a major role in food acceptability despite the fact that other factors such as consumer concerns about ethics, health, and the environment also contribute to changes in consumption habits in the modern food system (McClements et. al, 2021;Tan, et al. 2016; Heiniö et. al 2016). The study therefore sought to find out the differences in texture attributes of the two

different cakes(queen cakes and ginger cakes) prepared by using the two tools (balloon whisk and wooden spoon) alternatively since food texture is one of the most measured quality attributes during processing and consumption of food (Chen &Opara,2013). In determining the quality of cakes, texture attributes such as softness, cohesiveness and springiness are usually the key parameters (Liu, Cao, & Liu,2019). Top quality cakes and batters always have various characteristics such as high softness, cohesiveness and springiness, Lindarte, Artunduaga& Gutiérrez, 2019). Although these attributes depend highly on balanced recipes and the temperature at which the products are baked, the method of preparation and aeration of the cake batters also contributes to a great extent to texture quality.(Campbell, Foskett &Ceserani 2008; Darko 2010).

In order to successfully compare the texture attributes (softness, cohesiveness and springiness) of the samples (*GCBW, GCWS, QCBW*, and *QCWS*) a texture Profile Analysis was conducted whose results revealed that, the samples made with the balloon whisk were springier than those made with the wooden spoon. The amount of recovery between the first and second compressions is how springiness, a measure of elasticity, is calculated (Salehi, et al. 2016; Scheuer, 2016).The result obtained may be as a result of the design of the balloon whisk which makes it possible to trap more air into mixtures than the wooden spoon. This assumption is corroborated by Adigbo and Madah (2011) and Braker, (2003)who postulate that the springiness of flour products is highly dependent on the amount of aeration. In reference to the softness of the cakes, the samples made with the balloon whisk (*QCBW andGCBW*) had softer texture than that of the wooden spoon as indicated by the results from the Texture Profile Analysis. Although ingredients quality, quantity and proportion contribute highly to the softness of a flour product (Hesso et al, 2015; Dewaest, et al, 2018); the contribution of air incorporation towards the same effect cannot be over emphasized (Darko 2010).

In addition to the softness, the cohesiveness of the samples was also assessed. Cohesiveness in cakes is described as the ability of the cake crumbs or particles to stick to each other or otherwise. Thus, a cake with high cohesiveness value does not break apart easily (Salehi, et al. 2016).The wooden spoon gave a more cohesive texture in the creamed sample (*QCWS*) while the balloon whisk rather had a higher value for cohesiveness in the ginger cake product *(GCWS)*.The differences recorded are yet to be explained and supported by literature giving room for more research in that area.

There was a statistically significant difference (P- value =0.00<0.05) in time expended when using the wooden spoon and the balloon whisk for queen and ginger cakes. Meaning that the null hypothesis stated is rejected since the balloon whisk uses less time and is therefore time efficient when used for both creaming and mixing batters on a small scale. According to Mixter, et al. (2021), fatigue and stress levels will rise and even worsen over the course of several repeated physical work sessions. Marando, et al. (2022) corroborate this finding by concluding that time expended at performing a physical activity has been found to be having a strong correlation with fatigue (physical and mental)as extended time on a task

has been found to have the tendency to increase sleepiness and reduce alertness.

Comparing the average P-value obtained for the three texture attributes (springiness, softness and cohesiveness) of 0.03 for GCBW and GCWS and 0.02 for QCBW and QCWS; there are statistically significant difference in the texture of both products. Hence, the null hypothesis is also rejected as the texture quality of the queen and ginger cakes made by the use of the balloon whisk was better than that made with the wooden spoon.

Conclusions

The present study has established that the balloon whisk can be used as an alternative tool to the wooden spoon in the preparation of queen and ginger cakes. In terms of time expenditure, the balloon whisk has been proven to be more efficient as compared to the wooden spoon in the manual creaming and mixing of batters on small scale. The balloon whisk is also more efficient in terms of texture since the samples had softer, springier and more cohesive textures than that made with the wooden spoon.

Recommendations

1. The balloon whisk can be used to cream sugar and fat for all creamed flour products on small scale.
2. The balloon whisk can be used to make batters for all batter products on small scale.
3. Catering and Food and Nutrition teachers can use the whisk as an efficient alternative tool for the wooden spoon for more efficient results in small scale confectionary.
4. The West African Examinations Council may have to consider accepting the balloon whisk as an efficient tool for creaming and mixing batters during practical examinations.

References

Adigbo, E. C. &Madah,C. K. (2011). *A complete course in Food and Nutrition.* Accra, Ghana: Kwadwoan Publishing.

Bittman, M. (2011). How to Cook Everything (Completely Revised 10th Anniversary Edition): 2,000 Simple Recipes for Great Food. Houghton Mifflin Harcourt.

Bollini, M., Tellex, S., Thompson, T., Roy, N., & Rus, D. (2013). Interpreting and executing recipes with a cooking robot. In *Experimental Robotics* (pp. 481-495). Springer, Heidelberg.

Book, S., & Brill, R. (2015). Effects of chemical leavening on yellow cake properties. Cereal Foods World, 60(2), 71-75.

Braker, F. (2003). The simple art of perfect baking. Chronicle Books.

Buettner, D. (2020). The Blue Zones Kitchen: 100 Recipes to Live to 100. Simon and Schuster.

Campbell, J., Foskett D. &Ceserani (2008). *Practical cookery* (11th ed.) London, UK: Hodder Education Press.

Chen, L., &Opara, U. L. (2013). Texture measurement approaches in fresh and processedfoods—A review. Food research international, 51(2),823-835.

Cheng, E. (2015). *Cakes, Custard, and Category Theory*. Profile Books.

Chueamchaitrakun, P., Chompreeda, P., Haruthaithanasan, V., Suwonsichon, T., Kasemsamran. S &Prinyawiwatkul, W., (2011). Sensory descriptive and texture profile analyses of butter cakes made from composite rice flours. International Journal of Food Science and Technology, 46, 2358–2365.

Curica, D. Novotnia, D., Skevina, D., Rosellb, C.M., Collarb, C. Le Bailc, A., Colic-Barica, I. Gabrica, D. (2008). Design of a quality index for the objective evaluation of bread quality: Application to wheat breads using selected bake-off technology for bread making. *Food Research International 41* (2008) 714–719

Darko, F. O. (2010). *Mastering the cook in you* (1st ed.) Accra, Ghana Diamond impressions.

Dewaest, M., Villemejane, C., Berland, S., Neron, S., Clement, J., Verel, A., &Michon, C. (2018). Effect of crumb cellular structure characterized by image analysis on cake softness. *Journal of texture studies*, *49*(3), 328-338.

El-Amir, J., & Omar, A. M. (2019). Investigating the Relation between Ergonomics and Efficiency of Hotel Kitchen Staff. Journal of Faculty of Tourism and Hotels-University of Sadat City Vol, 3(1).

Foskett, D. & Paskins, P. (2012). *The theory of hospitality and catering* (12th ed.). London, UK: Hodder Education Press.

Gamelaro, A., Varela, P., & Gimenez, P, (2002). Textural Quality of White Pan Bread by Sensory and Instrumental Measurements.

Gupta, N. and Pandya, E. 2019. Assessing Modular Kitchen through an Ergonomic Lens: A Case Study. International Journal of Engineering Science Invention (IJESI). 8(08):

Halson, S. L. (2014). Monitoring training load to understand fatigue in athletes. Sports medicine, 44(2), 139-147.

Heiniö, R. L., Noort, M. W. J., Katina, K., Alam, S. A., Sozer, N., De Kock, H. L., ... &Poutanen, K. (2016). Sensory characteristics of wholegrain and bran-rich cereal foods–a review. Trends in Food Science & Technology, 47, 25-38.

Hosseini Ghaboos, S. H., SeyedainArdabili, S. M., &Kashaninejad, M. (2018). Physicochemical, textural and sensory evaluation of sponge cake supplemented with pumpkin flour. *International Food Research Journal*, *25*(2).

Janusz, O. (2016). Evaluation of modern day kitchen knives: An ergonomic and biomechanical approach to design (Doctoral dissertation, Iowa State University).

Junge, K., Hughes, J., Thuruthel, T. G., & Iida, F. (2020). Improving robotic cooking using batch Bayesian optimization. *IEEE Robotics and Automation Letters*, *5*(2), 760-765.

Kapoor, S. (2018). The Balloon Whisk; the stirring history. *The Economist*. Kumar, P. K. A., &Dayal, R. (2017) Organoleptic Evaluation of Products Prepared in Standardized and Local Brand Kitchen Equipments. TECHNOFAME: Vol. 6 No. 1, 99103.

LindarteArtunduaga, J., & Gutiérrez, L. F. (2019). Effects of replacing fat by betaglucans from Ganoderma lucidum on batter and cake properties. Journal of food science and technology, 56(1), 451-461.

Liu, Y. X., Cao, M. J., & Liu, G. M. (2019). Texture analyzers for food quality evaluation. In Evaluation technologies for food quality (pp. 441-463). Woodhead Publishing.

Marando, I., Matthews, R. W., Grosser, L., Yates, C., & Banks, S. (2022). The effect of time on task, sleep deprivation, and time of day on simulated driving performance. Sleep, 45(9), zsac167.

McClements, D. J., Weiss, J., Kinchla, A. J., Nolden, A. A., & Grossmann, L. (2021). Methods for testing the quality attributes of plant-based foods: Meat-and processed-meat analogs. Foods, 10(2), 260.

Mixter, S., Mathiassen, S. E., Bjärntoft, S., Lindfors, P., Lyskov, E., & Hallman, D. M. (2021). Fatigue, Stress, and Performance during Alternating Physical and Cognitive Tasks—Effects of the Temporal Pattern of Alternations. Annals of Work Exposures and Health, 65(9), 1107-1122.

Ramos-Diaz, A., A., J., M., Kince, T., Sabovics, M., Gürbüz, G. Rauma, A. Lampi, A. Piironen, V., Straumite, E., Klava, D. &Jouppila, K. (2020). Relationship of Compositional, Mechanical, and Textural Properties of Gluten-Free Pasta Using Different Quinoa (Chenopodium quinoa) Varieties Foods 2020, 9, 1849; doi:10.3390/foods9121849

Rodrigues AMDP, Correia PMR, Guiné RPF. (2014) Physical, chemical and sensorial properties of healthy and mixture breads in Portugal. *Journal of Food Measurement and Characterization, 8(2), 70-80.*

Salehi, F., Kashaninejad, M., Asadi, F., & Najafi, A. (2016). Improvement of quality attributes of sponge cake using infrared dried button mushroom. *Journal of food science and technology, 53(3),* 1418-1423.

Scheuer, P.M., Luccio, M.D., Zibetti, A.W., Miranda, M.Z., & Francisco, A.D. (2016). Relationship between Instrumental and Sensory Texture Profile of Bread Loaves Made with Whole-Wheat Flour and Fat Replacer. *Journal of Texture Studies, 47, 14-23.* Selected Kitchen Tools. *TECHNOFAME-A Journal of Multidisciplinary Advance Research*, *6*(2), 35-40.

Shobha, H. K. and Sidhu, M. (2011). *Modern Kitchen Tools*: A Boon for Homemakers

Singh, R., & Khan, S. (2021). Ergonomics in the Kitchen of Working Women of MIG Families (A Study of Aligarh City). Ergonomics for Improved Productivity: Proceedings of HWWE 2017, 83. Stud Home Com Sci, 5(2): 127-129

Su, Y. (2016). Pleasure of manual kitchen products: A checklist for designing manual kitchen tools. Unpublished thesis submitted to the Graduate Faculty of Auburn University in partial fulfillment of the requirements for the Degree of Master of Industrial Design Auburn, Alabama

Wang, W. C. and Worsley, A. (2014). How Often Do We Use Cooking Utensils? An Exploratory Study *Journal of Culinary Science & Technology*, 12:326–338

Worsley, A., Wang, W., Ismail, S., & Ridley, S. (2014). Consumers' interest in learning about cooking: the influence of age, gender and education. *International Journal of Consumer Studies*, 38(3), 258-264.

JHER Vol. 29 (2), December 2022, pp. 35 -44

Practices Adopted by mothers in Selecting Food for their Preschool Children in Nsukka Urban

Ogbonnaya, E.K., Ugwu, E.I., Anowai, C.C.& Okoro, Josephine.
Department of Home Economics and Hospitality Management Education
Faculty of Vocational and Technical Education
University of Nigeria, Nsukka

Corresponding author: ugwu.eunice@unn.edu.ng

Abstract

This study examined practices adopted by mothers in selecting food for their preschool children in Nsukka urban. Specifically, the study determine: points mothers consider in selecting food for their preschoolers, procedures mothers follows in selecting foods for their preschoolers and types of food mothers select for their preschoolers. Descriptive survey research design was adopted. The study was guided by three specific purposes and three research questions. The population for the study was 658 mothers with preschool children. Simple random sampling technique was adopted to select 25 mothers with preschool children from eight preschools in Nsukka urban given a total sample size of 200 mothers with preschool children. Questionnaire was used for data collection. Data were analyzed using mean and standard deviation. Findings reveal 17 points mothers consider in selecting food foe their preschoolers. These include; aroma of the food after preparation, taste of the food after preparation, and children's acceptability of the food among others. Other findings are 11 procedures mothers adopted in selecting foods for their preschoolers. These include; determine food needs of the child, check nutrient composition of the food, and decide time of meal to be served among others. Further findings are 19 types of foods mothers choose for their preschoolers. These include; noodles, bread, rice, spaghetti, protein, fruits and vegetables and others. The findings suggest that preschool children need adequate diet with all the necessary food nutrients in their right proportion on a daily basis to avoid malnutrition. Food selection for the preschooler is of high priority in order to achieve proper growth and development.

Keyword: Food, Selection, Practices, Preschoolers, Mothers, Adoption.

Introduction

Preschool children are those children within the age bracket of three to five years. These children are still growing and developing physically, mentally, socially. They are also developing habits and preferences. It is also a period when children are being socialized to many life skills and habits such as sleeping, washing, dressing, relating to people, eating and daily routine occasional activities (Brodribb, Fallon, Jackson, and Hegney 2010). This period is known as early childhood stage. Early childhood is a period of rapid growth and important phase for developing eating habits because the dietary behavior acquired during the early years of life may extend

to adulthood (Chandani, Marion, and Pam 2018). As children pass through many stages in life, their eating habits are being formed. This is transitional phase from infant to adult-type diet. It is important that their diet be high in nutrient dense foods. Poor nutrition during childhood is a major that impends the physical and mental development of children, and ultimately propagates the vicious cycle of intergenerational malnutrition (Agam et,al, 2020) and Olatidoye, et, al. 2011). Available reports indicate that malnutrition contributes to more than half of all under five childhood deaths throughout the developing world including Nigeria. This has been responsible directly or indirectly to about 60 percent of the 10.9 million deaths annually of which two third of these deaths, are often associated with inappropriate feeding practices occurring during the first years of life {World Health Organization (WHO) 2018; UNICEF, 2018). Preschool child is sometimes described as a difficult child because the child's appetite is unstable (Pangborn et,al. 2008; Jemide et, al 2008). This emphasizes the importance of careful selection of foods that meet the nutritional needs of the preschoolers.

Preschool children need adequate nutrients for proper growth and development such as calcium, fats, vitamins, iron and water. For instance, they need calcium for development of strong bones and also to prevent the development of osteoporosis. They also require about 500 – 800mg calcium each day. Fat is also needed for sufficient calorie (United Nations International Children Emergency Fund, UNICEF, 2018). Water is needed to regulate body functions such as digestion and absorption of food in the body.

Several factors determine the quality and quantity of food available to a child in any given household. These factors include, among others, ability to secure food, mother's level of knowledge of food and nutrition (August, et, al 2002; Reiher and Mohammadnezhad 2017). A mother that can secure food and has good nutrition knowledge will provide adequate meal to the child.

Mothers are the major care providers for the children during the first five years of life (WHO, 2018). They select the foods needed for the children. In selecting foods for children, knowledge about dietary needs is essential for good health and overall nutritional status especially when resources are limited. Sometimes mothers may lack the knowledge and skills to select the right amount and types of foods needed by children to meet their dietary needs. Available reports indicate that many mothers of preschoolers in Nsukka urban lack the knowledge of nutrition they need in order to select adequate food for their children (Ezeanwu, 2013 Okechukwu 2014). Many such mothers depend on processed foods while others replace main meal with snacks. Some of the foods these mothers feed these children with include: noodles, bread and soft drink, okpa and soft drink, biscuits and soft drink, abacha, rice and stew, jollof rice, spaghetti and yam among others (Okechukwu, 2014). Furthermore, Ezeanwu (2013) explained that some of the mothers over cook the vegetables and even cook some fruits for instance in the case of corn pudding(*Igbagwuoka*) and mazi mix (*Agharahaoka*),thereby destroying some of the important vitamins such as vitamin C. Eze and

Njoku **(**2018), noted that vitamin C is very important in the food content for children because of its ability to fight against infections. Some mothers in the study area even do not include vegetables in the preschoolers' meal, reasons being that these children do not like eating vegetables which is full of mineral and vitamins that is required at crucial stage for brain development and other normal body functioning (Okechukwu, 2014).Although Nsukka has a variety of food (vegetables) that are nutritious but choosing and preparing the right food has been the major problem. Most mothers in Nsukka urban do not select the right food for their preschool children and the methods used in preparing the meals sometimes are not proper. All these could result to some preschool children stunted growth in the study area (Ezeanwu, 2013). It therefore becomes necessary to study the practices adopted by the mothers in selecting food for their preschoolers with a view to evolving ways of improving such practices.

Purpose of the Study

The main purpose of this study was to investigate the practices adopted by mothers in selecting food for their preschool children in Nsukka urban. Specifically, the study identified;

1. points mothers consider in selecting food for their preschoolers.
2. procedures mothers follow in selecting food for their preschoolers
3. types of food mothers select for their preschoolers.

Research Question

The following research questions guided the study;

1. what are the points mothers consider in selecting food for their preschoolers?
2. what are the procedures mothers follow in food selection for their preschoolers?
3. what are the types of foods that mothers select for their preschoolers?

Methodology

***Design of the Study*:** The study adopted a descriptive survey design:

***Area of the Study*:** The study was carried out in Nsukka Urban in Nsukka Local Government Area (LGA) which is made up of 25 autonomous communities. The communities are divided into three areas. There are many mothers with preschool children. Some of the primary school in the communities have primary schools with preschool sections, with preschoolers. There were a total of 57 registered preschool centres in the area of the time of the study.

***Population for the Study*:** The population for the study was made up of all mothers with preschool children in the area of the study. The estimated number of the mothers was 658. Some of them were literate while others were illiterate.

***Sample for the Study*:** Multistage sampling technique was used. At the first stage four communities that had high numbers of preschool centres were purposively selected from the 25 communities. At the second stage, two registered preschool centres were randomly selected from each of the four communities to give a total of eight preschool centres. Thereafter, convenience sampling techniques was used to select 25 pupils from each of the selected eight preschool centres to give a sample of 200 preschoolers. The mothers

of the 200 preschoolers formed the sample for the study.

***Instrument for Data Collection*:** A structured questionnaire was used to collect data. The it was developed based on the research questions and literature reviewed for the study. The questionnaire was broadly categorized into two parts 1 and 11. Part 1 provided general information about the background of the respondent while Part 11 was made of three sections A - C designed to obtain information on food selection practices of mothers for their preschool children. Five-point responses scale of: Very Often (VO) 5 points, Often (O) 4 points, Sometimes (S) 3 points, Not Very Often (NVO) 2 points and Not Often (NO) 1 point. The instrument was validated by three experts, in Food and Nutrition. Reliability of the instrument was established using Cronbach Alpha, and a coefficient of 0.82 was obtained.

***Method of Data Collection*:** A total of 200 copies of questionnaire were administered to respondents by hand. In the case of non-literate respondents, the questionnaire served as interview schedule. The researcher and assistant read out the questionnaire items to the illiterate mothers and completed the responses for them accordingly. Only 196 copies of the questionnaire were properly completed and retrieved. This gave a return rate of 98 percent.

***Method of Data Analysis*:** The data were analyzed using mean and standard deviation. A `cut-off point of 3.50 on based of 5-point scale was used for decision. This implies that any item with a mean value of 3.50 and above (was "agreed upon" by the respondents while any item with a mean value below 3.50 (was regarded as disagreed upon" by the respondents.

Findings

Table 1: Mean Responses on Points Mothers Consider in Food Selection for Their Preschoolers

S/N	Points Mothers Consider in Food Selection for their Preschoolers		SD	R
1	Number of children in the family	3.41	1.18	Disagree
2	Time of the meal	3.60	1.29	Agreed
3	Children's acceptability of the food	3.70	1.13	Agreed
4	Health condition of the child	3.60	1.29	Agreed
5	Mineral and vitamin content of the food	3.74	1.21	Agreed
6	Taste of the food after preparation	3.68	0.97	Agreed
7	Colour of the food after preparation	3.43	1.27	Disagree
8	Texture of the food after preparation	3.48	1.29	Disagree
9	Aroma of the food after preparation	3.90	1.13	Agreed
10	Ability/skill required in the food preparation	3.61	1.14	Agreed
11	Types of vegetables to be used in the food preparation	3.61	1.16	Agreed
12	The cooking method	3.66	1.25	Agreed
13	Type of protein to be include in food preparation	3.69	1.22	Agreed
14	Garnishing ingredients	3.66	1.16	Agreed
15	Nutritive value of food	1.68	0.86	Disagree
16	Safety of food	3.58	1.03	Agree

17	Cost of food items	3.56	0.74	Agree
18	Time spend in food preparation	3.71	0.84	Agree
19	Availability of food	3.67	0.88	Agree
20	Food that children need	3.59	0.84	Agree
21	Food that other children like	3.76	0.89	Agree
22	Culture	2.34	2.00	Disagree
23	Religion	1.99	0.49	Disagree

Note: = Mean; SD = Standard Deviation; R = Remark

Table 1 shows findings on points mothers considered in food selection for their preschoolers. The Table reveals that 17 items had a mean score ranging from 3.56 to 3.90 (..... This implies that the 17 items were agreed upon by the respondents as points to be considered in food selection for preschoolers. While item 1, 7, 8, 15, 22 & 23 had mean score of 3.41 to 3.48 (implying that the items were disagreed as points to be considered in food selection for preschoolers.

Table 2: Mean Responses on Food Selection Procedures Adopted by Mothers in Nsukka Urban

S/N	Food Selection Procedures		SD	R
1.	Determine food needs of the child	3.50	1.25	Agreed
2.	Plan for food needs of the child	3.72	1.08	Agreed
3.	Check for food items that are available at home	3.82	1.06	Agreed
4.	Make a food list	3.74	1.20	Agreed
5.	Purchase necessary food items	3.80	1.07	Agreed
6.	Decide on meal preparation procedure	3.70	1.24	Agreed
7.	Decide time of meal preparation	3.61	0.99	Agreed
8.	Decide time of meal to be served	3.99	1.00	Agreed
9.	Determine the shelf life of the food to prepare	3.92	0.65	Agreed
10.	Check the nutrient composition of the food,	3.79	1.76	Agreed
11.	Consider the age of the child	2.33	1.01	Disagreed
12.	Consider the money available	3.86	1.09	Agreed

Note: = Mean; SD = Standard Deviation; R = Remark

Table 2 shows findings on procedures for food selection followed by the mothers. The Table reveals that eight out of the 11 items had each a mean score ranging from 3.5 to 3.99 (. This implies that the items were "agreed upon" by the respondents as procedures for food selection for preschoolers. Item No. 11 with a mean score of 2.33 (was "disagreed by the respondents as not a procedure for food selection for preschoolers.

Table 3: Mean Ratings of Respondents on the Types of Foods Mothers Choose for Preschool Children

S/N	Types of Food Mothers Select for Preschoolers		SD	R
1.	Rice (*Oryza sativa*)	3.80	0.98	VO
2.	Spaghetti(*Cucurbita pepo*)	3.60	0.92	VO
3.	Maize (*Zea mays*) with Vegetables	2.55	0.87	VO
4.	Plantain (*Musa x paradisiaca*)	2.00	0.98	NO
5.	Yam (*Dioscorea*)	2.20	0.60	NO
6.	Bread (*Triticum aestivum*) and Tea	3.65	1.06	VO
7.	Garri (*Manithot esculen*ta) and Soup	3.78	0.62	VO
8.	Cassava fufu (*Manihot esculenta*) and soup	3.82	0.58	VO
9.	Cereals	1.99	0.50	NO
10	Sweet (*Ipomoea batatas*)	1.10	0.6	NO
11.	Irish potatoes(*Solanum tuberosum*)	1.20	0.60	NO
12.	Water yam(*Dioscorea alata*)	1.30	0.72	NO
13.	Noodles	4.00	1.88	VO
14.	Beans (Phaseolus vulgaris)	3.86	0.97	VO
15.	Plantain and Beans (Musa x paradisiaca/ *Phaseolus* vulgaris),	1.99	0.42	NO
16.	Rice and Beans (*Oryza sativa* and *Phaseolus vulgaris*)	1.88	0.54	NO
17.	Yam and Beans (*Dioscorea* and *Phaseolus vulgaris*)	1.66	0.48	NO
18.	Fruits	1.99	0.65	NO
19.	Vegetables	1.58	0.88	NO

Note: = Mean; SD = Standard Deviation; VO = Very Often; NO = Not Often; R = Remark

Table 3 shows that seven items out of nineteen (19) items had a mean score ranging from 3.60 to 4.00. All these means are above the cut-off point 3.50 (

. They are therefore termed as often chosen foods for preschoolers. This shows that seven (7) out of the 19 items were agreed upon by the respondents as the foods that are often chosen for preschool children in Nsukka Urban. The thirteen items – indicating that noodles scored the highest mean of 4.00. Therefore, the respondents saw this as the adequate food to choose for preschool children in Nsukka Urban. The table also shows that thirteen (13) items out of nineteen (19) items had a mean score of 1.10 to 2.55. This shows that these items were not often chosen by the respondents, mothers of preschool children in Nsukka Urban. Also, the degree of agreement in item 11 which was 1.10 was the least mean in the table.

Discussion of Findings

The study revealed that there are various points (factors) which were to a high extent perceived as determinants of food selection practices by mothers for their preschool children. The study revealed that factors such as palatability (taste of the food), time spent in the food preparation, preparation method of the food, food that other children like, availability of food, food that children want, foods prepared by other mothers, colour of the food and cost of the food were to a high extent perceived as determinants of food selection for preschool children by their mothers. This

is in line with Ozdoğan, Ucar, Akan, Yılmaz, Surucuoğlu, Funda Pınar Cakıroğlu, & Ozcelik(2012), that skills in food preparation is a factor that influences food selection. The findings revealed that most less healthy foods are often selected by mothers. Some of these less healthy foods include fried yam, akara, fried fish, biscuits, cornflakes and fried potatoes among others. These less healthy foods mostly selected by mothers of preschool children can lead to malnourishment of the preschool children. The revealed study also showed that time is one of the factors that influences food selection practices to a high extent. The time for preparing a balanced diet affects food selection practices by the mother. Lack of time for preparing adequate diet leads to malnourishment of the preschool children. This finding is in consonance with Bevan (2011) who noted that mothers complain of time constraints as a result of not being able to fit everything into their day; in effect, making compromises were the only way many of them cope by giving preschool children any food available without considering the nutritional value.

The study further revealed that the mothers follow a procedure while selecting food for their preschool children. From the study, they agreed that making a list of the available foods is the first step to take followed by ascertaining the shelf life of the available foods. The nutrient composition of the food in line with the child's daily requirement is then identified. Next, the time of the day the food will be eaten will be ascertained followed by how long it will take to prepare the food. The cost of the food is then considered followed by the money available for the food. Finally, how long it will take to prepare the food is considered. This finding is in line with the work of some authors(Ahia, 2012; Eze & Njoku, 2018), who highlighted that considering the protective materials (nutrients) in a food, money available and food availability are vital points in food selection. The mothers in this study however, disagreed that considering the age of the child is not a procedure mothers should take during food selection. This contradicts the opinion of Ahia (2012) who revealed that food requirements of the different categories of individuals in the family varies just as their age varies. This highlights age as a factor in food selection procedure. This discrepancy may be attributed to educational qualification of the respondents in the study area.

The findings of the study also revealed that there are about seven (7) types of food that preschool mothers give to their children. The foods given includes noodles, rice, spaghetti, garri and soup, cassava fufu and soup, bread and tea and sweet potatoes. This agrees with the findings of Agam, Anne, Philia, &Ogban(2020).The researchers found that the foods that were mostly given to preschool children are bread and tea (51, 42.5%), eba and soup (37,30.8%) and rice (27, 22.5%), for breakfast, lunch and dinner, respectively. The study also revealed that the mothers had poor knowledge of body building foods and its importance for preschool children which the present study equally identified. These body building foods are not often given to preschool children which have resulted to ill health`, stunted growth and eventually death. The present study is also in consonance with Unusa (2006) that mothers preferred bread (4.32 ± 0.89) as against a decrease in preference for

milk and milk products (3.73 ±1.03) for preschool children. The study revealed that carbohydrate-rich food, were selected in high extent while protein-rich food, fruits and vegetables were rarely selected as food by mothers for preschool children.

In the same vein, a study conducted by Sholeye, Akinpelu, Bankole & Diya (2016) revealed thata cross-section of women in South-Western Nigeria, found that foods such as beans, beef, cereals, cassava, and yam were not given to infants; rather, herbal concoctions were served to them. Similarly, Ekwochi, Osuorah, Ndu, Ifediora, Asinobi& Eke (2016) found that women refused feeding their young ones with snail, grass-cutter meat, and egg because of the belief that such foods would make the children to become sluggish, lazy, and predispose them to stealing. These perceptions led to the introduction of nutrition policies, plans, and interventions with the aim of improving caregivers' knowledge of appropriate foods and feeding practices for their young children. The interventions include protecting and advancing food and nutrition security in Yobe State; efforts to positively transform nutrition in northern Nigeria; improving maternal, newborn, and child nutrition in northern Nigeria; national policies on food and nutrition in Nigeria; National Plan of Action on Food and Nutrition (NPAN) in Nigeria; National Strategic Plan of Action for Nutrition (2014–2019); UNICEF implemented nutrition intervention programs; 2017 Nigeria Nutrition in Emergency Sector Response Plan; and 2018 Zero Hunger Initiative. More so, food supplementation, food fortification, and bio fortification of staple crops have been employed to address nutrient deficiencies among children and mothers in Nigeria. Besides improving caregivers' nutrition knowledge, these policies and interventions are directed towards achieving the ambitions of the Nigerian dietary guidelines for preschool children.

Conclusion

Preschool children are children that are still growing and developing. For proper development, preschool children need adequate diet/meal at all times. Mothers of preschool children should prepare and give them food that contains all the food nutrients needed by the children more especially body building foods, since they are still growing. Processed food and carbohydrates should be given to the preschool children in the minimal. Again, fruits and vegetables should be given to preschool children by their mother, this will help to fight against infections which preschool children contacts easily. It can be seen that preschool children need adequate diet everyday with frequent fruits and vegetables in order to avoid the problem of malnutrition among the children. Conclusively, food selection for the preschooler is of high priority because adequate and quality food should be selected in order to achieve proper growth and development of the preschool child.

Recommendation

1. There should be proper and routine awareness by the governmental and non-governmental bodies on the role of nutrition on the preschool child.
2. The media (Tv and radio stations) should be involved in advocating healthy food during food selection for preschool children.
3. There should be awareness on the importance of the inclusion of fruits

and vegetables in the meals of children especially preschoolers.

4. Local Governments with the help of Health officers and Nutritionist should through religious bodies and women community's meetings create the awareness of proper nutrition for preschool children.

References

Ahia, C. N. (2012). *Principles and Practical of Meal Management*. IIorin; Yolax Printing Press

Agam EAyuk, Anne C. Edet, Philia A. Ayuk, &OgbanOmoronyia, *(2020). Nutritional Knowledge and Practice of Pre-School Feeding. Comparative Study Among Mothers in Slum and Urban areas of Calabar, Nigeria.Global Journal of Pure and Applied Sciences (26): 85-90.*

Amosu, A.M., Degun, A.M., Atulomah, N.O.S. &Olanrewaju, M.F. (2011). A study of the nutritional status of under-5 children of lowincome earners in south-western Nigeria community. *Current Research Journal of Biological Science*, 3(6):578-585.

August, D., Teitelbaum, D., Albina, J., Bothe, A.L., Guenter, P. &Hafkemper, M. (2002). Guidelines for the use of parental and enteral nutrition in adult and pediatric patients. *Journal of Parental and Enteral Nutrition*, 26:1-4

Bevan, A.L. and Reilly, S.M. (Mothers' efforts to promote healthy nutrition and physical activity for their preschool children, Journal of Pediatric Nursing, 26:395-403

Brodribb, W., Fallon, T., Jackson, C. and Hegney, D. (2010). Breastfeeding review, 18(1):5

Chandani E. Nekitsing, Marion M. Hetherington, &Pam Blundell-Birtill,*(2018). Developing Healthy Food Preferences in Pre-School Children Through Taste Exposure, Sensory Learning, and Nutrition Education. CurrObes Rep. 7(1): 60-67.*

Ekwochi, U.; Osuorah, C.D.I.; Ndu, I.K.; Ifediora, C.; Asinobi, I.N. & Eke, C.B. (2016). Food taboos and myths in South Eastern Nigeria: The belief and practice of mothers in the region. J. Ethnobiol. Ethnomed. 12, 7.

Ezeanwu, A. B. (2013). Assessment of preschool feeding practices in Enugu State. *Unpublished M.Ed. Thesis*. Department of Home Economics and Hospitality Management Education, Faculty of VTE, UNN.

Eze, N. M. & Njoku, H. A. (2018). *Foods and Nutrition Today Understanding Nutrition for Students in Tertiary Institutions*. Nsukka; Grand-Heritage Global Communications

Federal Ministry of Health. National Strategic Plan of Action for Nutrition (2014–2019): Health Sector

Component of National Food and Nutrition Policy; Federal Ministry of Health: Abuja, Nigeria, 2014.

Jemide, J.O, Ene- Obong. H. N, Edet, E.E, Udoh, E.E. *(2016). Association of Maternal Nutrition Knowledge and Child Feeding Practices with Nutritional Status of Children in Calabar South Local Government Area, Cross River State, Nigeria. IJHS. 2(1):293-298*.

Olatidoye, Adebusoye, Adekola&Jatto 2011).Effect of maternal employment on nutritional status of pre-school children from low income households' area of Oyo State. *Electronic Journal of Environmental, Agricultural and Food Chemistry 10 (7), 2574-2580.*

Okechukwu, F.O. (2014). Nursing mothers and their infant feeding practices in Udenu local government area of Enugu State.*Journal of Home Economics Research*JHER*(20) 1,179-*189.

Ozdoğan, Y, Ucar A, Akan, L.S, Yılmaz, M. V, Surucuoğlu, M. S, FundaPınarCakıroğlu, *F.* P.&Ozcelik, A. O. (2012). Nutritional knowledge of mothers with children aged between 0-24 months. *Journal of Food, Agriculture and Environment.*10 (1): 173-175.

Pangborn, J., Newman, L., Medhelarr, R., Collier, A. &Marr, S. (2008).

Compositions and method for the treatment of autism. *US Patient App*, 12(15)444.

Reiher, A,&Mohammadnezhad, M. (2017). *Awareness and Characteristics of the Mothers of Malnourished Children under 5 years old on South Tarawa, Kiribati in 2016: A descriptive study. MOJ Womens Health.6(1):332-336*

Senorial, A. (2004). *Principles of meal planning.* Washington D.C. Academy Educational Development.

Sholeye, O.O.; Akinpelu, A.; Bankole, E.; Diya, O. (2016). Knowledge of infant feeding among mothers in Sagamu, southwestern Nigeria: Implications for nutrition education. Am. J. Food Nutr., 6, 69–76.

UNICEF (2018). Nigeria. Working to Improve Nutrition in Northern Nigeria (WINNN). Availableonline: **https://www.gov.uk/government/publications/working-to-improve-nutrition-in-northern-nigeria** (accessed on 20 March 2019).

Unusan, N. (2006). University students' food preference and practice now and during childhood. *Food Quality and Preference,* 17:362-368.

World Health Organization (2018) Nurturing care for early childhood development- A global framework for action and result. Geneva, Switzerland. WHO Press

JHER Vol. 29 (2), December 2022, pp. 45 -54

Comparative Study of Nutritional Status of Beneficiaries and Non-Beneficiaries of Primary School Feeding Programme in Akwa Ibom State

Ekumankama, I. O. &Umoetuk, O. M.
Department of Home Science,
Michael Okpara University of Agriculture Umudike, Abia State.

Corresponding author: ijekumankama@yahoo.com

Abstract

This study compared nutritional status of beneficiaries and non-beneficiaries of primary school feeding programme in Akwa Ibom State. Specifically, it determined the differences in anthropometric measurements of weight - for – age; height - for – age; and body mass index - for - age of children benefiting and those not benefiting from school feeding programme in Akwa Ibom State. The study adopted a cross-sectional descriptive survey design. The population for the study comprised 818,588 public primary school children (3 - 11 years). Questionnaire and anthropometric measures were used to collect data. Data were analyzed using frequencies and percentages. Data from the anthropometric measurement of pupils (weight-for-age, height-for-age and BMI-for-age) were analysed using WHO anthro plus software. The result was interpreted using Z-score (WHO Standard) and expressed in frequencies and percentages. Chi - Square test result showed that the weight-for-age (X^2 =13.437^a, P=0.00), height-for-age (X^2 = 7.736^a, P= 0.02) and BMI-for-age (X^2 = 10.281^a, P= 0.04) status of the beneficiaries of school feeding programme were comparable to the non beneficiaries at 0.05 level of significance. Thus, the three null hypotheses were accepted for all the parameters tested. In conclusion, school feeding programme has the potential to directly address malnutrition if it is effectively managed. The study recommended among others that Home Economists, Nutritionists and Dieticians should, in conjunction with the government undertake regular monitoring and evaluation of the programme to ensure that adequate and nutritious meals are served.

Keywords: Nutritional, Status, School, Feeding, Programme, Beneficiaries, Non-beneficiaries

Introduction

School feeding programme have been established in Nigeria to reduce malnutrition and improve child nutrition in order to lessen negative effects of malnutrition on the learning capacity of school aged children (World Food Programme, 2012). According to World Food Programme (2013), malnutrition disorders affect more than 42 percent of school children in Nigeria and are responsible for about 49 percent absenteeism of primary school-age children. The common causes of malnutrition are frequent and lack of access to adequate meals. School feeding

programme encourages school-aged children to be in school daily and as such helps in reducing malnutrition as the meal in schools provides macro and micro-nutrients that are often missing in diets of children from low-income background.

School feeding programme provides avenues where meals are served to pupils in schools, as well as take-home rations subjected to pupil's school attendance, to serve as a common way of enhancing school participation and also promoting learning and complementing the insufficient diets of school-aged children (Adelman, Gilligan and Lehrer, 2008). The Nigerian Home-Grown School feeding (NHGSF) programme aims to deliver a government-led, cost-effective school feeding programme using foods that are locally grown by small holder's farmers. The first implementation of Nigerian Home-grown school feeding programme was in 2004 beginning with twelve states selected from the six geopolitical zones. The programme stopped shortly after commencement in ten states due to insufficient funds. In 2016, the Federal Government of Nigeria reaffirmed its commitment to the Home-grown school feeding programme by setting a target of 12.8 million primary school- aged children to benefit from the programme (UNICEF 2006).

School-aged children are those between the ages of 5-12 years, it typically comes after pre-school age of 2-5 years which most public primary school have accommodated preschoolers into what is named 'Early Child Education' (ECE). It is also during this period, the pre-school age that most under nutrition in form of kwashiorkor, marasmus and anemia are common (Ene-Obong, 2001).

Nutritional status is defined as the health condition of an individual that is influenced by the intake and utilization of nutrients by the body. It provides an indicator of the well-being of individual living in a particular area (Goon, Toriola, Shaw, Amusa, Monyeki, Akinyeme and Alabi, 2011). Healthy eating behaviors among school-aged children play a key role in their mental and physical development and reduce many risks associated with both immediate and long-term health problems (Bordi, Park, Watkins, Caldwell and De Vitis, 2002). Children belong to the vulnerable groups and therefore, at greater risk of malnutrition in the society. They require healthy foods which include proteins, vitamins, calcium, carbohydrates and minerals for growth and development.

Anthropometry index can be sensitive indicators of health, growth and development in children (Medhi; Barua; Mahanta, 2006). Anthropometric is universally applicable and inexpensive method of assessing the size, proportion and composition of human body. Adequate diets are vital for proper growth and physical development to ensure optimal reactions and resistance to infections. Reversely, inadequate diets lead to severe forms of malnutrition in children including vitamin A deficiency and iodine deficiency disorders. (Amuta and Houmsou 2009; Zere, and Mcintyre, 2003).

According to World Food Programme (2013), malnutrition disorders affect more than 42% of school children in Nigeria and are responsible for about 49% absenteeism of primary school-age children. Poor nutritional and health status have been shown to affect learning outcomes in children. The common causes of malnutrition are frequent and

lack of access to adequate meals. Among the poor, there is insufficient food at home. A hungry child does not see going to school as being important. School feeding programme, if effectively managed has the potential to directly address malnutrition among preschool children. Many intervention programmes have been lunched to tackle the issue of malnutrition among children. In 2004, the Federal Government of Nigeria lunched the school feeding programme. Therefore, a comparative study on the nutritional status of beneficiaries and non beneficiaries of primary school feeding in Akwa Ibom State could form basis for monitoring and evaluation of school feeding programme necessary for improving the nutritional status, nutrition knowledge and practices of school- aged children in Nigeria.

Objectives of the study

The main objective of the study was to compare the nutritional status of beneficiaries and non-beneficiaries of school feeding programme (SFP) in primary schools in Akwa Ibom State. Specifically, the study determined differences in anthropometric measurements of children (3 - 11 years) who are benefiting and those who are not benefiting from school feeding programme, with regards to:

1. weight-for-age.
2. height-for-age.
3. body mass index-for-age

Hypotheses (HO_3)

There are no significant differences in anthropometric measurements of weight-for- age of children (3-11 years) who are benefiting and those who are not benefiting from school feeding programme, at 0.05 level of significance, with regards to:

HO_1: Weight-for-age.
HO_2: Height-for-age.
HO_3: Body mass index-for-age

Methodology

***Design of the study*:** The study employed a cross-sectional descriptive survey research design.

Area of the study: The study was conducted in Akwa Ibom State. The State is located in the coastal Southern part of the country. Akwa Ibom state consists of 31 local government areas (LGAs). The State is divided into three senatorial Districts. Akwa Ibom is one of the states in Nigeria running school feeding program to boast the nutritional status of children as well as increase the enrollment of pupils.

Population for the study: The population of the study was made up of 818,588 school children (3 - 11 years) from government (public) primary schools in Akwa Ibom state. Out of 1,160 public primary schools in the state, 1,101 schools operated the programme at the time of the study. The schools are mostly in the urban areas of each of the three senatorial districts. Fifty nine (59) schools did not operate the programme. The total number of pupils in each of the public primary schools varied. Pupils who were used for the study were registered in school for at least one academic section and there were selected from government primary schools that operated school feeding programme and government primary schools that do the operate the programme. Pupils within the age range of 3-11years were used for the study (Early Child Education to primary three).

***Sample for the Study*:** Multistage sampling technique was used to select 400 children (3-11 years) who formed the sample for the study. Two local government areas (LGAs) were randomly selected from each of the three senatorial districts of the state to give a total of six LGAs. Three villages were purposively selected based on whether its primary school operated feeding programme or not. Among the three villages selected, two primary schools operating SFP and one not operating SFP were purposely selected. A total of 12 primary schools operating feeding programme and six primary schools not operating feeding programme in the state were used for the study. In each of the primary schools operating school feeding programme, 17 pupils were randomly selected. These children constituted the sample of 400 school aged children were used for the study.

Sample size determination

***Instrument for data collection*:** Three types instruments were used for data collection. These include: Questionnaire which was used to collect data on the demographic characteristics (age, sex and class) of the children and the occupation of their parents. The questionnaire was validated by three lecturers Home Science.

Beam scale was used measure the weight of the children.

Tape measure was used to measure height of the children to the nearest 0.1cm. The tape was fixed to a rod with a head piece or a ruler.

***Method of data collection*:** Appropriate permission was obtained from each of the schools involved in the study before data collection. One research assistant was trained for data collection. With the help of the research assistant and class teachers, 400 copies of the questionnaire were administered to the pupils who were guided by the teachers. The researcher ensured that all the questionnaires were retrieved from the respondents. Anthropometric measurements of weight and height were taken using standard procedures. The weight of the pupils was taken using weighing scale. The scale was adjusted to zero before each measurement. Pupils were not permitted to wear shoes and heavy clothing except their school uniforms for weight measurement. Each school child was made to stand on the scale without holding onto any support with feet closed, hands by the sides and head in a forward position. Weight was read immediately and recorded to the nearest 0.1 kg (Okeke ; Onyechi ; Ibeanu, 2011).

Height was measured to the nearest 0.1 cm using a non stretch tape. Before taking the measurements, respondents were asked to take off all foot wears and hats if any. Each pupil was made to stand with back against a wall, heels together and in line with the buttocks, shoulders and head (Okeke, *et.al,* 2011)..

Data Analysis Techniques: Information on demographic data (age, sex and class) of the pupils and the occupation of their parents from the questionnaire were analyzed using SPSS frequencies and percentages. Anthropometric measurements of weight and height of the children under study were used for computing weight-for-age, height-for-age and BMI-for-age status of the children and analyzed using WHO Anthro Plus (version 1.0.4, World Health Organization, Geneva 2009). Z scores were computed for weight-for-age, height-for-age and BMI-for-age and were used in assessing underweight, wasting,

stunting, overweight and obesity using WHO reference standards.

Data were interpreted by using the Z-score classification system. The children were classified into the following categories:

- Underweight (low weight-for-age <−2 Z-scores)
- Stunting (low height-for-age <−2 Z-scores)
- Wasting (low BMI-for-age <−2 Z-scores)
- Overweight (BMI-for-age Z-score >+1 and ≤+2)
- Obese (BMI-for-age Z-score >+2)
- Normal weight (BMI-for-age Z-score −2 to + 1).
- Children with height-for-age Z-scores <−3.00 were defined as severely stunted.
- Children with BMI-for-age <−3 Z-scores were defined as severely wasted.
- Children with BMI-for-age Z-score >3 were severely obese. The values were set from the median values of the WHO international growth reference 2007 (De Onis *et al*., 2007; WHO, 2009).

Chi-Square test was used in testing the differences (at 0.05 probability level) in nutritional status of the beneficiaries and non beneficiaries of the school feeding programme in primary schools in Akwa Ibom Stat

Results

Demographic Information of the Pupils: Data analysis on the demographic information of the pupils shows that more than half (58.3%) of the pupils were females while 41.7% were males. Majority (66.5%) of the pupils were between 6-8 years of age few (15.0%) and (18.5%) of the pupils were between ages 3-5 years and 9-11 years respectively. Some (31.3%) of the pupils were in primary three, a further (30.8%) were in primary two, (27.5%) were in primary 1, while few (10.5%) were in early child education (ECE). Some (33.0%) of the pupils had fathers who were traders with a further (26.3%) who were artisans while only few (5.3%) had fathers who were farmers. Some (25.5%) of the pupils had mothers who were public servants with a further (21.8%) of them having mothers who were farmers while just (18.8%) had mothers who were civil servants.

Table 1: frequencies; Percentages and X^2 of Differences between Nutritional Status of Beneficiaries and Non-beneficiaries of the SFP in Akwa Ibom State Using Weight-for-Age Parameters.

Variables	Beneficiaries (%)	Non Beneficiaries F (%)	Total F (%)	X^2	P-value
Weight-for-age				13.437[a]	0.00
Severe underweight	0 (0.0%)	6 (1.5%)	6 (1.5%)		
Underweight	0 (0.0%)	7 (3.5%)	7 (1.8%)		
Normal	200 (100%)	187 (93.5%)	387 (96.8%)		
Total	200 (100%)	200 (100%)	400 (100%)		

F= Frequency; % = Percentage; X^2 = Chi square

Table 2 shows the differences between the nutritional status of beneficiaries and non-beneficiaries of the school feeding programme. The result showed that while all the benefiting children from the school feeding programme had a normal

weight-for-age status underweight (3.5%) and severe underweight (1.5%) were observed among children not benefiting from the feeding programme.

Table 2: Frequencies; Percentages and X^2 of Differences between the Nutritional Status of Beneficiaries and Non-beneficiaries of the SFP in Akwa Ibom State Using Height-for-Age Parameters.

Variables	Beneficiaries F(%)	Non Beneficiaries F %	Total F(%)	X^2	P-value
Height-for-age				7.736[a]	0.02
Severe stunting	1 (0.5%)	7 (3.5%)	8 (2.0%)		
Stunting	11 (5.5%)	20 (10.0%)	31 (7.8%)		
Normal	188 (94.0%)	173 (86.5%)	361 (90.3%)		
Total	200 (100%)	200 (100%)	400 (100%)		

F= Frequency; % = Percentage; X^2 = Chi square

Table 2 shows that the prevalence of stunting (10%) and severe stunting (3.5%) observed among the non-beneficiaries of the feeding programme were higher than (5.5%) and (0.5%) observed among children benefiting from the school feeding programme.

Table 3: Frequencies; Percentages and X^2 Differences between the Nutritional Status of Beneficiaries and Non-beneficiaries of the SFP in Akwa Ibom State using Body Mass Index-for-Age Parameters.

Variables	Beneficiaries F (%)	Non Beneficiaries F (%)	Total F (%)	X^2	P-value
BMI-for-age				10.281[a]	0.04
Severe wasting	0 (0.0%)	8 (4.0%)	8 (2.0%)		
Wasting	4 (2.0%)	8 (4.0%)	12 (3.0%)		
Normal	177 (88.5%)	170 (85.0%)	347 (86.8%)		
Overweight	18 (9.0%)	13 (6.5%)	31 (7.8%)		
Obese	1 (0.5%)	1 (0.5%)	2 (0.5%)		
Total	200 (100%)	200 (100%)	400 (100%)		

F= Frequency; % = Percentage; X^2 = Chi square

The prevalence of wasting and severe wasting (4%) respectively observed among the non-beneficiaries of the feeding program were higher than 2% obtained for wasting among beneficiaries as none of the beneficiaries were severely wasted. The prevalence of overweight (9%) observed among benefiting children was higher than 6.5% observed among non-beneficiaries while obesity (0.5%) respectively was observed.

Table 4: Chi-Square tests

Variables	X^2– Value	P- Value
Weight-for-age	13.437a	0.00
Height-for-age	7.736a	0.02
BMI-for-age	10.281a	0.04

Table 4 on the Pearson Chi- Square (X^2) test result shows that the weight-for-age (X^2 =13.437[a], P= .00), height-for-age (X^2 = 7.736[a], P= 0.02) and BMI-for-age (X^2 = 10.281[a], P=0.04 status of the beneficiaries of school feeding programme were

comparable to the non beneficiaries at 0.05 level of significance. Thus, the three null hypotheses were accepted for all the parameters tested.

Discussion of Result

This study revealed that all the benefiting children from the school feeding program had a normal weight-for-age status while underweight (3.5%) and severe underweight (1.5%) were observed among children not benefiting from the feeding program. The prevalence of underweight observed in this study was lower than prevalence of underweight recorded among school children by other studies, (59.7%) by Mekonnen, Tadesse and Kisi (2013), and (25.0%) by Kwena; Terlouw; De Vias ; Phillips-Howard; Hawley; Friedman; and TerKuile; (2003). This result was also lower than 20.3% reports by Oguizu and Nnadede (2016) among children 2-5 years in Isiala Ngwa North LGA and 13.8% reported by Oguizu and Okoro (2016) among school aged children in Ikwuano LGA all in Abia State. The normal weight-for-age recorded for all the benefiting children could be as the result of receiving supplementary food in schools intended to improve their nutrition. The prevalence of underweight observed in children not benefiting from school feeding programme confirms the findings of a study where the food being serve to the children by their guardians was found not to meet the recommended energy from macronutrient intake as set by World Food Programme (Prince and Laar, 2014). This could be as a result of the high level of poverty as most of the children were from low income families.

The prevalence of stunting (10%) and severe stunting (3.5%) observed among the non -beneficiaries of the feeding program were higher than (5.5%) and (0.5%) observed among children benefiting from the school feeding program. The prevalence of stunting observed in this study was far lower than the prevalence recorded by other studies conducted in Kenya as Mekonnen *et al* (2013) reported a prevalence of 30.7% while Kwena *et al* (2003) reported a prevalence of 42.0%. The result was significantly lower than the 37% prevalence reported by Nigerian Demographic and Health Survey (NDHS, 2014), 36% reported by Oguizu and Nnadede (2016) and 28.1% reported by Oguizu and Okoro (2016). Prevalence of stunting recorded among school-age children could be as a result of inadequate nutrition over a longer period of time. According to Eucher-Miller, Mason, Weaver, Mecabe and Boushey, 2009), stunting among school-age children might be due to the fact that cereal based monotone diet with poor quality, quantity and frequency of feeding does not fulfil micronutrient requirements such as iron, vitamin B12, foliate and other essential requirements for child growth.

The prevalence of wasting and severe wasting (4%) respectively observed among the non-beneficiaries of the feeding program were higher than 2% obtained for wasting among beneficiaries as none of the beneficiaries were severely wasted. The result obtained were significantly lower than that of NDHS (2014) where the prevalence of wasting was reported to be 18% and 10% reported by Oguizu and Nnadede (2016) and 13.8% reported by Oguizu and Okoro (2016). The rate of wasting observed among school-aged children could be attributed to infectious diseases as well as lack of access to clean water as these was

observed among children in rural communities.

The prevalence of overweight (9%) observed among benefiting children was higher than 6.5%s observed among non-beneficiaries while obesity (0.5%) respectively was observed. This result was comparable with prevalence rate of 7.6% found by Peltzer and Pengpid (2011) among a sample of children from Ghana and Uganda. However, it was higher than childhood overweight prevalence of 17.0% among children aged 10-16 years in Greece and Italy (Janssen et al., 2005). It was also lower than prevalence estimates of some other countries including Aboriginal families in Australia where 26.8% of children aged 5 - 15 years were overweight (Schultz, 2012) and Saudi Arabia where 29.0% of children aged 5-19 years were overweight (El Mouzan, Foster, Al-Herbish, Al-Salloum, Al-Omar and Qurachi 2010). The prevalence of overweight observed among the children could be due to parents inadequate knowledge on good nutrition practices necessary for providing their children with healthy foods. This could also be as a result of the nutritional transition characterized by consumption of more energy and high fat diet coupled with low physical activities in the school.

Report from values set from the median values of the WHO international growth reference, 2007 (De Onis *et al*., 2007; WHO, 2009) revealed that normal height was defined as height for age which is between -2 and +2 Z score. Normal weight was defined as weight for age between -2 and +2 Z score. Stunting was defined as height for age less than -2 Z score. Underweight was defined as weight for age less than -2 Z score. Wasting was defined as BMI for age less than -2 Z score. Obesity was defined as BMI greater than +2 Z score, while overweight was defined as BMI for age between +1 and +2 Z score.

Findings from the study revealed comparable values in the nutritional status of the beneficiaries and non-beneficiaries of the school feeding program. These findings differed from the reports of Falada, Otemuyiwa, Oluwasola, Oladipo and Adewusi (2012) who reported a significant difference in the nutritional status of the beneficiaries and non-beneficiaries of the school feeding program in Osun state, Nigeria.

Conclusion

Research findings revealed that beneficiaries of school feeding in Akwa Ibom state had a better nutritional status compared to the non-beneficiaries although the differences were not significant at 0.05 probability level. However, the differences in their nutritional status as revealed in the anthropometric indices of weight-for-age (X^2 =13.437[a], P=0.00), height-for-age (X^2 = 7.736[a], P= 0.02) and BMI-for-age (X^2 = 10.281[a], P= 0.04) status of the beneficiaries of school feeding programme were comparable to the non beneficiaries at 0.05 level of significance. The findings of this study should form data base for monitoring and evaluation of school feeding programme necessary for improving the nutritional status, nutrition knowledge and practices of school- aged children in Nigeria.

Recommendations

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

1. Home Economists, Nutritionists and Dieticians in conjunction with the government should undertake regular monitoring and evaluation of

the programme to ensure that adequate and nutritious meals are served. All sectors involved should comply and adhere to its core objectives.

2. Home Economists, Nutritionists and Dieticians should organize nutrition education seminars for school children, teachers, parents and the society at large.
3. School feeding programme should be functional in all the primary schools in Nigeria.

References

Adelman, S., Gilligan, D., and Lehrer, K. (2008). *How effective are food for Educational Programme*?: A critical assessment of the evidence from developing countries, Washington, D.C: International Food policy Research Institute. Pp. 69

Alderman, H. (2016). *Social protection and The World food Programme*. Leveraging Social Protection Programs for Improved Nutrition: Summary of Evidence Prepared for the Global Forum on Nutrition Sensitive Social Protection Programs. World Bank, Washington, D.C.

Bordi, P. L., Park, J. E., Watkins, S., Caldwell, D. and DeVitis, C. A. (2002). Impact of the environment on food choices and eating habit of school age children. *Journal of Child Nutrition and Management Issues*. 26 (2): 213-215.

Buhl, A, (2012). Meeting nutritional needs through school feeding. A snapshot of four African nations. Global child nutrition foundation. Split: university of Washington. *Med. Journal* 48(2):71-72

De Onis, M., and Blossner M. (2007). The World Health Organization Global Database on Child Growth and Malnutrition: methodology and applications. *International Journal of Epidemiology*, 32,518-526…

El-Mouzan, M.I., Foster, P.J., Al Herbish, A.S., Al-Salloum, A.A., Al Omar, A.A. and Qurachi, M.M. (2010). Prevalence of malnutrition in Saudi Children: A Community-based study. *Annals of Saudi Medicine*, 30(5) 381–385

Ene-Obong, H.N. (2001). *Eating Right: A Nutrition Guide.* Calabar: The University of Calabar press.

Eucher-Miller, H. A., Mason, A. C., Weaver, C. M., Mecabe, G. P., and Boushey, C. J. (2009). Food insecurity is associated with iron deficiency anemia in US adolescents. *American Journal of Clinical Nutrition; 90(8):1358-71*

Falade, O. S., Otemuyiwa, I., Oluwasola, O., Oladipo, W., and Adewusi, S. A. (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;*3:596- 605.

Goon, T., Toriola, L., Shaw, S., Amusa, O., Monyeki, A., Akinyemi, O., and Alabi, A. (2011). Anthropometrically determined nutritional status of urban primary school children in Makurdi, Nigeria. *BMC Public Health Nutrition*. (11) : 769

Janssen, I., Katzmarzyk, P. T., Boyce, W. F., Vereecken, C., Mulvihill, C.,Roberts, C., and Pickett, W. (2005). Comparison of overweight and obesity prevalence in school-aged youth from 34 countries and their relationships with physical activity and dietary patterns. *Obesity Reviews*, *6* (2), 123–132.

Kwena, A. M., Terlouw, D. J., De Vlas, S. J., Phillips-Howard, P. A.,Hawley, W. A., Friedman, J. F., and TerKuile, F. O. (2003). Prevalence and severity of malnutrition in pre-school children in a rural area of western Kenya. *The American Journal of Tropical Medicine and Hygiene*, *68*(4): 94–99.

Mekonnen, H., Tadesse, T., and Kisi, T. (2013). Malnutrition and its Correlates among Rural Primary School children of Fog era District, Northwest Ethopia. *Journal of Nutrition disorders & Therapy*. 03(02): 1-7.

Medhi, G.K., Barua, A. and Mahanta, J. (2006), "Growth and nutritional status of school agechildren (6-14) years) of tea

garden worker of Assam", *Journal of Human Ecology*, 19 (6): 83-90

Nigeria Demographic and Health Survey (2014). *National Population Commission federal republic of Nigeria Abuja, Nigeria*. ICF international Rockville, Maryland, USA. Pp 56.

Oguizu, A. and Okoro, U., 92016). Nutritional status and Academy performance of School-Aged Children (6-12 Years) in Ikwuano Local Government Area, Abia State. *International Journal of Innovative Research and Studies* 5(4):101-127.

Oguizu, A.D. and Nnadede, L.U. (2016). Nutritional Status of Children Aged 2-5 Years) in IsialaNgwa North L.G.A, Abia State, Nigeria. *The Indian Journal of Nutrition and Dietetics.* 53 (1): 30-46.

Okeke, E.C; Onyechi, U.A; Ibeanu, V.N (2011). *Practice of Nutrition. A Handbook*. Nigeria. University of Nigeria Nsukka

Peltzer, K., and Pengpid, S. (2011). Overweight and obesity and associatedfactors among school-aged adolescents in Ghana and Uganda. *International Journal of Environmental Research and Public Health*, *8*(10), 3859–3870.

Prince, A., and Laar, A. (2014). Nutritional status of school-age children in the Nkwanta South District-Volta Region of Ghana. *European Scientific Journal*; 1010:1857-1887

Schultz, R., and Schultz, R. (2012). Prevalence of overweight and obesity among children in remote Aboriginal communities in central Australia. *Rural and Remote Health*, *12*(1872).

UNICEF, (2000). *The State of the World's Children in UNICEF*: New York: UNICEF Press. Pp. 135-146.

United Nations International Children's Emergency Fund (2001). *The State of the World's young Children*. New York: United Nations Children Emergency Fund.

UNICEF (2006). *Supported school launch feeding programme in Nigeria*. Retrieved from ututu.unicef.org/media

UNICEF (2009). *The State of the World's children. Special education:* celebrating 20years of the conviction on the rights of the child. New York. United Nations children's fund .Pp. 426-554.

UNICEF (2012). The State of the world children. UNICEF publications.

WHO (2000). *Global Database on child Growth and Malnutrition*: Forecast of Trend Document.

World Food Programme (2012). Interventions Nutrition at the World Food Programme. Programming for Nutrition-Specific interventions. Rome: WFP. Pp. 216.

World Food Programme (2013). State of School Feeding Programme Worldwide: School feeding, Home grown school feeding, social protection and safety nets. Pp 246-288.

World Health Organization. (2007) Growth standards: length/height for age, weight forage, weight for length, weight for height and body mass index for age. Methods and development.GenevaWHO.Availablefrom http://doi.org/101136/bmj.36/bmj.39155.658843.BE.

Zere, E. and Mcintyre, D. (2003). In equilities in under-five child malnutrition in south Africa. *International Journal for Equity in health.* (Internet). 2 (7). Available from http://www.equity/healt.com (Accessed February. 5th 2007).

JHER Vol. 29 (2), December 2022, pp. 55 -65

Clothing Related Issues among Female Undergraduates: A Case Study of University of Nigeria, Nsukka, Enugu State

Ozougwu, S.U[1], Owoh N .P & Eze S.N[2]
Department of Home Science and Management
University of Nigeria, Nsukka, Enugu State

Corresponding author: owoh_ngozi@yahoo.com

Abstract

This study focused on clothing related issues among female undergraduates in University of Nigeria, Nsukka (UNN. Specifically, the study determined the clothing goals, preferences, problems and ways of solving clothing related problems of female undergraduate students of UNN. Study population comprised 2,966 regular female undergraduates. Questionnaire was used for data collection. Data were analyzed using frequencies and percentages. Nine clothing goals of the female undergraduates were identified including to dress; understated in fitted tailored garments (94.5%), for investment (62.5%), informal in more relaxed clothes with roomy fit and layered look (77.5.%), in soft textured garments for soft appearance (92.5%), in floral for soft appearance and in frilled fabrics (53.0%), to show individuality (76.0%) show self expression (52.0%), to seek attention (71.0%) in uncommon fashion (76.05). Preferences for fabric types were natural fibres (86.0%), solid patterns (59.0%), neutrals (82.0%). Jewelry accessories mostly preferred were diamond pearl (60,5%). Ribbons, pocket squares, lace, scarves (60.5%) and variety from several areas (59.5%). Nine clothing related problems and eight ways of minimizing the problems were identified. There is need for more education on clothing functions, relationship between clothing goals and preferences and their implications on personality of the female students.

Keywords: Clothing, Goals, Preferences, Female Undergraduates, Personality, wellbeing.

Introduction

Clothing and appearance play vital roles to wellbeing of individuals. Clothing is anything worn on the body to protect, adorn or to communicate an intent. Clothing includes garments, fabrics or cloth and accessories such as belts, scarves, jewelries, hats, and hand bags, shoes, even hair dos, among others. Various attempts have been made to explain the motivations behind people's clothing choices and decisions. Clothing is worn for various common reasons including protection, modesty, occupational identity, attraction, social status and traditional identity. Four major theories have been used to explain the motivations behind individuals' clothing choices and utilization. They include modesty, immodesty, protection and adornment theories (Marshal et al, 2000). Modesty refers to what people feel is the proper way of clothing. Modesty theory stresses that clothes are worn solely to conceal or cover nakedness. It is opposed to the wearing of too gorgeous

clothing and to the wearing of too few clothing but aims at prevention of disease, disgust, shame and disapproval. Immodesty theory on the other hand states that clothing is used not to cover but to attract attention. Protection theory views physical and psychological protections as the major reasons for clothing. Adornment theory stresses that clothing is worn for beauty's sake. The emphasis is that people wear clothing to decorate or adorn the body according to the standard of their culture. People adorn themselves through clothing for psychological protection and for sexual attraction (Marshal et al, 2000).

Beyond clothing motivations, individuals consciously or unconsciously, intentionally or unintentionally make clothing choices to achieve certain goals. Clothing goals refer to the aim, status, image or the 'person' an individual wants to portray or be and want their beholders to form impression about themselves. Among such goals are to dress: for investment, simple understated, for comfort, informal or casual, for attention seeking, for high fashion, to present soft appearance and for individuality (Marshal al, 2000). Clothing goals have direct bearing on clothing preferences. Evaluating the characteristics of frequently worn clothing by individuals yields insightful information about clothing preferences. Factors in the preference of clothing include physical features of clothes including skin response, size and shape of the clothes, thermal comfort, and fit (looseness and over-sized), revealing levels and visual features; the wearers' self-appearance; and associative reasons and memories. Clothing preferences are also reflected in the type of fabric fibre (natural, synthetic, blends, unmatchable combinations), colours (neutral, strong chroma, unusual), patterns (solid motifs, geometric, abstract, florals, odds), and accessories (pearls, minimal, bold, ribbons, variety from several areas. If an individual's clothing goal matches with clothing preferences, his or her fashion personality is easily identified.

Clothing is a non verbal communicator and silent language used by individuals as means for social interaction. Through an individual's clothing and appearance, people form impressions, make assumptions and pass valid judgments about the individual's personality traits, lifestyle, values, interests, emotional stability, social and economic status, educational, mental and moral status (Kim, Sharson and Nancy (2014). The theory of enclothed cognition states that clothes influence the wearer's psychological processes based on two variables; the meaning created for particular clothing and the concrete somatic sense that wearing clothing has (Smith, 2017). Results from various studies attest to a strong positive correlation between body image, clothing perceptions and fashion ((Markinde & Mcknney, 2020; Arooj, 2019). Wearing clothing that does not reflect individuals' fashion personality leads to disintegrated personality, cognitive dissonance or mistaken identity. Mistaken identity predisposes individuals to clothing related problems ranging from verbal rebuke, denial of attention in interpersonal relationships, disciplinary problems, sexual harassment, rape, ill-health and other clothing related problems including death (Hardcastle, 2019).

In Universities including University of Nigeria, Nsukka (UNN), there are no established uniforms or dress codes

guiding students' clothing on campuses. Besides, there are presently no basic clothing education for the students. The students are therefore ill equipped for informed clothing decision making. They are left to wear whatever clothing they choose. The female undergraduates have specifically challenges.. They are often predisposed to various forms of clothing practices that could lead to abuses including sexual harassment. To address the problems, in some cases orientation programmes are organized or the freshmen on clothing norms. Available reports indicate that many female undergraduates ignorantly copy and wear indecent, reckless, seductive, scandalous and sexually provocative clothing. This is because majority of them are in their adolescence years, very crucial periods in which social, biological, economic, demographic events occur that set the stage for adult life (Akingba & Adeniyi, 1987). At adolescent years, fashion is an important domain of life as they copy and conform to group and peer standard of clothing. McCullough, Miller and Ford (1997) emphasized that by late adolescence, most young people become interested in selecting mates. At this period most of the females use clothing as method of enhancing their sexual attractiveness. They accomplish this through the exposure, concealment or emphasis of different parts of body using erotic symbolism or sexually provocative clothing. Female undergraduates of Nigerian universities fall into this category. Appropriate clothing choices that fit their personality will enable them develop a high sense of competence, belongingness, make them feel comfortable, happy and boost their psychological and general wellbeing. Clothing selections for various occasions where school uniforms and dress codes are lacking are often challenging and somehow difficult for many students without correct knowledge of clothing goals and appropriate clothing options for their lifestyles and personalities. The university is the seat of education and citadel of learning. The female undergraduates are expected to be conversant with their clothing goals and matching clothing preferences that truly indicate who they are. They are expected to be models to the less educationally privileged counterparts. The reverse becomes the case in many occasions. Various clothing preference studies (Kwon, (1991), in Moody, Kinderman, & Sinha (2010) abound, but are outdated and not on female undergraduate students of UNN. Different authors have also discussed fashion personality related issues (Obong, Danso, Omari, Kuwinu-AdjaoHor, 2018; Loyd, 2019; Loius 2017, however quantitative and qualitative data on clothing goals are lacking. The present study sought to fill the gap.

Objective of the study

The broad objective of this study was to explore selected clothing related issues among female undergraduates of University Of Nigeria, Nsukka (UNN), Enugu State. Specifically, the study determined:

1. clothing goals of female undergraduates of UNN.
2. clothing preferences of female undergraduates of UNN.
3. clothing related problems of the female undergraduates of UNN
4. ways of solving clothing related problems encountered by female undergraduates of UNN.

Methodology

***Area of the study*:** The area of the study was University of Nigeria, Nsukka (UNN). It is a Federal University located in Nsukka town Enugu state and in the South East Nigeria. It has a campus in Enugu the state capital. The university has 15 Faculties and 102 academic departments. The school offers 82 undergraduate programs and 211 postgraduate programmes, (www.unn.edu.ng 2021). The main campus is in Nsukka. It has nine Faculties, School of post graduate studies, Institutes and Research centres.

Design of the study: The study adopted survey research design. It was a case study.

Population for the study: The population for the study was made up of all female undergraduates of University of Nigeria, numbering 15,382 (Academic Planning Unit of UNN 2021). The target population was however 2,966 female undergraduates living in the hostels at Nsukka campus. At the time of the study they were nine female undergraduate halls/hostels in Nsukka campus. Female undergraduates living off campus were not part of the study. There are no established dress codes guiding female undergraduates clothing on campus except faculties of Arts, Agriculture and Veterinary Medicine where few departments wear uniforms during school hours on selected days in a week.

Sample for the study: Convenience sampling technique was used for the study. With the help of the hall governors and hall executives, arrangements were made to meet with each of the female undergraduate halls after their hall meetings to solicit students' participation in the study. The total number of female students who attended the hall meetings and volunteered to participate in the study was 200. These formed the sample for the study.

***Instrument for Data Collection*:** Questionnaire was used to collect data. It was made up of five sections; A, B, C, D, E. Section A elicited personal data of the respondents. Section B focused on clothing goals. Section C dealt with clothing preferences and was adopted in Marshal et al (2000). Section E dealt with clothing related problems and ways of solving the problems encountered.

The instrument was face validated by three Clothing and Textiles experts in UNN. To test for the instrument reliability coefficient, 20 copies of the questionnaire were administered to 20 female undergraduate students living in the Hostel at the University of Nigeria, Enugu Campus (UNEC) after which Cronbach Alpha method was used to obtain the reliability co-efficient. A reliability co-efficient of 0.77 was obtained indicating relatively high reliability of the instruments.

***Method of Data Collection*:** Two hundred copies of the questionnaire were distributed to the respondents by hand with the help of two research assistants. All the 200 copies were retrieved. This gave a hundred percent return.

Data Analysis Technique: Data were analyzed using frequencies and percentages. Percentage score of 50 and above (were taken as "agreed", while below 50 (50%) were regard as "disagreed".

Results

The data analysis on the personal data of respondents shows that majority (41.0%) of the female undergraduate students were between 19 - 21 years old followed by 22 -24 years old (40.5%). Few (9.5%) of them were above 24 years old, while very

few (9.0%), youngest respondents' age bracket was between 15 -18 years. Majority (95.5%) of the respondents were still single while few (4.5%) of them were married. There were no widower or divorced among the sample studied. The result revealed that all the students (100.0%) were Christians. Majority (31.5%) of them received between ₦11,000-15,000 monthly pocket money/income followed by 30% respondents who received between ₦6,500 - ₦10,00 for monthly pocket money. The least amount (less than 6,500) was received by 19.5% of the respondents while only 19.0% of the respondents received more than ₦15,000 monthly pocket money in school

Table 1: Frequency and Percentage Responses on Clothing Goals of female Undergraduates in UNN

S/N	Clothing goals	Yes F (%)	No F (%)	Remark
	clothing goals are to:			
1	choose simple understated tailored/well fitted clothing	189 (94.5)	11 (5.5)	Agree
2	engage in investment dressing (high quality garment that will stand the test of time irrespective of cost)	125 (62.5)	75 (37.5)	Agree
3	choose casual clothing for comfort	30 (15.0)	170 (85.0)	Disagree
4	appear informal always in more relaxed clothes with roomy fit and layered look	155 (77.5)	45 (22.5)	Agree
5	always emphasize my feminity through soft textured fabric garments.	185 (92.5)	15 (7.5)	Agree
6	go for soft appearance in floral textured, frilled fabrics more than plain study fabrics and looks	106 (53.0)	94 (47.0)	Agree
7	dress uniquely to express individuality in fashion	152 (76.0)	48 (24.0)	Agree
8	use variety of clothing items in different combinations, colours, and designs to express myself and to reflect my mood and show off my fitness	104 (52.0)	96 (48.0)	Agree
9	choose fashion that attracts attention	142 (71.0)	58 (29.0)	Agree
10	go for high/extreme uncommon fashion irrespective of cost	152 (76.0)	48 (24.0)	Agree

Key: F = frequency, % = percentage, N (Number of respondents) = 200

Table 1 shows that, foe majority (94.5%) of the respondents their clothing goals was to choose simple understated in simple elegant well fitted, tailored/well fitted clothing. A great number (85.0%) of the female students do not place emphasis on clothing for comfort but majority (77.5%) of them would always like to appear informal in clothes with relaxed and roomy fit. For clothing goals that portray feminism, 92.5% and 53.0% of the respondents prefer soft textured fabrics as well as soft appearance in floral, frilled fabrics respectively.

Table 2: Frequencies and Percentages Responses on Clothing Preferences by Female Undergraduate Students of UNN

S/N	Clothing preferences	Yes F (%)	No F (%)	Remark
	Fabric Types			
1	Likes natural fibre	172 (86.0)	28 (14.0)	Agree
2	Likes cotton, blends, lycra (Ease of wear)	154 (77.0)	46 (23.0)	Agree
3	Touchable angora, Cashmere	55 (27.5)	145 (72.5)	Disagree
4	Unmatched combinations	113 (56.5)	87(43.5)	Agree
5	Prefer extreme unusual fabrics	92(46.0)	108 (54.0)	Disagree
	Fabric design/pattern			
6	Solid pattern, small motifs	118(59.0)	82(41.0)	Agree
7	Geometric design	100(50.0)	100(50.0)	Agree
8	Floral, tweeds fabric design	157(78.5)	43(21.5)	Agree
9	Odd pattern/design	45(22.50)	155(77.5)	Disagree
10	Abstract, trendy fabric design	83(41.5)	117(58.5)	Disagree
	Fabric colour preferences			
11	Neutrals, cool colours	164 (82.0)	36 18.0)	Agree
12	Primary colours, neutrals	91(45.5)	109(54.5)	Disagree
13	Pastels	150(75.0)	50(25.0)	Agree
14	Likes combination of colours	128 (64.0)	72(36.0)	Agree
15	Black, white, strong chroma	23(11.5)	177(88.5)	Disagree
	Accessories preferences			
16	Jewelry made with diamond, pearls, simple gold cufflinks	160 (80.0)	40 (20.0	Agree
17	Simple hand-tooled leather belts, minimal sports watch	32 (16.0)	168(84.0)	Disagree
18	Ribbons, pocket squares, lace, scarves	121 (60.5)	79 (39.5)	Agree
19	Variety from several areas	119 (59.5)	81 (40.5)	Agree
20	Bold geometric or unusual tie pattern or jewelry	87 (43.5)	113(56.5)	Disagree

Key: F = frequency, % = percentage, N = 200

Table 2 shows that for fabric types, three out of five were scored highly by the respondents including fabrics of natural fibre (86.0%), cotton, fibre blends Lycra fabrics that offer ease of wear (77.0), and unmatched combinations (56.5%). Two fabric types; touchable angora, cashmere (72.5%) and extreme unusual fabrics (54.0%) were not preferred respectively. For fabric pattern, a good number (59.0%) preferred solid and small motif patterned fabrics. Geometric design was half liked half disliked (50% 50% respectively). Floral, tweed fabric designs were liked (78.5%). Odd pattern design known was not preferred (77.5) as well as abstract, trendy fabrics (58.5%). Out of the five colour characteristics, three were liked and used by the respondents. They include neutral and cool colours (82.0%), pastels (75.0%), combination of colours (64.0%).

Table 3: Frequencies and Percentages Responses Clothing Related Problems of Female Undergraduates in their Clothing Selection and Utilization.

S/N	Problems	Yes F (%)	No F (%)	Remark
1	Inadequate finance for my clothing needs	90(45.0)	110 (55.0)	Disagree
2	Sometimes get confused about what to wear for lecture, formal or casual occasion	14(74.5)	51 (25.5)	Agree
3	Sometimes receive abuses or rebuke for the type of clothing worn by my parents	127(63.5)	73 (36.5)	Agree
4	Sometimes denied attention because of my appearance or clothing worn on campus	42 (36.0)	128 (64.0)	Disagree
5	Sometimes harassed by opposite sex on campus	45(22.2)	155 (77.5)	Disagree
6	Made mockery of because of my clothing	59 (29.5)	141 (70.5)	Disagree
7	Suffered cold as a result of body exposure	87 (43.5)	113(56.5)	Agree
8	Lack of adequate policy on students' clothing within the campus	124 (62.0)	76 (38.0)	Agree
9	Insufficient money to buy clothes or fashion en vogue my friends wear	103 (51.5)	97(48.5)	Agree

Key: F = frequency, % = percentage, N, = 200

Table 3 shows that majority (74.5%) of the female undergraduates get confused about what to wear for lectures, formal or casual occasions. More than half of them (63.0%) affirmed that they sometimes receive abuses or rebuke for the type of clothing worn by their parents. Lack of adequate policy on students' clothing within the campus attracted a very high score (62.0%) as well as insufficient money to buy fashion en vogue (51.5%) respectively. Again, majority (55.0%), (63.5%), (64.0%), (77.5%), etc said that lack of awareness on their fashion personality, receive abuses or rebuke for the type of clothing worn sometimes, denied attention because of their appearance or clothing worn, sometimes harassed by opposite sex on the way, respectively, were not part of the problems encountered by them.

Table 4: Frequencies and Percentages Responses on Solutions to Clothing Related Problems Encountered by Female Undergraduate Students of UNN

S/N	Problems	Yes F (%)	No F (%)	Remark
1	Regular education/orientation/seminar on clothing functions, goals and preferences	187(93.5)	13 (6.5)	Agree
2	Good clothing norms should be inculcated by the family	158(79.0)	42(21.0)	Agree
3	Students should select clothes that dignify/make them appear responsible	191(95.5)	9(4.5)	Agree
4	Clothes selected should cover sensitive parts and protect the body from harsh weather	187(93.5)	13(6.5)	Agree
5	Students should avoid wearing clothes that expose erotic part of their bodies	186(93.0)	14(7.0)	Agree
6	Costumes for sports, dramatic and dance displays should not be worn for lectures, social	158(76.0)	42(21.0)	Agree

	and religious activities			
7	School should develop and implement dress codes to guide students' clothing on campus	170(85.0)	30(15.0)	Agree
8	Durable and good texture fabrics should be encouraged	192(96.0)	8 (4.0)	Agree

Key: F = frequency, % = percentage, N = 200

Table 4 reveals that majority (93.5%) of respondents upheld that regular education and orientation on functions of clothing and their effects on personality by clothing professionals at school will help solve clothing related problems of female undergraduates. Majority also agreed that; good clothing norms should be inculcated from families (79%), students should select clothes that dignify/make them responsible (95.5%), clothes selected by students should cover sensitive parts and protect the body from harsh weather (93.5%).

Discussion

The study determined the clothing goals, preferences, problems and ways of solving clothing related problems of female undergraduate students of UNN. The results showed that majority of the female undergraduate students were between 19-21 years old. This age bracket falls within the adolescent years when clothing plays important roles in the life of female adolescents (McCullough, Miller & Ford 1997). The implication is that if not well guided, they are predisposed to wrong clothing selection and utilization that could lead them into danger. The majority of female undergraduates were single. All the respondents were Christians and received between ₦11,000-15,000 per month as pocket money/income.

The finding on clothing goals reveals that to always appear understated in simple elegant well fitted, tailored and investment dressing (high quality garment that will stand the test of time) was the goal that attracted the highest score from the respondents. Marshal et al (2000) emphasized that individuals who would always wear clothing for those aims belong to classic fashion personality category. He stressed that such personality always go for garments made of natural fibre fabrics with small motifs, neutral colours and accessories made of pearls that give boost to their lifestyles. The respondent's preferences in Table 3 above are in line with such preferences. Murphy (2022) and Nayak (2022), agree that creating the right wardrobe for your lifestyle is the most important fashion goals you can achieve because you will have clothing that you love that reflects your personal style. Femininity clothing goal was also identified in the study through preference of soft textured fabric garments. This is in line with Loyd (2019) characteristics for romantic fashion personality. Another clothing goal of the subjects was to express individuality. This finding strongly supports that of Stolovy (2021) who explored the relationships between clothing practices, personality traits, and body image among Israeli women, using the Big Five personality traits model (NEO-FFI) and a body image measure (MBSRQ). It found that women with more openness to experience who seek fashion and individuality are more likely to exhibit an urban, sophisticated style of dress. The study concluded that these women are

less motivated by comfort and camouflage. Similar findings were made in the present study where the respondents clothing goal was not for comfort as seen by their low percentage score on the variable in Table 1. The finding is contrary to clothing professionals' postulations that comfort is the key to satisfactory clothing (Chen, Xie, Li, & Martinde & Mckinney, 2020). To go for high/extreme uncommon fashion irrespective of cost, to choose fashion that attracts attention, use variety of clothing items and accessories in different combinations, colours, and designs to express self and to reflect mood and show off fitness were also clothing goals of the female undergraduates. Fallon (2016) agreed that individuals whose clothing goals as stated above are not afraid to try trends or stand out in a crowd. They go through phases of different looks. They might go bohemian for a month then switch to 1950's and then surprise everyone with a nineties grunge look. They tend to use a variety of clothing items in different combinations to reflect their mood and to show off their fitness (Spillane & Sherlouk, 1995). They go through phases of different looks and their wardrobes may be full with piece from all sources. This could partly explain the reason behind female undergraduate students of UNN clothing goals and preferences.

Findings on clothing related problems of the female undergraduates reveal that only two out of nine were experienced. They included sometimes getting confused of what to wear for lecture, formal or casual occasions and sometimes receive abuses or verbal rebuke from parents because of the type of clothing worn. Various reports and study findings have been documented that reveal the emotional, physical, and health consequences of individuals' clothing and appearance misidentification and misrepresentation to include anger, denial of attention in interpersonal relationships, sexual harassment, rape and even death (Shana et al 2021; Loyd 2019; Louis 2017). These have implications for the female undergraduates physical, social, mental and psychological health. The findings also revealed that the female undergraduates approved of all eight identified solutions to the clothing related problems including: regular education/orientation/seminar programmes on clothing functions, goals and preferences on campus is imperative; good clothing norms should be inculcated by the family; students should select clothes that dignify/make them appear responsible; Clothes selected should cover sensitive parts and protect the body from harsh weather; students should avoid wearing clothes that expose erotic parts of their bodies; costumes for sports, dramatic and dance displays should not be worn for lectures, social and religious activities; school administration should develop and implement dress codes to guide students' clothing on campus and inculcating good clothing norms by families as well as being selective in choice of accessories among others. The desirable clothing norms have been extensively discussed and documented by Nayak (2020), Hardcastle, (2019).

Conclusion

The results of the present study indicated that female undergraduates of UNN had wide range of clothing goals ranging from to dress in simple understated well fitted tailored, investment, high/extreme

uncommon fashion to fashion that attracts attention to express self and to reflect their moods and show off their fitness. They make clothing preferences some of which correspond to their clothing goals while others are unrelated to their goals. Major clothing related problems experienced included getting confused of what to wear for lectures, formal or casual occasions and sometimes receive abuses or verbal rebuke from parents and others because of type of clothing worn. The study identified eight different ways to proffer solutions to the problems including to organize regular education or orientation programmes on clothing functions, clothes for different occasions, formulation of dress code on campus and families to inculcate good clothing norms among others.

Recommendations

Based on the findings, the following recommendations were made:

1. Female undergraduate students should be constantly sensitized through orientation programmes for freshmen on issues relating to clothing.
2. Competitions or beauty contests should, occasionally, be organized on campus and awards giving should be strictly based on decent appearance.

References

Adelena, R. (2002). The plight of youth in a morally decadent society: Nigeria as a case study. *The Sage Magazine* 15, 115-8344, 28.

Akingba, J.B., & Adeniyi, O. (1987). *Human Reproduction*. Yaba: NERDC

Arooj, R (2019). The media effect: Implication for manifesting maintainable body image in the context of global fashion industry. Retrieved 4/6/2020 from https://www.intechopen.com/online-first/the-media-effect-

Best, E.G. (2002). *Unpublished mimeograph* University approaches-Jos.

Chen, M., Ma, Y,. Song, J., Lai, C. & Hu, B. (2011). Smart clothing: Connecting human with Clouds and Big Data sustainable Health monitoring. Mobile Networks Applications, 21(5): 825-845.

Ejila E. E (2014). Clothing motivations and behaviour of female undergraduates in universities in Benue state. Retrieved from www.projectreserve.com/2018/08/clothing-motivation-and -behaviour-of.html

Gwinn, R.P.; Swanson, C.E. & Goetz, P.W. (1995). *The new encyclopaedia Britannica. Chicago,* U.S.A: University of Chicago 2, 169-170.

Fallon L (2016). How to know (and shop for) your fashion personality. A MARVEN CHANNEL. Retrieved from verily/mag.com

Hanover, B., & Kuhen, U. (2006). The clothing makes the self. Via knowledge Activation, *J. Applied Social Psych.* 32(12), 2513-2525

Hardcastle, J. (2019). *Importance of clothing*. Retrieved at http://www.fibre2fashion.com/industry-article/848/the-importance-of-clothes on June, 2019.

Humphrey ,C, Klaasen, M. & Creekmore, A. M. (1971). Clothing and self-concept of adolescents. *Journal of Home Economics,* 63 (4): 246-50.

Kim J, Sharon J L & Nancy R (2014). Dress, body and self: research in the social psychology of dress *Fashion and Textiles* 1(20).

Louis M ST (2017). Research shows that the clothes you wear actually change the way you perform "Here are some reasons to always dress the part" Retrieved from https://www.inc.com/molly-reynlds/research-shows-that-the-clothes-you-wear-actually-change the-way-you-perform.html

Loyd J (2019). What's your fashion personality? Fashion, Home and Style Retrieved from Jennloyd.com/whats-your-fashion-personality.

Martinde, A. & Mckinney, E. (2020). Self-sewn identity: How female home sewers use garment sewing to control self-expression. *Journal of Consumer Culture* 20 (4): 563-577

Mashal, S.G, Jackson. J. O, Stanley, MS., Kefgen, M. & Tochie–Specht, P (2000). *Individuality in Clothing Selection and Personal Appearance.* New Jersey. Prentice hall Inc: 17, 364

McAdams, Dan P. *(2000). The person: a new introduction to personality psychology (5th ed.). Hoboken, N.J.: Wiley. pp. 113, 115.* McMillan/McGraw.

McCullough, E.A. Miller, M. Ford, I M (1977). Sexually Attractive clothing: Attitudes and usage. *Home Economic Research Journal* 6 (2): 164

Moody W. R, Kinderman P., & Sinha. P. (2010). An exploratory study of relationships between trying on clothing, mood, emotion, personality and clothing preference. *Journal of Fashion Marketing and Management* 14 (1): 161-179

Murphy, W. (2022). 8 Fashion Goals that won't break the bank. Retrieved from www.clevergirlfinance.com/blog/fashion-goals-that-won't-break-the-bank

Nayak, N. (2020). How to dress according to your Personality. Retrieved from Shilpaahiya.Com/how-to-dress-according to- your-personality

Obang S L, Danso D K, Omari J A, Kuwrnu-AdjaoHor (2018). Colour in fashion. *European Journal of Education Studies.*4(6)

Offor, I.N. (2002). Beauty and regime of artificiality. *The Sage Magazine*, 15, 115-834

Shana et al (2021). Mistaken identity: Frequency and effects of gender based professional misidentification of resident physicians. *Academic Medicine* 96(6): 869-875

Shweta, R. & Otieno, R. (2013). Relationship between body image and clothing perceptions among women aged 18-55 years in the UK. *International Journal of Arts and Commerce;* 40-49

Smith R (2017). Wellbeing. *The Fashion Studies Journal* Retrieved on 6/6/2020 from http://www.fashionstudiesjournal.org/4-notes-from-the-field-/2017/7/29/wearing-wellbeing

Speranza, A. (2018). *Why are clothes so important when it comes to building a sustainable culture?* Retrieved from http://lcrn.org.uk/clothes-important-comes-building-sustainable-culture/ on June, 2019.

Spillane, M. & Sherlock, C. (1995). *Colour Me beautiful's looking Your best*. New York Madison books.

Stolovy. T (2021) Styling the self: Clothing practices, personality traits and body image among Israeli women. *Front Psychol.* 12:71938.doi;10.389/fpsyg.719318

JHER Vol. 29 (2), December 2022, pp. 66-75

Promoting Consumption of Fruits and Vegetables among Senior Secondary School Students in Delta State, Nigeria

[1]Apaokueze, T. N., [2]Arubayi, D. O & [3]Imonikebe, B. U. U
[1] Department of Vocational and Technical Education (Home Economics), University of Delta, Agbor.
[2&3] Department of Vocational Education (Home Economics), Delta State University, Abraka.

Corresponding author: tessyapaokueze@gmail.com

Abstract

Way of promoting consumption of fruits and vegetables among Senior Secondary School (SSS) students in Delta State, Nigeria were investigated in this study. Three research questions and three null hypotheses guided the study. The study adopted descriptive survey research design. The population for the study was 46,286 SS II students in the Delta State. Questionnaire was the instrument for collection data. Mean and t-test were used for the analysis of data. Findings include seven reasons for consumption of fruits and vegetables among students. These include, they are source of minerals and Vitamins (3.42), I heard about their nutritional benefits and others. There are eight hindrances for consumption of fruits and vegetables among students. These include; availability of desired fruits and vegetables within my local (; high cost of fruits and vegetables in the market (among others. Other findings are 10 ways of improving fruits and vegetables consumption practices among students. These include; increasing the rate fruits and vegetables consumption (; increased Nutrition Education to students on the importance of fruits and vegetables choices (3.65) and others. t-t results revealed no significant ($p<0.05$) differences between mean ratings of the responses of urban and rural students on their major reasons for consumption of fruits and vegetables and hindrances for fruits and vegetables consumption. There was significant ($p<0.05$) difference between the mean responses on the ways of improving fruits and vegetables consumption based on gender. Based on the findings, the study recommended increased Nutrition Education to secondary school students for better knowledge of the importance of fruits and vegetables consumption.

Keywords: Strategies, Consumption, Secondary, School, Fruits, Vegetables, Students.

Introduction

An important part of a healthy human's diet is the consumption of fruits and vegetables (Layade & Adeoye (2014). This is because, they are good sources of vitamins and minerals, vegetable proteins, protective micronutrients and dietary fibre that help prevent constipation (Balasubramanian & Ragunathan, 2012). It is a low-energy diet, that is, low-calorie with respect to the volume of the diet, which allows for

the maintenance of a healthy weight (United States Department of Agriculture (USDA, 2009). Obisesan (2019) argued that fruits and vegetables are low-fat diets as they are good sources of vitamins. Nwamarah and Otitoju (2014) added that heavy intake of fruits and vegetables radically reduces the chances of developing many chronic diseases such as stroke, heart disease, metabolic syndrome and cancer. Despite the importance of fruits and vegetables, Hall, Moore and Lynch (2009) stated that their consumption per person in Africa is relatively low between 70 and 312g per day compared to WHO/FAO recommendation per person of eating 400g per day.

The World Health Organization's data sheet of 2013 shows an estimated 2.7 million deaths and 1.8 percent of the world's disease burden are due to poor consumption of fruits and vegetables. Inadequate eating of fruits and vegetables is estimated to approximately cause 14 percent of all deaths from stomach cancer, approximately 31 percent of heart disease and 11 percent of stroke {World Health Organization, (WHO)2003}. The challenge of eating nutritious food is common all over the world. More than 800 million people around the globe are malnourished; majority of them living in developing countries {Food and Agriculture Organization, (FAO) 2017}. Poor diet pattern and inadequate intake of fruits and vegetables among students contribute to major risk factors for micronutrients deficiency, obesity, heart disease, cancer, and other non-communicable diseases such as diabetes, high cholesterol and high blood pressure among students in secondary school.

There are common factors which influence students' fruits and vegetables consumption. These include, among others gender (male and female) and student environment (rural or urban). Gender, as pointed out by the WHO (2001) refers to the economic, social and cultural factors and the opportunities associated with being a man or a woman. According to Owoeye and Yara (2011), school location could urban or rural and this influences availability of fruits and vegetables, as well as their consumption. Other factors that could hinder or influence students' consumption of fruits and vegetables are accessibility, students' food related knowledge, their food likes and dislikes. Since it is necessary that they must take these food items for good health, it becomes important to evolve ways of improving the students' consumption of fruits and vegetables. This is a gap which this study tried to fill up.

Purpose of the Study

The broad purpose of the study was to examine ways of promoting consumption of fruits and vegetables by Senior Secondary School (SSS) students in Delta State, Nigeria. Specifically, the study determined:

1. reasons for fruits and vegetables consumption among urban and rural SSS students in Delta State.
2. hindrances to urban and rural SSS students' consumption of fruits and vegetables in Delta State.
3. ways of improving fruits and vegetables consumption practices among male and female SSS students in Delta State.

Research Questions

1. What are the reasons for fruits and vegetables consumption among urban and rural SSS students in Delta State?
2. What are the hindrances to urban and rural SSS students' consumption of fruits and vegetables in Delta State?
3. What are the ways of improving fruits and vegetables consumption practices among male and female SSS students in Delta State.

Hypotheses (HOs)

The following hypotheses (HO) were tested at 0.05 level of significance.

Ho_1: There is no significant difference in the mean responses of urban and rural SSS students on their reasons for fruits and vegetables consumption in Delta State.

Ho_2: There is no significant difference in the mean responses of urban and rural Senior SSS students on their hindrances to consumption of fruits and vegetables in Delta State.

Ho_3: There is no significant difference in the mean responses of male and female SSS students on ways of improving fruits and vegetables consumption practices in Delta State.

Methodology

***Design of the Study*:** The descriptive research design was adopted for the study.

***Area of the Study*:** The study was conducted Delta State which is made up of 25 Local Government Areas (LGAs) with reported population of 4,825,999 by the National Bureau of Statistics (2012). Delta State is located within the South-South geopolitical region of the country divided into three senatorial districts: Delta North, Delta Central and Delta South senatorial districts. The state is educationally endowed with several Universities, Colleges of Education, Polytechnics, Technical Colleges and outstanding secondary schools. There are 471 government-owned Secondary Schools (Delta State Ministry of Basic and Secondary Education, 2019).

***Population for the Study*:** The study population was 46,286 SSS II students consisting of 22,719 males and 23,567 female students from the 471 government operated secondary schools. The average age of SSS II students is 15 years for all schools across the state. The study focused on SSS II students because they are penultimate year and have been exposed to enough instruction on Nutrition education. In addition, they were not preparing for WAEC and were very much available to respond to the questionnaire.

***Sample for the Study*:** A sample of 384 students was used in the study. Two local government areas (LGAs) were randomly selected from each of the three senatorial zones in the state, to give six LGAs. Three coeducational (boys and girls) public schools were purposively selected from each of the six LGAs. This gave a total of 18 secondary schools. The reason for the purposive selection is to ensure coeducational schools comprising boys and girls were selected. All the 384 SSS II Home Economics students in all 18 sampled schools formed the sample for the study.

***Instrument for Data Collection*:** Questionnaire was used to collect date. It was developed through literature review based on specific purposes. It was organized into sections A, B, C and D. Part A was designed to gather respondents' personal information. Part B was designed to obtain information on major causes of fruits and vegetables

consumption. Part C was designed to obtain data on barriers to fruit and vegetable consumption while Part D was designed to collect information on ways to improve consumption of fruit and vegetable practices among students. The 4-point response options for Part B, C and D were: Strongly Agree, Agree, Disagree and Strongly Disagree with the corresponding weight values of 4, 3, 2, and 1 respectively.

The instrument were content validated by three experts; in food and nutritional. Reliability of the questionnaire was achieved by administering the questionnaire to 30 SSS II students in Anambra State. The collected data was analyzed using Cronbach Alpha which yielded a reliability coefficient of 0.79, 0.86 and 0.80 coefficients for sections B, C and D of the questionnaire respectively.

***Data Collection Method*:** Data were collected by the researcher with the help of ten research assistants who were teachers in the selected secondary schools. A total of the 384 copies of the questionnaire were distributed. Only 363 copies were properly responded to and retrieved. This represent 94.5 percent return.

***Data Analysis Technique*:** Data were analyzed using mean ( ) and standard deviation (SD) to answer the research questions. Hypotheses were tested using t-test statistics at 0.05 significance level. A mean ( ) responses of 2.50 was used for decision making based on the 4-point scale of the instrument. Any questionnaire item with a mean value of 2.50 and above (was regarded as "Agreed" while items with mean value of 2.49 and below (were regarded as "Disagreed". The null hypothesis was accepted when the t-calculated value (t-cal) was less than the t-critical (t-tab) value of 1.96. On the other hand, an hypothesis was rejected when the t-calculated value (t-cal) was greater than the t-critical (t-tab) value of 1.96 at 0.05 degree of freedom.

Results

Reasons for Fruits and Vegetables Consumption

Table 1: Mean Ratings of Urban and Rural Senior Secondary School Students on their Reasons for Fruits and Vegetables Consumption

S/N	Reasons for fruits and vegetables consumption	U	SDU	R	SDR	G	SDG	t-cal	RRQ	RHo
1	My parents and guardians provide them for me.	2.09	0.79	2.50	1.06	2.27	0.94	2.57	D	S*
2	They are source of minerals and vitamins.	3.31	0.81	3.55	0.49	3.42	0.70	2.19	A	S*
3	I heard about their nutritional benefits.	3.35	0.71	3.39	0.75	3.37	0.73	0.44	A	NS
4	Some are sweet while some are appetizing.	3.77	0.41	3.77	0.41	3.77	0.41	0.15	A	NS
5	They are the only option available to me whenever I am hungry.	2.04	0.70	2.00	0.74	2.02	0.72	0.26	D	NS
6	There are some of them in my compound.	3.31	0.69	3.38	0.48	3.34	0.61	0.92	A	NS

7	They protect the body against infection	2.96	0.76	2.71	0.65	2.85	0.72	1.43	A	NS
8	They are common food items in my place	3.45	0.65	3.17	0.76	3.32	0.72	2.42	A	S*
9	I eat them because of their health benefits	2.64	0.83	2.77	0.85	2.70	0.84	1.45	A	NS
10	They are not bulky but have fibre to stimulate bowel movement	2.14	0.75	2.33	0.74	2.22	0.75	1.98	D	S*
	Cluster Summary	**2.90**	**0.59**	**2.96**	**0.54**	**2.93**	**0.43**	**1.38**	**A**	**NS**

$_M$ = Mean of male; $_F$ = Mean of female; $_G$ = Grand Mean; SD = Std Deviation; RRQ = Remark on Research Questions; RHo = Remark on Hypothesis; A = Agree; D = Disagree; S* = Significant; NS = Not Significant; t-tab (table) value = 1.96, Urban (U) represents = 200, Rural ® respresents = 163.

Table 1 shows that the grand mean ratings of the respondents on items 2, 3, 4, 6, 7, 8 and 9 were 3.42, 3.37, 3.77, 3.34, 2.85, 3.32 and 2.70 respectively which are in each case greater than the agreed cut-off point value of 2.50 on 4-point rating scale. This revealed that the seven identified items in the Table are "Agreed" as major reasons for fruits and vegetables consumption among students in Delta State. The mean ( ) for items 1, 5 and 10 were 2.27, 2.02 and 2.22 respectively which are in each case less than the agreed cut-off point mean ( ) of 2.50 on 4-point rating scale. This shows that the most of the respondents "Disagreed" that the 3 identified items are major reasons for fruits and vegetables consumption among urban and rural senior secondary school students. The overall mean of urban students was 2.90 which were slightly below that of the rural students with 2.96. This shows that rural students showed slightly higher reasons for consumption of fruits and vegetables than urban Senior Secondary School students in Delta State. The standard deviation values of 10 of the items ranged from 0.41 to 0.94 which indicate that the responses of the respondents are close to the mean.

Table 1 also shows that the t-calculated (t-cal) values of items 1, 2, 8 and 10 were 2.57, 2.19, 2.42 and 1.98 respectively which are in each case greater than the t-table (t-tab) value of 1.96. This analysis indicate a significant difference existing between the mean ratings of the responses of urban and rural school students on the four reasons for consumption fruits and vegetables. Hence, the HO_1 of no significant difference in the mean ratings of urban and rural students was rejected on the four items in the Table.

Hindrances to Consumption of Fruits and Vegetables

Table 2: Mean Ratings of Urban and Rural Senior Secondary School Students on Hindrances to Consumption of Fruits and Vegetables.

SN	Hindrances to consumptions of fruits and vegetables	$_U$	SD_U	$_R$	SD_R	$_G$	SD_G	t-cal	RRQ	RHo
1	Availability of desired fruits and vegetables within my locality.	3.06	0.40	2.52	0.58	2.79	0.52	2.44	A	S*
2	Inadequate finance to buy the fruits and vegetables	3.13	0.93	3.43	0.92	3.28	0.94	2.32	A	S*
3	Inadequate nutritional knowledge of fruits and vegetables	3.41	0.49	3.47	1.00	3.44	0.93	0.43	A	NS
4	Lack of appetite for consumption of fruits and vegetables	3.16	0.66	3.05	0.95	3.10	0.84	0.74	A	NS
5	*High cost of fruits and vegetables in the market*	2.81	0.75	2.42	0.73	2.61	1.17	0.55	A	NS
6	Seasonality of most desired fruits and vegetables	3.63	0.48	3.52	0.50	3.57	0.49	1.13	A	NS
7	Inadequate awareness creation in communities on the benefits of fruits and vegetable.	3.16	0.81	3.58	1.36	3.37	0.77	2.39	A	S*
8	Non coverage of the teaching of fruits and vegetables in Home Economics curriculum	3.20	0.64	3.28	0.82	3.24	0.75	0.41	A	NS
	Cluster Summary	**3.19**	**0.54**	**3.16**	**0.62**	**3.18**	**0.66**	**1.30**	**A**	**NS**

$_M$ = Mean of male; $_F$ = Mean of female; $_G$ = Grand Mean; SD = Std Deviation; RRQ = Remark on Research Questions; RHo = Remark on Hypothesis; A = Agree; S* = Significant; NS = Not Significant; t-tab (table) value = 1.96, Urban N = 200, Rural N = 163

Table 2 shows that the grand mean ratings of the responses of SSS students on the eight items ranged from 2.61 to 3.57 which are in each case greater than the cut-off point value of 2.50 on 4-point rating scale. This indicates that the eight items are "Agreed" by the students as hindrances to urban and rural Senior Secondary School students' consumption of fruits and vegetables in Delta State.

Table 2 reveals that the t-calculated (t-cal) values of items 1, 2 and 7 were 2.44, 2.32 and 2.39 respectively which are in each case greater than the t-table (t-tab) value of 1.96. This signifies that there were significant differences in the mean ratings of the responses of urban and rural SSS students on the three hindrances to consumption of fruits and vegetables. Therefore, the hypothesis of no significant difference in the mean ratings of urban and rural students was rejected on the three items.

Ways of Improving Fruits and Vegetables Consumption Practices.

Table 3: Mean Ratings of Male and Female Senior Secondary School Students on Ways of Improving the Consumption of Fruits and Vegetables.

		Male 172		Female191						
SN	**Ways of Improving Fruits and Vegetables Consumption.**	**$_M$**	**SD_M**	**$_F$**	**SD_F**	**$_G$**	**SD_G**	**t-cal**	**RRQ**	**RHo**
1	Improved provision of fruits and vegetables to students most especially in boarding school by management	3.44	0.64	3.51	0.58	3.47	0.61	1.97	A	S*
2	Increased Nutrition Education for students on the importance of fruits and vegetables choices.	3.54	0.99	3.77	0.57	3.65	0.65	2.38	A	S*
3	Increasing the rate fruit and vegetable consumption.	3.32	0.97	3.77	0.42	3.52	0.80	3.67	A	S*
4	Increasing point-of-purchase (POP) information on fruits and vegetables through labelling	3.23	0.90	3.16	0.68	3.20	0.82	1.98	A	S*
5	Reducing prices of fruits and vegetables as incentive for increased students' consumption in school environment.	2.87	0.81	3.44	0.68	3.12	0.81	3.79	A	S*
6	Increasing availability and varieties of fruits and vegetables in school environment	3.55	0.74	3.71	0.62	3.62	0.69	2.38	A	S*
7	Reduced intake of fast foods such as snacks among students for increase in fruits & vegetable intake.	3.49	0.72	3.59	0.69	3.53	0.71	2.75	A	S*
8	Making fruits and vegetables available and accessible to students	3.10	0.78	3.33	0.41	3.20	0.84	2.37	A	S*
9	Providing charts of different fruits and vegetables, and their nutritional benefits in classrooms	3.66	0.62	3.71	0.55	3.68	0.59	0.94	A	NS
10	Giving awareness talk to students on the value of fruits and vegetables consumption	3.57	0.70	3.52	0.73	3.55	0.71	0.43	A	NS
	Cluster Summary	3.38	0.69	3.55	0.46	3.45	0.52	2.27	A	S*

$_M$ = Mean of male; $_F$ = Mean of female; $_G$ = Grand Mean; SD = Std Deviation; RRQ = Remark on Research Questions; RHo = Remark on Hypothesis; A = Agree; S* = Significant; NS = Not Significant; t-tab (table) value = 1.96**.**

Table 3 shows that the grand mean ratings of the responses of SSS students on 10 items in range from 3.12 to 3.68 which are in each case greater than the cut-off point value of 2.50 on 4-point rating scale. This indicated that majority of the respondents indicated "Agreed" to the 10 items as strategies for enhancing the consumption of fruits and vegetables among male and female SSS Students for in Delta State. The overall mean of male students was 3.38 which was less than that of female students which was 3.55.

Table 3 further shows that the t-calculated (t-cal) values of eight out of 10 items range from 1.97 to 3.79 which are in each case greater than the t-table (t-tab) value of 1.96. This implies that significant differences existed in the mean ratings of the responses of male and female students on the eight identified ways of improving consumption practices of fruits and vegetables. Therefore, the null hypothesis was rejected.

Discussion of Findings

The findings with respect to research question one identified seven major reasons for the consumption fruits and vegetables among Delta State senior secondary school students some of which include: eating of fruits and vegetables due to the fact that they are source of minerals and vitamins to the body, because of their rich nutritional benefits, because some fruits and vegetables are sweet and appetizing, because of the availability within the house premises or compound, and because they protect one's body against infection. Adenegan and Adeoye (2011) documented some of the main facts for intake of fruits and vegetables to include to their great nutritional values as they are important sources of vitamins and minerals and thus, essential components of human diet. Also in agreement with this study's findings, Layade and Adeoye (2014) showed some of the justifications for fruits and vegetables consuming being good sources of few calories with respect to the volume of the food consumed, which favours maintenance of the individuals healthy body weight.

The findings on research question two identified hindrances to fruits and vegetables consumption among students to include: lack of desired fruits and vegetables within my locality, inadequate finance to buy the fruits and vegetables, inadequate nutritional knowledge of fruits and vegetables, lack of appetite for improved consumption of fruits and vegetables, high cost of fruits and vegetables in the market and inadequate awareness creation in communities on the benefits of fruits and vegetable. This findings conformed with that of WHO (2020) who reported that socioeconomic indicators like income, food prices (which ultimately influence the accessibility and affordability of healthy foods), preferences and beliefs of individuals, cultural/traditions, and the aspects of geographical and environmental factors (inclusive of climate change) which influences healthy fruits and vegetables eating habits.

The study identified 10 ways of increasing the fruits and vegetables consumption of senior secondary school students' in Delta State to include: increasing Nutrition Education of students on the benefits of fruits and vegetables choices, improving fruits and vegetables supply to students most especially in boarding schools by management, increasing availability and varieties of fruits and vegetables in school environment, discouraging students'

intake of fast foods such as snacks for increase in fruits and vegetable intake, providing charts of different fruits and vegetables, and their nutritional benefits in classrooms and giving a talk to students on the value of fruits and vegetables consumption in the diet. The findings corroborated that of Lassen et al., (2003) who found in their study that the ways to increase the consuming of fruits and vegetables is through increasing the taking of fruits and vegetables during lunch and that a broad spectrum of approaches that increase attractiveness of fruits and that of vegetables will increase their intake by students. Pérez, Aranceta, Brug, Wind, Hildonen and Klepp (2004) in their study found that provision of fruits and that of vegetables teaching curriculum in schools, increasing availability and different types of fruits and that of vegetables in school environments and provision of charts of different varieties of fruits and that of vegetables and their nutritional importance are functional ways that would enhance consumption pattern of fruits and that of vegetables among students.

Conclusion

Way of promoting fruit and vegetable consumption among SSS students in Delta State, Nigeria were examined in this study. From the results obtained the study concluded that there were eight reasons and likewise eight hindrances for fruits and vegetables consumption among urban and rural SSS students in Delta State. In addition, the study concluded that there were ten identified ways of improving fruits and vegetables consumption practices. The findings from hypotheses revealed no significant differences ($p<0.05$) in the mean ratings of the respondents on 13 out of the 28 items in the study. However, there were significant difference ($p<0.05$) in the mean ratings of the respondents on the remaining 15 items in the study.

Recommendations

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

1. More awareness should be created on the importance, health benefits and nutritional values of fruits and vegetables among SSS students in Delta State secondary schools.
2. Efforts should be made by school authority to promote healthy nutrition education for better understanding of the need to incorporate fruits and vegetables into the daily diets of students.
3. Adequate of various picture, charts of fruits and vegetables and their nutritional benefits should be in classrooms, displayed libraries and laboratories in secondary schools. This will promote students' awareness and acceptance fruits and vegetables consumption for a healthier lifestyle.

References

Adenegan, K. O & Adeoye, I. B. (2011). Fruit consumption among university of Ibadan Students, Nigeria. *ARPN Journal of Agricultural and Biological Science,* 6 (6): 18 – 21.

Anyakoha E.U. (2011). *Home Economics for Junior Secondary Schools*. Onisha. Africana First Publishers Plc.

Balasubramanian, K. & Ragunathan, R. (2012). Study of Antioxidant and Anticancer activity of Natural Sources. *Journal of Natural Productive Plant Resources,* (1):192-197.

Food and Agriculture Organization (FAO). (2017). "The State of Food Insecurity in the World. Strengthening the Enabling

Environment for Food Security and Nutrition." Retrieved 20 June, 2021 from http://www.fao.org/3/a4ef2d16-70a7-460a-a9ac-2a65a533269a/i4646e.pdf..

Hall, J.N, Moore, S. and Lynch, J.W. (2009). Global variability in fruit and vegetable consumption. *American Journal of Preventive Medicine,* 36(5): 402 - 409.

Kolesnik, K. (2017). What is Home Economics. Retrieved 15th July, 2022 from https://www.legit.ng/1118649-what-home-economics.html

Lassen, A., Thorsen, A. V., Trolle, E., Elsig, M & Ovesen, L. (2003). Successful strategies to increase the consumption of Fruits and Vegetables: results from the Danish '6 a day' Work-site Canteen Model Study. *Public Health Nutrition,* 7(2): 263 – 270.

Layade, A. A & Adeoye, I. B. (2014). Fruit and vegetable consumption among Students of tertiary institutions in Oyo State, Nigeria. *RJOAS,* 6 (30): 3 – 8.

National Bureau of Statistics, (2012). Annual Abstract of Statistics, 2012. Abuja: National Bureau of Statistics.

Nwamarah, J. U & Otitoju, G. T. O. (2014). Fruit and Vegetable Consumption Pattern and Health Challenges of Elderly (>60 Years) Staff in the University of Nigeria, Nsukka and Enugu Campuses: A Case Study. *Pakistan Journal of Nutrition* 13 (11): 626 - 630.

Obisesan, A. A. (2019). Households' Demand for Fruits and Vegetables in Urban Nigeria. *The Pacific Journal of Science and Technology.* 20 (1), 173 – 181.

Owoeye, J. S & Yara, P. O. (2011). School Location and Academic Achievement of Secondary School in Ekiti State, Nigeria. *Asian Social Science,* 7 (5): 170 – 175.

Pérez, R. C., Aranceta, J., Brug, H., Wind, M., Hildonen, C and Klepp, K. I. (2004). School-based Education Strategies to Promote Fruit and Vegetable Consumption: the Pro Children Project. **Error! Hyperlink reference not valid.** 54 (2): 14 - 19.

Simeone, L. (2020). Characterizing Strategic Design Processes in Relation to Definitions of Strategy from Military, Business and Management Studies. *The Design Journal.* 23 (4), 515 – 534.

USDA. (2009). Why is it important to eat fruit? Retrieved July 20, 2018 from http://www.mypyramid.gov. Accessed 01/08/2016.

World Bank. (2008). *Report of the Reference Committee on Secondary Education.* Washington DC: World Bank.

World Health Organization (2003). Global Cancer Rates Could Increase by 50% to 15 million by 2020. Retrieved October 3, 2016 from *http://www.who.int/mediacentre/news/releases/2003/.*

World Health Organization (2020). Healthy Diets. Geneva: World Health Organization

World Health Organization, (2001). *Transforming Health Systems: Gender and Rights in Reproductive Health*, Retrieved August 12, 2018 from *http://www.who.int/reproductive-health/gender/glossary.html.*

Yahaya, S. M and Mardiyya, A. Y. (2019). Review of Post-Harvest Losses of Fruits and Vegetables. *Biomedical Journal of Scientific and Technical Research,* 13 (4), 10192 – 10200.

JHER Vol. 29 (2), December 2022, pp. 76 -85

Self-Medication among Undergraduates: A Case Study of University of Nigeria, Nsukka

Chukwuone, C. A., Onuoha, K. M. & Maxwell, L. C.
Department of Home Economics/Hospitality Management Education,
University of Nigeria, Nsukka.

Corresponding author: kindness200@gmail.com

Abstract

This study investigated the prevalence of self-medication among undergraduates of University of Nigeria, Nsukka (UNN). Specifically, it determined common ailments that predispose undergraduates of UNN to self-medication; consequences of self-medication practices among the undergraduates and measures that could be adopted to curb self-medication among undergraduates. The study adopted a survey research design. It was conducted at University of Nigeria, Nsukka Campus. Questionnaire was used to collect data. Data were analysed using mean. Findings reveal eight common ailments that predispose undergraduate's involvement in self-medication. These include; headache (4.30), malaria (4.30), sexually transmitted infections (3.57), common cold and flu (4.27), heart burns (3.50), nausea (3.22), and stomach ache (4.20), among others. Fifteen Measures that could be adopted to curb self-medication practices were also identified. The measures include among others, medical centre staff members should be humane and caring when attending to sick students (4.42), Pharmacists should not dispense drugs to students without prescription from qualified medical personnel (4.37); and University medical Centre should be in close proximity to students' residential areas (4.35). Based on the findings, five recommendations were made include that: university administrations should ensure that cost of healthcare services for students is reduced; undergraduates should be constantly educated by relevant bodies through workshops, seminars on the danger of self-medication.

Keywords: Ailment, Abuse, Self-medication, Undergraduates, Students, Health, Drug, Care, Diseases.

Introduction

Medication involves the act of consuming medicines or drugs for prevention and treatment of diseases. Correct medication is observed by reporting any disease to the physician at the hospital or clinic who appropriately diagnoses the ailment and prescribes the right medicine to alleviate the condition (Farmakinwa, 2018). Self-medication involves the use of drug with curative intent but without medical advice from a qualified medical practitioner. It is also seen as the act of obtaining and consuming drugs without the advice of a medical practitioner either for diagnosis, prescription or treatment of disease and illness. Self-medication also implies the use of non-prescription and prescription medicines by one's own initiative to treat self-recognized symptoms and conditions (Arikpo & Enyi-Idoh, 2013). Laurice(2018) posits that prescription drugs refer to drugs that can only be obtained by means of a

physician's prescription. Non prescription drugs are drugs that are safe and effective for use by the general public without advice from a health professional. It has been observed generally that most people will rather prefer to buy over-the-counter drugs from any pharmacy closest to them than to go to the hospital in order to consult a doctor for proper diagnosis of symptoms and prescription (Brennam, 2019). Self-medication practices cut across culture, gender, health or any other socio-demographic or socio-medical state. Self-medication has been reported to be on the rise globally with high prevalence among the young adults. The young adults make up the population of the undergraduates that are being discussed in this study (Sholabi, Ajamu, & Adisa, 2021).

The prevalence of self-medication among youths especially undergraduates has been attributed to various factors including ease of access of medication at home (Arikpo & Enyi-Idoh, 2013). Sources of drug knowledge among youths include family members especially mothers, peer groups and the illegal market. Consequently, people experiencing milder symptoms do not consult medical practitioners because they prefer to consult a pharmacists or chemist attendants for advice and medication (Laurice, 2018). Some studies (Segall 2015; Sholabi et al., 2021) have reported alarming rates of self-medication in student population and that self-medication is being practiced by majority of the students. According to Mehta and Sharma(2015), common drugs abused by students are paracetamol and antimalaria drugs. It is very common to see students buying these drugs and taking them once they have symptoms like headache or increased body temperature. These can be attributed to a number of factors such as busy schedule of students, nonchalant attitude of health care personnel, lack of funds, mildness of disease, dissatisfaction with health-care services among others (Segall, 2015). These young adults are more vulnerable in the practice of self-medication due to their low perception of risk associated with the use of drugs, knowledge of drugs, easy access to Internet, wider media coverage on related health issues, ready access to drugs, level of education, and social status. Friends or even strangers are always ready to advice on which medication to take, this can be so dangerous. Most of the time the undergraduates have limited economic support, find self-medication more appropriate rather than undergoing costly consultations in the hospitals. These factors contribute to the high level of self-medication practices in Nigeria in general and University of Nigeria, Nsukka.

In University of Nigeria, Nsukka, there are many unregistered patent medicine stores from which people purchase drugs. Many of such people who purchase such drugs are undergraduate students. They sell drugs and orthodox pharmaceutical products on a retail basis simply for profit without minding the consequences on the patient's health (Durowade et. al., 2022)., Orayi et. al. (2021) posited that many students especially undergraduates tend to misuse medicine for self-medication. This seems to be the case in UNN and the undergraduates, who are young students pursuing their first degree in a university have always been the users of medicines without prescription by health personnel.

Self-medication has detrimental consequences on health of

undergraduates. According to Torres and Papini,(2016), self-medication increases the possibility of drug abuse and drug dependency. It also masks the signs and symptoms of underlying diseases, hence complicating the problem, creating drug resistance, and delaying diagnosis. It is therefore necessary to study the self-medication practices among the undergraduate students of UNN, with a view to evolving ways of curbing such practices.

The findings of this study will be beneficial to undergraduates, health personnel, families, Home economics program, and the society as a whole. The undergraduates, through the findings of this study will be aware of the health risks associated with self-medication and these will make them to refrain from the practice thereby promoting their health on campus. Ruiz (2010) noted that there are many potential risks in self-medication and the findings of this study could help students avert such risk. Health personnel could also use the findings of the study as bases for developing drug use education for the undergraduates.

Purpose of the Study

The general purpose of this study was to investigate issues relating to self-medication among undergraduates in University of Nigeria Nsukka (UNN).Specifically, the study determined:

1. common ailments that predispose undergraduates of UNN to self-medication.
2. measures that could be adopted to curb self-medication among undergraduates of UNN.

Methodology

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

***Area of the Study*:** This study was carried out in University of Nigeria, Nsukka Campus in Enugu State. UNN has a medical centre that is designed to cater for the health challenges of the students. However, many students procure drugs from pharmacies and medicine stores that operate very close to the campus. Hence, many undergraduates engage in self-medication because they fail to follow the procedures of obtaining medical care from the university medical centre.

***Population of the Study*:** The population of the study consisted of approximately 28,000 undergraduates of University of Nigeria, Nsukka campus. This population comprised of 12,601 male and 15,324 female undergraduates from the 10 faculties located at the campus (Academic Planning Unit, University of Nigeria Nsukka, 18th June, 2022). They are male and female youths who are predominantly females. (See appendix 1). They are students pursing various degree programs at UNN so they are very busy with academic activities with little or no time for proper visit to medical centre except for very severe medical problem.

***Sample for the Study*:** The sample for the study comprised of 280 female and male students randomly drawn from the 10 faculties of UNN. This sample size was arrived at using multi-stage sampling technique. Firstly, the entire population of students were divided into clusters based on their faculties. At the second stage, purposive sampling was used to sample only students domiciled in the hostels within the campus. Finally, snow-ball sampling was used to select 28 students from each of the each from the 10 faculties based on accessibility and

willingness of the undergraduates to participate in the study.

***Instrument for Data Collection*:** The instrument for data collection was questionnaire. It was developed through extensive literature review based on specific purposes of the study. The instrument was face validated by three experts. The questionnaire had two sections A and B. Section A dealt with personal data of respondents while section B had two sections in line with the specific objectives of the study. The questionnaire adopted the five-point Likert rating scale of Strongly Agree (5), Agree (4), Undecided (3), Disagree (2) and Strongly Disagree (1). To establish reliability of the instrument 20 copies of the instrument were administered to undergraduates in Ebonyi State University, Abakaliki. The responses were analysed using the Cronbach alpha reliability method which yielded a reliability co-efficient of .88.

***Data Collection Method*:** Two hundred and eighty (280) copies of the questionnaire were distributed to the respondents by hand. Two research assistants were involved in the study. All the 280 were retrieved. This showed 100 percent return rate.

***Data Analysis techniques*:** Data were analysed using mean and standard deviation. Any item with a mean of 3.50 and above was regarded as "agreed" while mean values below 3.50 were regarded as "disagreed".

Findings

Table 1: Mean Responses of Common Ailments that Predispose Undergraduates of UNN to Self-Medication

S/No	*Common ailments that predispose undergraduates of UNN to self-medication*	$\bar{x}$	SD	Remarks
1	Headache	4.30	0.46	Agree
2	Malaria	4.30	0.34	Agree
3	Sexually transmitted infections.	3.57	0.84	Agree
4	Common cold and flu.	4.27	0.45	Agree
5	Heart burns	3.50	0.87	Agree
6	Nausea.	3.22	0.74	Agree
7	Constipation	4.27	0.45	Agree
8	Stomach ache.	4.20	0.82	Agree
9	Ulcer.	4.02	0.15	Agree
10	Chronic diseases associated with organs e.g., kidneys, liver.	3.37	0.54	Disagree
11	Typhoid fever	3.65	0.76	Agree
12	Menstrual/monthly period abdominal pains.	4.25	0.43	Agree
13	Diabetes	4.10	0.64	Agree
14	Hypertension.	1.75	0.98	Agree

$\bar{x}$ = Mean Responses of Undergraduates, **SD** = Standard Deviation of the responses, N = 280

Table 1 shows that items range from 1.75 to 4.30. Items numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13 and 14 have their mean score above 3.50. This shows that the respondents have agreed on these items listed are the common ailments that make

undergraduates to indulge in self-medication and disagreed on one item; item10 which has a mean score below 3.50 indicating that the item were not accepted by the respondents as ailments that can predispose undergraduates to engage in self-medication. The standard deviation ranges from 0.15 to 0.98. This shows that the respondents were close to one another in their responses.

Table 2: Mean Responses of the Measures that could be adopted by Stakeholders to Curb Self-medication among Undergraduates of University of Nigeria Nsukka.

S/N	Measures that could be adopted to curb self-medication among undergraduates	$\bar{}$	SD	Remarks
1	Proper health education should be given to undergraduates by health practitioners.	4.26	0.46	Agree
2	Sick students should go to the UNN Medical Centre (MC) for diagnosis, drug prescription and treatment.	3.56	0.56	Agree
3	Quality drugs should always be available to the UNNMC for fast relief of ailments.	3.55	0.55	Agree
4	Students should buy drugs whenever they get sick.	3.15	1.00	Disagree
5	Staff members of UNNMC should be humane and caring when attending to sick students.	4.42	0.50	Agree
6	Unregistered medicine stores and pharmacies in and around UNN should be shut down to reduce easy access for self-medication	4.42	0.50	Agree
7	Pharmacists should not dispense drugs to students without prescription from qualified medical personnel.	4.37	0.49	Agree
8	Students should be educated by health personnel on negative effects of indulgence in self-medication	3.56	0.56	Agree
9	University medical centre should be in close proximity to students' residential areas.	4.35	0.48	Agree
10	Student Affairs Department should organize awareness programmes to educate students on drug use and dangers of self-medication.	4.02	0.15	Agree
11	School medical personnel should conduct awareness programmes to enlighten students on the dangers of drug misuse.	3.67	0.76	Agree
12	School administration should subsidize cost of drugs bills for students	4.02	0.15	Agree
13	Activities of unregistered drug vendors should not be allowed in the university.	4.30	0.46	Agree
14	University administration should ban drug vendors in the campuses.	3.50	0.87	Agree
15	Pharmacists in the medical centre should provide drug use education to students so that they can make informed choices about their use of drug	3.57	0.84	Agree
16	Holistic approach should be adopted by all stakeholders to ensure proper awareness, education and strict regulation regarding drug use and availability.	3.65	0.76	Agree

$\bar{}$ = Mean Responses of Undergraduates, **SD** = Standard Deviation of the response, N= 280

Table 2 shows that the 15 out of the 16 items had mean range from of 3.15 to 4.42. Items numbers 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, and 16have their mean score above 3.50. This shows that the respondents have agreed on the items listed as measures that if adopted can help to reduce the rate of self-medication among undergraduates while item number 4 has a mean score below 3.50. indicating that they disagreed on the item as not being a measure that can curb self-medication among undergraduates. The standard deviation ranges from 0.15 to 1.00. This shows that the respondents were close to one another in their responses.

Discussion of Findings

The findings of this study reveal that there are 13 common ailments that predispose undergraduates of University of Nigeria, Nsukka to self-medication. The ailments include: Headache, malaria, sexually transmitted infections, common cold and flu, heart burns, nausea, constipation, stomach ache, ulcer, typhoid fever, menstrual/monthly period abdominal pains, diabetes and hypertension. The findings of are in agreement with the views of Mortazavi et. al. (2017) who insisted that common cold and headache were the most common ailments that predispose undergraduates to self-medication practices. Similarly, Zewdie et. al., (2020) noted that the most common illnesses that predispose individuals to self-medication were headache and malaria, gastro-intestinal infections, respiratory tract infections among others. In a study by Karimy et. al. (2019); fever, fatigue, and anxiety were the most common ailments managed by self-medication. Cold, fever, and cough were the main reasons of self-medication in another study on 570 university students in Rwanda (Tuyishimire et. al., 2019). Likewise,our results were consistent with the findings of similar studies conducted a decade apart (El Ezz & Ez-Elarab, 2011; Hashemzaei et. al., 2021). These illnesses have made the use of analgesics and antibiotics the leading drugs consumed in self-medication by undergraduates in University of Nigeria Nsukka. Several studies also report that analgesics are the drugs that are most commonly consumed and most times they are abused (Bennadi, 2014; Mehta & Sharma, 2015; L´opez-Cabra et. al., 2016; Sankdia et. al., 2017; Karmacharya et. al., 2018). Abuse of these drugs can expose the consumer to sever health problems. Awad et. al. (2006) and Esan et. al. (2018) posits that those that engage in self-medication are most likely to suffer drug related problems and general resistance to drug use. Based on the findings of the study and the supported literature, it is deduced that the identified items are the common ailments that predispose undergraduates of University of Nigeria, Nsukka to self-medication.

The findings of this study revealed that there are 15 measures to be adopted towards the control of self-medication practices among undergraduates of University of Nigeria Nsukka. The measures include; Health professionals should be giving enough information when prescribing drugs to patients (Balmurugan & Ganesh, 2011; Pushpa et. al., 2012),only quality drugs should always be supplied to the school clinic for fast relief of ailments, School clinical staff members should be humane and caring when attending to sick students (Auta et. al., 2012), Un-registered medicine stores and pharmacies should be shut down to

reduce availability of over-the-counter drugs (Akanmu & Odeyemi, 2018; Esan et. al., 2018),individuals should also take medicine prescription from a medical practitioner and not their peers(Wijesinghe et. al., 2012). University administration should implement legislation to sanction drug vendors in the campuses. The school academic planning should be balanced in order to give ailing students time to see a practitioner, School clinics should be in close proximity to students' residential areas (Sholabi, et. al., 2021).

Previous studies have reported that between 52.2% and 55% of Nigerian population obtained their medicines for self-medication practice from the patent medicine stores (Yusuff & Omarusehe, 2011; Akande-Sholabi et. al., 2021), where they do not have the opportunity of accessing relevant and appropriate counselling services to guide medication usage (Akande-Sholabi et. al., 2019; Akande-Sholabi et. al., 2020). These measures were also in line with the suggestions of Alshogram, (2018). The findings of this study are in line with the directives of World Health Organization (WHO) who insisted that only professional health workers should be prescribing drugs and unregistered medicine outlets should not be allowed to operate all in a bid to curb self-medication practices. It is also similar to the suggestions pointed out by Alshogram, et. al. (2017). It also buttressed the points noted by Durowade, et. al. (2022) that pharmacists should check activities of un-registered drug vendors by all stakeholders.Based on the findings of the study and the supported literature, it is deduced that the identified items are themeasures to be adopted towards the control of self-medication practices among undergraduates of University of Nigeria Nsukka

Conclusion

This study focused on self-medication among undergraduates in University of Nigeria Nsukka. The study found 13 common ailments that predispose undergraduates of University of Nigeria, Nsukka to self-medication. Also found 15 measures that could be adopted by stakeholders towards the control of self-medication practices among the undergraduates. Based on the findings of the study, it is concluded that self-medication is prevalent among the undergraduates. There is need for relevant healthcare professionals; the university management to evolve ways of creating awareness among the students on the dangers of self-medication.

Recommendations

The following recommendations were made in line with the study:

1. Undergraduates should only take prescription from a medical practitioner in the University Medical Centre and not their peers or medicine stores.
2. University administration should ensure the cost of healthcare services be reduced for students
3. School Medical Centre staff members should be caring when attending to sick students.
4. Undergraduates should be constantly educated by relevant bodies through workshops, seminars on the danger of self-medication
5. Strategies should be put in place to ensure efficient healthcare services, so that receiving healthcare becomes easily accessible and less time

consuming within the university community.

References

Akande-Sholabi W., Adisa R., Ilesanmi O. S. & Bello A. E. (2019). Extent of misuse and dependence of codeine-containing products among medical and pharmacy students in a Nigerian University. *BMC Public Health*, 19, 1709 – 1721. https:// doi. org/ 10. 1186/ s12889-019-8074-5.

Akande-Sholabi W., Ajamu A. T. and Adisa Rasaq (2021). Prevalence, knowledge and perception of self-medication practice among undergraduate healthcare students. *Journal of Pharm Policy and Practice*, 14, 49 – 60, https://doi.org/10.1186/s40545-021-00331-w

Akande-Sholabi W., Ogundipe F. S. & Adisa R. (2020). Pharmacists' knowledge and counselling on fall risk increasing drugs in a tertiary teaching hospital in Nigeria. *BMC Health Service Research*, 20, 259 – 269.

Akanmu A. C. & Odeyemi K. A. (2018). The Study of Pattern of Use of Orthodox and Herbal Medicine among Non-academic Staff of a Nigerian University. *Journal of Complimentary Alternative Medicine Research*, 6 (4), 1 – 12.

Alshogram O. Y., Alzoubi, K. H., Khabour, O.F., & Farah, S. (2017). Patterns of self-Medication among Medical and Non-Medical University Students in Jordan. *Journal of Risk Management and Healthcare Policy*, 11, 169 – 176, DOI: http://doi.org/10.2147/RMHSI70181

Alshogram, O. Y. (2018) Self-Medication Practices with Antibiotics and Antimalarials Among Sudanese Undergraduate University Students. *The Annals of Pharmacotherapy*, 41 (7).

Amoako, K. & Kudzi, W. (2019). Prevalence of Self-Medication among School of Medicine and Dentistry students in Korle Bu, Ghana. *Unpublished Thesis for Bachelor of Medicine* Doi: 10.1314/RG.2.2.18763.95520

Arikpo and Enyi-Idoh (2013). *Health Checks and Health Promotion Your Personal Guide to Long Active Life.* Enugu; Snaap Press Nigeria.

Auta A., Shalkur D., Omale S., and Abiodun A. H. (2012). "Medicine knowledge and self-medication practice among students". *African Journal of Pharmaceutical Research and Development*, 4 (1), 6 – 11.

Awad, A., Eitayeb. I & Capps, P. (2006). Self-Medication practices in Khartooum State Sudan. *European Journal of Clinical Pharmacology*, 62 (4), 317 – 324. DOI: 10.1007/500228-006-0107-1

Balmurugan E. & Ganesh K. (2011). Prevalence of self- medication use in coastal regions of South India. *British Journal of Medical Practitioners*, 4 (3), 428.

Barerah C. S. I. (2018). Forms of Drug Abuse and Their Effects. *Journal of Alcoholism & Drug Abuse*, 1 (1), 13 – 19.

Bennadi, D. (2014). Self-medication: A current challenge. *Journal of Basic and Clinical Pharmacy*, 5 (1), 19. https://doi.org/10.4103/0976-0105.

Brennam G, Troyen A, Leape L, Laird L, Nan M. (2019) Incidence of Adverse Events And Negligence In Hospitalized Patients. Results of the Harvard Medical Practice Study. *England Journal of Medicine*, 2019 (4), 370 – 376.

Durowade I. A., Bolarinwa O. A. Feneriga S. J. & Akande T.M. (2022). Operation and Roles of Patent and Proprietary Medicine Vendors in Selected Rural Communities in Edu Local Government Areas, Kwara State, North Central Nigeria. *Journal of Community Medicine & Primary Health Care*, 30 (2), 75 – 89.

El Ezz N. & Ez-Elarab H. (2011). Knowledge, attitude and practice of medical students towards self-medication at Ain Shams University, Egypt. *Journal of Preventive Medicine and Hygiene*, 52 (4), 196–200. https://doi.org/10.15167/2421-4248/jpmh2011.52.4.292

Esan D. T., Fasoro A. A., Odesanya O E., Esan T. O., Ojo E. F., and Faeji C. O. (2018). Assessment of Self-Medication Practices and Its Associated Factors among

Undergraduates of a Private University in Nigeria. *Hindawi Journal of Environmental and Public Health*, https://doi.org/10.1155/2018/5439079

Farmakinwa, F.C. (2018). *Pharmacology for Nurses*. Lagos; Kings Enterprises, Nigeria.

Gelayee D. A. (2017). Self-medication pattern among social science university students in Northwest Ethiopia. *Journal of Pharmaceutics*, 2017, doi.org/10.1155/2017/8680714

Hashemzaei Mahmoud, Mahdi Afshari, Zahra Koohkan, Ali Bazi, Ramin Rezaee & Kaveh Tabrizian (2021). Knowledge, attitude, and practice of Pharmacy and Medical Students regarding self-medication, a study in Zabol University of Medical Sciences; Sistan and Baluchestan province in south-east of Iran. *BMC Medical Education*, 21, 49 – 62. https://doi.org/10.1186/s12909-020-02374-0

Karimy M., Rezaee-Momtaz M., Tavousi M., Montazeri A. & Araban M. (2019). Risk factors associated with self-medication among women in Iran. *BMC Public Health*, 19, 1033 – 1043.

Karmacharya, A., Uprety, B. N., Pathiyil, R. S., & Gyawali, S. (2018). Knowledge and Practice of self-medication among undergraduate medical students. *Journal of Lumbini Medical College*, 6 (1), 21 – 26. https://doi.org/10.22502/jlmc.v6i1.

L´opez-Cabra, C. A., G´alvez-Berm´udez, J. M., Dom´ınguez-Dom´ınguez, C., Urbina-Bonilla, A. D. P., Calder´on-Ospina, C. A., & Vallejos-Narv´aez, A. (2016). Self-medication in medical students at the Universidad del Rosario in Bogota D. C., Colombia. *Revista Colombiana de Ciencias Quımico Farmaceuticas*, 45 (3), 374 – 384.

Laurice, L. B. (2018). *Medication Error. An Expose of The Problem*. Retrieved from http://www.google.com/medicationerror on 31 March, 2020.

Legg T. J. (2018). *Drug Dependence; Health Care*. Retrieved on April 23, 2018 from https://healthline.com/drug-dependence.

Mehta, R. K., & Sharma, S. (2015). Knowledge, attitude and practice of self-medication among medical students. *Journal of Nursing and Health Science*, 4 (1), 89 – 96. https://doi.org/10.9790/1959-04118996.

Mortazavi S. S., Shati M., Khankeh H. R., Ahmadi F., Mehravaran S. & Malakouti S. K. (2017). Self-medication among the elderly in Iran: a content analysis study. *BMC Health Services Research*, Geriatr, 17, 198 – 208.

Orayi K., Alshahrami S. M., Alqahateni A. M., Alasmari N., Atef A. A., Jrees H. S. & Muslot D. (2021). The Use of Over-The-Counter (OTC) Medication by University Students During Examinations in Saudi Arabia; A Cross-Sectional Study. *Journal of Risk Management and Health Care Policy*, 14, 2675 – 2682, DOI.org/10.2/74/RMHP5312559

Oyeyemi A. S., Oladepo O., Adeyemi O. A., Titiloye M. A., Burnett S. M. & Apera L. (2020). The Potential Role of Patent and Proprietary Medicine Vendors' Associations in Improving the Quality of Services in Nigeria's Drug Shop. *BMC Health Service Research*, 20 – 56, DOI: https://doi.org/10.1186/512913.020.05379.

Pushpa W. R., Ravindra J. L. & Rohini A. S. (2012). Prevalence and predictors of self-medication in a selected urban and rural district of Sri Lanka. *WHO South-East Asia Journal of Public Health*, 1 (1), 28 – 41.

Ruiz M. E. (2010). Risks of Self – Medication Practices. *Current Drug Safety*, 5 (4), 315 – 323. DOI: 10.2174/157488610792245966

Sankdia, R., Agrawal, M. Rekha, P. B. & Kothari, N (2017). A Questionnaire Based Study Regarding the Knowledge, Attitude and Practice of Self-Medication Among Second Year Undergraduate Medical Students. *International Journal of Pharmacology and Clinical Sciences*, DOI:10.5530/ijpcs.6.1.1.

Segall A., (2015). A Community Survey of Self-Medication Activities. *Med Care,*

28(4), 301 - 310. DOI: 10.1097/00005650-199004000-00002.

Sholabi, W.A., Ajamu, A.T. & Adisa, R. (2021) Prevalence, Knowledge and Perception of Self-Medication Practice Among Undergraduate's Healthcare Students, *Journal of Pharmaceutical Policy & Practice,* 14 (49).

Torres C & Papini M. R., (2016). *Neuropathology of Drug Addictions and Substance Misuse; Volume 1: Foundations of Understanding, Tobacco, Alcohol, Cannabinoids and Opioids*. London; Kings College Academic Press. DOI:10.1016/B978-0-12-800213-1.00007-9

Tourinho F. S., Bucaretchi F., Stephen C. & Ricardo C. (2008). Home Medicine Chests and their Relationship with Self Medication in Children and Adolescents. *Jornal De Pediatria*

Tuyishimire J., Okoya F., Adebayo A. Y., Humura F. & Lucero-Prisno D. E. (2019). Assessment of self-medication practices with antibiotics among undergraduate university students in Rwanda. *Pan African Medical Journal*, 33, 307 –318.

Wijesinghe P. R. & Jayakody R. L. & De A Seneviratne R. (2012). Prevalence and predictors of self-medication in a selected urban and rural district of Sri Lanka. *WHO South-East Asia Journal of Public Health*, 1, 28 – 41.

Yusuff K. B. & Omarusehe L. D. (2011). Determinants of self-medication practices among pregnant women in Ibadan, Nigeria. *International Journal of Clinical Pharmacy*, 33, 868 – 875. https:// doi. org/ 10. 1007/s/ 11096-011-9556-4.

Zewdie, S., Andargie, A. & Kassahun, H. (2020). Self–Medication Practices Among Undergraduate University Students in Northeast Ethiopia. *Journal of Risk Management and Healthcare Policy,* 13, 1375 – 1381. DOI:10.2147/RMHP.S266329

JHER Vol. 29 (2), December 2022, pp. 86 -95

Fake Political News in Social Media and Youth Participation in Politics in South-East Nigeria

Ebenezer, A.V.
Department of Mass Communication,
Abia State University, Uturu

Corresponding author: adaezeanumadu@gmail.com

Abstract

The study focused on issues relating to fake political news in social media and youth participation in politics in South-East Nigeria. Specifically, it determined youths' frequency of use of social media to gather political news, their major sources of political news online, extent to which they verify credibility and authenticity of political news and their sources, their level of exposure to fake political news online, and ways fake news in social media influence their participation in politics. Survey research design was adopted. Population of study was made up of undergraduate students (youths) in South-East state universities, aged 18 to 29 years. Questionnaire was used for data collection. Data were analysed using frequency, percentages and mean. Findings reveal that many youths (56%) frequently use social media to gather political news especially from family members, friends, special groups, influencers and opinion leaders' pages online. They however, rarely verify quality of such political news and their various sources. The findings further reveal that youths have been exposed to fake political news online and this has negatively affected their political engagements, orientation, perception, interest and trust in elected government. In line with these, the researcher recommends continual use of social media platforms to disseminate verified, authentic and credible political news, introduction of compulsory course on 'how-to-spot-fake-news' in the universities and development of updated fact checking apps that can verify political news emanating from short tweets, hash tags, posts, comments, unverified sources, and illogical stories.etc. There should also be information websites created and handled by non-partisan persons where youths can access correct political information.

Keywords: Politics, Social media, Fake, News, Youth, Participation.

Introduction

Social media is a strong purveyor of modern democracy. It has turned people from passive followers of political events to active participants in political activities. Ranging from political discussions and debates to quick dissemination of political news and other political activities such as campaigns and elections, social media platforms have consistently provided amazing opportunities that enable citizen involvement in politics. Onyebuchi, Anorue and Obeyi (2016) agree that unlike the mainstream media, social media platforms (internet) serve as a fertile ground to advance political discourse, campaigns and effective

communication with the general public, thereby fine tuning the course of governance in the evolving global world (Okon, 2016). Agboola (2013), noted that emergence of new Information and Communication technologies (ICT) particularly the internet, is a new source of political socialization and a way of bringing young citizens closer to political process. As against the regular traditional media, social media platforms offer the audience an opportunity to bring vital topics for deliberation at will and at any point in time. Scholars believe on the positive effect of social media usage on civic and political engagement of citizens who utilize the platform for the expression of their political thoughts and feelings (Literat,& Vilenchik, 2019, Khane, Lee & Feezell, 2013). Olley and Ekhareafo (2013) affirm that every true believer in democracy must see social tools as freedom tools for the liberation of the world from the shackles of oppression.

Nigerian youths are now part of the digital natives that utilize online realm in expressing their political views just like a natural world (Kim & Anna, 2015). Mohammed (2013) and Kim and Anna (2015) agree that social media have gained acceptance especially among youths with large percentage of them using at least one as a major communication channel. Internet has gained acceptance among Nigerian youths whose cognitive engagement in online platforms such as facebook, twitter, whatsApp and instagram have greatly increased their political knowledge, political participation and trust (Chan& Guo 2013, Abdulrauf, 2016 and Agboola, 2013).

Despite the power of social media in fostering political freedom, it can still become dangerous weapons in the hands of political miscreants. The recent misuse of the platform to promote spread of unverified information is becoming an issue of great concern. Igwebuike (2020) agree that social media widespread usage has enabled digital peddling of fake news and exploitation by anonymous political influencers. Onyeike et al (2011) note that social media web provides all kinds of information for those exposed to it and the information could either be good or bad depending on each person's persuasion. Okafor, Ebenezer, Chukwuemeka and Patience (2013) agree that the media space has been hijacked by amateurs and people (mostly youths) who are not trained journalists.

Piece of fake political news include deliberately fabricated political stories in form of write-ups, photos, videos, created and spread to confuse, manipulate and misinform the masses. Most fake political news stories are stereotyped biased and have elements of prejudices geared towards exploiting peoples' emotions like anxiety, anger and frustration. Mitchell et al (2016) affirm that false information can get to a large number of audiences by spreading from one individual to another. Fayoyin and Ngwainmbi (2014) pointed out the possibility of misrepresentation in this digital age as everyone is a global communicator without official gate keeper. This embodies a major challenge to information accuracy and credibility.

Research shows that youths follow social media news updates, links, and comments to shared stories and tend to align with views of opinion leaders, organizations or online persons who they perceived to be learned, more-informed, or experts whose interpretations help to bring context to news stories (Bergstorm

& Belfrage,2018). Alcott and Gentzzkpw (2017) however, warn that people (youth) who get news from social media platforms are less likely to receive evidence about true state of the world. The implication of this is their high risk of exposure to malign agendas and personal anxiety founded in uncertainty especially where there is lack of literacy skills among young people to navigate the digital world and identify fake news (Powel, 2018). Lee and Heiss (2022) reported that social media networks have a character of exposing individuals to different political information that can lead to different political outcomes. In the words of Berger (2018) notes that purveyors of disinformation prey on the vulnerability or partisan potential of recipients whom they hope to enlist as amplifiers and multipliers". Ahmad et al (2019) agree that political influencers employ fake news to either legitimize or delegitimize politics while engaging netizens (youths) in political activities.

South-East Nigeria has had its share of the menace of fake political news. Past studies reports instances where social media have been deployed to spread fake news that nearly hindered election in South-East Nigeria. Adegunle, Odoemelam and Odoemelam (2019), Aboyade, Masu, Aboyade and Ajayi (2022). Other instances and reports show that the underlining intention of circulating fake news during elections is to sow seed of discord, disrupt electoral process, character assassination and cause panic among electorates (Apuke & Omar, 2020, Ibeleme 2018, Okoro et.al, 2018).

Adjin-Tettey and Johnston (2022) emphasize the place of media and information literacy in identifying fake news, disinformation and misinformation. According to them, media literacy training will not only ensure that media consumers do not fall prey to fake content but also equips them with the requisite knowledge, skill, attitude and technical know-how to obtain authentic and credible information, critically evaluate and verify the authenticity of information received.

Purpose of the study

The general purpose of the study was to examine issues relating to fake political news disseminated on social media platforms and youth participation in politics in Nigeria. Specifically, the study determined:

1. Frequency of social media utilization by youths to gather political news.
2. major sources of political news online.
3. extent to which youths verify quality of social media political news and their sources
4. youths' level of exposure to fake news in social media (FNSM).
5. ways FNSM influence youths' participation in politics.

Research Questions

1. How often do youths use social media to gather political news?
2. What are their major sources of the political news in social media
3. To what extent do youths verify the quality of social media political news and their sources?
4. To what extent are youths exposed to fake political news in social media?
5. In what ways have exposure to fake political news in social media influenced youth participation in politics?

Methodology

***Design of the study*:** The study adopted survey research design.

Area of the study: The five states in South-East geo-political Zone, Nigeria formed the area of this study. South East is among the six geopolitical zones representing both a geographic and political region of the country. This area is one of the densely populated regions of Nigeria with a good number of youths who are politically aware. South-East zone has five state universities namely: Abia State University, Uturu (ABSU), Imo State University (IMSU), Enugu State University of Technology (ESUT), Ebonyi State University (EBSU), and Chukwuma Odumegwu Ojukwu University (COOU).

***Population of the study*:** Population of the study was made up of all undergraduate students of the five state universities in South-East Nigeria who are young adults (18-29 years) engaged in academic degree programme of the universities.. According to the 2019 Nigerian University system Statistical Digest, the estimated populations of undergraduate students of the universities are as follows: ABSU -11,128, IMSU-22,154, ESUT-16212, EBSU-14,726, and COOU-13,115.

***Sample for the study*:** The sample size of this study was 794 determined using Survey system online sample size calculator with confidence level of 95 percent (%), P=50, and confidence interval =3.46. Multi-stage sampling technique was used. Firstly, one state university (each) was purposively selected from each of the five states of the South-East geopolitical zone. The 794 sample size proportionately distributed to each university based on their population as follows: ABSU- 114, IMSU-227, ESUT-166, EBSU-152 and COOU-135. At stage two, convenience sampling was used to select one faculty from each of the selected universities. At the third stage, three departments were randomly selected from each of the select faculties while the study participants were randomly selected from the departments.

***Instrument for data collection*:** The data for the study were collected using questionnaire constructed in line with the specific purposes and based on literature reviewed. The questionnaire was divided into two sections; section sought information about demographic characteristics of respondents while section B sought respondents views on questions relevant to specific objectives. A specific 4-piont scale was adopted for each part of the questionnaire, including: very frequently(VF), frequently(F), infrequently (IN), for Table 2; never (N); always (A), often(O),rarely (R), never(N), for Table 3; very high(VH), high (H), low(L), very low(VL), for Table 4; very negative(VN), negative(N), very positive (VP) and positive(P), for Table 5. Numerical values were assigned to expressions in each Table in descending order of (3,2,1,0). The cut off point for the mean scores was 1.50. Questionnaire was validated by three Mass Communication lecturers. Pilot study was conducted on 40 respondents who were not part of the sample for the study in ESUT. Ata collected were used to established reliability of the instrument using Cronbach Alpha. Coefficient of 0.75 was obtained.

***Data collection procedure*:** The researcher with the help of four trained research assistants distributed 794 copies of the questionnaire online via the Whatsapp group pages of the selected departments. All copies of the questionnaire distributed were returned indicating a 100% return rate.

***Data Analysis Technique*:** The data were analyzed using frequencies, percentages and means. Mean response of 1.50 (was used for decision making.

Findings of the study

Table 1: **Percentage Responses on Frequency of Social Media Utilization by Youths to Gather Political News**

S/N	Frequency Indicators	Percentage Responses (F%)
1	Once each day	127 (16%)
2	Several times a day	445 (56%)
3	Only on weekends	48 (6%)
4	Once in a week	32 (4%)
5	Several times a week	79 (10%)
6	Once in a month	15 (2%)
7	Several times a week	48 (6%)
8	Never	00 (0%)

Table 1 shows that 56 percent of the respondents get political news from social media on a daily basis. This therefore, clearly indicates a high level usage of social media in gathering political information by youths in South-East, Nigeria.

Table 2: Mean Responses on Youths' Major Sources of Political News in Social Media

S/N	Major Sources of Political News	VF(3)	F(2)	IF(1)	NE (0)	
1	From: online family members and friends	452	300	32	10	2.50
2	Special groups and links online	399	238	112	45	2.24
3	Candidates / Political party political pages	140	140	452	62	1.40
4	Sponsored political pages	103	126	452	103	1.30
5	Influencers/ Opinion leaders' pages	417	290	40	47	2.40
6	Online newspapers, radio and TV	120	160	499	24	1.45
7	Individual comments to posts	305	250	180	61	2.10

Keys: (Very frequently-VF, Frequently-F, Infrequently-IF, Never-NE). N=794; = Mean

Table 2 shows four items (sources) with mean scores above 1.5 (

respectively indicating that the political news youths receive on social media come mainly from: online family members and friends(2.50); special groups and links online (2.24); influencers and opinion leaders pages(2.40); and individual comments to posts(2.10). Other sources of political news from sponsored political pages and online newspapers, radio, and T.V obtained mean scores of 1.30 and 1.45, while sources involving candidates and political party political pages obtained mean of 1.40.

Table 3: Mean Responses on Extent to Which Youths Verify Quality of Political News in Social Media and their Sources.

S/N	Major Sources of Political News	A(3)	O(2)	R(1)	NE (0)	X
1	Identify where the political news originates from	38	111	496	149	1.04
2	Browse the publication site to determine its originality, history, reputation and influence	56	100	398	240	0.83
3	Verify the political news across multiple social media outlets and other media like TV, radio, newspaper etc	68	104	420	202	1.1
4	Seek out more information regarding the political news from sources such as eye-witness, police statement,	80	90	409	215	1.04

expert reports, official release etc

Keys: (Always-A; Often-O; Rarely-R, Never-NE); Number of Respondents (N) =794; = Mean

Table 3 shows that all the four items obtained mean scores that are less than 1.5 (. This means that youths in South-East Nigeria do not verify the quality of political news they receive from social media and their various sources.

Table 4: Mean Responses on Levels of Youths' Exposure to Fake Political News in Social Media

S/N	Incidental Exposure Indicators	VH(3)	H(2)	L(1)	VL(0)	
1	Following posts/updates from friends	394	368	14	15	2.44
2	Reading comments to posts	401	268	21	104	2.21
3	Reading push notifications / alerts from phone apps	420	330	32	12	2.45
4	Receiving unsolicited updates from sponsored political pages	300	420	30	44	2.22
5	Deliberate search for political news updates from different sources	308	370	70	46	2.18

Keys: (Very High-VH; High-H; Low-L; Very Low-VL; Number of respondents (N) = 794; = Mean

Table 4 shows that all the items obtained mean scores that are above the cut –off mean of 1.5 ( ). this mean that youths in South-East Nigeria have had exposure to fake political news in social media by following posts/updates from friends, reading peoples' comments to posts, getting political news notifications from sponsored political pages and apps on their phones, and by deliberately searching for political news updates from different sources.

Table 5: Mean Responses on Ways Fake Political News in Social Media Influence Youths' Participation in Political Activities.

S/N	Ways FPNSM Influence Youths	VN(3)	N(2)	VP(1)	P(0)	
1	Political discussion and debates	459	280	40	15	2.5
2	Political orientation and opinion	460	294	31	9	2.5
3	Election and voting-based issues	426	235	50	83	2.3
4	Post election reactions	400	299	70	25	2.4
5	Political interest	501	200	50	44	2.5
6	Choice of political candidate and party	310	201	200	83	1.9
7	Trust in elected government	413	299	70	12	2.4

Keys: (Very Negative-VN; Negative-N; Very Positive-VP, Positive-P); N=794; = Mean

Table 5 shows that all the seven items obtained mean scores above the cut off mean of 1.5 indicating that fake political news spread in social media influence youths' participation in political activities in South-East Nigeria.

Discussion of Result

Table 1 reveals a high level usage of social media in gathering political information among youths. It is no longer debatable that social media platforms are viable means of political socialization and mobilization of youths in the twenty-first

century politics. This underscores the need to utilize the platforms to disseminate authentic and credible political communications that can win back the trust of the youths who tend to have developed more confidence on political information emanating from their online families, friends, special groups, influencers and opinion leaders as revealed in Table 2. These, confirm the findings of Bergstorm and Belfrage (2018) that youths follow, read and align with political views of opinion leaders, organizations or online persons who they perceived to be learned, more-informed, or experts whose interpretations help to bring context to news stories.

The findings of this study also corroborate the findings of other researchers which indicates that social media have gained acceptance among Nigerian youths whose cognitive engagement in online platforms have greatly increased their political knowledge, political participation and trust (Kim & Anna, 2015; Chan & Guo,2013; Abdulrauf, 2006 & Krueger, 2005 cited in Agboola ,2013). Findings in Table 2 also shows that youths have little or no regard for political news stemming from the mainstream media (radio, television and newspapers) who are known to have trained journalists and official gate keepers that verify news stories before disseminating them. This questions the authenticity and credibility of political news stories youths are exposed to online.

Findings in Table 3 clearly indicate that youths rarely verify the quality of these social media political news and their various sources. They rarely try to identify where the political news originates from, browse the publication site to determine its originality, history, reputation and influence, verify the political news across multiple social media outlets and other media like Television, radio, newspaper etc. The reason for this could be due to two things; firstly, because such news emanated from sources they naturally believe in and share the same ideology just as Alcott and Gentzzkpw (2017) noted that people who get news from social media platforms are less likely to receive evidence about true state of the world that would counter an ideologically aligned but false stories. Secondly, there is a serious lack of knowledge and ability to spot fake news among youths in line with the view of Powell (2018) who pointed the existence of a dangerous lack in the literacy skills that young people require to navigate digital world and identify fake news.

The implication of the above finding explains the youths' incidental exposure to fake political news in social media. Findings in Table 4 shows that the youths have been exposed to fake political news by following political posts/updates from friends, reading comments to political posts, receiving unsolicited political notifications from sponsored political pages, and apps and deliberately searching political news from different unverified sources. These have increased their risk of exposure to malign agendas and personal anxiety founded in uncertainty thus confirming the finding of Lee and Heiss (2022) that social media networks have capacity of exposing individuals to incidental political information that can lead to different political outcomes. Youths' incidental exposure to all manner of political information will only increase their vulnerability and susceptibility to political tantrums dispatched on the

social media platforms by unscrupulous political elements. Thus, corroborating the findings of Ahmad et al (2019) that political influencers employ fake news to manipulate the gullible netizens (youths).

Findings in Table 5 shows that fake political news spread on social media influence youth participation in politics. Majority of the youths have developed negative perception and opinion of politics which affects their involvement in political discussions, debates, voting, choice of candidate and political parties as well as trust in elected government. This challenges the findings of Chan and Guo (2013, p461) study on face book use in political activities which shows that 'social media use among youths can facilitate greater political and civic engagement, particularly for those who perceive that they have limited ability to participate and understand political affairs. This present findings indicate that it is the kind of political information youths receive online that determines their civic engagement. Thus, youth exposure to unverified political information will only increase their wrong perception about politics and subsequently discourage their involvement in politics.

Conclusion

Based on the findings, it can be concluded that fake political news disseminated in social media platforms influence youth participation in politics in South-East, Nigeria. Majority of the youths rely on social media as a source of political news but do not bother to verify the quality of such news and their sources probably because it emanated from online sources known and related to them. Majority of the youths lack the literacy skill to detect fake political new. The fake political news youths are exposed have contributed to the negative perception and general apathy towards political activities in Nigeria. The findings of this study confirm that youths' active involvement in real politics depends largely on the kind of political information they are exposed to in social media. If large portion of political news that gets to the youths from online platforms are fake, unverified and mostly biased, it will be difficult if not impossible to get their maximum support and corporation in political activities of their state. Since the social media platforms have numerous advantages, its role in determining the involvement of youths in politics cannot be neglected.

Recommendations

1. Social media platforms are viable tools for youth civic engagement. Thus, government, mainstream media and other authorized agencies should continue to utilize it in disseminating authentic and credible political news stories.
2. Government in collaboration with owners of social media sites such as whatsApp, face book, twitter should develop more fact checking apps capable of verifying the authenticity and credibility of online political news stories from short tweets, group hash tags, posts from unidentifiable sources, illogical political stories, make-believes, distorted reports and sensational headlines etc
3. Introduction of 'how to spot fake news' as a compulsory media education course (GS) in higher institutions where youths are taught on how to filter news stories, cross check facts and verify the quality of

political information before posting and reposting..

4. There should be information websites created and handled by non-partisan persons where youths can access correct political information.

References

Abdulrauf, A.A (2016). Cognitive Engagement and Online Political Participation on Facebook and Twitter among Youths in Nigeria and Malaysia (Doctoral thesis). University Utara . Malaysia, Changlun. Google Scholar.

Aboyade, M.A.,Madu,U.W., Aboyade, W.A.,&Ajayi,A.S., (2022). Combating the menace of Fake news and Hoaxes in Nigeria for National Security: intervention of the information professionals. Journal of Balkan libraries union. 9(1), 30-37. ISSN 2148-007X.

Adegunle, G.A., Odoemelam, E.Q, & Odoemelam, C.C.,(2019). Combating Fake News and Social Media Influence on Voting Behavior of Undergraduates Students in Select Universities in Edo State Nigeria. *Idia: Journal of Mass Communication, Igbinedion University*, (4) 141-163.

Adjin-Tettey, T.D and Johnston K.M., (2022). Combating Fake News, Disinformation, and Misinformation: Experimental Evidence for Media Literacy Education. *Cognet Arts & Humanities*. 9 (1). Accessed from https://doi.org/10.1080/23311983.2022.203.

Agboola, A.K (2013). A Study of Students 'Perception of Internet Use in Political Campaigns In Nigeria. *The Nigerian Journal of communication.* 11(1) 165-188.

Ahmed, T., Alvi A.,& Ittefaq, M.,(2019). The Use of Social Media on Political Participation among University Students; An Analysis of Survey Results from Rural Pakistine. *Sage Journals*.

Alcott, H., & Gentzkwo, M., (2017). Social Media and Fake News in 2016 Election. *Journal of Economic Perspective.* 31(2)211-236. https://doi.org/10.1257/jep.31.2.211

Apuke,O. D., & Omar, B.,(2020). Fake News Proliferation in Nigeria: Consequences, Motivations, and Preservation through Awareness Strategies. Humanities & Social Sciences Review. 8(2), Pp 318-327. ISSN: 2395-6518.

Berger, G. (2018). Journalism, Fake News and Disinformation. Handbook for Journalism Education and Training.*UNESCO Series on Journalism Education.* ISBN: 978-92-3-100281-6.

Bergestorm,A.,& Belfrage,J.,(2018). News in Social Media. *Digital Journalism.* 6(5)583-598.

Chan, M., Guo, J. (2013). The Role of Political Efficacy on the Relationship between facebook Use and Participatory Behaviours. A Comparative Study of Young American and Chinese Adults. *Cyberpsychology, Behaviour, and Social Networking*, 16, 460-463. Google Scholar/crossref/Medline

Egbunike, N.A (2017). Social Media, Nigerian Youths and Political Participation: A Thematic and Methodological Review. *International Journal of Civic Engagement* (IJCESC) 4(4)15.

Fayoyin, A., & Ngwainmbi, E.(2014). Use and Misuse of Data in Advocacy, Media and Opinion Polls in Africa: Realities, Challenges and Opportunities. *Journal of Development and Communication Studies.* 3(2). July-December 2014.

Ibeleme, M. (2018, Febuary, 25). Fake News as Threat to Humanity. Punchng.com

Igwebuike, E.E., & Chimnuanya, L., (2020). Legitimmating Falsehood in social media: A Discourse Analysis of Political Fake News. *SAGE Journals*. Accessed from https://doi.org/10.1177/17504813209616 59.

Mitchell, A., Gottfried, J.,Barthel, M., & Shearer, E.,(2016). Pathways to News. Accessed from http://www.journalism.org/2016/07/07/pathways-to-news/.

Kahne, J., Lee, N. J, & Feezell, J.T (2013). The Civic and Political Significance of online Participatory Cultures among Youth Transitioning to Adulthood. *Journal of Information Technology and Politics.* 10(1):1-20

Kim, Y., & Amna, E., (2015). Internet Use and Political Engagement in Youth. In Coleman, .

Freelon, D (eds) *Handbook of Digital Politic*s. Northampton, MA: Edward Elgar PPublishing, 221-243

Lee, S., & Heiss, R., (2022). Platform-Dependent Effects of Incidental Exposure to Political news on Political knowledge and Political Participation. *Computers in Human Behaviour* (127). Accessed from https://doi.org/10.1016/j.chb.2021.107048

Literat, L., & Vilenchik, N.K., (2019). Youth Collective Political Expression on Social Media: The Role of Affodances and Memetic Dimensions for Voicing Political Views. *SAGE Journals.* Accessed from https://doi.org/101177/14614448198375 71.

Mohammed, B.K.(2013). Social Media, Maintenance and Creation of Social Relationship amongst Hausa Youths in Zaria. The Nigerian Journal of Communication (ACCE). 11(1) 558-76

Mcluhan, M. (1965). Understanding Media: The Extension Of Man. New York: McGrawHill.

Okafor, O., Ebenezer, O.I, Chukwuemeka,C.D, and Patience, D.O.,(2013). Regulatory framework for Citizen Journalism: A Public Assessment. *The Nigerian Journal of Communication,* 11(1*).*

Okon, B.G & Okogbule E.E (2016). New Media Applications and Participation in the 2015 Presidential Election Campaign by Youths in Port Harcourt Metropolis in Wilson DD.,(ed) *Mass Media and the Electoral Process in Nigeria*.(13-26). Uyo: ACCE.

Okoro, E.M., Agbara, B.A., Umuagba, A.O.,Ajonye, A.A., & Isa, Z.S., (2018), A Hybrid Approach to Fake News Detection on Social Media. *Nigerian Journal of Technology*. 37(2). 454. https://doi.org/10.4314/njt.v37i2.22

Oley, W.O and Ekhareafo, D.O (2013). Social Media as People's Power: A Textual Analysis of The January 2012 Anti-Fuel Subsidy Removal Protests in Nigeria. *The Nigerian Journal of Communication,* 11(1*).*

Onyebuchi, A., Anorue, L.I.,and Obayi, P.M (2016). Preying on Platforms: A Comparative Analysis of Social Media and Traditional Mass Media Advertisements in the 2015 Presidential Campaigns in Nigeria. *The Nigerian Journal of Communication.* 13(1) 122.

Powell L, (2018) Fake news harms children self esteem and trust, says MPs. Accessed from https://www.bbc.com>news>edu

JHER Vol. 29 (2), December 2022, pp. 96 -107

Strategies for Enhancing Utilization of Computer Numeric Control (CNC) Machines for Implementation of Industrial Technical Education Programme in Universities.

[1]Obe P.I.; **[2]Onah E .N; [3]Onah Ogechukwu & [4]Obe, E .S**
[1]Department of Industrial Technical Education/[2]Department of Computer & Robotics Education,/[3]Department of Agricultural Education
University of Nigeria, Nsukka, Enugu State.
[4]Department of Electrical, Computer and Telecommunications Engineering
Botswana International University of Science and Technology, Palapye, Botswana

Corresponding author: pauline.obe@unn.edu.ng

Abstract

The study examined the strategies for enhancing utilization of computer numeric control (CNC) machines for implementation of Industrial Technical Education (ITE) programmes in public Universities of Enugu state, Nigeria. Specifically the study determined ways ITE lecturers utilize CNC machines in instructional activities; challenges that militate against utilization of CNC machines; and ways for ameliorating to the challenges. Three research questions and three hypotheses guided the study. Survey design was used. Population for the study was made up of 68 ITE educators which comprised 35 lecturers and 33 instructors. Instrument for data collection was questionnaire. Data were analyzed using mean, standard deviation and t-test. Findings the study include identified 14 ways ITE lecturers utilize CNC machines in instructional activities. These include, CNC machine finds application in a variety of industries and materials used in ITE, CNC is a vast improvement over non-computerized machining in ITE programme, ITE staff uses CNC machines to create complex designs with high accuracy and others. Other findings are 10 challenges that militate against the utilization of CNC machine. These include, poor awareness of the importance of CNC machines and operation, resistance to change pedagogical practices in ITE programme, influence of teachers culture and school culture, and others. Also 12 ways for ameliorating to the challenges were indentified. These include, there should be awareness of CNC machine operations in ITE programme, ITE stakeholders should invest into CNC training programme, there should be empowerment of learners in CNC machines, among others. It was recommended, among other things, that (ITE) stakeholders should collectively join hands in providing in-service training for (ITE) educators for effectual utilization of (CNC) machines and implementation of ITE programmes in universities.

Keyword: Industrial, Technical, Utilization, Education, Computer Numeric Control, Educators, *Machines.*

Introduction

Technological advancement of any nation depends massively on its ability to produce functional human resource capital. There is no contention that high quality human resource is a key factor for the success of any academic programme and survival in the world of globalization (Eze&Okorafor, 2012). Industrial technical education (ITE) is an academic program that looks forward to individual empowerment for employment and self-reliance after graduation. It is viewed by Ogbuanya & Okoye, (2015) as a systematic process of acquiring and upgrading requisite knowledge and skills needed for self-reliance and employment into industries. ITE programme aims towards skills acquisition in different areas of human endeavor for gainful employment leading to the wellbeing of oneself and that of the society. The objectives of the programme according to Jimoh, et,al. (2020) includes training of teachers who can occupy teaching and leadership positions in secondary schools, technical colleges, colleges of education, universities and training programmes in industrial establishments. It also involves training of entrepreneurs in the mechanical trades and graduates who can be self-employed in their various trades.

ITE programme in universities offers training in building/woodwork technology, electrical/electronic technology and metal work/ auto mechanic technology as each capacity can carry (Jimoh, et.al. 2020).The programme focuses on the need for professionally qualified technical teachers who can impart technical knowledge and vocational skills to their students and thereby contribute to the economic development of Nigeria. The acquisition of skill in ITE programme is central to the availability of efficient and skillful work force which will in turn guarantee adequate training for human and societal needs (Ruqayyah, 2013). Supporting this, Chimere, et,al. (2019) by their study indicated that the absence of technological knowledge and skills could lead to the inability of human to function well in the society. Adekoya (2018); Ewubare & Mark (2018) also revealed that ITE human resources are underdeveloped especially in line with utilization of CNC machines which has contributed to inadequate implementation of ITE programmes in universities. Implementation of industrial technical education in universities involves, among other things, incorporating innovation in teaching and learning and improvements in facilities and infrastructure assets that support economic growth. This is evidence in the use computer numerical control (CNC) machines in the teaching and learning of industrial technical education programs.

Davenport (2018) defined CNC machine as an electro-mechanical device that uses computer programming inputs to operate machine shop tools. Thomas (2021) also described CNC machine as a machine used for manufacturing process which typically employs computerized control to remove layers of material from a stock to produce a desired part. CNC machine is therefore a machine tool used to produce a desirable parts of facilities for human consumption. CNC machines use several programming languages to instruct and guide the step to step operations of the machine. It also employs software to ensure the optimization, precision, and accuracy of the part. The operation of CNC machining in industrial technical

education programs controls a range of complex machinery, such as grinders, lathes, and turning mills for cutting, shaping, and create different parts and prototypes of metals, plastics, wood, glass, foam, and composites (Goodwin, 2018). CNC operation is a vast improvement over other machine tools operation thus it is faster, stronger and produces more efficient jobs(Goodwin, 2018). Wonacott, (2001) reported that CNC machine operations have led to a shift, from a total dependence on the objectivist paradigm to a growing adherence to the cognitivist and constructivist paradigms instruction. Despise the huge importance of CNC machine tools, its utilization in industrial technical education programmes in universities is very minimal leading to low implementation of ITE programmes in universities thus producing graduates who are not fit enough for the world of work.

The digital revolution rapidly transforming the world of work of ITE made the traditional teaching and learning in ITE programmesto be inadequate in preparing workers for the labor market. Most of the machine tools used in ITE occupational areas outside school are now computerized and ITE graduates who lack operational skill especially in CNC machines are currently faced with unemployment and low-skill even to establish on their own. This situation could be attributed to some factors including lack of CNC facilities, lack of experienced teachers that will operate the CNC machine and lack of funds. Okonjo-Iwuala, (2013) opined that it has been well documented that Nigeria's higher institutions programmes (ITE inclusive) that there is a dearth of tools to give students the skills needed for employment especially in the area of CNC machine. Edokpolor, (2018) observed that the physical facilities and instructional resources (CNC facilities) for effective teaching and learning processes in ITE in public universities in Enugu state are inadequately provided and rarely utilized. Researchers have also argued that the poor acquisition of skills and utilization of CNC machines in ITE programmes in public universities is as a result of some factors which includes poor awareness and poor infrastructure, inadequate manpower and training among other (UNESCO-UNEVOC, 2019; Akinfolarin, Ajayi & Oloruntegbe, 2012; Aworanti, 2015).The study by Deebom & Goma, 2018) indicated that effective implementation of ITE programmes occur not to survive in this present digital and computer age without encompassing and incorporating proper utilization of CNC machine tools thus the need to enhance the utilization of CNC machine tools. Frederick, (2015) suggested some of the ways to enhance the utilization of CNC machine to include: Empowerment of learners, Enhancement of creativity and flexibility to instructional delivery among others. The author maintained that ITE programmes should introduce work shop and seminar training in CNC machine operations for their workers. Tinio, (2002) is of the view that issues like digital culture & literacy, teacher professional development among others should be looked into for enhancement of the utilization of CNC machines and adequate implementation of ITE programmes in Nigerian universities. Adepoju, (2020) &Uyo (2014) stated that for ITE programmesto be effectively implemented, it must strive to meet common 21st century challenges of skill acquisition via proper provision of

facilities and training in CNC machine. It becomes necessary therefore for enhancement in the utilization of CNC machines for effective implementation of ITE programmes in universities.

Purpose of the study

The general purpose of this study was to investigate the strategies for enhancing utilization of computer numeric control (CNC) for proper implementation of industrial technical education programme of universities in Nigeria.

Specifically the study determined:

(1) ways ITE lecturers utilize CNC in their instructional activities.
(2) challenges that militate against the utilization of the CNC in ITE instructional programmes.
(3) ways for ameliorating to challenges to the utilization of CNC in ITE instructional programmes.

Research Questions

The following research questions were answered:

(1) What are the ways ITE lecturers utilize CNC in their instructional activities?
(2) What are challenges that militate against the utilization of the CNC in ITE programmes?
(3) What are the ways for ameliorating to challenges to the utilization of CNC in ITE programmes?

Research Hypotheses (HOs)

HO_1: There is no significant different on mean responses of lectures and instructors on the ways ITE utilize CNC in their instructional activities.

HO_2: Challenges that militate against the utilization of the CNC in ITE programmes.

HO_3: Ways for ameliorating to challenges to the utilization of CNC in ITE programmes.

Methodology

The study adopted survey research design.

***Area of the study*:** The study was carried out in Enugu state. This was due to the fact that there are two public universities offering industrial technical education in the state thus university of Nigeria Nsukka (UNN) and Enugu state university of science and technology (ESUT).

***Population of the study*:** The population of the study was 68 ITE educators. It was made up of 35 lecturers and 33 instructors of ITE from public universities in Enugu state, Nigeria. The ITE lecturers give the students the technical knowledge on the content of the courses they are supposed to take throughout the programme. The ITE instructors work with the students in practical work for acquisition of skills required for operations in different occupational areas of ITE programmes. Some of these instructors possess relevant high diploma certificate and trade masters in different ITE occupational areas and are made up of male and female. This study only considered their status (lecturers and instructors).

***Sample for the Study*:** There was no sampling considering the manageable size of the population.

***The instrument for Data Collection*:** The instrument for data collection was a structured questionnaire titled. The instrument has four point rating scale of Strongly Agree, Agree, Disagree and Strongly Disagree with their nominal values of 4, 3, 2 and 1 respectively. The instrument was validated by three

experts. For their liability, Cronbach alpha coefficient reliability was used. The instrument was distributed to 10 ITE educators of Industrial technical education in Ebonyi state university, Abakaliki and an overall reliability coefficient of 0.82 was obtained.

***Data collection techniques*:** The 68 copies of the questionnaire were administered by the researchers and all the 68 copies were retrieved back given a 100% retune rate.

***Method of data analysis*:** Mean and standard deviation were used to answer the research questions and 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 was regarded as agreement while mean values less than 2.50 was regarded as not agreement. However, the null hypothesis was accepted when the p-value (t-calculated) is greater than 0.05 level (t-critical) but the null hypotheses was rejected when the p-value (t-calculated) is less than 0.05 level value of the t-critical.

Results

Table 1: Mean, Standard, Deviation and t-test values on Ways ITE lecturers and Instructors utilize CNC in their Instructional Activities

S/N	Ways of Utilizing CNC Machines		SD_1	$_2$	SD_2	$_g$	SD_g	T	R	S
1	CNC machine finds application in a variety of industries and materials used in ITE.	2.60	0.71	2.67	2.69	2.64	0.70	0.14	A	N
2	ITE staff uses CNC machines with several programming languages to guide the operations of machine tools.	2.57	0.70	2.59	0.71	2.58	0.17	0.18	A	N
3	The use CNC machines employ software to ensure the optimization, precision, and accuracy of the product produced in ITE programmes.	2.63	0.75	2.60	0.70	2.62	0.73	0.10	A	S
4	The use of CNC machining help to control a range of complex machinery.	2.72	0.60	2.71	0.65	2.72	0.63	0.15	A	S
5	CNC is a vast improvement over non-computerized machining in ITE programmes	2.63	0.78	2.70	0.75	2.67	0.77	0.10	A	N
6	CNC machine offers many production advantages over previous methods of machining in ITE programmes	2.58	0.66	2.60	0.70	2.59	0.68	0.09	A	N
7	CNC machine is used for faster and stronger production of many parts	2.53	0.72	2.56	0.69	2.54	0.71	0.12	A	N
8	ITE staff cannot do without CNC because it is an indispensable tool across many industries where their students get employment after graduation.	2.73	0.65	2.75	0.60	2.74	0.61	0.15	A	N
9	ITE staff uses CNC programs for the development of a lifelong learning culture.	2.59	0.62	2.55	0.65	2.58	0.61	0.20	A	N
10	ITE staff uses CNC operations to empower learners with multiple	2.61	0.75	2.63	0.70	2.62	0.71	0.60	A	N

	channels to meet their education and training needs									
11	ITE staff uses CNC to create variety of products for human needs which lead to employment and self-reliance.	2.75	0.59	2.70	0.65	2.72	0.62	0.09	A	N
12	ITE staff uses CNC machine to do operation for 24 hours a day.	2.57	0.63	2.60	0.66	2.59	0.65	0.07	A	N
13	ITE staff uses CNC operation to produce products with higher accuracy and precision than other manual machines with little time and cost.	2.53	0.70	2.56	0.73	2.55	0.72	0.18	A	N
14	ITE staff uses CNC machines to create complex designs with high accuracy	2.58	0.69	2.60	0.70	2.59	0.70	0.08	A	N

Keys: $_1$ = Mean score of Lecturers; SD_1 = Standard Deviation of Lecturers; $_2$= mean score of Instructors; SD_2 = Standard Deviation of Instructors; $_g$ = Grand mean; SDg=Standard Deviation of Instructors: t=hypotheses; R= Remarks; S = Significant; N=Not Significant.

Table 1 reveals that all the 14 items have their grand mean of 2.63is above the cut-off point of 2.50 indicating that the 14 items pointed out the ways ITE lecturers utilize CNC in their instructional activities. The standard deviations of all the 14 items in table 1 range from 0.77-0.61 showing that the respondents were not far from each other in their responses. On the other hand, the hypothesis showed that all the 14 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 as the ways ITE lecturers utilize CNC in their instructional activities.

Table 2: Mean, Standard, Deviation and t-test Values on Challenges that Militate Against the Utilization of the CNC in ITE Programmes.

S/N	Challenges that Militate Against the Utilization of the CNC	$_1$	SD_1	$_2$	SD_2	$_g$	SD_g	T	R	S
1	Poor awareness of the importance of CNC machines and operation	2.79	0.71	2.82	0.73	2.80	0.72	0.13	A	N
2	Inadequate provision of CNC facilities, equipment and infrastructures	2.69	0.75	2.66	0.71	2.68	0.73	0.08	A	N
3	Inability to see CNC machine operations as ways of implementing ITE programme	2.90	0.70	2.80	0.75	2.85	0.73	0.18	A	N
4	Inadequate work shop, in service training and seminars on CNC machine operations for skill upgrading.	2.70	0.72	2.77	0.77	2.74	0.75	0.26	A	N

S/N	Challenges that Militate Against the Utilization of the CNC	$_1$	SD_1	$_2$	SD_2	$_g$	SD_g	T	R	S
5	Resistance to change pedagogical practices in ITE programme	2.82	0.74	2.80	0.76	2.81	0.75	0.08	A	N
6	Lack of access and management to CNC facilities and equipment	2.61	0.70	2.59	0.74	2.60	0.72	0.22	A	N
7	Influence of teachers culture and school culture	2.59	0.69	2.56	0.75	2.59	0.72	0.18	A	N
8	Pressure of work and habit to work	2.60	0.79	2.65	0.81	2.62	0.82	0.20	A	N
9	Lack of confident on teachers and trainer	2.60	0.80	2.68	0.82	2.64	0.81	0.28	A	N
10	Lack of CNC experienced staff, fund and maintenance.	2.59	0.80	2.58	0.83	2.59	0.82	0.17	A	N
	GRAND TOTAL					2.69	0.76			

Keys: $_1$ = Mean score of Lecturers; SD_1 = Standard Deviation of Lecturers; $_2$= mean score of Instructors; SD_2 = Standard Deviation of Instructors; $_g$ = Grand mean; SDg=Standard Deviation ofInstructors: t=hypotheses; R= Remarks; S = Significant; N=Not Significant.

Table 2 reveals that the 10 items listed as the challenges that militate against the utilization of the CNC in ITE programmes have their grand mean value of 2.69 above the cut-off point of 2.50 indicating that the items suggested are the challenges that militate against the utilization of the CNC in ITE programmes are agreed by the ITE lecturers and instructors. The standard deviation of the 10 items in table 2 ranges from 0.72-0.82 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 as challenges that militate against the utilization of the CNC in ITE programmes.

Table 3: Mean, Standard, Deviation and t-test Values on the Ways of Ameliorating the Challenges that Militate against the Utilization of the CNC in ITE programmes.

S/N	Ways of Ameliorating the Challenges that Militate Against the Utilization of the CNC	$_1$	SD_1	$_2$	SD_2	$_g$	SD_g	t	R	S
1	ITE programme should integrate computer literacy in training	2.65	0.60	2.61	0.64	2.63	0.62	0.14	A	N
2	ITE stakeholders should provide work shop, in service training and seminars on CNC machine operations for skill upgrading.	2.58	0.75	2.60	0.71	2.59	0.73	0.09	A	N

S/N	Ways of Ameliorating the Challenges that Militate Against the Utilization of the CNC	$_1$	SD_1	$_2$	SD_2	$_g$	SD_g	t	R	S
3	There should be awareness of CNC machine operations in ITE programme	2.66	0.61	2.62	0.66	2.64	0.54	0.19	A	N
4	ITE stakeholders should invest into CNC training programme.	2.54	0.61	2.58	0.67	2.56	0.64	0.27	A	N
5	There should be equity in the distribution of CNC facilities in universities	2.65	0.72	2.62	0.79	2.64	0.71	0.07	A	N
6	Acquisition of CNC machine skills in ITE should be addressed in pre-service and in-services training of educators	2.70	0.60	2.76	0.65	2.73	0.63	0.24	A	N
7	There should be empowerment of learners in CNC machines	2.57	0.78	2.54	0.72	2.56	0.75	0.16	A	N
8	There should be enhancement of creativity and value in CNC of ITE programme	2.52	0.60	2.58	0.66	2.55	0.63	0.21	A	N
9	There should be flexibility in teaching and learning of ITE programmes	2.53	0.70	2.58	0.77	2.56	0.74	0.21	A	N
10	There should be monitoring and evaluation as it concerns CNC machine training	2.56	0.81	2.59	0.80	2.58	0.81	0.17	A	N
11	There should be quality assurance system as it concerns CNC of ITE programmes.	2.72	0.69	2.78	0.64	2.75	0.67	0.23	A	N
12	There should be enhancement of curriculum as it concern CNC training in ITE programs	2.64	0.63	2.66	0.66	2.65	0.65	0.20	A	N
	GRAND TOTAL					2.62	0.68			

***Keys**: $_1$ = Mean score of Lecturers; SD_1 = Standard Deviation of Lecturers; $_2$= mean score of Instructors; SD_2 = Standard Deviation of Instructors; $_g$ = Grand mean; SDg=Standard Deviation ofInstructors: t=hypotheses; R= Remarks; S = Significant; N=Not Significant.*

Table 3 shows that the 12 items listed as the ways of ameliorating the challenges that militate against the utilization of the CNC in ITE programmes have their grand mean value of 2.62 above the cut-off point of 2.50 indicating that the items suggested are necessary ways for ameliorating the factors hindering the utilization of CNC machine in ITE programmes in public universities in Enugu states. The standard deviation of the 12 items ranges from 0.81-0.54

showing that the respondents were not far from each other in their responses. The hypothesis also showed that all the 12 items 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 that militate against the utilization of the CNC in ITE programmes in public universities in Enugu states.

Discussion

The finding of the study in table 1 revealed that the 14items that were pointed out as the ways ITE lecturers utilize CNC in their instructional activities were all accepted by the respondents. The implication of this finding is that the utilization of CNC machines helps in fast productions, good accuracy of production and in skill acquisition. More so there is necessity for enhancing utilization of CNC machine for effective implementation of ITE programmes in universities. This is in line with Eze & Okorafor, (2012b) who emphasized that there is no contention that high quality human resource in operation of machine tools is a key factor for survival in the world of globalization and knowledge economy. Adekoya (2018); Ewubare & Mark (2018) also revealed that ITE human resources are underdeveloped especially in line with utilization of CNC machines which has contributed to inadequate implementation of ITE programmes in universities. Thomas, (2021) also noted that the utilization of CNC machines has vast improvement over non-computerized machining. The finding of the study in table 2 revealed that the 10items that were pointed out as the challenges that militate against the utilization of the CNC in ITE programmes were all accepted by the respondents. The implication of this finding is that there are hindrances to effectual utilization of CNC machine in ITE programmes which should be looked into for successful implementation of the programme. This is in line with UNESCO-UNEVOC, (2019) that indicated some of the challenges to the use of innovation facilities in ITE programmes to include; internal resistance to change teaching methods, pedagogical practices, the lack of access to new pedagogical equipment and others. Edokpolor, (2018) also observed that the physical facilities and instructional resources for effective teaching and learning processes in ITE are inadequately provided and rarely utilized, which in turn lead to inadequate implementation of the programme. Ruqayyah, (2013) by his study indicated that acquisition of skill especially in CNC machines in ITE programme is central to the availability of efficient and skillful work force which will in turn guarantee adequate training for human and societal needs. Supporting this, Chimere, Iheonu, Nathaniel & Urama (2019) by their study indicated that the absence of technological knowledge and skills in CNC machines could lead to the inability of human to function well in the society. There is need therefore to look into ways of eradicating these challenges for proper utilization of CNC machines and implementation of ITE programmes.

The finding of the study in table 3 revealed that the 12items that were suggested as ways for ameliorating the challenges that militate against the utilization of the CNC in ITE programmes in universities in Enugu

state were all accepted. The implication of the finding is thatthe possibility of effectual utilization of CNC machines for good implementation of ITE programmes depends on ameliorating the challenges that militate against the utilization of the CNC in ITE programmes. This is in line with Tinio (2002) who is of the view that issues like digital culture & literacy, teacher professional development among others should be looked into for proper utilization of innovation facilities. The study by Deebom & Goma, (2018) indicated that effective implementation of ITE programmes occur not to survive in this present digital and computer age without encompassing and incorporating proper utilization of CNC machine tools thus the need to enhance the utilization of CNC machine tools. More so, Frederick, (2015) suggested some way of taking care of the factors that hinders the utilization of innovation equipment to include: empowerment of learners, enhancement of creativity and flexibility to instructional delivery etc. It is therefore necessary that these prospects should be used to address the factors hindering the effectual utilization of CNC machines for effective implementation of ITE programmes of public universities in Enugu state Nigeria.

Conclusion

The digital revolution is rapidly transforming the world of work and the skills of ITE programmes in universities. These changes ushered in the use of CNC machines in the teaching and learning of ITE programmes whose interest is inadequate implementation of ITE programmes in universities. However the utilization of CNC machine tools is faced with many challenges which should be looked into. Effective implementation of ITE programmes in universities cannot be sustained in this present digital and computer age without encompassing and incorporating effectual utilization of CNC machine tools. There is need therefore for enhancing utilization of CNC machines for effective implementation of ITE programmes in universities.

Recommendations

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

1. ITE educators should utilization of CNC machines in teaching and learning of ITE programmes in universities.
2. ITE personnel should collaboratively ensure that CNC equipment and facilities in public universities in Enugu state is provided for.
3. Universities should organize training inform of in service training, conference and workshop for update of skills of ITE educators.
4. ITE personnel should ensure adequate funding of ITE programs and empowerment of learners.

References

Adekoya, O. (2018). Impact of Human Capital Development on Poverty Alleviation in Nigeria. *International Journal of Economics & Management Sciences, 7*(4). 2-8.

Adepoju, E.O. (2020) Perceived Impact of Utilization of ICT Facilities on Academic Performance of Undergraduates in Universities in Southwest, Nigeria. *International Journal of Research and Innovation in Social Science (IJRISS),* 6(5), 1-9.

Akinfolarin, C. A., Ajayi, I. A., &Oloruntegbe, K. O. (2012). An Appraisal of Resource Utilization in Vocational and Technical Education in Selected Colleges of Education in Southwest Nigeria. *Journal ofEducation*, *2*(1), 41-45.

Chimere, O., Iheonu, N.E.&Urama (2019) Addressing Poverty Challenges in Nigeria. AfriHeritage Policy Brief No. 21, July 2019

Davenport Machine (2018) |Types and Advantages of CNC Machines (Computer Numerical Control) *http://www.shopbottools.com/mProducts/WhatsCNC.htm*

Deebom, M. T&Goma, O. T *(2018)*Utilization of Information Communication and Technology for Sustainable Manpower Development among Technical Educators in Tertiary Institutions in Rivers State, Nigeria. *International Journal of Innovative Information Systems & Technology Research* 6(2), 126-133.

Eze, T. I., &Okorafor, A. O. (2012). New Approaches to the Development of Technical,

Vocational Education and Training (TVET) Curriculum for Improved Labour productivity, *International Journal of Educational Research* 12(1), 101-108

Edokpolor, E. J. (2018). Systems approach in developing creative thinking and innovative capabilities for lifelong learning among TVET students in Federal Universities, South-South, Nigeria. *International Journal of Educational Development* (IJED), *21*(1), 1-15.

Edokpolor, J. E., &Dumbiri, D. N. (2019). Resource adequacy and utilization for teaching and learning effectiveness in vocational education programmes in South-South Nigerian Universities. *Journal of Vocational Education Studies*, *2*(1), 1-12. DOI: https://doi.org/10.12928/joves.v2i1.727

Fageyinbo, I.O. (2013). Vocational and technical education in Nigeria: Issues, Problems and Prospects. *Journal of Educational and Social Research.* 3(6), 78-88.

Frederick, T. F. (2015). Prospects and challenges of E-learning in Nigerian University Education using National Open University of Nigeria Akure Study Centre. Unpublished Bachelors' Degree project, Department of Science & Technical Education,AdekunleAjasin University.

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 Nigerian Universities for quality assurance. *Indonesian Journal of Electrical Engineering and Computer Science,* 20(3), 1315-1324.

Ogbuanya, T. C. & Okoye, P. I. (2015).Repositioning Technology and Vocational Education and Training (TVET) for Poverty Reduction in Nigeria. *International Journal of African Society Cultures and Traditions* Vol.2, No.3, pp.1-12, July 2015

Okonjo-Iwuala, N. (2013). Entrepreneurship in higher and further education*:* Nigerian Model. Retrieved online on December 15, 2014 from http://fededusec.gov.

Ruqayyah, R. (2013). Manpower and competency issues with graduates of Nigerian institutions. Retrieved online on December 4, 2014 from http://www.punchng.org

Thomas index (2021) What is CNC Machining? | Definition, Processes, Components & More retrieved from https://www.thomasnet.com/industry-update-newsletter/. 15/08/2021.

Tinio, V.L. (2002). Information and Communication Technology in education. Retrieved on 20/4/2019 from https://learningportal.iiep.unesco.org/en/issue-briefs/improve-learning/curriculum-and-material/information-and-communication-technology-ict

UN (2012) Office of the United Nations High Commissioner for Human Right s *Principles and Guidelines for Human Rights Approach to Poverty Reduction Strategies* [online] http://www.ohchr.org/Documents/Publications/PovertyStrategiesen.pdf> [Accessed 10 January 2012]

UNESCO-UNEVOC (2019) Trends mapping studies*UNESCO-UNEVOC International*

Centre for Technical and Vocational Education and Training.

Uya, E.A. (2014). Plans, Programmes and Poverty Alleviation in Nigeria: *Integration of Poverty Alleviation Strategies into Plans and Programmes in Nigeria.* Ibadan: NCEMA.

Wonacott, M. E. (2001). Keeping vocational/career-technical educators current. *Trends and Issues Alert, 23*. Retrieved January 2, 2003, from ERIC/ACVE Publications web site: http://ericacve.org/ ocgen.sp?tbl=tia&ID=145.

JHER Vol. 29 (2), December 2022, pp.108 -117

Issues in Choice of Clothing and Textile Career among Senior Secondary School Students inAbeokuta South, Ogun State

Sowemimo B. O., Adeboye A.O., Olorunnisomo O.B., Labode O. J., Braide O.O.
Federal University of Agriculture, Abeokuta
Department of Home Science and Management

Corresponding author: sowemimobo@funaab.edu.ng

Abstract

The broad objective of this study was to investigate issues related to choice of Clothing and textile careers among Senior Secondary School (SSS) students in Abeokuta. Specifically the study determined: students' awareness of careers in Clothing and textiles, attitude of students towards choosing a career in Clothing and textiles, and factors that influenced career choice of SSS students in Abeokuta South LGA. The study utilized a descriptive survey design. Population of the study comprised of students from public secondary schools in the study area. Questionnaire was used to collected data. Data was analyzed using frequency counts, percentages and means. Findings revealed 12 awareness of Clothing and Textiles related careers among the SSS students. These include; costume designing (.); runway modeling .); fashion journalism and others. Findings also revealed 12 attitudes of SSS students towards career choice in clothing and textiles. These include; if I had the opportunity and resources I would go into fashion business (.....), being a fashion designer would give me a great satisfaction (.) among others. Furthermore, 14 factors influencing choice of clothing and textile career among students. These include; role models (.); the knowledge); and financial; status of my parents (.....). Based on the findings, the study recommended that career guidance and counseling should become prominent in Secondary Schools, providing students with up-to date information regarding career selection.

Keywords: Attitude, Awareness, Career, Choice, Clothing, Textile.

Introduction

Career choice is one of the biggest dilemmas and challenges in many students' lives. Choosing a career involves decision-making. This process is usually influenced by the amount of information that an individual has to work with. Jones and Larke (2005) posited that one of the major factors that influence career choice is lack of awareness. Career awareness is fundamental that it is seen as the basis for making choices that affects the direction of a person's career (Robert, Charner& Randour, 1976; Whiteley and Resknikoff, 2018). Career choice has a great impact on a person's future such that the choice of an individual can either make or mar the future. Certain prevailing factors guide individuals while choosing a career and showing proficiency in it. These include among others, personality, environment, experiences, religion, academic achievement, family, socio-economic

status. Other factors such as interest and values like parents, teachers, peer group, friends, radio, television and books also affect the choice of an individual (Agbo, Akpan and Odeh, 2015).

According to Issa (n.d), career development occurs in broad sequential stages, starting from childhood till death. The earliest stage is often a non-realistic conceptualization of one's potential and the world but with time the child begins to be more realistic in appraising himself with potential jobs, the second stage normally extends from about the end of primary school to secondary school and the third stage is referred to as realistic choice making. A study carried out by Shumba and Naong (2012) found that the majority of the respondents attributed their career choice at universities to subject choices they made whilst they were still in high schools. This suggests that Senior Secondary School (SSS) students are already at the stage where they are beginning to form ideas about the career they want to pursue in life, and this spurs them to select subjects that are relevant to t their desired careers.

The world is facing a serious crisis due to competitions, unemployment rate of educated youths, self-fulfillment (Humayon, Raza, Khan and Ansari, 2018). In Nigeria, it is common to find graduates from different professions venturing into the Clothing and textile industry as a result of unemployment and the need for self-employment. Available report indicate that unemployment rate in Nigeria increased to 33.30 percent in the fourth quarter of 2020 from 27.10 percent in the second quarter of 2020 and it is still increasing (Trading Economics 2021). Consequently, parents are now encouraging their children to learn a trade or skill in addition to their formal education, so as to prepare them for possible self-employment. It was observed in Abeokuta, for instance, it can be observed that most of the SSS students are already engaging in one craft or trade along family trade line. While this is a good practice, it can prevent adolescents who may have developed original interest in other crafts such as clothing and textile from venturing into the profession as they have been engaged differently.

Clothing and textiles as a course of study provides practical and entrepreneurship skills which could help equip students in production of different Clothing and textile items, articles and crafts. A career choice in this field may have been the best choice for some students without their being aware of it. In actual sense, most university students originally apply for professional courses such as engineering, medicine, law, nursing, accounting among others, but might, for some reasons beyond their control drop-out before the completion of their courses. Statistics reveals that there is a three times higher ratio of drop-outs of adolescents from their courses of study than from the university itself. The Higher Education Authority (HEA) attributes this scenario to incorrect career choices (Kazi and Akhlaq, 2017).

Some of the career options in Clothing and textiles include fashion designing, pattern drafting, fashion journalism, fashion merchandising, consultancy in interior decoration, wardrobe planning, event organizing, laundry services, haberdashery dealer (Jd Institute, 2021).These career options create avenue for students to be self-employed especially in a developing country such as Nigeria where there are minimal employment opportunities

available to graduates. It has been observed that very few candidates apply to study clothing and textile related courses in higher institutions of learning and this may be attributed to their lack of awareness or interest. Kazi and Akhlaq (2017) found that students have misconceptions about some professions due to lack of information, and this prevents them from choosing such areas of study. It is therefore possible that if students were aware of some career opportunities in fashion, Clothing and textiles, they might begin to enroll to study Clothing and textile. Salami (2006) posited that many youths in Nigeria make wrong career choices due to ignorance, inexperience, peer pressure, advice from friends, parents and teachers without adequate vocational guidance and career counseling. When this occurs, these youths constitute nuisance to themselves and their employers and are unable to contribute meaningfully to the society. Hence, the problem of this study is the low enrolment of students in Clothing and Textile course at the SSS level even though this subject has a lot of potential opportunities in them. Hence this study intended to investigate into how much of these students have an interest in careers associated with clothing and textiles.

Objectives of the Study

The broad objective of this study was to investigate issues related with choice of Clothing and textile related careers among SSS students in Abeokuta South Local Government Area (LGA) of Ogun state. Specifically, the study determined;

1. extent to which SSS students are aware of available Clothing and textiles related careers.
2. attitude of the students towards choosing Clothing and textiles related careers.
3. Factors that influence choice of Clothing and textiles related careers among SSS students in Abeokuta South LGA of Ogun state.

Methodology

***Research Design*:** The study made use of descriptive survey design.

***Area of Study*:** The study was carried out in Abeokuta South LGA of Ogun state. This LGA is usually referred to as the Premier Local Government, owing to the historic eminence of that geographical entity as the traditional seat of the Local or Native Authority in Egba since 1898 as well as the seat of the Government of Ogun State. The Occupation of its indigenes are poetry, tie and dye, amongst others (Ogun State Biz., n.d). There are 42 secondary schools in this LGA; 20 Junior Secondary Schools, 20 Senior Secondary Schools and two schools have both Junior and Senior Secondary schools (Ogun State School Management Board).

***Population for the Study*:** The population of this study comprised of SSS students of public Secondary Schools in Abeokuta South LGA. Students in the SSS must have taken Home economics in their junior secondary years where they would have been introduced to Clothing and textile. At the senior secondary level, they are given the option to choose among some subjects under Home economics like Food and nutrition, Clothing and textile, Home management and Bleaching and dyeing.

***Sample for the Study*:** A total of 404 SSS students were selected using multi-stage sampling procedure. The first stage was simple random selection of three public

senior secondary schools in the LGA. At the second stage, SS1 and SS2 classes were selected purposively. This was because students in SS3 class were considered very busy since they were preparing for their secondary school leaving examinations. At the third stage, the respondents were selected using simple random technique through balloting.

***Instrument for Data Collection*:**
Questionnaire was used to collect data. It was developed based on the specific objectives and literature review. The questionnaire was divided into four sections; Section A dealt with socio-demographic characteristics of respondents, Section B measured respondents awareness of Clothing and textile careers using "aware" and "not aware", Section C measured their attitude towards choosing a career in clothing and textiles and Section D dealt with factors influencing career choice. Sections C and D had a four-point scale ranging from strongly disagree to strongly agree and were assigned numeric values 1 to 4 respectively.

The instrument was validated by three experts in Clothing and textiles. To establish reliability of the instrument 10 copies of the questionnaire were administered to ten respondents from senior secondary school located outside the study area. A Cronbach's alpha coefficient 0.85 was obtained which showed that the instrument was reliable.

***Method of Data Collection*:** Permission was obtained from Vice-principals and relevant class teachers of the selected schools to carry out the research in their schools. A total of 404 questionnaires were administered to the students with the help of their class teachers. All the 404 copies were retrieved the same day. This gave a hundred percent (100%) retrieval of the instrument. However, only 400 copies were analyzed due to incomplete responses in four copies.

***Data Analysis Techniques*:** Data were analyzed using frequency counts, percentages and means. In interpreting the data, the mean was compared with the mean range. For section B on SSS Students' awareness of clothing and textiles related careers, the range of mean was used as decision rule with mean ranging from 1.00 - 1.50 is "Not Aware" while 1.60 – 2.00 is "Aware". Likewise, for Section C and D, the mean ranging from 1.00 – 1.75 (Strongly Disagree); 1.85 – 2.50 (Disagree); 2.60 -3.25 (Agree); and 3.35- 4.00 (Strongly Agree).

Results

Socio-demographic Characteristics of Respondents: Data analysis reveals that 43% of the respondents were between the ages of 16-17 years while (28.5%) of the respondents fell below the age of 15years and 28.5% were above 18years old. About half (52.5%) of the respondents were in S.S1 while 47.5% were in S. S2 class.52.5% female and 47.5% male students responded to the survey. The level of education of their parents was also determined; majority (61.5%) claimed that their fathers had Secondary School education while 24.25% of their fathers had tertiary level of education. Less than half (43%) claimed that their mothers had tertiary education and 33.25% of their mothers had Secondary education. Finally, most (67.25%) of the respondents were Yorubas while the others were from other ethnic groups such as, Igbo, Hausa and Igede.

Table 1: Percentage ( ) Responses on SSS Students' Awareness of Clothing and Textiles Related Careers

S/N	Items Are you Aware of These Careers in Clothing and Textile?	Yes, I'm Aware Freq. (%)	No, I'm Aware Freq. (%)	Mean	Decision.
1	Costume designing	284 (71.0)	116 (29.0)	1.71	Aware
2	Fashion styling	286 (71.5)	114 (28.5)	1.72	Aware
3	Runway modeling	265 (66.3)	135 (33.8)	1.66	Aware
4	Fashion journalism	284 (71.0)	116 (29.0)	1.71	Aware
5	Fashion merchandising	226 (56.5)	174 (43.5)	1.57	Not Aware
6	Garment manufacturing	322 (80.5)	78 (19.5)	1.81	Aware
7	Interior decoration	227 (56.8)	173 (43.3)	1.57	Not Aware
8	Wardrobe consultancy	245 (61.3)	155 (38.8)	1.61	Aware
9	Fashion designing	324 (81.0)	76 (19.0)	1.81	Aware
10	Accessory designing	264 (66.0)	136 (34.0)	1.66	Aware
11	Tailoring	286 (71.5)	114 (28.5)	1.72	Aware
12	Textile production e.g weaving	207 (51.8)	193 (48.3)	1.52	Not Aware

Decision Rule, mean 1.00 – 1.50 "Not Aware" and 1.60 -2.00 "Aware

Table 1 shows the respondents awareness of career options in clothing and textiles. Majority of the respondents were aware of fashion designing ( ) and garment manufacturing ( ) as a career, followed by tailoring ( ), fashion styling ( ), costume designing ( )and fashion journalism ( ). Most of the students were aware of careers in runway modeling ( ), accessory designing (1.66) and wardrobe consultancy (1.61) while respondents are not aware of career opportunities in interior decoration ( ), fashion merchandizing ( ) and textile production- weaving ( ). Therefore, the mean responses above shows that the respondents have awareness of clothing and textile related careers.

Table 2: Mean ( ) Responses on Attitude of SSS Students towards Career Choice in Clothing and Textile

S/N	Attitude Indicators	Mean	Std. dev	decision
1	Careers in clothing, textile and fashion are attractive to me	2.18	1.11	Disagree
2	I can choose a career in clothing, textiles and fashion	2.41	0.65	Disagree
3	If I had the opportunity and resources I would go into fashion business.	2.23	1.00	Disagree
4	If I had the opportunity and resources I would go into textile production.	2.36	1.07	Disagree
5	If I had the opportunity and resources I would go into runway modeling.	2.50	0.94	Disagree
6	Being an interior decorator implies more advantage than disadvantage.	2.00	0.80	Disagree
7	Being a Fashion journalist implies more advantage to	2.32	0.98	Disagree

	me than disadvantage.			
8	Being a costume designer implies more advantage to me than disadvantage.	2.36	1.07	Disagree
9	Being a fashion stylist and wardrobe planner implies more advantageous to me	2.32	0.92	Disagree
10	Being a fashion designer would give me a great satisfaction.	2.36	0.98	Disagree
11	Being an accessories designer would give me a great satisfaction.	2.19	0.89	Disagree
12	Being a garment producer implies more advantage to me than to disadvantage	2.27	0.81	Disagree

Grand mean= Total Mean / N= 27.5/12 = 2.29 (Unfavorable attitude)

The following mean range were used in evaluate the responses of respondents attitude towards their choice of clothing and textiles related careers, Strongly Disagree = 1.00 – 1.75; Disagree = 1.85 – 2.50; Agree = 2.60 -3.25; and Strongly Agree 3.35- 4.00. These responses were further categorized into Unfavourable Attitude = 1.00 – 2.50 and Favourable Attitude = 2.60 – 4.00.

Table 2 shows the attitude of the SSS students towards a career choice in clothing and textiles. It shows that the respondents disagree that the careers in Clothing, textile and fashion are attractive to them ($\overline{X}$ 2.18). in fact they disagree with all the 12 attitude indication. In each case the mean response was less than 2.60 (·

Table 3: Mean ( ) Responses on Factors Influencing Choice of Clothing and Textile Related Career among Students

S/N	Factors Influencing Career Choice	Mean	Std. Dev	decision
A.	**Sociological Factors**	**2.57**		
1	My parents	2.22	1.24	Disagree
2	My friends	2.50	1.16	Disagree
3	Role models	2.64	1.02	Agree
4	My gender	3.32	0.97	Strongly Agree
5	My tribe	2.18	1.11	Disagree
B.	**Educational Factors**	**2.44**		
6	My teacher	2.41	1.16	Disagree
7	My intellectual capability	2.23	1.08	Disagree
8	The knowledge	2.68	1.06	Agree
C.	**Economic Factors**	**2.51**		
9	Financial status of my parents	2.64	1.02	Agree
10	The rate of poverty in the nation	2.37	1.19	Disagree
D.	**Psychological Factors**	**2.46**		
11	Personal interest	2.54	1.03	Disagree
12	My personality	2.37	1.23	Disagree
E.	**Chance Factors**	**2.32**		
13	Available job opportunities	2.27	1.18	Disagree
14	The privileges in a career	2.36	1.11	Disagree

The following mean ranges were used in evaluate the responses of respondents on factors influencing their choice of clothing and textiles related career; Strongly Disagree = 1.00 – 1.75; Disagree = 1.85 – 2.50; Agree = 2.60 -3.25; and Strongly Agree 3.35- 4.00. These responses were further categorized into Low influence factor = 1.00 – 2.00; Moderate Influence factor = 2.10- 3.00 and High influence factor = 3.10 – 4.00.

Table 3 shows majority of the respondents agreed that gender as a sociological factor is influential on their career interest ($\overline{X}$ 3.32), next to this is role models ($\overline{X}$ 2.64) and then friends ($\overline{X}$ 2.50)·The participants predominantly agreed that the knowledge they have influences their career choice ($\overline{X}$ 2.68). Also, the financial status of their parents was agreed to be influential on the career they want to pursue ($\overline{X}$ 2.64) as well as their personal interest ($\overline{X}$ = 2.54). The results show that the factors that influences students the most are the sociological factors ($\overline{X}$ 2.57), followed by economic factors ($\overline{X}$ 2.51), psychological factors ($\overline{X}$ 2.46), educational factors ($\overline{X}$ 2.44), and then chance factors($\overline{X}$ 2.32).

Discussion of Findings

This findings of the study shows that majority of the respondents were aware of career opportunities in clothing and textiles; the respondents were aware of fashion designing and garment manufacturing as a career ( ), tailoring ( ), fashion styling ( ), costume designing ( ) and fashion journalism( ).This high level of awareness could have been as a result of the use of internet, particularly social media platforms. Sander and Teh (2019) posited that social media is responsible for influencing the awareness of individuals; this could be through ads, pop-ups or engagements. Therefore, information that is not readily available in people's physical environment are learnt or seen on the internet.

The findings also reveal that the attitude of the respondents towards choosing a career in clothing and textiles is unfavorable ($\overline{X}$ = 2.29).Even though career choice is sometimes as a result of individual interests and personality, some students mentioned that they have not been well exposed to clothing and textile as a subject and that their teachers focused more on the other aspects of Home economics when they were in Junior Secondary School (JSS) - this may have prevented the students from developing an interest in this field. Zhang(2007) found that personal liking of an individual towards a particular subject contributes in his career selection decision. But how can you like something that you have little knowledge about? The study of Arugbayi and Obunadike (2017) which was done in Anambra, Nigeria, found that students have a negative attitude towards learning of clothing and textile and also determined some of the problems in teaching and learning of the subject as perceived by students; some of which were instructional impediments ranging from inadequate topics and tests, inappropriate methods in the curriculum, to lack of pedagogical skills among teachers; and lack of funds and failure of teachers to improvise and utilize instructional materials.

According to Agbo et.al, (2015), there has been a misconception of clothing

careers by the society for a long time, most of the knowledge about clothing is reduced to just sewing of dresses which is viewed as job for school drop-outs and this has produced negative attitude towards it. It is therefore possible that the participants view careers in the clothing and textile field as not professional enough for them to venture into. This study identified factors that could influence students to make a choice of career in clothing and textile related careers. Results showed that the career choice of students was mostly influenced by sociological factors. Majority of the respondents agreed that their gender has a high influence on their choice of a career in clothing and textile ($\bar{X}$ 3.32). It has been observed that male students tend to aspire for professional careers mostly known as white collar jobs; this is in line with Edwinsson and Nilson's (2009) study who found that students, especially male ones, were discouraged about joining the fashion design profession as it was regarded with a lower status. This study found that participants were influenced more by role models and friends rather than parents in taking career decisions; this is contrary to the findings of Edward and Quinter(2017) who posited that when adolescents require information on topics such as career planning, they consult their parents. It appears that in recent times, parents are now allowing their wards chose what they like as a career unlike in the past where parents exerted emotional pressure on their wards regarding the choice of careers (Nyarko-Sampson, 2013). Some parents who had pre-determined careers for their children tend to steer them to go in that direction and they go as far as making independent consultations regarding the career that they think is most suitable for their children.

Findings further revealed that the participants of this study predominantly agreed that the knowledge they have influences their career choice (2.68). This is because students usually make career choices based on their level of awareness about certain professions which might be as a result of some people they know excelling in that field or based on the information they gather regarding that field. Also, economic factors such as the financial status of their parents was agreed to be influential on the career they want to pursue ($\bar{X}$ 2.64). The availability of funds in the home environment usually influences a child's career path. Saleem et al., (2014)suggested that parents' profession, income level and their knowledge on various professional areas, the norms, beliefs, information about modern occupations, spotlight to local and international job market, and the skills they acquire can affect children of their career selection.

The findings also indicate that the respondents are influenced in their career choice by their personal interest ($\bar{X}$ 2.54) which is a psychological factor. Obiunu and Ebunu (2013) established that psychological factors impress on the mentality and mind set of individuals. Edward and Quinter (2012) also suggested that an individual's proclivity towards a particular field or subject, its predilection for a particular job and match between his personality and selected professions is an important factor contributing in career path.A mismatch of personality with a course/ career can be challenging for anyone; hence,in the process of making career choices, personality plays a significant

role; productivity, fulfillment and motivation are directly related to the individual (Kazi, Nimra and Nawaz, 2017).

Conclusion

The study found that the respondents of this study had an awareness of most clothing and textiles related careers. However, they have negative attitude towards choosing careers related to Clothing and textiles. This implies that their awareness did not translate to a positive attitude. The factors that influenced participants' career choice in clothing and textile were also established; their gender had a high influence on their choices while other sociological factors such as, role models, friends and parents had a moderate influence on them. It was found that the students were also moderately influenced by all the other factors such as students' knowledge about the career, parents' financial status and students' personal interest.

Recommendations

Based on the findings of the study, the study recommends that:

1. Career guidance and counseling should become prominent in Secondary schools, providing students with up to date information regarding career selection.
2. Entrepreneurial studies and vocational skills should be learnt in secondary schools while providing experimental opportunities for students to attract them to relevant professions.
3. Schools should encourage field trips and excursion to various organizations which can help stir interest of students in Clothing and textiles.

References

Agbo, D.A., Akpan A. &Odeh, O.A. (2015). Utilizing ICT to Improve Students' Interest in Clothing for Enhanced Creativity and Entrepreneurship for Home Economics Graduates. *International Journal of Scientific Research in Information Systems and Engineering (IJSRISE)*; 1(1), 9-15.

Arugbayi D.O. &Obunadike J.C. (2017).Problems of Teaching and Learning Clothing and Textiles in Senior Secondary Schools in Anambra State, Nigeria.*Studies on Home and Community Science*; 5(2), 113-119

Edwinsson, L., &Nilson, A. (2009). Dignity IV: Fashioning Kenya - A study of Kenya as a market for domestic fashion brands. The Swedish School of Textiles.

Humayon, A.A., Raza, S., Khan, R.A., & Ansari, N. (2018). Effect of Family Influence, Personal Interest and Economic Considerations on Career Choice amongst Undergraduate Students in Higher Educational Institutions of Vehari, Pakistan. *International Journal of Organizational Leadership.*7, 129-142.

Issa, A.O. (n.d). The career choice of library and information science students: An Overview. Available at: https://unilorin.edu.ng/publications/issaao/. Accessed in April, 2022.

Jd Institute (2021). Top 10 Careers in the Fashion Industry. Available at: https://jdinstituteoffashiontechnology.com/top-10-careers-in-the-fashion-industry/. Accessed in April, 2022.

Jones, W.A., &Larke, A.(2005). Enhancing the quality of life for hispanic individuals through career preparation. *Journal of hispanic Higher Education*; 4(1), 5-18.

Kazi, A.S. &Akhlaq, A. (2017). Factors affecting students' career choice. *Journalofresearchandreflectionsin education*; 2(2), 187-196.

Kazi, A. A., Nimra, S. & Nawaz, A. (2017). Factors Influencing students career choices; empirical evidences from

business students. *Journal of southeast Asian research*. 2017, 1-154. DOI: 10.5171/2017.718849.

Nyarko-Sampson, E. (2013).Tutors' participation in guidance and counsellingprogrammes in Colleges of Education in northern Ghana. *Ife Psychologia*: *an International Journal;* 21(2),141-14.

Obiunu, F.J &Ebunu, O.R.(2013).Factors affecting career development of Senior secondary schools students in Ethiope, *Nigeria Global Science Research Journals*; 2(1), 5-10.

Ogun State Biz. (n.d). Local Governments in Ogun State; Abeokuta South. Available at: https://ogunstatebiz.tripod.com. Accessed in April, 2022.

Robert, W., Charner, I., &Randour, M. L. (1976). A Conceptual Framework for Career Awareness in Career Decision-Making. *The Counseling Psychologist;*6(3), 47-53.

Salami, S.O (2006). Influence of culture, family and individual difference on choice of gender-dominated occupations among female students in tertiary institutions. Journal of Gender and Behaviour, 4(2), 814-833.

Saleem, N., Mian, A., Saleem, H. I., & Rao, M. S. (2014). Career Selection: Role of Parent's Profession Mass Media and Personal Choice. *Bulletin of Education and Research*; 36(2), 25–37.

Sander, T. &Teh, P.L. (2019).*Is Social Media Changing the Awareness of Individuals?* Paper presented at: International Conference on New Trends in Social Sciences, Barcelona. DOI: 10.33422/ntss.2019.08.488.

Shumba, A., &Naong, M. (2012). Factors Influencing Students' Career Choice and Aspirations in South Africa. *Journal of social science*; 33(2),169-178.

Trading Economics (2021). Nigeria Unemployment Rate. Available at: https://tradingeconomics.com/nigeria/unemployment-rate. Accessed in April, 2022.

Whiteley J.M. &Resknikoff, A. (2018).*Career Counseling*. The Brooks/ Cole Publishing Company. Monterey, California.

Zhang, W. (2007). Why IS: 'Understanding undergraduate students' intentions to choose an Information Systems major'. *Journal of Information Systems Education*; 18(4), 447-452.

JHER Vol. 29 (2), December 2022, pp. 118 -129

Food Consumption Pattern and Selected Lifestyle Characters tics of Traders in Ubakala Market in Umuahia South Local Government Area of Abia State.

[1]Ezenwa, H.C., [1]Iheme, G.O., [2]Adeoye-Agomoh Queen & [3]Igbokwe, C.C.
[1]Department of Human Nutrition and Dietetics, Michael Okpara University of Agriculture, Umudike.
[2]Department of Home and Rural Economics, Federal College of Agriculture, Isiagu, Ebonyi State.
[3]Department of Vocational Education, Abia State University, Uturu.

Corresponding author: nessmyk@yahoo.com

Abstract

The general purpose of the study was to investigate the food consumption pattern and selected lifestyle characteristics of traders in Ubakala, Umuahia South L.G.A. of Abia State. Specifically, it determined: socio-demographic and economic characteristics of the traders, their food consumption patterns, types of food consumed, lifestyle and BMI characteristics. The study adopted survey design. Population consisted of all traders in daily markets at Ubakala. Questionnaire was used for data collection. Body mass index (BMI) was calculated from anthropometric measurements. Data were analyzed using frequencies and percentages. Result among other things, showed that there were more females (83.8%) than males (16.2) in the market with an average monthly income of <N10.000 – N>50.000. Over half (52.9%) of them skipped meals. Lunch (32.4%) was the most frequently skipped. Consumption of meat and fish (72.4%), snacks (62.4%), soft drinks (54.6%) and tubers (58.6%) were high; Cereals (54.3%) consumption was moderate while legumes (11.4%), nuts (15.7%), fruits and vegetables (9.0%) were rarely consumed. Some (17.1%, 40.0% and 25.7%) smoked cigarette, use tobacco and consumed alcohol respectively. Pica (white chalk (22.9%) and white clay (20.0%) consumption was also observed. Majority (94.3%) had no regular exercise pattern and few (11.4%) trekked to the market. The food habit and sedentary lifestyle may have contributed to the high prevalence of overweight (27.6%) and obesity (34.8%) observed among the respondents with more males (44.1%) being overweight than females (24.4%) and more females (36.4%) being more obese than the males (26.5%). Four recommendations for promoting food consumption patterns and lifestyle of the traders were made.

Key words: Food, Consumption, Pattern, Lifestyle, Traders, Physical Activity, BMI.

Introduction

Food consumption pattern refers to the way different people select, cook, serve and eat the foods available to them (Okeke 2014).The common practice in most traditional cultures has been to eat three meals (breakfast, lunch, and dinner) per day. The component of meals according to Gwatkin*et al.* (2007) varies across cultures.

In sub-Saharan Africa, Sally *et al.* (2012) reported that carbohydrate foods (mainly tubers and roots such as cassava, yams and potatoes) remain typically the main staple. In Tanzania Ugali, a stiff porridge of maize is the most common food, whereas in South Africa, the most common carbohydrate foods were maize and bread (Hoffmeister*et al.,* 2005). Oguntona and Akinyele (2002) reported that the major staple consumed in Nigeria were roots and tubers served as different types of 'fufu' or 'swallow' (a group of bolus meals such as eba, pounded yam, amala, semovita and tuwon) eaten with soup. The root and cereal/ grains used for these bolus meals included cassava, yam, plantain, corn, wheat and rice. Within Nigeria, there are some regional variation in the type of bolus meals consumed with great consumption of rice and maize-based meals in the North and consumption of yam and cassava based meals in the South.

Food habit of traders seem to conform to the food habit of their immediate communities which according to Onimawo (2014) have been undergoing dramatic transformation from the traditional diets that were high in fiber, low in calorie with minimal protein to the Western type of diet that is low in fiber, calorie dense and high in protein, most of which are over processed. This change can be attributed to urbanization rate and improved socio-economic status among the populace including traders. For example, Steyn*et al.* (2006) reported that in South Africa the most commonly consumed foods were sugar, tea, maize, porridge brown bread, coffee, white bread, potatoes, hard block margarine and milk. In Nigerian, Sally *et al.*(2012) reported that rice was the most consumed carbohydrate, followed by bolus meals and soup in both urban and rural communities. Sally *et al.* (2012) observed that about four decades ago, imported long grain parboiled rice was consumed mainly on weekends, celebrations and parties, the consumption of locally grown rice was not very high as bolus meals with soup but the pattern have change drastically. Rice both the imported parboiled long grain variety and the locally stone free variety is now often consumed on week days. This trend has been strengthened more by the introduction of fast food restaurants, whose major product is packaged chicken and rice meals ,Anulogu, and Owolabi (2011). FAO (2010) reported that pounded yam which was hitherto consumed as ceremonial/celebration food is now consumed more frequently than before. This was attributed to easier methods of preparation and also to the reduced time required for its preparation (as a result of increased use of labour saving devices and convenient pre-prepared packets of Poundo and other root flours) and its availability at fast food restaurants.

Lifestyle refers to the way people live and it is a full reflection of their social values, habits, attitudes and activities. According to Speargaren and Vanvilet (2010) it includes but not limited to food habits, sleeping and resting habits, physical activities, smoking, alcohol consumption, tobacco and other substance use, immunization against diseases, coping with stress and ability to use family and society supports. Smoking, tobacco, pica and other substance use are some of the lifestyle habits that expose people to diseases. Pica according to Mawathe (2008) is a repeated non nutritive craving and

ingestion for either a food, food item or substances not commonly regarded as food. Examples include geophagia (eating of clay), pagophagia (eating of ice), paper pica and cautopyreiophagia (ingestion of ashes). Geophagia ,pagophagia and paper pica can lead to poisoning and anemia while cautopyreiophagia can lead to gastro intestinal bleeding and parasitic infections (Schebendach and Reichert-Anderson, 2000).

The lifestyle of people like their food consumption pattern have been affected by such factors as urbanization and globalization. Ekpenyong, Udokang, Akpan and Samson (2012) noted that more people now have reduced physical activity in Nigeria as many adults spend at least seven hours every day sitting down and sedentary performing work activities, using. labour saving devices, have access to improved transport facilities and no longer trekked short distances. Several studies have shown sedentary lifestyle and lack of physical activities as risk factors for non communicable diseases (NCDs) such as cardiovascular diseases (American Cancer Society, 2012), diabetes , colon cancer and high blood pressure (WHO, 2010); obesity (Centre for Disease Control and Prevention, 2010), osteoporosis (National Institute of arthritis and musculoskeletal and skin diseases, 2009), kidney stones (US Dept of Health and Human Services, 2009). WHO (2010) had submitted that a regular level of physical activity improves the health and well being of individuals which include enhanced mood and self esteem, improved physical appearance and a substantial reduction to cancers, obesity, osteoporosis and non insulin dependent diabetes, improves cardio vascular and respiratory functions, slows the loss of muscular strength, increase bone mass, aids digestion and bowl function, promotes sound sleep and prevents depression.

Traders represent an important productive sector of the economy whose health and well being are paramount to economic growth and sustenance of the nation. Majority of them spend the greater part of the day in the market. Market environment influences their activities including their lifestyle and food habit. The worrisome challenge of consuming unhealthy diet is the risk of prevalence of NCDs among the people. Steyn*et al.*, (2012) opined that the poor dietary shift currently going on in Nigeria can be attributed to the influence of urbanization and globalization. Poor diet (high consumption of sugar, salt, saturated fat) and unhealthy lifestyle (smoking, alcohol consumption and physical inactivity) according to WHO and FAO (2013) are major contributing risk factors to the increased prevalence of NCDs. When people choose food wrongly, they expose themselves to different diseases, if this is temporary, the disease may be short termed, alleviated rapidly and may cause no long standing harm to human life, however who continued unrelieved, the diseases may become chronic and irreparable and may eventually lead to death. For example, obesity, hypertension, diabetes and other NCDs have all been attributed to the habit of consuming foods high in fat, sugar and salt (WHO 2013).

Unhealthy eating habit and lifestyle have been reported in Nigerian populace including market women (Awosan*et al.* 2014, Abidoye*et al.* 2002). Except for the work by Ukaegbu*et al.* (2015), there is a dearth of the data on food consumption

and lifestyle of different occupational groups in Abia State in general and Ubakala market in particular. Amorah (2013) had also noted that nutrition data on the prevalence of NCDs is limited, where available. There is need for constant update among specific groups in the population, hence this study.

Purpose of the study

The major purpose of the present study was to investigate the food consumption pattern and lifestyle of traders in Ubakala Market (Ums), Umuahia South L.G.A of Abia State. Specifically, the study determined;

1. frequency of food consumption among traders in UMs.
2. types of food items consumed by traders weekly in UMs.
3. lifestyle characteristics of traders in UMs.
4. body mass index of traders in Ums.

Methodology

***Design of the study*:** The study adopted survey design.

***Area of the study*:** The study was carried out in Umuahia, the capital of Abia State in South Eastern Nigeria. Umuahia has two local governments areas (LGA,) North and South. The administrative headquarters of Umuahia South LGA is Apumiri Ubakala. There seven wards in Umuahia South LGA include Ubakala. There are three main daily markets in Ubakala. Besides the seven there are also roadside fruit, vegetable and evening markets scattered in the locality.

***Population for the study*:** The population for the study consisted of all male and female traders in the seven daily markets at Ubakala. The daily markets have organized unions, zones and government. The markets gates that open between 7am till 5pm. The traders sell a variety of goods including but not limited to food items and condiments, provision, articles, clothing items, household goods and electronics. There are market masters who superintendent over the activities of the traders and the market environments. Head of the market masters gave the population of the traders as over 4000.

***Sample for the study*:** Two markets were purposively selected from the seven markets in the area of the study. These were the largest and the smallest markets. One hundred and twenty six (126) 84 traders were purposively selected from the largest and smallest markets respectively. These gave a sample of 210 traders. Sampling procedures ensured that the various sections of the market (traders) were represented.

***Instrument for data collection*:** Questionnaire was used to collect data. It was developed based on the specific purposes and literature review. It was validated by three university lecturers of Human Nutrition and Dietetics. Cronback Alpha procedure was used to determine the internal consistency of the items. A reliability coefficient of 0.91 was obtained. Anthropometric measurements of height and weight of the subjects were determined using methods described by WHO (1995).

***Data Collection Method*:** Two hundred and ten (210) copies of the questionnaire were distributed by hand. The whole 210 copies were properly filled and retrieved. This represents 100 percent return. Weight in kilograms was obtained by placing the scale on a flat surface. The pointer was adjusted properly to zero. The subject climbed on to the scale on bare feet wearing light clothing without any shoes, and other heavy items in the

pocket like key, heavy jewelries and wallets. The weight was recorded to the nearest 0.1kg.

Height (in meters) was measured when the subject stood erect with the feet and buttocks firmly positioned on the calibrated wooden meter rule (a stadio meter with base and calibrated steady piece with movable head). The movable piece was gently lowered to rest on the respondent's head, gently pressing down the hair without causing discomfort. Reading was taken to the nearest 0.1cm. **B**ody mass index was calculated as follows:

$$BMI = \frac{\text{Weight (kg)}}{\text{Height (m}^2\text{)}}$$

Where weight = weight in kg and Height = Height in meters.

The values obtained were compared with the standard given by WHO (1995) as follows:

Body weight of <18.5 -Underweight
18.5kg - 24.5kg- Normal
25kg - 29 .9kg - overweight
Above 29.9 kg - obese.

Data analysis: The data collected were analyzed using frequencies and percentages.

Findings of the study

Demographic characteristics: Data analysis shows that majority (83.8%) were females and only 16.2% were males. Many (35.7%) were between 31- 40 years, although 91.9% had experienced married life, 71.9% were still married with families while 18.6% and 1.4% were widowed and divorced respectively. The predominant religion was Christianity (95.7%) with very few (0.5%) Muslims and Traditionalists (3.8%). All except 7.6% of the subjects practiced the polygamous family system; the rest (92.4%) practiced monogamy. Cumulative majority (91.9%) had small families of between 1- 6. Many (70.5%) had up to secondary school education. Over a half (61.0%) were retailers the rest 29.0% and 10.0% were wholesalers and distributors respectively. The average monthly income of the subjects ranged from < N10.000 - >N50.000.

Table 1: Percentage Responses on Frequency of Meal Consumption of Traders in Ubakala Market

Frequency Indicators	F (%)
Daily meal consumption	
Twice	111 (52.9)
Thrice	84 (40.0)
>Thrice	15 (7.1)
Most frequently skipped meals	
None	99 (47.1)
Breakfast	35 (16.6)
Lunch	68 (32.4)
Dinner	8 (3.8)
Reasons for skipping meals (111 respondents who skipped meals)	
Attending to customers	42 (37.8)
Early morning rush	39 (35.1)
No money	22 (19.8)
Prevent weight gain	8 (7.3)

Table 1 showed the meal consumption pattern of the respondents. About half (52.9%) ate twice in a day and 47.1% did not skip meals. Lunch (32.3%) was the most frequently skipped meal. Some of the reasons given for this was when they attended to customers, only few (19.8%) skipped meals for lack of money and to prevent weight gain (7.3%).

Table 2: Percentage Responses on Weekly Food Consumption Frequency of Traders in Ubakala Market

Foods	1 – 3 times F(%)	4 – 6 times F(%)	7times/> F (%)
Meat/Fish	24 (11.4)	34 (16.2)	152 (72.4)
Snacks	23 (11.0)	56 (26.7)	131 (62.4)
Roots / tubers	9 (4.2)	78 (37.1)	123 (58.6)
Soft drink/malt	20 (9.5)	73 (34.8)	114 (54.3)
Cereals	66 (31.4)	114 (54.3)	30 (14.3)
Legumes	143 (68.1)	43 (20.5)	24 (11.4)
Nuts	122 (58.1)	55 (26.2)	33 (15.7)
Fruits/ vegetables	108 (51.4)	83 (39.5)	19 (9.0)

(Low 1 – 3 times, moderate 4 – 6 times, High 7/>) (Nelson 2000).

Table 2 depicts the weekly food consumption pattern of the traders. The consumption of meat/fish (72.4%), snacks (62.4%), root/tubers (58.6%) and soft drink (54.3%) among the respondents was high; it was consumed seven or more times in a week. Cereals (54.3%) were moderately consumed between four to six times in a week. Legumes (68.1%), nuts (58.1%) and fruits/ vegetables (51.4%) were rarely consumed as the respondents consumed them between one to three times in a week.

Table 3: Percentage Responses on Selected Lifestyle Characteristics of the Traders in Ubakala Market

Lifestyle characteristics	F(%)
Cigarette smoking pattern	
Yes	36 (17.1)
No	174 (82.9)
Alcohol	
Yes	156 (74.3)
No	54 (25.7)
Type of alcohol consumed	
Beer	84 (40.0)
Palmwine	75 (35.7)
Stout	51 (24.3)
Tobacco snuffing/ chewing	
snuffing	65 (31.0)
chewing	19 (9.0)
No	126 (60.0)
Pica (craving/ consumption of non food substances)	
White chalk (nzu)	48 (22.9)
White clay (Uro)	42 (20.0)
Ice block	18 (8.5)
No	102 (48.6)
Regular exercise	
Yes	12 (5.7)
No	198(94.3)
Regular means of transport to the market	
Trekking	24 (11.4)

Use of car	143 (68.1)
Use Keke	38 (18.1)
Bicycle	5 (2.4)

Table 3 shows lifestyle characteristics of the respondents. Some (17.1%) of the traders smoked cigarette, many (74.3%) consumed alcohol and beer (40.0%) was the most consumed drink. Nearly half (40.0%) used tobacco 31.0% snuffed and 9.0% chewed it. Pica eating (white chalk (22.9%), white clay (20%) and ice block (8.5%) was also observed among the traders. Majority (94.3%) of them had no regular exercise pattern. Only very few (11.4%) trekked to the market, others used one form of transport or the other.

Table 4: Percentage Responses on Some Activities and Number of Times Traders in Ubakala Market attended them

Types of Social activities	**F(%)**
Types of social activities traders engaged in (N210)	
Meeting	210 (100)
Burial/ funeral	210 (100)
Marriage ceremonies	210 (100)
Traditional ceremonies (festivals, chieftaincy)	65 (31.0)
Child dedication/ naming ceremonies	210 (100)
No of times engaged in meetings in a week	
Once	182 (86.7)
Twice	23 (11.0)
>Twice	5 (2.3)
No of times traders attended burials, marriage, child dedication	
None	54 (25.7)
Once in a week	21 (10.0)
Once in two weeks	48 (22.9)
Once in a month	87 (41.4)
No of times traders attended religious activities in a week	
None	8(3.8)
Once	54 (25.7)
Twice	90 (42.8)
>Twice	59(28.0)
No of times traders attended traditional ceremonies (65 traders)	
Once in a year	14 (21.5)
Once in two years	19 (29.2)
Once in three years	32 (49.3)

Table 4 shows some activities and number of times the traders engaged in them. All (100%) the traders reported that they engaged in activities like attending meetings, burial, marriage and child dedication/naming ceremonies and few (31%) attended traditional ceremonies. On the number of times they attended meetings in a week, many (86.7%) attended once, 41.4% attended burials, marriage and child dedication once in a month and 42.8% attended religious activities twice in a week. 49.3% attended traditional ceremonies once every three years.

Table 5: BMI Classification of the Traders in Ubakala

BMI classification	Male F(%)	Female F(%)	Total F(%)
Underweight(<18.5kg/m²)	0 (0)	17 (9.7)	17 (8.1)
Normal (low risk) (18.5 -24.99kg/m²)	10 (29.4)	52 (29.5)	62 (29.5)
Overweight (moderate risk) (25. – 29.99kg/m²)	15 (44.1)	43(24.4)	58 (27.6)
Obesity (high risk) (=30kg/m²)	9 (26.5)	64 (36.4)	73 (34.8)
Total	34 (100)	176 (100)	210(100)

$X^2 = 17.185$, $P = 0.000647$.

Table 5 indicates the BMI classification of the subjects. It shows 8.1% were underweight, 29.5% were normal. 27.6% (44.1% male and 24.4% female) were overweight while 34.8% (26.5% male and 36.4% female) were obese. The study showed a significant relationship at ($p < 0.05$) between the BMI of the male and female respondents.

Discussion

The finding of the study show that daily meal consumption pattern showed that over half (52.9%) skipped a meal when they attended to customers, this showed that time constraint and not necessarily cost or affordability was one of the reasons for meal skipping; but the most frequently skipped meal was lunch. This was different from the results of previous studies (Ezenwa and Iheme 2021,Ukaegbu*et al.*,2015 and Henry-Unaeze*et al.,* 2012)that reported breakfast as the most frequently skipped meals by traders. Meal skipping is not a very good habit as it may predispose individuals to nutrient deficiencies and other forms of malnutrition.

The weekly food consumption pattern showed that cereals (54.3%) were the only food consumed moderately by the respondents. The consumption of meat/fish (72.4%), snacks (62.4%), tubers (58.6%) and soft drinks (54.3%) were high. Nuts (15.7%), legumes (11.4%) and fruits (9.0%) were consumed sparingly. This was similar to the report of Awosan*et al* ., (2014) but slight different from the findings of Ukaegbu *et al.,(2015)* who opined that cereals, meat/fish and fruits were rarely consumed. This dietary pattern depicts the current trend reported by Onimawo (2014) that the food habits of developing countries including Nigeria have been undergoing dramatic transformation. Meat/fish is necessary for the supply of protein in the body but it should not be consumed in excess. Pamplona-Roger,(2010) had opined that excess intake of fatty beef and egg may result in increased cholesterol deposits in the blood which is a predisposing factor to heart diseases. Snacks are adequate when consumed as in-between-meals because according to Steyn*et al*. (2012) they help to give energy and other nutrients needed during the day, but because most of them are over processed with colourings and large quantities of salt; and for the fact that the traders consumed them as substitutes to main meals (lunch), they may not necessarily perform all the desired functions. WHO (2013) reiterated that over consumption of processed foods and snacks high in saturated fat could lead to deposit of dietary fat in the fat stores of the adipose tissue which may increase an predispose

individuals to becoming overweight and obese.

The low intake of fruits and vegetables observed among the traders was however different from the high intake reported by Ukaegbu et al., (2015). This could be as a result of the seasonal variation observed among the two studies. The previous study was done during the rainy season (between June and July 2012) when there is abundant of fresh fruits and green leafy vegetables. While the present study was done between January and February 2021.Low fruit intake has been associated with increased prevalence of NCDs, WHO (2014a) reported that incorporating fruits and vegetables into the daily diet could help prevent major Non Communicable Diseases including obesity.

On the prevalence of alcohol consumption among traders in Nigeria, Awosan*et al.* (2014) andOdugbemi*et.al.* (2012) reported 10.8% and 1%respectively. Many (73.4%) of the traders in the present study were alcohol users and beer was the most commonly consumed brand. This corroborated results of Ukaegbu*et.al* (2015) that reported 57.9% usage with "stout" as the most common consumed brand. This practice is risky as too much alcohol consumption is a predisposing factor to obesity and other NCDs (WHO 2014b). The Christian religion which many of the traders practiced was expected to have contributed to low alcohol consumption but it did not. This could be attributed to the recent reports by WHO (2011c) that there is now an increased prevalence of alcohol consumption rate in developing countries. Some were pica eaters, 22.9% and 20.0%) ate white chalk (nzu) and white clay (uro) respectively. Pica consumption is an unhealthy habit that contributes not only to nutrient deficiency but also expose consumers to infections and diseases, Schebendach and Reichert-Anderson (2000).

The study revealed also that majority (94.3%) of the traders had no regular exercise pattern, and almost all of them used one form of transport or the other (88.4%) to the market. This corroborates an early study by Ezenwa and Iheme (2021) but exceeds the finding of previous research (Research (Awosan *et al.*2014, Asijehet *al.* 2012, Jogunola and Awoyemi (2010) that reported different levels (50.7%, 76%, 29.6%) of physical inactivity respectively among different occupational groups in Nigeria. Improved means of transportation may have contributed to this as many of the traders used both cars and tricycle "Keke" to the market. Ezenwa *et al* (2016) opined that importation of Keke to Nigeria had led to improved means of transportation. Although the traders reported attending different types of activities, religious activities were attended twice by 42.8% and more than twice by 28.0% in a week. Majority (86.7%) attended meetings once in a week and 41.4% attended burials, marriage ceremonies and child dedication once in a month. This could be attributed to the fact that the activities were weekly and monthly events. Few (30.9%) reported they attended festivals and other traditional ceremonies. Among them 49.3% and 29.2% attended once in three and two years respectively. This could be as a result of the fact that many of the traditional ceremonies comes up annually, biennially or once in three years in the South East following the age grade system. Moreover many Christian denominations are restricted and careful in attending some traditional ceremonies.

These may have led to the reduced physical activity pattern observed in the study. This confirmed earlier reports by (Ezenwa and Iheme, 2021., and Ekpenyong *et al.*,2012) that sedentary life style is on the increase among traders and all other occupational groups in Nigeria, attributing it to the fact that many adults, including traders now spend about 7 hours in a day sitting down to do their jobs, drive or are driven to and from work as a result of the influence of urbanization and the shift to western habits. The physical inactivity rate is worsened by a less balanced diet and over reliance on energy dense food which has increased due to the growing presence of fast food outlets all over the country. The meal consumption pattern and the reduced physical activity may have contributed to the high prevalence of overweight (27.1%) and obesity (34.8%) observed among the respondents with more males (44.1%) being overweight than the females (24.4%) while more females (36.4%) were obese than the males (26.5%). This corroborates the report of Oladoyinbo *et al*(2015), that high prevalence of obesity and overweight among traders are not farfetched because of their sedentary life style. Furthermore that women are predisposed to obesity due to higher body weight as body fat gained at puberty, pregnancy and the cultural norm that associates being fat as a symbol of beauty, affluence and health may have also contributed to that. (Jackson *et al.* 2015) also showed clearly a social desirability for overweight and obese women in West Africa including Nigeria and particularly among the Igbos who preferred obese women than their slim counterpart.

Conclusion

The study revealed that there is an inadequate food consumption pattern among the traders at Ubakala market, which was characterized by meal skipping, particularly lunch; high consumption of snacks and soft drinks with low intake of fruits and vegetables. Cigarette smoking, tobacco use and Pica consumption were also observed which depicted high ignorance of the potential health and dangers associated with their misuse. Many used different forms of transport to and fro the market and had no regularly exercise pattern. Religious activities was only what they engaged in on a regular bases, other forms of social activities were sparsely engaged. The inadequate food consumption with poor sedentary lifestyle practices may have been the predisposing factors to overweight and obesity observed in the study and these should be discouraged among traders.

Recommendation

Based on the findings, the following recommendations were made:

1. Nutrition campaign in market places to help promote healthier eating habits among traders
2. Government should provide good market infrastructure that will encourage socialization and increased activity pattern among the sellers.
3. The traders could increase their physical activities by trekking short distances and getting involved in more meaningful social activities.
4. The traders could also adjust to eat lunch early before the afternoon market rush or later to avoid skipping meals.

References

Abidoye, R.O., Madueke, L.A. and Abidoye, G.D. (2002). The relationship between dietary habit and body mass index among workers of Federal Airport Authority of Nigeria . *Nutrition and Health. 16: 215 – 227.*

Amorah, A.G. (2013) Socio-demographic variations in obesity among Ghanaian adults: *Public Health Nutrition. 6 : 751 – 755.*

American Cancer Society (2011). Global Cancer facts and figures. 2nd Edition, Atlanta. Available at http://www.cancer. Org/docroot/pg.asp. Accessed: 07/ 07/ 2012.

Asijeh, P., Sharafrad, G. and Kennan, A. (2012). Food habit and lifestyle of female teachers. *Journal of Education and Health Promotion. 8 :33 – 36.* doi.10480022778 33:104816.

Awosan, K.J., Ibrahim, M. T. O., Essien, E., Yususf, A. A. and Okolo, A.C. (2014). Dietary pattern, life style, nutritional status and prevalence of hypertension among traders in Sokoto central market, Sokoto State, Nigeria. *Academic Journal 6 : 9- 1*

Centre For Disease Control and Prevention (2010). Obesity and overweight for professionals Causes in gender, culture and alcohol problems, a multi-national study. www.ncbi.nlm.nih.gov/ / article/ Retrieved: 01/19/2010.

Ekpenyong, C.E., Udokang, N.E., Akpan, E.E., Samson, T.K (2012). Double burden, non-communicable diseases and risk factors evaluation in sub- Saharan Africa, the Nigerian experience. *EJSD, 1 (2); 249 – 270.*

Ezenwa, H.C. Igbokwe, C.C., Achinihu, G. A. and Adeoye-Agomoh, Q.C. (2016). Dietary habit and nutritional status of commercial tricycle (kekeNapep) riders in Aba South LGA, Abia State. *Journal of Home Economics Research Association of Nigeria 23 (2) 149 -162.*

Ezenwa, H.C. and Iheme, G.O. (2021). Market place dietary habits, physical pattern and anthropometric status of market women in Abia State, *Nigerian Journal of Nutritional Sciences NJNS 42 (1);147 -156.*

Gwatkin, D.R., Rutstelin, S., Johnson, K., Suliman, E., Wagstaff, A. and Amozou, A. (2007). Socio-economic differences in health, nutrition, and population with developing countries: An overview. Washington D.C: Health, nutrition and population – Human development New York. The World Bank.

Henry-Unaeze, H. N., Ngwu, E.K. and Allison C.C. (2012). Hospital attendance and prevalence of hypertension and diabetes mellitus among adult traders in Aba, Abia State. *Journal of Dietitians Association of Nigeria JDAN 3: 55 -64.*

Hoffmeister, M., Lyaruu, I, A. andKrawinkle, M.B. (2005). Assessment of nutritional intake, body mass index and glycemic control in patients with type 2 diabetes from northern Tanzania. *Ann. Nutr. Metab. 49 : 64 – 68. PMID 1573569* (PubMed – indexed for Medline).

Jackson, M., Walker, S., Cruickshank, J.K., Sharma, S., Cade. J., Mbanya, J.C., Younger, N., Forrester, T.F. and Wilks, R. (2015): Diet and overweight and obesity in populations of Africa origin: *Cameroun, Jamaica and the UK Public Health Nutrition, 10 (2) :122 -130.*

Jogunola, A.O. and Awoyemi, A.O . (2010). Prevalence of sedentary lifestyle among bankers in Ilorin metropolis.*Nigerian Journal of Medical Rehabilitation (NJMR) 15 : 15 – 22.*

Mawathe, A. (2008). Why Kenya women crave stones. BBC news channel of 08/18/ 2008. 21hr. http://news.bbc. co.uk//hi...news africanairobi 21hr 75091067.ntm.

National Institute of Arthritis, Musculoskeletal and skin Disease in Everyday health (2009).

http//:www.everyday health.arthritis. Retrieved01/ 02/2010.

Okeke, P.N. (2014). *Handbook of nutrition education.*Austrop printing and publishers. Int'l. Ltd. Owerri.

Oladoyinbo, C.A., Ekerette, N.N., and Ogunubi, T.I. (2015). Obesity and hypertension among traders in Ijebu Ode. *Afr.J.Biomed.es. Vol. 18:23-27.*

Onimawo, I.A. (2014). *Nutrition of the vulnerable group including HIV/ AIDS* Revised edition. Ever Blessed Publishers. Benin City. Edo State.

Pamplona – Roger,G. M. D. (2010). *New Lifestyle Healthy Foods*.Editorial Safeliz, S.L., Pradillo,6.Pol.Ind.Lak. Mina, Madrid, Spain,

Sally, N., Akarolo-Anthony,O., Folake, O., Odubore, I., Yilme, S., Omolola, A., Odonye, G., Frank, H., Walter, W., Donna, S and Adebamowo, C.A. (2012). Pattern of dietary carbohydrate intake among urbanized adult Nigerians. *International Journal food science and Nutrition 2: 1 – 8.*

Schebendach, J. and Reichert-Anderson, P. (2000). *Nutrition in eating disorders. In: Kause's food, nutrition and diet therapy*. 10th ed. Mahan, L.K and Escot Stump, S.(eds), W.B. Saunders Co. USA. Pg 114 -134.

Steyn, N.P., Nel, J. H., Whadiah, T., Waudo, J., Kimiywe, J., Ajah, R. and Mbithe, D. (2012). Dietary intake of adult women in South Africa and Nigeria with a focus on the use of spreads. www.mrc.ac.za/ chroncle /kenyareport.pdf. Accessed: 10/30/2013.

Spearagaron. G. and Vanvilet, B. (2010). Lifestyle, consumption and environment: The ecological modernization of domestic consumption. *Environmental Politics: 9 : 50 -75.*

Odugbemi, T.O., Omajole, A.T. and Osibogun, A.O. (2012). Prevalence of cardiovascular risk factors among traders in an urban market in Lagos Nigeria. *Nigerian Postgraduate Medical Journal 19: 1*

- 6. Pub Med. US. National Lib of Medicine National Institue of Health.

Oguntona, C.R. and Akinyele, I.O. (2002). Food and nutrient intakes by pregnant Nigerian adolescents during the third trimester. *Nutrition 18: 673 -679.*

Ukaegbu, P.O, Uwaegbute, A.C., and Emezue, A.G (2015) Nutritional Status and market activities of female traders in major city in South East Nigeria. *Rwanda Journal Series F: Medicine and Health Sciences Vol 2: 1pg 47 - 55.*http://dx.doi.org/10.4314/rj.v2il.6F.

United States of American (USA) Dept of Health and Human Services (2009). Osteoporosis-frequently asked questions. A report of the surgeon general. www.office of the surgeongeneral.org. Retrieved: 02/01/ 2010.

World Health Organization (WHO) (1995). The use and interpretation of anthropometry. WHO Consultation Technical Report Series No. 854, 375–409.

World Health Organization (WHO) (2010). Physical inactivity a leading cause of disease and disability. www.who.org. Retrieved: 01/23/2011.

World Health Organization (WHO) (2011). New WHO report: deaths from non communicable diseases on the rise, with developing world hit hardest. http//www.WHO.int/glo/ncd/MortalityMorbidity /ncd.total /en /Inex. Accessed: 10/ 10/ 2012. Geneva.

World Health Organization (WHO) and Food and Agriculture Organization (FAO), (2013). Independent expert report on diet and chronic disease. WHO series. www.who.fao.org...Retrieved:02/1/ 2011.

WHO (2013). Global strategy on diet, physical activity and health. WHO Fact Sheet. World Health Organization, Geneva, Switzerland. Available at http://www.int/dietphysicalactivity/.

World Health Organization (WHO) (2014a). Promoting fruit and vegetable consumption around the world. Information study. Retrieved 30th Oct 2014 from www,who.int/ dietphysicalactivity/en/index...

World Health Organization (WHO 2014b) Global Status Report on Alcohol and Health.

WHO Geneva, Switzerland. [Last cited on 2017 Aug 05]. Available from :http://www.who.int/substance_abuse/ publications/global_alcohol_report/msb_gsr_2014_1.pdf?ua=1.

JHER Vol. 29 (2), December 2022, pp. 130 - 141

E-Learning Utilization in Junior Secondary School Home Economics Program in Oyo State Nigeria

Ogbonna, K. P[1], Eze N. M.[1], Adeniji, O. O.,[2]Onyeka, F. N.[1]& Adeyemi, M.A.[2]
[1]Department of Home Economics and Hospitality Management Education,
University of Nigeria Nsukka.
[2]Department of Home Economics,
Adeniran Ogunsanya College of Education Ijanikin.

Corresponding author: kemmious50@gmail.com

Abstract

The study focused on e-learning utilization in Junior Secondary School (JSS) Home Economics (HE) programs in Oyo State Nigeria. Specifically the study determined: various application options utilized for implementing e-learning in JSS HE programme, challenges encountered by teachers and students in their utilization of e-learning in JSS HE programme and ways of enhancing utilization of e-learning in JSS HE programme. The study adopted a descriptive survey design. Population for the study was 6,981 which consisted of 57 HE teachers, 50 senior staff of Oyo State Ministry of Education, Science and Technology and 6,841 JSS three public school students. Questionnaire was the used for data collection. Data were analyzed using mean and standard deviation. Findings show nine application options utilized for implementing e-learning in JSS HE in Oyo state. These include, among others, slides (2.78), projector (2.80), power point (3.44), and others. There are 11 challenges encountered by teachers in their utilization of e-learning in JSS HE programme. These including, lack of proper and advance planning by teachers (3.51), high cost of internt facilities (3.37), and others. There are also seven challenges encountered by students in their utilization of e-learning in JSS HE programme. These including, difficulty in understanding practical skills taught online (3.44), epileptic power electricity supply (3.21), among others. Other findings are 14 ways of enhancing utilization of e-learning in JSS HE programme. These inclue ICT training for teachers (3.28), curriculum review in HE programmes (2.53), and others. Six recommendations were made, including that there should be regular training and re-training programs for Home Economics teachers inform of seminars and workshops.

Keywords: Enhancing, E-learning, Students, Utilization, Application, Options, Challenges

Introduction

E-learning can be described as intentional use of information and communication technology (ICTs) in teaching and learning. It is a teaching and learning system based on formalized teaching with the aid of electronic resources. Aljawarneh (2020) stated that web-based education, digital learning, interactive learning, computer-assisted teaching and internet-based learning are known as

e-learning.Baleye (2018) noted that e-learning is not a new method of knowledge transfer but rather the conveyance of information using a new media. Teaching and learning using e-learning can take place in or out of the classroom and the major component used is computer and the internet. The learner whether far or near have easy access to quality learning materials, have robust and unlimited interaction with instructional contents, facilitators and other learners and are given support and appropriate time to make contributions to the learning process. Kimiloglu, Ozturan and Kutlu (2017) noted that e-learning encourages the creative use of modern information technologies to construct learning environments which are rich varied and facilitate the development of student – centered learning practices. The ability to access and effectively utilize information in e-learning environment has continued to grow at unprecedented rate.

Theinternet has impacted on the educational process over the years. E-learning has the capacity to provide higher interactive potential for users to develop their individual, intellectual and creative ability. Claverley and Shepherd (2003) mentioned that information and communication technologies are being used in developed and developing world for instructional functions and that computers and internet perform a host of functions in teaching and learning as many nations are adding computer literacy, reading and writing literacy as skills students will need for succeeding in a technologically developed world. Balaye (2018) noted that e-learning has become an importantteaching and learning mode at all levels of education - higher education, vocational training and also in primary and secondary schools. Schools use different e-learning facilities and materials in teaching and learning process. Ugochukwuand Ibeke (2021) noted that e-learning materials are study materials published in digital format such as e-textbooks, e-workbooks and educational videos. On the other hand, Eze, Chinedu-Eze and Bello (2018) stated that e-learning facilities included hardware such as personal computers (PC), tablets, printer, digital camera, digital videos, overhead projector, slides, transparencies, magnifiers; software such as operating system, cloud technologies; applications (apps); and courseware such as e-course content.

F-learning is fast becoming an expected and indispensable part of the mainstream of global educational system. Teaching and learning has been revolutionized by e-learning in various part pf the world including Nigeria. Kare and Chisa(2019) noted that there are variety of e-learning programmes adopted by schools in Nigeria. Most schools in Nigeria keyed into e-learning during COVID-19 pandemic which led to global total lockdown of all economic activities including closure of schools. This was necessitated by the infectious nature of the viral disease transmitted mostly by direct contact with an infected person. Aboagye, Yawson and Appiah (2022) noted that the unexpected closure of educational institutions as a result of the emergence of COVID-19 prompted educational authorities to suggest adopting alternatives to traditional

learning methods in emergencies to ensure that students are not left without studying and to prevent the epidemic from spreading.On 19 March 2020, the Nigerian Federal Ministry of Education approved school closures as a response to the pandemic. States in the federation contextualized this, with Oyo State Ministry of Education releasing a schedule of radio and TV lessons for students in public schools.However, private schools in Oyo State (area of study) were quick to adopt e-learning for both primary and secondary schools during COVID-19 lockdown. E-learning is still in use in Oyo State in form of OYO EDUMIX. Most private schools in Oyo State utilize e-learning in addition to the conventional physical teaching method. Ugochukwu and Ibeke (2021) noted that during the pandemic lockdown, teachers who adopted e-learning taught different subjects including practical skill subjects.

Practical skill subjects entails a range of vocational subjects that involves manipulation of tools and equipment aimed at providing students with needed skill needs. Home Economics (HE) is one of the vocational subjects taught in Junior secondary schools in Nigeria. It is a skill oriented subject.HE deals with the relationship between individuals, families, and communities, and the environment in which they live. According to Abiamuwe, Seriki-Mosadolurun, Ogbonna, and Otobo (2016), Home Economics prepares students for homemaking or professional careers and assists in preparing to fulfill real – life responsibilities at home. HE represents many disciplines including consumer science, nutrition, and parenting: early childhood education, family economics, human development, interior design, textiles, apparel design, as well as other related subjects. Anyakoha (2015) stated that the major goal of Home Economics is self-reliance. Home Economics curriculum is designed to equip students with a useful range of skills and follows an integrated approach where inter – relationships between diet, health, family, resources and home are addressed in both practical and theoretical contexts (Adeladu and Adu, 2015). HE can be effectively taught through e-learning. Different media can be adopted in teaching HE via e-leaning. Abidoye (2010) maintains that e-learning devices such as the web, internet, multimedia, computer, projector and television provide easy access to quality learning materials and make reasonable and responsible contributions to the learning process.Demonstration of skills in Home Economics can be taught to online students through video, skype and online real time instruction teaching. Home Economics teachers can also develop and use e-textbooks as e-learning has the potential to provide relevant information needed for research. According to Abdelsalam, Ebitisam, Aljawarneh, Hasan and Hadeel (2022) e-learning provides the relevant platform for teachers to develop capacities for high quality research and teaching which increase their ability to innovate. Despite the benefits of using e-learning to facilitate teaching and learning, there are challenges facing the usage especially in teaching practical based subjects like Home Economics. Lara,

Aljawarneh and Pamplona (2020) reported that compared to developed countries, most developing countries face many challenges in applying e-learning, including poor internet connection, insufficient knowledge about the use of information and communication technology, and weak content development.

The development and provision of content such as video of practical demonstration of skills and advanced applications is still a new thing for many teachers.Lizcano, Lara and White (2020) stated that challenges facing use of e-learning included acquisition of the Internet infrastructure that supports education systems and the high cost of buying the electronic equipment needed and maintaining the equipment.Lara, Aljawarneh and Pamplona (2020) reported that the use of e-learningcan be enhanced when the teacher implement a learning environment that encourages collaboration. Teachers should provide learners with the opportunity to collaborate, share, and create information which will help enhance the learner's use of various technologies, enhance their e-learning experience, and support self-directed and ongoing learning (Aljawarneh, 2020). Malama and Adebisi, (2019) noted that several strategies can be used to enhance teaching with e-learning. According to the authors, the strategies include providing various ways of interacting and communicate through the use of such applications like Skype, chat forums or discussion boards as well as utilizing different e-learning techniques such as online assessment as a form of students motivation. Several studies have addressed the opportunities and challenges associated with the transition to e-learning. None of the studies reviewed by the authors focused one-learning utilization in Junior Secondary School Home Economicsprogram in Oyo State Nigeria. This is the gap in literature filled by the study.

Purpose of the Study

The main purpose of study was to investigatede-learning utilization in Junior Secondary School (JSS) Home Economics (HE) program in Oyo State Nigeria. Specifically the study determined:

1. various application options utilized for implementing e-learning in JSS HE Programme in Oyo State.
2. challenges encountered by teachers and students in their utilization of e-learning in JSS HE Programme.
3. ways of enhancing utilization of e-learning in JSS HE Programme

Research Questions

The following research questions were answered

1. What are the various means utilized for implementing e-learning in JSS HE Programme in Oyo State?
2. What are the challenges encountered by teachers and students in their utilization of e-learning in JSS HE Programme in Oyo State?
3. What are the ways of enhancing utilization of e-learning in JSS HE Programme in Oyo State?

Methodology

***Design of the study*:** The study adopted a descriptive survey design.

***Area of the study*:** The study was carried out in Oyo State, Nigeria. Oyo State was chosen because it is an urban area with large number of secondary schools. Also, most of the private schools in Oyo State are utilizing e-learning in teaching in addition to conventional teaching and learning.

Population for the Study: The population for the study was 6,981 respondents made of 57 HE teachers, 50 senior staff of Oyo State Ministry of Education, Science and Technology and 6,841 (Source: Oyo State Ministry of Education, Science and Technology 2020).

***Sample for the Study*:** Sample size for the study was 357 which consisted of 57 HE teachers, 50 senior staff of Oyo State Ministry of Education and 250 JSS 3 Students. Simple Random Sampling technique was used to select the students from each of the public Junior Secondary Schools.

Instrument for Data Collection: Questionnaire was the instrument used for data collection. The questionnaire consisted of two sections. Section A sought for demographic characteristics while section B generated items based on purposes of the study and research questions. Section B had 4-point scale for the itmes as follows: Strongly Agree (SA) =4, Agree (A)=3, Disagree(D)=2 Strongly Disagree (SD)=1. The questionnaire was validated by three University Home Economics lecturers. The validates made useful corrections and modifications on the instrument before the final copy of the questionnaire was produced. Reliability of the instrument wasdetermined by test re-test method. The questionnaire was pretested among 10 JSS III students and 10 teachers in private schools in Oyo State. These students and teachers are outside the population target but share similar characteristics. The questionnaire was administered again after two weeks to same people. Thereafter, Reliability co-efficient index of 89% was obtained using Spearman's correlation method.

***Data Collection Methods*:** Data for the study was collected by hand with the help of three research assistants. A total of 357 copies of the questionnaire distributed. Only 283 copies were returned indicating 79.3 percent return rate.

***Data Analysis Techniques*:** Data collected were analyzed using mean and standard deviation. For the decision rule, the real limit of numbers of the respondents made was used to categorize the mean ratings of the respondents. Based on the 4-point scale of the instrument, mean score from 2.50 and above (2.5) were considered as "agreed upon" while items with mean ratings of 2.49 and below (2.5) were considered as "disagreed upon". items

Results

Table 1: Mean Responses on Various Application Options Utilized for Implementing e-learning in JSS Home Economics (HE) Programme in Oyo State

S/N	Various means Utilized for Implementing E-learning in JSS	$_1$	$_2$	g	Remark
1	Slides	2.90	2.66	2.78	Agreed
2	Projector	2.88	2.72	2.80	Agreed
3	Recorded videos of specific skills	3.21	2.90	3.01	Agreed
4	Google classroom	1.44	1.22	1.33	Disagreed
5	Zoom	2.90	2.80	2.85	Agreed
6	Google meet for teaching	2.12	1.99	2.05	Disagreed
7	Kahoot tool for assessing students	1.01	0.87	0.94	Disagreed
8	Social media such as Whatsapp an Telegram	2.69	2.91	2.80	Agreed
9	Moodle app for teaching	1.99	0.78	1.38	Disagreed
10	Power point	3.56	3.32	3.44	Agreed
11	Articulate Storyline	1.00	0.14	1.07	Disagreed
12	Individual students' internet search for Assignment	3.78	3.66	3.72	Agreed
13	Youtube to demonstrate practical skills	2.67	2.93	2.80	Agreed
14	Flipped classrooms	2.55	2.21	2.38	Disagreed
15	(CDs and Flashdrives)	3.11	2.76	2.93	Agreed

$_1$ = Mean of Teachers, $_2$ = Mean of Students, g = Grand Mean,

Table 1 contains the means ( ) responses of the various application options for implementing e-learning in JSS Home Economics programme. The Table shows that nine of the items obtained means of 2.50 and above (2.5). These are therefore implementing e-learning in JSS aaplication options utilized for implementing e-learning in JSS in Oyo State.

Table 2: Mean and Standard Deviation Responses on Challenges Encountered by Teachers in their Utilization of E-learning in JSS Home Economics Programme.

S/N	Challenges Teachers encounter in E-learning Utilization in JSS Home Economics Programme		SD	Remark
1	Lack of proper and advance planning by teachers	3.51	0.99	Agreed
2	Inadequate time dedicated to student support and preparation	3.03	0.82	Agreed
3	Attitude of school management towards procuring and installation of the ICT devices in school	3.7	1.01	Agreed
4	Lack of integration of ICT into pedagogic practice	3.45	0.89	Agreed
5	Lack of preparedness of teachers to integrate technology in teaching	2.75	0.91	Agreed
6	Inadequate software for teaching different aspects of HE	2.97	0.83	Agreed
7	Expensive nature of software for teaching HE in JSS	3.76	1.05	Agreed
8	Most HE teachers lack the skill to fully utilize e-learningtechnology in curriculum implementation	2.35	0.99	Disagreed
9	High cost of internet facilities	3.37	1.01	Agreed
10	Lack of ICT training and workshop for teachers	3.82	1.42	Agreed
11	Traditional approach to teaching still dominates in school pedagogy	3.53	0.76	Agreed

12	Domestic distractions and unreliable technology eg, electricity, in Nigeria	3.23	1.02	agreed

= Mean, SD = Standard Deviation,

Table 2 contains the mean and standard deviation responses on the challenges encountered by teachers in the utilization of e-learning in JSS HE programme in the area of the study. The Table shows that all but one of the challenges of e-learning at JSS level highlighted were agreed upon, for each obtained mean values ranged from 2.75 to 3.82 which is above the cutoff point of 2.50. However, the respondents disagreed that most HE teachers lack the skill to fully utilize e-learningtechnology in curriculum implementation (2.35). On the other, the standard deviation responses ranged from 0.76 to 1.42 indicating that the mean responses were not far from each other.

Table 3: Mean Responses on Challenges Encountered by Students in the Utilization of E-learning

S/N	Challenges Students encounter in E-learning Utilization in JSS Home Economics Programme		SD	Remark
1	Difficulty in understanding practical skills taught online	3.44	0.81	Agreed
2	High cost of buying data subscription	3.99	1.01	Agreed
3	Epileptic power supply electricity supply	3.21	0.88	Agreed
4	Difficulty in getting and installing soft wares for learning practical lessons	3.44	0.93	Agreed
5	Parental negative attitude towards provision of needed ICT tools for e-learning	2.90	1.00	Agreed
6	Parental perception of e-learning as a waste of resources	3.46	0.78	Agreed
7	Distractions at home	2.82	0.69	Agreed

= Mean, SD = Standard Deviation,

Table 3 contains the mean and standard deviation responses on challenges encountered by students in the utilization ofe-learning in JSS HE programme in Oyo state. The Table shows that all seven students related challenges were agreed upon, with mean values ranged from 2.82 to 3.99 which is above the cutoff point of 2.50. The standard deviation responses ranged from 0.69 to 1.01 indicating that the mean responses were not far from each other.

Table 4: Mean Responses on Ways of Enhancing Utilization of E-learning in JSS HE Programme in Oyo State

S/N	Ways of Enhancing Utilization of E-learning in JSS HE	$_1$	$_2$	g	Remark
1	ICT training for teachers	3.06	3.50	3.28	Agreed
2	Provision of adequate ICT facilities and software for e-learning integration in HE programmes.	3.52	2.88	3.20	Agreed
3	Curriculum review in HE programmes to infuse e-learning so as to meet students technologicalneeds	2.57	2.53	2.55	Agreed
4	Employing technological staff who can help students to benefit e-learning programmes	3.03	3.43	3.22	Agreed
5	Proper planning and provision of needed technological tools, facilities needed for e-learning in HE	2.41	3.81	3.11	Agreed
6	Putting in place procedures for measuring the growth of each individual teacher and student.	3.12	3.44	3.28	Agreed
7	Setting technological targets and introduction of professional development training for teachers	3.59	3.55	3.57	Agreed
8	Making result driven evaluation that will help students to appreciate the value of ICT in HE education program.	2.75	3.77	3.26	Agreed
9	Adequate provision of software applications for teaching HE	3.54	3.92	3.73	Agreed
10	Giving learners feedback and assessment on-line	3.26	3.32	3.29	Agreed
11	Guidingand offering adequate guidance for on-line learning	3.07	2.71	2.89	Agreed
12	Promoting of personal relationship between learners and teachers through well-developed online communication tools	2.88	2.73	2.80	Agreed
13	Ensuring instructional materials uploaded are easy to learn	2.69	3.83	3.26	Agreed
14	Engagingstudents in online learning activities	3.42	3.68	3.55	Agreed

$_1$ = Mean of Teachers, $_2$ = Mean of Students, g = Grand Mean,

Table 4 contains the mean and standard deviation responses on ways of enhancing utilization of e-learning in HE Education programmes in JSS in Oyo State. From the analysis, all of the responses were agreed upon with grand mean values ranging from 2.55 to 3.73 which are above the cut off point of 2.50.

Discussion of Findings

Results in Table1 show that the various application options of implementing e-learning for teaching

JSS HE programme included use of slides in teaching, use of projector, teaching with recorded videos of specific skills, teaching with zoom, use of social media such as whatsapp and Telegram, use of power point, individual students' internet search for assignment, use of Youtube to demonstrate practical skill and recording practical demonstrations in CDs and Flash drives. The findings are consistent with the findings of Malama and Adebisi, (2019) noted that several strategies (application options) can be used to enhance teaching with e-learning. According to the authors, the strategies include providing various ways of interacting and communication through the use of such applications like Skype, zoom, Google classroom, chat forums or discussion boards as well as utilizing different e-learning techniques such as online assessment as a form of students motivation. The findings of the present study are also in line with the findings, Abdelsalam, Ebitisam,

Aljawarneh, Hasan and Hadeel (2022) who reported that e-learning can be effectively utilized through the use of overhead projectors, slides, transparencies and magnifiers and computers with special devices.

Results in Table 2 showed that the teachers challenges of utilizing e-learning in JSS Home Economics programme included lack of proper and advance planning; inadequate time dedicated to student support and preparation; attitude of school management and authorities towards procuring and installation of the ICT devices in school; lack of integration of ICT as a pedagogic practice; preparedness of teacher to integrate technology in teaching; inadequate software for teaching different aspects of Home Economics subjects; expensive nature of Software for teaching Home Economics in secondary schools; domestic distractions and unreliable technology in Nigeria and most Home Economics teachers do not lack the skill to fully utilize e-learning technology in curriculum implementation. In agreement with the findings, Lara, Aljawarneh and Pamplona (2020) reported that compared to developed countries, most developing countries face many challenges in applying e-learning including poor internet connection, insufficient knowledge about the use of information and communication technology, and weak content development.Also in line with the findings, Idowu, Adagunodo and Popoola (2013) reported that most teachers face challenge in implementing e-learning because they were taughtwithout ICTs (e-learning and they have not developed competence in the use of ICTs (e-learning), thus they cannot model good use of technology to students. The authors further noted that non-inclusion of ICT programs in teacher's training curricula at the basic levels of education.

Findings in Table 3 showed that the challenges encountered by students in the utilization ofe-learning inJSS Home Economics Programme included difficulty in understanding practical skills taught online, high cost of buying data subscription, epileptic power supply, difficulty in getting and installing soft wares for learning Practical, parental negative attitude towards provision of needed ICT

tools.for e-learning, parental perception of e-learning as a waste of resources and distractions at home. In line with the findings,Lizcano, Lara and White (2020) stated that challenges facing use of e-learning included acquisition of the Internet infrastructure that supports education systems and the high cost of buying the electronic equipment needed and maintaining the equipment.Also in agreement with the findings, Salawudeen, (2010) noted that the challenges facing students in the use of e-learning included inequality of access to the technology itself by all the students. The cost of a personal computer (PC) and Laptop are still very high in Nigeria considering the income level of an average worker in the country. Few students that are privileged to have a PC/Laptop are not connected to the internet as this attracts extra cost which students cannot afford.

Results in Table 4 indicated that the ways of enhancing utilization of e-learning in JSS Home Economicsprogramme included ICT training for teachers; provision of adequate ICT facilities and Software for e-learning integration in Home Economics programmes; curriculum review in Home Economics programmes to infuse e-learning so as to meet the technological needs of students; employing a technological leader who will develop a vision of how the students will benefit from e-learning program andadequate provision of software applications for teaching Home Economics such Computer Aided Pattern Drafting (CAPD) and Computer Aided Designs (CADs). In agreement with the findings, Aljawarneh (2020) stated that teachers should provide learners with the opportunity to collaborate, share, and create information which will help enhance the learner's use of various technologies, enhance their e-learning experience, and support self-directed and ongoing learning. Also in line with the findings, Lara, Aljawarneh and Pamplona (2020) noted that the challenges of the use of e-learningcan be reduced when the teacher implement a learning environment that encourages collaboration between the teacher and students. Also, Abdelsalam, Ebitisam,
Aljawarneh, Hasan and Hadeel (2022) stated that for effective teaching in internet enabled learning environment, there is need to train and continuously re-train teachers on the use of innovative technologies for online teaching.

Conclusion

E-learning can be described as intentional use of information and communication technology (ICTs) in teaching and learning. Findings of the study indicated that the various means of implementing e-learning in teaching JSS Home Economics programme included use of slides, use of projector, teaching with recorded videos of specific skills, teaching with zoom and social media such as whatsapp and Telegram. Findings of the study also indicated that the teachers' challenges of e-learning included inadequate software for teaching HE courses and attitude of school management towards procurement and installation of technological devices. Findingsshowed that the challenges encountered by students in the

utilization ofe-learning inJSS Home Economics Programme included difficulty in understanding practical skills taught online and high cost of buying data subscription. Findings also showed that the ways of enhancing use of e-learning in Home Economics programme included ICT training for Home Economics teachers; provision of adequate ICT facilities and software for teaching Home Economics courses and curriculum review in Home Economics to embed e-learning.

Recommendation

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

1. Teachers should utilize several e-learning platforms in teaching Home Economics.
2. Parents should provide the needed ICT facilities such as broadband, computer systems, electricity and soft wares for their children to enhance children participation in e-learning.
3. Home Economics teachers should acquire relevant ICT skills required for adopting e-learning and integrating e-learning in their teaching practice.
4. School management and administrators should provide relevant software for teaching different aspects of Home Economics, for example, in clothing and textile, if Computer Aided Pattern Drafting (CAPD) software is provided, it will facilitate e-learning in pattern drafting classes and intelligent tutor will help in teaching food and nutrition.
5. There should be provision of ICT infrastructures and facilities in different areas of Home Economics. For example, provision should be made for ICT facilities such as monogramming machines for garment making, computerized bread makers, cake mixers, among others.
6. There should be regular training and re-training programmes for Home Economics teachers inform of seminars and workshops.

References

Abdelsalam M. M, Ebitisam, K. E. Aljawarneh, S., Hasan R. and Hadeel A. (2022). The COVID-19 Pandemic and E-learning: Challenges and Opportunities from the Perspective of Students and Instructors. *Journal of Computer and High Education;* 34(1), 21-38.

Abiamuwe, N.O, Seriki-Mosadolorun, J.S., Ogbonna, K.P and Otobo, V.O. (2016). Teaching Methods Needed for Enhancing Creativity Skills of Students in Home Economics Courses in Education District IV, Lagos State. *Journal of Science and Technical Education (JOSTED), I (2):195 – 206*

Abidoye, J.A. (2010). The role of electronic learning in improving distance education in Nigeria. *Journal of Teacher Perspective, 4 (2): 12 – 18*

Aboagye, E., Yawson, J. A. and Appiah, K. N. (2022). COVID-19 and E-learning: The Challenges of Students in Tertiary Institutions. *Social Education Research*;2(1):1–8.

Adeladu, A.O. and Adu, E.O. (2015). Review of the Usage of E-learning Facilities by Economics Teachers in Eastern Cape Secondary Schools, South Africa. *International Journal of Education and Science, 9 (3):305 – 313*

Aljawarneh, S. A. (2020). Reviewing and exploring innovative ubiquitous learning tools in higher education. *Journal of Computing in Higher Education.* 2020;32:57–73.

Anyakaoha, E.U. (2015) Home Management for Schools and Colleges (Revised Edition) Onitsha: Africana First Publisher Limited.

Balaye, V. (2018).The use of e-learning in Vocational Education and Training (VET).: Systemization of Existing Theoretical Approaches. *Journal of Education and Learning,* 7(5); 92-100.

Claverley, G. and Shepherd, K. (2003). Assisting the Uptake of On-line Resources: Why Good Learning Resources are not Enough *Computers and Education, 41: 205 – 224*

Eze, S. C., Chinedu-Eze, V. C and Bello, A. O. (2018). The Utilization of E-learning Facilities in the Educational delivery System of Nigeria. Study of M-University. *International Journal of Educational Technology in Higher Education.* 15:34. Https://doi.org.1186/s41239-018-0116-z

Idowu, P. A., Adagunodo, E. R. and Popoola, B. A. (2013). Computer literacy level and Gender Differences among Nigerian university staff. *The African Symposium On-LineJournal,* 3 (3), 7 - 12, retrieved April, 12th, 2022, from http://www2.ncsu.edu/ncsu/aern/comlit.pdf

Kare, S. K. and Chisa, T. (2019). Importance of E-learning in Public Secondary Schools in Bayelsa State, Nigeria. *KnowledgeReview;* 38(1):101-106.

Kimiloglu, H., Ozturan, M. and Kutlu, B. (2017). Perceptions about and attitude toward the usage of e-learning in corporate training. *Computers in Human Behavior,* 72:339-349. Retrieved on 3rd April, 2022 from: https://doi.org/10.1016/j.chb.2017.02.062

Lara, J. A, Aljawarneh, S. and Pamplona, S. (2020). Special issue on the current trends in E-learning Assessment. *Journal of Computing in Higher Education*;32:1–8.

Lizcano, D., Lara, J. A. and White. B. (2020). Blockchain-based approach to create a model of trust in open and ubiquitous higher education. *Journal of Computing in Higher Education*;32:109–134.

Malama, E. and Adebisi, T. T. (2019). Challenges of Teaching and Learning Home Economics: A study of Teacher Colleges of Education in Zambia. *Conference Proceedings from the 9th International Federation for Home Economics(IFHE) and 46th Home Economics Association of Zambia (HEAZ) National Conference at Lusaka.*

Salawudeen, O.S. (2010) E-learning Technology. The Nigerian Experience, Roger Printing and Publishing limited, Abuja

Ugochukwu, I. and Ibeke, E. (2021). E-Learning and Covid-19 - the Nigerian Experience: Challenges of Teaching Technical Courses in Tertiary Institutions, *Online Textbook, published by Schematic Scholar in* RTA-CSIT.

JHER Vol. 29 (2), December 2022, pp. 142 – 152

A Corona Virus Diseases 2019 (COVID-19) Knowledge Possessed by Primary Healthcare Workers in Ebonyi State, South-East Nigeria

[1]Ogbu, M.A; [2]Umoke, M.J.; [3]Njoku, P .O.; [4]Awelegbe, F.O& [5]Emeka Samson
[1&3]Primary Health Care Department, Ebonyi state ministry of Health Abakaliki,
[2]School Health Programme Unit Ebonyi State Ministry of Health Abakaliki, Nigeria
[4]Research and Statistics Unit, Alex Ekwueme Federal University Teaching Hospital
[5]State Epidemiologist, Ebonyi state Ministry of Health

Corresponding author: maryjoy4umoke@gmail.com

Abstract

The general objective of this study was to investigate COVID-19 knowledge possessed by primary healthcare workers (PHWs) in Ebonyi State, South-East Nigeria. Specifically, the study determined general knowledge of COVID-19, knowledge of: signs and symptoms, mode of transmission, and COVID-19 protocols possessed by PHW. The design was survey. The population was 1630 PHWs in Ebonyi state. Multi-stage sampling was used to select a sample of 400 respondents. Data were analyzed using frequencies and percentages. Major findings of the study show that PHWs possessed knowledge of indicators of the general knowledge of COVID-19 in varying frequencies (F) and percentages (%). Some of these indicators included: COVID-19 is a pandemic disease, 360(91.6%), a global emergency 376(95.7%), has high infectivity 210(53.4%), most coronavirus-led illnesses are generally mild, among others. Other findings are nine signs and symptoms of COVID-19 including, fever 374(95.2%), cough 375(95.4%), shortness of breath 362(92.1%), and others. Mode of transmission of COVID-19 include through droplets 373(94.9%), close contact 369(93.9%), and contaminated surfaces 352(89.6%). COVID-19 protocols knowledge possessed by PHWs were sneezing on the inner side of the elbow 302(76.8%), the use of face mask 291(74%), hand washing 384(97.7%), use of PPE 288(73.3%), single-use or disposable equipment 329(83.7%), among others. Based on the findings, three recommendations were made.

Keywords: COVID-19, Primary, Health, Workers, Knowledge, Symptoms, Protocol,

Introduction

Coronavirus disease 2019 (COVID-19/2019-nCoV) is a highly infectious emerging respiratory disease that is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2 a novel coronavirus). It was first detected in December 2019 in Wuhan, China as the cause of an outbreak of pneumonia of unknown cause.In January 2020, the outbreak of the 2019 novel coronavirus (2019-nCoV) in China spread progressively to other countries, with World Health Organization declaring it a

public health emergency of international concern {World Health Organization (WHO, 2020). Based on an early analysis of case series, the most common symptoms of the disease are fever, cough, dyspnea, myalgia, shortness of breath, fatigue. The less common symptoms include: anorexia, sputum production, sore throat, confusion, anosmia, hyposmia, dizziness, headache, rhinorrhea, dysphasia, leucopenia chest pain, hemoptysis, diarrhea, nausea/vomiting and abdominal pain (Wang Zhou, and Liu, 2020). The mode of transmission of COVID-19 was through respiratory droplets through coughing or sneezing, Close contact with infected person directly or indirectly, and contact with contaminated surfaces, objects or items of personal use

Every country was charged to take all necessary measures urgently, to slow down the further spread of the disease (WHO, 2020). It was stressed that containment of the virus could be achieved through timely detection, isolation and treatment of cases, contact tracing, physical and social distancing, in addition to a well-coordinated and comprehensive approach that engages the entire government machinery (WHO, 2020).

On March 9, 2020, Federal Government of Nigeria set up a Presidential Task Force (PTF) on COVID-19 with members drawn from key Departments and Agencies, Federal Ministries, and the WHO. Likewise, to work in collaboration with the PTF, COVID-19 task forces were initiated at the state levels (Federal Government, of Nigeria, 2020). On February 27, 2020, the first case of the COVID-19 was reported in Nigeria in a 44-year-old Italian citizen who visited Lagos, in the Southwestern region of the country (WHO, 2020). As the spread of the pandemic continued, the Ebonyi State government put up several strategies for its control including the enactment of Ebonyi State COVID-19 and other Infectious Diseases Law 2020, (News Agency, Nigeria, 2020) closure of all borders of entry into the State, constitution of the State Anti-COVID-19 Task Force, and imposition of curfew between 8.00 pm and 6.00 am. Others strategies include the banning of social gatherings in excess of 20 persons in places of worship and social events, restriction of number of passengers for commercial transport vehicles to two per seat, and enforcement of use of face masks in public places(Eze, 2020).

Despite the confirmation of the disease in neighboring States of Abia, Enugu, and Benue, Ebonyi State did not record any case of COVID-19 until April 26, 2020 (CDC, 2020). The appearance of an index case on that day made Ebonyi State one of the last in South-eastern geopolitical zone of Nigeria to report a case. However, despite the implementation of the various control measures, within a short period of the index case the State recorded more cases than those in the neighboring States. However, the sudden rise in the number of cases in the state within few weeks after the index case stirred the curiosity of the researchers to assess the COVID-19 knowledge possessed by healthcare workers in the State.

Ebonyi State Ministry of Health is responsible for developing and setting up health policies and monitoring their implementation in the state. Health workers are at the front line of the COVID-19 outbreak response and as such are exposed to hazards that put them at risk of infection. Primary health workers

constitute part of the health system of Ebonyi State since there are more rural than urban communities in the State. The workers are at high risk since of being infected since they are the first point of call for any affected individuals in the community. Therefore, Primary Health Workers (PHW) should be aware of issues relating to COVID-19 such as protocols, including physical distancing, wearing a mask, keeping rooms well ventilated, avoiding crowds, cleaning your hands frequently using alcohol based sanitizer, soap and water, coughing into a bent elbow or tissue, use of hand gloves (WHO, 2021). Health service delivery in Ebonyi State is structured into a three-tier system with the primary health care at the base, supported by the secondary and tertiary health care levels. The health system in the State is however extremely weak with the Primary and Secondary health care levels virtually collapsed. For each cadre of health workers, there is a minimum of 50 per cent gap between current availability and need as at 2015 (Ebonyi State Government Strategic Health Development Plan (2010-2015). Robust primary health care can significantly reduce pressure on health systems, through prevention, detection, and monitoring for early signs of an outbreak, treatment to less complex cases, and continuity of care for other health needs given its proximity to the community and its role as the first point of contact for people (WHO, 2021). The knowledge of COVID-19 possessed by Primary Healthcare workers should play a pivotal role in preventing COVID-19 at the community level. It is therefore important to find out the various aspect of knowledge of COVID-19 possessed by the primary health care workers in Ebonyi state. Such findings could be used to evolve ways of equipping the workers for their many responsibilities.

Objectives of the Study

The general objective of this study was to investigate COVID-19 knowledge possessed by primary healthcare workers in Ebonyi State, Nigeria. Specifically, the study determined the following COVID-19 knowledge indicators possessed by PHW in Ebonyi State:

1. aspects of general knowledge of COVID-19
2. signs and symptoms of COVID-19.
3. modes of transmission of COVID-19.
4. COVID-19 protocols

Methodology

***Design of the Study*:** This cross-sectional survey was conducted among primary healthcare workers in Ebonyi state.

***Area of the Study*:** This study was conducted in Ebonyi state, Nigeria. Health services to the people of Ebonyi State are provided through the services rendered by the Ministry of Health facilities. Currently there are 555 health facilities both registered private (138) and public health facilities (417). There are 171 wards in the state and each ward has their primary health care centers with limited health staffs.(Ebonyi State Ministry of Health, 2022). The area has there senatorial zones and 13 local government areas (LGAs)

***Population of the Study*:** The population for the study was made up of 1630 primary health care workers (PHC)currently working in Ebonyi State primary health care facilities based on available statistics from Ebonyi State Primary Healthcare Development Agency (EBSPHCDA, 2021), 1232(75.6%) females, and 398(24.4%) males. Majority

of the PHC workers are community health extension workers (CHEWS) (59.4%), medical doctors (22.1%), registered Nurses/Midwives (16.8%), and others (1.7%). The PHC workers address the main health problems in the community. They provide health promotion, preventive, curative and rehabilitative services accordingly.

Sample for the Study: The sample of 400 PHC workers were purposively selected from the three senatorial zones in the area of the study. Only the workers who were willing to participate in the study were selected.

***Instrument for Data Collection*:** Questionnaire was used for data collection. It was made developed based on literature review and the specific objectives of the study. It have two responses of "Yes"/ "No". Three experts in Health Education validated the instrument. The corrections and suggestions made by the experts were incorporated in the final version of the instrument. The instrument also yielded a reliability coefficient of 0.76 which was deemed high enough to consider the instrument reliable for use in this study.

Data Collection Procedure: A total of 400 copies of the questionnaires were administered to the respondents. Only 393 copies of the questionnaire were retrieved. This represents 98 percent return.

***Data Analysis Techniques*:** The data were analyzed using frequencies (F) and percentages (%). Data were presented in tables of frequencies tables and percentages. The correct points were summed up and the maximum score was 44 points. The final scores were considered the "COVID-19 knowledge score". Total possible score for knowledge was 44.Scores were re-categorized as poor knowledge if between 0- < 50 % of total (0-21), fair knowledge between > 50 and < 75% (22-31) and, good knowledge > 75% (32-44). A similar scoring system was used in study of Ireye, Ejiyere, Aigbiremolen, Famiyesin, Rowland-Udoh, Ogeyemhe, et al., (2019) to assess knowledge of their respondents on Lassa fever.

Findings of the Study

Socio-demographic characteristics of Respondents: Data analysis on characteristics reveals that the primary healthcare workers who participated in the study were 315 (80.2%) females, and 78(19.8%) males. Age distribution of the respondents were; 20-30years 75(19.1%), 31-40years 105(26.7%), 41-50 years 167(42.5%), 51 years above 46(11.7%). Rural respondents were 323(82.2%), while urban ones were 70(17.8%). Data on qualification showed respondents with tertiary education to be 341(86.8%), secondary education 40(10.2%) and primary education 12(3.1%). Data on years of work experience were: <10years experience 40(10.2%), 10-15years experience 123(31.3%), 16-25years experience 157(39.9%) and 26-35yearsexperience 73(18.6%). On profession, there were Community Health Extension Workers (CHEWs) 248(63.1%), Environmental Health Officers (EHOs) 56(14.2%), others 33(8.4%), Nurses 22 (5.6%), Medical Recorders 17(4.3%), Med Lab scientists 7(1.8%), Doctors 6(1.5%) and Pharmacists 4(1.0%). These are the categories ofhealth staff that responded to our questionnaire and their socio-demographics.

Table 1: Frequency and Percentage Responses on Indicators of General Knowledge of COVID-19Possessed by Primary Health Workers.

S/N	Indicators of General Knowledge on COVID-19	Yes (F %)	No (F %)
	Corona viruses are a family of viruses such as common cold, severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS)	329(83.7%)	64(16.3%)
	Corona virus was identified in China by Chinese authorities.	375(95.4%)	18(4.6%)
	COVID-19 is a pandemic disease	360(91.6%)	33(8.4%)
	COVID-19 is a type of Corona virus	353(89.8%)	40(10.2%)
	The name corona virus comes from the Latin word corona, meaning crown or halo	355(90.3%)	38(9.7%)
	Under an electron microscope, corona virus looks like it is surrounded by a solar corona	352(89.6%)	41(10.4%)
	Incubation period of corona virus range from 1-14 days	368(93.6%)	25(6.4%)
	Corona virus infected patients show symptoms within 5 to 6 days	349(88.8%)	44(11.2%)
	Corona virus Infected patients can also be asymptomatic, that is showing no symptoms	249(63.4%)	144(36.6%)
	Vaccine for COVID-19 is taken twice.	300(76.3%)	93(23.7%)
	Corona virus is a global emergency	376(95.7%)	17(4.3%)
	Corona virus has high infectivity	210(53.4%)	183(46.6%)
	Older people are twice as likely to have serious COVID -19 illness	290(73.8%)	103(26.2%)
	Most Corona virus led illnesses are generally mild, especially for children and young adults	215(54.7%)	178(45.3%)
	COVID-19 can be treated	172(43.8%)	221(56.2%)
	There can be re-occurrence after patients recovery	193(49.1%)	200(50.9%)
	Total knowledge		
	Good	257(65.0%)	
	Fair	130(33.1%)	
	Poor	6(1.5%)	

F = Frequency; % = Percentage

Table 1 shows that most 11(68.8%) of the items indicators of general knowledge of COVID-19, that is 11 items out of 16, obtained high percentage scores of 376(95.7%) – 290(73.8%). Only five items indicators obtained percentages of 429(63.4%) – 172(43.8%). This shows that most of the primary health workers possess high knowledge of the indicators of general knowledge of COVID-19. Overall, a majority 257(65.0%) had a good general knowledge on COVID-19 indicators.

Table 2: Frequency and percentage Responses on Knowledge on Signs and Symptoms of COVID-19 possessed by PHWs

S/N	Signs and Symptoms of COVID-19	Yes (F %)	No (F %)
1.	Fever	374(95.2%)	19(4.8%)
2.	Cough	375(95.4%)	18(4.6%)
3.	Shortness of breath	362(92.1%)	31(7.9%)
4.	Breathing difficulties	375(95.4%)	18(4.6%)
5.	Pneumonia	333(84.7%)	60(15.3%)
6.	Multiple organ failure	327(83.2%)	41(10.4%)
7.	Diarrhea	231(58.8%)	162(41.2%)
8.	Muscle weakness	340(86.5%)	53(13.5%)
9.	Fatigue	319(81.2%)	74(18.8%)
	Total knowledge		
	Good	328(85.5%)	
	Fair	42(10.7%)	
	Poor	23(5.9%)	

F = Frequency; % = Percentage

Table 2 shows that majority of Healthcare workers have knowledge of signs and symptoms of COVID -19. Each of all the eight signs has percentage scores of 375(95.4%). The Table shows, fever 374(95.2%), cough 375(95.4 %), shortness of breath 362(92.1%), breathing difficulties 375(95.4%), pneumonia 333(84.7%), multi organ failure 327(83.2%), diarrhea 231(58.8%), muscle weakness 340(86.5%) and fatigue 319(81.2%). Overall, a majority (85.5%) had a good knowledge on the signs and symptoms of COVID-19.

Table 3: Frequency and Percentage Responses on Possessed Knowledge of Modes of Transmission

S/N	Modes of Transmission	Yes (F %)	No (F %)
. 1	Respiratory droplets through coughing or sneezing	373(94.9%)	20(5.1%)
. 2	Close contact with infected person directly or indirectly	369(93.9%)	24(6.1%)
. 3	Contact with contaminated surfaces, objects or items of personal use	352(89.6%)	41(10.4%)
. 4	People cannot get infected through food	217(55.2%)	176(44.8%)
	Total knowledge		
	Good	358(91.1%)	
	Fair	26(6.6%)	
	Poor	9(2.3%)	

F = Frequency; % = Percentage

Table 3 reveals that majority of the workers had knowledge on mode of transmission. The Table shows item No 1 that COVID-19 can be contacted through droplets 94.9%, close contact 93.9%, contaminated surfaces 89.6% and not through food 55.2%. Overall, a majority (91.1%) had a good knowledge of the mode of transmission of COVID-19.

Table 4: Frequency and Percentage Responses on COVID 19 Protocols Possessed by PHW

S/N	COVID-19 Protocols	Yes (%)	No(%)
1	Sneezing in the inner side of elbow.	302(76.8)	91 (23.2)
2	Use offace mask when sick and also when taking care of patients with the symptoms.	291(74)	102(26)
3	Hand washing with soap and water or an alcohol-based sanitizer.	384(97.7)	9(2.3)
4	Avoid touching the eyes, nose and mouth with unwashed hands.	361(91.9)	32(8.1)
5	Avoid close contact with people (i.e., maintain a distance of at least 1meter (3feet), particularly those who have a fever or are coughing or sneezing.	358(91.1)	35(8.9)
6	Cover mouth and nose when coughing and sneezing, discard tissue immediately in a closed bin, and wash hands.	383(97.5)	10(2.5)
7	Isolating all suspected cases in a well ventilated area that is separate from other patients.	370(94.1)	23(5.9)
8	When single rooms are not available, place all suspected cases together in the same ward.	343(87.3)	50(12.7)
9	Use of PPE such as medical mask, gloves, an appropriate gown, and eye/facial protection (e.g., goggles or a face shield).	288(73.3)	105(26.7)
10	Prevention of needle stick and sharps injury	318(95.2)	19(4.8)
11	Safe waste management, environmental cleaning, and sterilization of patient care equipment and linen	284(80.9)	75(19.1)
12	Use single-use or disposable equipment.	329(83.7)	64(16.3)
13	Limitation of the number of healthcare workers, family members, and visitors in contact with the patient, ensuring optimal patient care.	170(43.3)	223(56.7)
14	All specimens collected for laboratory investigations are regarded as potentially infectious.	301(76.6)	92(23.4)
15	Disinfection inanimate surfaces in the surgery or hospital as patients may touch and contaminate surfaces such as door handles and desktops.	267(67.9)	126(32.1)
	Overall Knowledge		
	Good	280(71.2)	
	Fair	94(24)	
	Poor	19(4.8)	

Table 4 shows that the protocols reported by the respondents were: Sneezing in the inner side of elbow 302(76.8%), the use of face mask when sick and also when taking care of patients with the symptoms 291(74%), Hand washing with soap and water or an alcohol-based sanitizer 384(97.7%), Avoid touching the eyes, nose and mouth with unwashed hands 361(91.9%), Avoid close contact with people 358(91.1%), Cover mouth and nose when coughing and sneezing, discard tissue immediately in a closed bin, and wash hands 383(97.5%), Isolating

all suspected cases in a well ventilated area 370(94.1%), Use of PPE 288(73.3%), Prevention of needle stick and sharps injury (318(95.2%), Safe waste management, and environmental cleaning 284(80.9%), Use single-use or disposable equipment 329(83.7), and Disinfection inanimate surfaces in the surgery or hospital 267(67.9%). Overall, a majority 280(71.2%) had a good knowledge, 94(24%) fair, while a few 19(4.8%) had poor knowledge on the COVID-19 protocols. (Table 2)

Discussion of Findings

This current study, which is the first of its kind among PHWs in Ebonyi State, sought to assess their knowledge of concepts of COVID-19, its signs, symptoms, transmission, and protocols for prevention of the disease. Many studies have shown the knowledge of COVID-19 among health workers from many countries. Due to an increasing prevalence of COVID-19 in the state, there is a critical need to gather essential data on knowledge for effective control and preventive plans. Knowledge is a prerequisite for establishing beliefs, forming positive attitudes, and promoting positive behaviors. Individual cognition and attitudes toward disease affect their knowledge (McEachan, Taylor, Harrison, Lawton, Gardner, and Conner, 2016). Overall knowledge level of HCWs about COVID-19 was good in this study. Their level of knowledge on the aspects of general knowledge about COVID-19, signs and symptoms, modes of transmission, and COVID-19 protocols were 257(65.0%), 328(85.5%), 358(91.1%, 358(91.1%), and 280(71.2) respectively. In the same vein, Goni et al. (2019), in their study among health workers in Malaysia, reported a good level of knowledge which aligns with studies conducted in Nigeria, Uganda, Egypt, China, Nepal, Zambia, and Pakistan (Isiekwe et al., 2021, Sharaf and Kabel 2021, Olum, et al., 2020, Ahmed, et al., 2020, Khanal, and Singh 2020, and Madona, et al., 2019, Saqlain, et al., 2020).

Similarly, an Iranian study found that 99% of respondents had an excellent knowledge regarding the disease modes of transmission, but concerning the disease symptoms, only 86% had sufficient knowledge (Maleki, Najafi, Farhadi, Hosseini, and Naderi, 2020). Also results corroborate the findings of a study conducted in America by Balaban et al. (2013), where only 20.0% of the participant believed that viruses do not cause Infections. A good percentage of respondents had good knowledge about the transmission of Respiratory Tract Infection. At variance, a study from the United Arab Emirates reported poor knowledge about disease transmission and the symptom in a significant proportion among HCWs (Bhagavathula, Aldhaleei, Rahmani, Mahabadi, and Bandari, (2020). Also, Bakaeen et al. (2021) in their study among dental practitioners from Eastern Mediterranean, Sarfaraz, Shabbir, Mudasser, Khurshid, Al-Quraini, Abbasi, Ratnayake, and Zafar (2020), Asma, Shazia, and Muhammad (2020) reported poor knowledge among health workers in their various studies in Saudi Arabia.

Regarding knowledge of the Covid-19 protocols, hand washing, sneezing on the inner side of your elbow, refraining from touching your eyes, mouth, and nose, and putting on a surgical face mask were among the protocols frequently known by our participants. At variance with these findings, Kumar, Katto, Siddiqui, Saito, Jamil, Rasheed, and Ali (2020)

found HCWs' knowledge regarding the role of face masks in the prevention of the disease to be moderate to poor. Also, Olum et al. (2019) revealed that 17% of HCWs believed that general medical masks was not protective against COVID-19. While Ng, Poon, KiatPuar, Shan Quah, Loh, Wong, Tan, and Raghuram (2020) delineated that surgical masks are similarly as effective as N95 respirators if used with hand wash and other infection prevention precautions.

In this study, only 43.3% had knowledge of the limitation of the number of healthcare workers, family members, and visitors in contact with the patient in ensuring optimal patient care. Likewise Abdel Wahed et al. (2020); Saqlain et al. (2020); Maleki et al. (2020); Wang et al. (2020) reported overcrowding in the emergency rooms as a barrier in infection control practice that could make them at high risk of getting the infection.

According to Akram (2020), Human coronaviruses remain infectious on dry surfaces for 2–9 days at room temperature, duration can be shorter at a temperature of 30 °C or more. Unlike a human, veterinary coronaviruses persist even longer for 28 days. Contamination of frequent-use surfaces in healthcare and home settings is a potential source of viral transmission. In this study, only about 67.7% knew about the disinfection of inanimate surfaces during surgery or hospital to prevent infection transmission. However, Wang et al. (2020) reported that virus contamination in areas frequently touched by patients in the isolation ward was high due to low awareness of the correct disinfection protocol. The knowledge of COVID-19 protocols among health workers is vital as the application will slow the spread of the infection in the work environment and the general public.

Conclusion

HCWs are the frontline defense in the war against COVID-19. The study showed that they had good knowledge on the indicators of general knowledge, signs and symptoms, mode of transmission and COVID-19 protocols. Despite the good knowledge score observed in this study, some knowledge gaps exist in the knowledge of treatment and COVID-19 protocols especially in the area of overcrowding during patient care and visit and in disinfection of inanimate surfaces in the healthcare facility.

Recommendation

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

1. There should be constantly updated educational programs related to COVID-19, this will contribute to improving the healthcare workers' knowledge of COVID-19.
2. Self-reported knowledge could not be very reliable as there could be some bias, therefore it is recommended that observatory studies should be carried out to really ascertain the level of knowledge of health workers towards COVID-19.
3. Further studies on the ways of enhancing health workers' knowledge is recommended

References

Abdel Wahed, W. Y., Hefzy, E. M., Ahmed, M. I., &Hamed, N. S. (2020). Assessment of Knowledge, Attitudes, and Perception of Health Care Workers Regarding COVID-19, A Cross-Sectional Study from Egypt. *Journal of community health*, *45*(6), 1242–1251.

https://doi.org/10.1007/s10900-020-00882-0

Ahmed, M.A., Jouhar, R., Ahmed, N., Adnan, S., Aftab, M., Zafar, M.S &Khurshid, Z. (2020). Fear and Practice Modifications among Dentists to Combat Novel Coronavirus Disease (COVID-19) Outbreak. *International Journal of Environmental Research and Public Health*, 17(8):2821. doi: 10.3390/ijerph17082821 Khanal, and Singh 2020,

Akram M. Z. (2020). Inanimate surfaces as potential source of 2019-nCoV spread and their disinfection with biocidal agents. *Virusdisease*, *31*(2), 94–96. https://doi.org/10.1007/s13337-020-00603-0

Asma, M.K., Shazia, N. & Muhammad, Q.J. (2020). Dental Faculty's Knowledge and Attitude regarding COVID-19 disease in Qassim, Saudi Arabia *Research square*, DOI: https://doi.org/10.21203/rs.3.rs-25805/v1

Bakaeen, L. G., Masri, R., AlTarawneh, S., Garcia, L. T., AlHadidi, A., Khamis, A. H., Hamdan, A. M., &Baqain, Z. H. (2021). Dentists' knowledge, attitudes, and professional behavior toward the COVID-19 pandemic: A multisite survey of dentists' perspectives. *Journal of the American Dental Association (1939)*, *152*(1), 16–24. https://doi.org/10.1016/j.adaj.2020.09.022

Balaban V., Stauffer W., Hammad A., Afgarshe M., Abd-Alla M., Ahmed Q., Memish Z., Saba J., Harton E., Palumbo G., et al. Predictors of protective behaviors among American to the 2009. Hajj. *Journal of. Epidemioliogy and Global Health.*2013;3:187–196. doi: 10.1016/j.jegh.2013.12.001.

Ebonyi State Primary Health Care Development Agency. (EBSPHCDA), 2019

Eze J., (2020). COVID – 19: Ebonyi Closes Boundaries from Saturday. Premium Times. Abakaliki; 2020. Available from: https://www.premiumtimesng.com/coronavirus/384104-covid-19-ebonyi-closesboundaries-from-saturday.html.

Goni M, Hasan H, Naing NN, Wan-Arfah N, ZeinyDeris Z, Nor Arifin W, AbubakarBaaba A. Assessment of Knowledge, Attitude and Practice towards Prevention of Respiratory Tract Infections among Hajj and Umrah Pilgrims from Malaysia in 2018. *International journal of environmental research and public health*, *16*(22), 4569. doi: 10.3390/ijerph16224569.

Ireye ,F., Ejiyere H, Aigbiremolen AO, Ekundare, F.O., Eloho,R A., Ogeyemhe C. O., Okudo I.O., (2019). Knowledge, Attitude and Infection Prevention and Control Practices Regarding Lassa Fever among Healthcare Workers in Edo State, Nigeria. International Journal of Prevention and Treatment, 8(1): 21-27, IJPT

Isiekwe, I.G., Umeizudike, K.A., Daramola, O.O., Akeredolu, M.O. & Leo-Olagbaye, A.A. (2021). The COVID-19 pandemic and dental residency training in Nigeria. *European Journal of Dental Education*, 00:1– 9. https://doi.org/10.1111/eje.12654

Madona, E., Daniel, E.O., Abiodun, P.O., Popoola, I.O., Ojo, O.V., Adams, C.O., &Moronkeji S., (2019) assessment of knowledge, attitude, and practices of infection prevention among healthcare providers in Chibombo District Zanbia, world journal of public health. 4 ,87-95,https://doi.org/10-116481/j.10jph. 2019040413.Saqlain, et al., 2020

Maleki S, Najafi F, Farhadi K, Hosseini F., &Naderi, M., (2020). Knowledge, attitude and behavior of health care workers in the prevention of COVID-19. *BMG Medical Education, under review*.doi: 10.21203/rs.3.rs-23113/v1.

McEachan, R., Taylor, N., Harrison, R., Lawton, R., Gardner, P. and Conner, M. (2016) Meta-Analysis of the Reasoned Action Approach (RAA) to Understanding Health Behaviors. Annals of Behavioral Medicine, 50, 592-612.

https://doi.org/10.1007/s12160-016-9798-4 Bakaeen, et al., 2021,

Ng, K., Poon, B. H., KiatPuar, T. H., Shan Quah, J. L., Loh, W. J., Wong, Y. J., Tan, T. Y., &Raghuram, J. (2020). COVID-19 and the Risk to Health Care Workers: A Case Report. *Annals of internal medicine*, *172*(11), 766–767. https://doi.org/10.7326/L20-0175

Olum, R., Chekwech, G., Wekha, G., Nassozi, D.R. &Bongomin, F. (2020). Coronavirus Disease-2019: Knowledge, Attitude, and Practices of Health Care Workers at Makerere University Teaching Hospitals, Uganda. *Frontiers in Public Health,* 8:181. doi: 10.3389/fpubh.2020.00181

Sarfaraz, S., Shabbir, J., Mudasser, M.A., Khurshid, Z., Al-Quraini, A.A.A., Abbasi, M.S., Ratnayake, J & Zafar, M.S. (2020). Knowledge and Attitude of Dental Professionals Related to Disinfection during the COVID-19 Pandemic. *Healthcare (Basel),* 8(3):232. doi: 10.3390/healthcare8030232

Sharaf, R.F. &Kabel, N. (2021). Awareness and knowledge of undergraduate dental students about the signs and symptoms of Corona viral infection (COVID-19), and the required infection control measures to prevent its spread. *Bulletin of the National Research Centre*, 45(1):32. doi: 10.1186/s42269-021-00494-1.

Wang, J., Zhou, M., & Liu, F. (2020). Reasons for healthcare workers becoming infected with novel coronavirus disease 2019 (COVID-19) in China. *The Journal of hospital infection*, *105*(1), 100–101. https://doi.org/10.1016/j.jhin.2020.03.002

World Health Organization, (2021). Pandemics and the Role of Primary Health Care. https://www.paho.org/en/events/pandemics-and-role-primary-health-care

World Health Organization, (2020). 2019-nCoV outbreak is an emergency of international concern. 2020

JHER Vol. 29 (2), December 2022, pp. 153 – 162

Protein Consumption Practices of Aged (60 and Above) Women in Nsukka Local Government Area, Enugu State, Nigeria

Attah, B.I. & Eze, N. M.
Department of Home Economics and Hospitality Management Education,
University of Nigeria Nsukka.

Corresponding author: ijeoma.attah@unn.edu.ng

Abstract

The study focused on protein consumption practices of aged women in Nsukka Local Government Area (LGA) of Enugu State, Nigeria. Specifically, it determined common protein foods (plant and animal sources) consumed by aged women, frequency of consumption of protein foods, factors that hinder consumption of protein foods by aged women, and ways of improving the consumption of protein by aged women. The study adopted a descriptive survey design. Questionnaire was used for data collection. Population for the study was made up of aged women in the area of study. Mean and standard deviation were used for data analysis. Findings of the study show seven plant protein sources (consumed by the aged women. These include *okpa* (*vigna subterraea)* (, black beans (*caviar criolla)* , and others. There are also six animal protein sources (. These include, crayfish (, fish ( ), beef (, and others. Other findings are various frequencies of consumption of protein sources, (, including, "once daily" (, five times weekly (, and others. Further findings are eight factors that hinder protein consumption (by the aged women. These include, "food not always available" (, lack of strength most times to prepare food ((, protein food are costly (, and others. More findings are 13 ways of improving protein consumption among the aged women (. These include, that health providers should guide aged women in protein consumption (, cultural/religious restrictions that hinder protein consumption by aged women to be scrapped by government (and others. Based on the findings six recommendations were made for improving protein consumption of the aged women.

Key words: Protein, Consumption, Practices, Deficiency, Aged, Women, Frequency.

Introduction

Healthy aging is very important for individuals. This is determined by various factors, including adequate nutrition (Nowson, et al., 2015). Aging is characterized by a decline in skeletal muscle mass and loss of muscle strength, which are collectively termed sarcopenia (Traylor et al, 2018). Sarcopenia increases the risk of falls and fractures, dependent living, morbidity and mortality (Janseen, 2010). Protein high diet has been associated with better clinical outcomes, especially in the elderly population. These positive clinical outcomes include preservation of skeletal mass, higher bone mineral content, reduced fracture risk and improved wound healing (Best

and Appleton, 2013). Evidence has shown that older adults need more dietary protein than younger ones to support good health, promote recovery from illness and maintain functionality (Jurgen, 2013).

Protein needs of the aged include the types, quality and quantity of protein needed by the individual (Mahan and Escot, 2016). Protein needs of the aged are influenced by the amount of protein required for maintenance of existing lean body mass, plus allowances for the amount required to accrue additional lean body mass during the stage of old age. The estimated protein need for the aged women is 1.0 gram to 1.3 gram protein per kg of body weight per day. Women over 65 years should take in about 1gram to 1.2 gram of protein/kg of body weight per day to both gain and maintain muscle mass and function. By age 65, one needs the combination of exercise and high- quality protein (Paddon- Jones, 2015).

Protein deficiency can sometimes result in a flaky dermatitis or irritation of the skin, especially on the back of the thighs and on the buttocks (Bihuniak, 2017). Lack of certain proteins in the skin's protective barrier can make skin more vulnerable to allergens and other irritants. Protein deficiency could make an individual prone to fluid retention around ankles and feet. Protein deficiency leads to loss of muscle tissue, weakness, reduced resistance to disease, kidney and heart problems, and contributes to the deficiency disease kwashiorkor in children. Protein deficiency in adults produces a loss of body tissue protein, heart abnormalities, severe diarrhea, and other health problems (Byrd- Bredenner et al, 2013). It is therefore necessary that the aging and aged consume adequate quantity and various sources of animal and plant proteins including those in the area of this study.

In general, proteins should contribute 10-35 percent of total energy intake. Food and Agricultural Organization (FAO) (2016), recommendation for daily protein consumption is put at 60 gram per person out of which 35 gram is expected to be from animal source. For aged women the daily whole body protein turnover rate is 5.7g/kg body weight (Yusuke et al, 2021). This means that, approximately 400 gram mixed proteins are turned over every day for a 70kg adult individual. Behind that number, a large proportion of amino acids are recycled and reutilized for protein synthesis (Nishimura et al, 2021), while some are lost via oxidation for energy production and the formation of urea to scavenge nitrogen. Since proteins are essential for healthy living, there is need for aged women to consume adequate protein. According to Berg, Tymoczko and Stryer (2012), proteins are major constituents of enzymes, antibodies, hormones, and body fluids such as blood.

In the area of this study, there are abundant food sources of protein, some of which are plant based and others animal based. These sources include, among others, beef lean, lean chicken, pork chop, eggs, low fat milk, fish, bambara nut, *vigna subterranean* (*okpa*), cow pea, *vigna unguiculata* (*fio-fio*), *phaseolu vulgaris* (*olaludi*), soya bean, black beans, (*Vigna sinenssis)* (*apama*), soya
bean. In spite of these protein sources, various factors appear to hinder adequate consumption of protein foods by the aged women in the area. It is therefore necessary to study issues relating to the consumption of protein foods by the aged

women, with a view to evolving ways of enhancing such consumption.

Purpose of the Study

The major purpose of the study was to investigate protein consumption practices of aged (60 and above) women in Nsukka LGA. Specifically, the study determined:

1. common protein foods sources (plant and animal) consumed by aged women in Nsukka LGA
2 frequency of consumption of protein foods by aged women in Nsukka LGA
3 factors that hinder the consumption of protein foods by aged women in Nsukka LGA
4 ways of improving the consumption of protein by the aged women in Nsukka LGA.

Research Questions

The study answered these research questions:

1. what are the common protein foods sources (plant and animal) consumed by the aged women in Nsukka?
2. what is the frequency of consumption of protein foods by the aged women in Nsukka?
3. what factors hinder the consumption of protein food by the aged women in Nsukka?
4. what are the ways of improving the consumption of protein food by the aged women in Nsukka?

Methodology

Design of Study: The study adopted a descriptive survey design.

Area of Study: The study was carried out in Nsukka LGA in Enugu state, of Nigeria. The LGA is made up of 31 villages. There are urban, marginally urban, and rural areas in the LGA. The study focused on the rural areas. The rural areas were grouped into five wards for the purpose of the study.

Population for the Study: The population for the study consisted of all the aged (65 years and above) women in the rural areas of Nsukka LGA. The exact size of the population could not be accertained at the time of the study. They were mostly illiterate women. Some of them could still farm around their houses while others depended completely on their families.

***Sample for the study*:** Four wards were purposively selected from the five wards in the area of the study based on estimated number of the aged women in the wards. The four wards that had the highest estimated numbers of aged women were selected. Two women groups were selected from each of the four wards to give eight groups. Then 21 aged women were purposively selected from the eight groups to give a sample of 168 women who were aged 65 years and above. These 168 aged women formed the sample for the study.

Instrument for Data Collection: Instrument for data collection was questionnaire. It had five sections, covering the specific purposes and research questions of the study. It was developed based on literature review and the specific purposes. A 4-point scale response mode was adopted for each of the questionnaire items. The 4-point scale ranged from 4, 3, 2 and 1. The instrument was validated by three universities lecturer in Food and Nutrition. To establish the reliability of the instrument 10 copies were administered to aged women outside the sample of the study. Data obtained were analyzed using Cronbach Alpha. A coefficient of 0.79, reliability index was obtained.

***Data Collection Method*:** One hundred and Sixty-eight (168) copies of questionnaire were administered by hand with the help of two trained research- assistants. Since majority of the respondent were illiterate, the questionnaire served as an interview schedule. Only 152 copies were properly completed and retrieved. This represents 90.47 percent return.

***Method of Data Analysis*:** The data collected were analyzed using means, and standard deviation. Based on the 4-point scale of the instrument mean of 2.50 and above (2.50) was taken as a cut-off mean for decision making on the findings. A mean of 2.50 was considered, "consumed", "source", "frequency", "hindering", factors" and "ways of improvement" for specific purposes/research questions Nos 1, 2, 3 and 4 respectively.

Findings of the study

Table 1: Mean Responses on Plant Protein Sources Consumed by Aged Women in Nsukka, LGA.

S/No	Plant Protein Sources Consumed		SD	Remarks
1.	*Okpa*'(*Vigna subterranea*)	3.40	0.78	C
2.	Mushroom (*Jacaum,ex,Fr.kummer)*	1.45	0.82	NC
3.	Brown bean '*olaludi*'(*Phaseolu vulgaris*)	1.28	0.35	NC
4.	*Soya bean* (*Glycine max*)	1.24	0.64	NC
5.	Black beans (*Caviar criolla*)	2.68	0.88	C
6.	'*Apama*' bean (*Vigna sinenssis*)	3.25	0.54	C
7.	' *Fio- fio*'(*Vigna unguiculata*)	3.02	0.66	C
8.	Iron beans (*Phaseolus polyanthus*)	2.84	0.72	C
9.	Moi- moi (*Thau|Matoccus daniellii*)	2.81	0.31	C
10.	Walnuts (*Genus juglans*)	2.52	1.16	C

=Mean, SD = Standard Deviation, C = Consumed, NC = Not Consumesd, N = 152

Table 1 shows plant protein food sources consumed by the aged women. Any mean item with a mean of 2.50 and above is considered as a protein source consumed by the aged. The Table shows that seven out of the 10 plant protein sources obtained mean scores of 2.50 and above ( ). These are therefore sources consumed by the aged women.

Table 2: Mean Responses on Animal Protein Consumed by Aged women in Nsukka

S/No	Animal Protein Food Consumption		SD	Remarks
1.	Eggs	2.42	0.72	NC
2.	Chicken	2.54	0.71	C
3.	Milk	2.29	1.05	NC
4.	Pork	2.67	0.40	C
5.	Beef	2.90	0.68	C
6.	Turkey	1.46	0.37	NC
7.	Fish	2.60	0.30	C
8.	Crayfish	3.67	0.83	NC

9.	Cheese	1.32	0.70	NC
10.	Yogurt	1.90	0.72	NC
11	Chevon (Goat)	2.82	0.88	C
12	Mutton (Sheep)	1.35	0.91	NC

=Mean, SD = Standard Deviation, C = Consumed, NC = Not Consumesd, N = 152

Table 2 shows that six out of the 12 animal protein sources obtained mean scores of . These six animal protein sources are crayfish ( ), fish ( ), and others are with the animal protein sources consumed by aged women.

Table 3: Mean Responses on Frequency of Protein Consumption by Aged Women in Nsukka LGA

S/N	Frequency of protein consumption		SD	Rmks
	I Consume Protein Foods:			
1	Once daily	2.52	0.60	AFM
2	Twice daily	2.40	0.84	BFM
3	Three times daily	2.20	0.72	BFM
4	Four times daily	1.34	0.96	BFM
5	Once in a week	1.20	0.77	BFM
6	Twice weekly	2.32	1.04	BFM
7	Three times weekly	2.38	0.88	BFM
8	Four times weekly	2.45	0.96	BFM
9	Five times weekly	3.20	1.10	CMR
10	Six times weekly	2.54	0.86	AFM
11	Seven times weekly	2.60	0.54	AFM
12	Once in two weeks	1.32	0.64	BFM
13	Once in three weeks	1.12	0.90	BFM
14	Once in a month	1.04	0.50	BFM

=Mean, SD = Standard Deviation, AFM = Above Frequency Mean, BFM= Below Frequency Mean, N = 152

Table 3 shows the frequency or regularity of protein consumption by the aged women. The Table reveals that only four items obtained sources of..... The remaining 10 items have mean scores less than 2.50 ( ).

Table 4: Mean Responses on Factors that Hinder Consumption of Protein Foods by Aged Women in Nsukka LGA.

S/N	Factors that Hinder Consumption of Protein Foods		SD	Remarks
1.	Foods not always available	2.70	0.70	HF
2	Poor appetite due to health condition	2.62	1.04	HF
3.	Lack of strength most time to prepare food	3.76	1.09	HF
4.	High cost of protein food	3.20	1.06	HF
5.	Culture/religious prohibitions on food choice/consumption	2.24	0.77	NHF
6.	Dislike for some of the foods	1.89	0.31	NHF
7.	No advice on nutrition	3.20	0.80	HF
8.	Consumption of protein not considered necessary	2.44	1.20	NHF
9.	Difficulty to access some preferred food items	3.20	1.13	HF

10.	Some protein sources are too expensive	3.07	1.05	HF
11	Non availability of money to purchase preferred food items	3.20	0.86	HF
12	Family members don't like some foods I prefer	2.40	0.92	NHF

=Mean, SD = Standard Deviation, HF Hindering Factor, NHF = Not Hindering Factor, N = 152

Table 4 shows eight factors that hinder the consumption of protein (by aged women in Nsukka LGA. The other four factors with mean scores less than 2.50 are considered non-hindering factors.

Table 5: Mean Responses of Ways of Improving Protein Consumption Practices of the Aged Women in Nsukka LGA.

S/No	Ways of improving protein intake practices		SD	Remarks
1.	Health provider should guide the aged women of protein consumption practices	3.82	0.90	IW
2.	Aged women should attend nutrition classes organized by government agencies	3.43	0.64	WI
3.	Aged women should consider their health when picking meals	2.78	1.09	WI
4.	Caregivers should prepare adequate protein rich meals for the women	3.39	0.60	WI
5.	Communities should pay a regular visit to the aged for support	2.74	0.77	WI
6.	Dietitians/nutritionist alone to be in charge of advising the women on protein needs	3.89	0.31	WI
7.	Home economists should create awareness of role of protein sources among the women.	3.80	0.90	WI
8.	Cultural/religious restriction related on food consumption to be scrapped by government	3.70	0.80	WI
9.	Government should provide food for the aged women	2.35	0.76	WI
10.	NGOs should organize nutrition education programmes for the women	3.09	1.05	WI
11	Households should cook meals for aged women based on their nutritional requirements	2.94	1.02	WI
12	Communities should organize workshops for aged women on their nutritional requirements	2.02	0.86	NWI
13	Women groups should pull resources together to buy food stuffs in bulk and share to cut cost.	2.99	0.77	WI
14	Home Economists should carry out more research on how to improve protein intake practices of aged women	3.04	0.68	WI
15	Government should provide food subsidy for aged women	3.12	0.54	WI

=Mean, SD = Standard Deviation, WI Way of Improvement, NWI = Not Way of Improvement, N = 152

Table 5 shows 14 out of 15 items in the Table obtained mean scores higher than 2.5 (.....This shows that each of the 14 ways can improve the protein consumption practices of the aged women in Nsukka LGA.

Discussion of findings

Findings on plant protein sources consumption by the aged women in Nsukka LGA show seven sources of plant protein ((commonly consumed by the women. These are assorted types of legume which are very popular in the area of the study. They are commonly grown and consumed, especially *okpa* (*Vigna subterranean)* ((, *apama* bean (*Vigna sinenssis*) (, *fio-fio* (*Vigna ungulate)* (. findings on animal protein sources consumed show that the sources with the highest mean scores are crayfish ((and fish (. It is necessary to observed that findings show that aged women have fairly wide varieties of protein both plant and animal sources that they can choose from for consumption.

Th findings on frequency of consumption of protein meal among aged women show low regularity of consumption of protein consumption by the women, which is mostly once daily (2.50). This means that availability of protein for consumption does not translate into actual consumption. The findings on frequency is consistent with those of National Health and Nutrition Examination Survey (NHANES) (2013), which indicate that in 2006 the average protein intake (g/meal) among women aged 51–71 year age group was 11.9 ± 0.4 (breakfast), 17.9 ± 0.5 (lunch) and 30.4 ± 0.7 (dinner) with snacks constituting 7.4 ± 0.3. The intake (g/meal) in men was higher and accounted for 15.8 ± 0.5, 23.2 ± 0.8, 43.5 ± 1.0 and 10.5 ± 0.5, respectively. Results from this study have also confirmed that the same pattern was observed in a ≥71 year's group. However, the amount of protein consumed in each meal was lower in both sexes, in comparison to the younger age group (Berner, Becker and Wise, 2013). Results of this present study are also consistent with those of Gray-Donald, St-Arnaud et al. (2014) which indicate that adults aged 70 years and older had low protein intake (<0.8g/kg BW/day). The finding of this present study are also consistent with those of Volpi *et al* (2013), which indicate that many elderly individuals are not consuming enough dietary protein to meet their needs. Their study showed that approximately 10 percent – 25 percent of elderly women studied consume less than the recommended dietary allowance which is 0.8 gram of protein/kg of body weight/day.

Finding on the factors that hinder consumption of protein food by the aged women intake indicate, among others such factors as high cost of protein foods, some do not know the importance of protein. These findings are consistent with those of Herforth, et al., (2020) that show that price, and affordability are the key barriers to accessing sufficient, safe, nutritious foods to meet dietary needs. Findings also indicated that the costs of protein foods are often five times more than that of energy sufficient diets. The study found that about three billon aged women people cannot afford the minimum cost of healthy animal protein diet. This reveals that cost is an enormous barrier to the consumption of animal protein diet.

The result of ways of improving the aged women's protein intake practices reveals that there is need for nutrition education among aged women on importance of protein intake practices, allowing dietitians/nutritionist to be advising the aged women on protein intake practices, also Home Economists should create awareness on the

importance of consuming protein foods since the respondents has poor knowledge. This finding is related to a study carried out by Haveman-Nies, et al., (2022) that revealed that 80 percent of the respondents of the study were not aware of the importance of protein intake. The findings are also related with findings by Jeruszka, et al., (2018) which show that good nutrition related knowledge was associated with lower BMI in aged women. The findings are also related to those of Spronk, et al., (2021) which show that higher nutrition-related knowledge resulted in better dietary behaviour, mostly a higher intake of protein, fruits and vegetables. Other related findings are Kok, et al., (2016) and Marije, et al., (2020) who reported that awareness about the importance of an adequate protein intake and the problem associated with malnutrition was low among aged women.

Conclusion

It was observed from the study that plant protein source is more consumed by the aged women than the animal sources. Frequency of consumption commonly adopted by the aged women in Nsukka is insufficient. Hence, there is a need for the aged women to adopt an adequate protein intake practices which will help to improve their nutritional status and also help to prevent protein deficiency related diseases. An adequate protein consumption in terms of quality and quantity without necessary supplementation could have impact on lean mass and skeletal muscle mass. Adequate protein intake is one of the key nutritional factors to maintenance of healthy aging.

Recommendations

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

1. Non governmental organizations (NGOs) should put in place appropriate programme on the importance of protein intake for the aged women.
2. Government health provider should evolve ways of promoting protein consumption among the aged women
3. Government should empower rural dwellers in to produce more plant protein food and rear livestocks in order to increase aged protein consumption and distribution to the urban centre.

References

Aromolaran, A. B. (2014). *Household income, women's income share and food calorie intake in south western Nigeria' food policy*.29:507 -530.

Berg, J., Tymoczko, J. L. & Stryer, C. (2012). *Biochemistry* (7th Edition) San Francisco:W.H .Freeman.

Berner, L.A., Becker, G., Wise, M., & Doi, J. (2013). Characterization of dietary protein among older adults in the United States: Amount, animal sources, and meal patterns. *Journal of Academics Nutrition. Diet, 13* (113), 809–815. doi: 10.1016/j.jand.2013.01.014.

Best, R.L., & Appleton, K.M. (2013). The consumption of protein-rich foods in older adults. *Journal of Nutrition Education and Behaviour, 45* (6), 751-755.

Bihuniak, J.D. & Inogna, K.L. (2017). The effects on the dietary protein and amino acids on skeletal metabolism. *Eropean Jurnal, 41* (410), 78-86.

Byrd-Bredbenner, C., Moe, G., Beshgetoor, D. & Berning, J. (2013). *Ward law's perspective in Nutrition*-Mc Graw Hill: USA.

Census (2016), *National Population Commission Report*, Abuja; Nigeria

Food and Agricultural Organisation (FAO) (2016). Recommendation for daily protein intake. Rome: https//www.fao.org /ag/humannutrition/35968

Gray-Donald, K., St-Arnaud-McKenzie, D., Gaudreau, P., Morais, J.A., Shatenstein, B., & Payette, H. (2014), Protein intake protects against weight loss in healthy community-dwelling older adults. *Journal of Nutrition,144* (3), 321–336.

Gelsomin, E. (2016). The scoop of protein. Harvard Health Publication. https//www.health/Harvard.edu.

Haveman-Nies, A., Borkent, J.W., Linschooten, J.O., Roodenburg, A.J.C., De- Groot, L.C.P.G.M. & Vander S. M. A.E. (2022).*Protein Intake among Communities –Dwelling Older Adults*: The influence of (pre-) motivational Determinants. Nutrients 2022, 14, 293. https//doi.org/10.3390/nu14020293

Herforth, A., Bai, Y., Venkat, A., Mahrt, K., Ebel, A & Masters, W.A. (2020). *Cost and affordability of healthy dieys across and within countries*. Background paper for The state of Food Security and Nurtition in the world 2020. FAO Agricultural Developmnet Economics Technical Study No9. Rome, FAO. https//doi.org/10.4060/cb2431en

Janseen, I. (2010). Evolution of sarcopenia research. *International Journal of Applied physiological/Nutrition metab*, *35* (5), 707-712.

Jeruszka –Bielak, M., Kollajtis-Dolowy, A., Santoro, A., Ostan, R., Berendsen, A.A.M., Jennigs, A., Meunier, N., Marseglia, A., Caumon, E. & Gillings, R. (2018). *Are Nutrition- Related Knowledge and Attitudes Reflected in lifestyle and Health Among Elderly people?* A study Across five European Countries. Front. Physiology. 2018, 9,994 [crossRef] [pubMed

Judith, V. H., Adedotun, O., Jan, S., Ursqula, K., and Alida, M.B. (2020). Protein intake adequacy among Nigerian infants, children, adolescents and women and protein qualityof common consumed foods.Nutrition Research Review. https://doi.org/10.1017/50954422419000 22

Jurgen, B.M.D. (2013). Evidence- based recommendations for optimal dietary protein intake older people. *Journal of the American medical directors association, 14* (8), 542-559.

Kok, G., Gottlieh, N.H., Peters, G.J.Y., Mullen, P.D., Parcel, G.S., Ruiter, R.A.C., Fernandez, M.E., Markham, C. & Kay, B.L.(2016). A taxonomy of behaviour change methods: An intervention mapping approach. Health Psychology Retrieved 2016 (10), 297-312.

Marije, M., Schueren, A.E.V.S., Annet, J.C.R & Lisette, C.P.G.M (2020). The protein gap-increasing protein intake in the diet of community- dwelling older adults. A simulation study. *Journal of public Health Nutrition 25*(2), 78-99.

Mahan, L.K. & Escott, S. (2016). *Foods, nutrition and diet therapy education* Philadelphia: Saunders Ltd.

National Health and Nutrition Examination Survey (2013). Department of Health and Human services centre for disease control and prevention, United state. Retrieved from https//www.cdc.gov/nhances

Nishimura, Y., Musa, I., & Holm, L. (2021). Recent advances in measuring and understanding the regulation of exercise mediated protein degradation in skeletal muscel. *American journal of physiological cell88* (321), 276-287.

Nowson, C. & Connell, S.O. (2015). Protein Requirments and Recommendations for older people. *Journal of Nutrients, 15* (7), 6874-6899. Doi:10.3390/nu7085311

Paddon,J. D.(2015). *Nutrition, exercise, and healthy aging* Jam Diet Associate.

Spronk, I., Kullen, C., Burdon, C. & O' Connor, H. (2021). Systematic Review Relationship between Nutrition knowledge and Dietary Intake. *British Journal of Nutrition, 14* (111), 1713-1726.

Traylor, D.A., Gorissen, S.H.M. & Stuart, M.P. (2-18).Perspective: protein requirements and optimal intakes in ageing.

International Journal of American society for nutrition, 9 (3), 171-182

United Nation (UN) (2020). Department of economic and social affairs, population division. World population Ageing. United Nations; New York. Retrieved from **Error! Hyperlink reference not valid.** socialaffairs population division.doc

Volpi, E., Campbell, W.W., Dwyer, J.T., Johnson, M.A., Jensen, G.L., Morley, J.E. & Wolfe, R.R. (2013). Is the optimal level of protein intake for older adults greater than the recommended dietary allowance? *Journals of Gerontology-series A Biological sciences and medical science, 68* (6), 677-681. https://doi.org/10.1093/gerona/gls229

Yusuke, N., Grith, H., Leigh, B, Inge, T. & Lars, H. (2021). *Dietary protein requirements and recommend dations for healthy older adult*: a critical narrative review of the scientific evidence. Published Online: Cambridge university press

WHO. (2021). Nutrition for older persons. Retrieved from https://www.nbi.nlm.nih.gov.

JHER Vol. 29 (2), December 2022, pp. 163 – 170

Hygiene Practices Adopted By Food Vendors in Public Secondary School in Asaba Metropolis, Delta State

Isibor A.O.
Department of Home Economics Education
Federal College of Education (Technical), Asaba, Delta State

Abstract

The purpose major of this study was to investigate food handling practices among food vendors in public secondary schools in Asaba Metropolis. Specifically, the study determined personal and food hygiene practices adopted by the food vendors. The study adopted survey research design. The population for the study comprised registered 116 food vendors operating in 10 public secondary schools in Asaba Metropolis. Instrument for data collection was questionnaire. Findings reveal 10 personal hygiene practices adopted by food vendors in public secondary schools in Asaba Metropolis include: Do not use aprons to dry your hands (2.90), Do not smoke in food preparation areas (3.28), Always wear hand glove while cooking (3.47), Always properly cut their finger nails (8.85), Always cover their hair while cooking (2.95), and others. Other findings are 10 hygiene practices. These include, Store foods appropriately both before and after cooking (2.90), Always clean the cooking utensils after cooking (2.95), Use tools or utensils to serve food whenever possible (2.98), Always wash the vegetables before cutting (8.85) among others. Based on the findings, it was recommended; among others that government through the school management should sensitize the food vendors in their premises on the importance of personal and food hygiene practices so as to reduce the occurrence of food borne diseases in and around the school.

Keywords: Food, Handling, Hygiene, Personal, Practice, Vendors, Students

Introduction

Food is one of the basic needs of man. It is any substance which when ingested by an organism and assimilated by the organism's cells to provide energy, maintained life, or stimulated growth (Chaudhari, Landin and Roper, 2019). The importance of food and its consumption at various times and in various places necessitate business of food vending, since individuals might not be able to prepare their food always. Food vendors abound along streets and premises including schools. Street foods are foods supplied by food vendors often along streets for immediate consumption or later use without further processing or preparation.

Any food that is ready for consumption requires hygienic handling to promote health thus, food handling personnel play an important role in ensuring food safety throughout preparation and service chains (World Health Organization (WHO), 2013). Hygiene involves many practices that help people stay healthy (Boyce *et al*, 2010). It is the practice of preventing illness or stopping it from spreading by

keeping things clean. Furthermore, hygiene is the practice of keeping oneself as well as one's living and working conditions and areas clean in order to prevent illness and diseases (WHO, 2015). Poor hygiene practices by food handlers (vendors) may expose food to pathogenic bacteria which can constitute danger to the health of consumers. To avert the danger of food poisoning, hygiene practices are adequately needed while handling food. Food hygiene practices involve actions carried out in the processes of preparation, preservation and service of food in a manner that ensure the food is safe for human consumption. Food hygiene seen as a set of basic principles employed in the systematic control of the environmental conditions during production, packaging and delivery of food in such a way that ensure the food is safe to consume and it is of good keeping quality. Okeke (2009), referred to food hygiene as a practice for constant vigilance and strict observation of absolute cleanliness and safety with the food in order to prevent food contamination or poisoning. The process of food hygiene include proper storage of food items prior to use, maintaining of clean environment when preparing food and personal hygiene of the food handlers (vendors). Food contamination can occur at any point during its preparation, and service. This emphasizes the importance of food safety and hygiene in the prevention of food borne diseases (Osagbemi, Abduyllahi and Aderibigbe, 2018).

Food is said to be hygienic when it is free of a hazardous substance that could be harmful to human or animal health, however, microbiological hazards in ready-to-eat food and chemical hazards, mostly pesticides from agricultural products including fresh vegetables and fruits have been reported (Preetha, 2015). Ensuring food hygiene and safety practices among vendors is one challenge that has existed for decades, and therefore the need for vendors to adhere to high standard food safety regulations and hygiene practices cannot be emphasized (United Nation International Children Emergency Fund (UNICEF), 2013). Preventive strategy based on thorough analysis of prevailing conditions to ensure the achievement of quality assurance programme objectives is also recommended. According to WHO (2013), it is estimated that more than 200,000 people die of food poisoning and food borne pathogens annually in Nigeria. Practices identified as contributing to foodborne outbreaks include improper refrigeration, prolonged handling and inadequate reheating of cooked food and contamination of food by commercial or household food handlers who worked while ill or had poor personal hygiene.

The knowledge of food handlers about the food borne infections and their safety practices is an important issue in the prevention of outbreaks of food borne infection. In Nigeria, Bhowmick (2015), found out that food vendors' in their study are aware of food and personal hygiene and a greater percentage of the vendors adhered to basic hygiene practices. Considering that a percentage of vendors are yet to adopt basic hygiene practices, it will be necessary to ensure continuous education and enforcement of policy regulations within the food industry. Earlier, Abah & Abah (2015) found out that in Nigeria, 27.7 percent of food handlers do not wash their hands before preparing food and 28.1 percent use only water without soap to wash

hands after using the toilet. They also found out that 90 percent of food handlers have heard about typhoid fever but only 15.6 percent of them know how it is contracted. Similarly, Codex (2017), in a related study carried out among food vendors in primary schools in Jos, Plateau State, North Central Nigeria, found out that 60.9 percent of participants in the study had good knowledge of good food handling hygiene practices. Age of the vendors was found to be related to their food safety and hygiene practices. The scenario among secondary schools in Asaba metropolis is a source of concern. Most food vendors may not have proper knowledge of good food handling practices. This could be as a result of neglect of the school management as well as the State Ministry of Health. Lack of proper knowledge of food safety and hygiene practices could constitute danger to the health of the students. It is therefore necessary study the hygiene practices adopted by food vendors in public secondary schools in Asaba Metropolis.

Purpose of the Study

The main purpose of this study was to investigate hygiene practices among food vendors in public secondary schools in Asaba Metropolis. Specifically, the study determined:

1. personal hygiene practices adopted by food vendors in public secondary schools in Asaba Metropolis.
2. food hygiene practices adopted by food vendors in public secondary schools in Asaba Metropolis.

Hypotheses (HOs)

There are no significant differences between the mean responses of male food vendors in the public secondary schools on:

HO_1: Personal hygiene practices adopted by the food vendors

HO_2: Food hygiene practices adopted by the food vendors.

Methodology

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

***Area of the Study*:** Area of the study was Asaba metropolis. The study was carried out in thirteen (13) public secondary schools in Asaba Metropolis.

***Population of the Study*:** The population for the study was 116 registered food vendors operating in 13 public secondary schools in Asaba Metropolis. They were both male (42) and female (74) vendors. Due to the small size of the population, the entire 116 food vendors were involved in the study. Therefore, there was no sample size and sampling technique for the study.

***Instrument for Data Collection*:** Questionnaire was used for data collection. The questionnaire was divided into two sections A and B. Section A sought information on the personal hygiene practices, while Section B was on the food hygiene practices. The instrument had a- four point rating scale of Very High Extent (VHE) 4, High Extent (HE) 3, Low Extent (LE) 2, and Very Low Extent (VLE) 1. It had appropriate instructions for the respondents. It was validated by three Home Economics lecturers in Colleges of Education. The internal consistency of the instrument was determined using Cronbach Alpha method, which yielded a coefficient of 0.87 showing that the instrument was reliable for the study.

***Data Collection Methods*:** One hundred and sixteen copies of the questionnaire

were administered to the respondents by hand with the help of two trained researcher assistants. The respondents were properly instructed on questionnaire items and how to respond to the instrument. It took the respondent one to two hours to complete the questionnaire. All the 116 copies of questionnaire were retrieved. There was 100 percent return rate.

***Data Analysis Techniques*:** Data were analyzed using mean ( ) to answer the research questions while t-test was used to test the null hypotheses at 0.05 level of significance. A mean of 2.50 was used as basis for decision making. Also, if calculated t-value was greater than the table value for the given degree of freedom (df) the null hypothesis was regarded as significant otherwise not significant.

Results

Table 1: Mean Responses and t-test Analysis on Personal Hygiene Practices Adopted by Food Vendors in Public Secondary Schools in Asaba Metropolis.

S/N	Personal Hygiene Practices	$_m$	SD_m	$_f$	SD_f	$_g$	SD_g	t-cal	Decision
1	Do not use aprons to dry your hands	2.91	1.20	2.88	1.18	2.90	0.89	0.59	Sig.
2	Do not smoke in food preparation areas	3.26	2.23	3.29	0.87	3.28	1.55	0.77	Sig.
3	Always wear hand glove while cooking	3.04	2.97	3.89	1.01	3.47	1.75	1.49	Sig.
4	Always properly cut your finger nails	2.86	2.96	2.83	1.01	8.85	0.52	1.52	Sig.
5	Always wear apron while cooking	2.91	2.83	2.89	1.00	2.90	1.63	0.75	Sig.
6	Always cover your hair while cooking	3.03	2.95	2.86	0.96	2.95	1.45	1.05	Sig.
7	Cover any cuts with a bandage and wear clean gloves	2.93	3.02	3.03	1.13	2.98	1.46	0.18	Sig.
8	Wear hair nets to help prevent loose hair from falling on food	2.83	2.98	2.88	0.99	2.86	1.36	1.10	Sig.
9	Report immediately any symptoms of illness or infection to your supervisor	2.94	2.84	2.85	1.08	2.90	1.47	0.12	Sig.
10	Wash hands before and after handling raw food, especially meat and poultry	2.91	2.91	2.98	0.93	2.95	1.46	0.79	Sig.
	Total	2.81	1.00	2.41	0.98	2.58	1.65	0.08	Sig.

No of male vendors 42; No of female vendors = 74; $_m$ = mean responses of male vendors; SD_m = Standard deviation of male vendors; $_f$ = mean of responses of female responses, SDf = Standard of female vendors, $_g$ = Grand mean, t-cal = calculated t-test result

Table 1 shows male food vendors had higher mean (= 2.81; SD = 1.00) than female vendors (= 2.41; SD = 0.98). The Table also reveals that there was

significant difference in the mean responses of male and female food vendors on the personal hygiene practices adopted by food vendors in public secondary schools in Asaba Metropolis. Therefore, the hypothesis that stated that there is no significant difference in the mean responses of male and female food vendors on the personal hygiene practices adopted by food vendors in public secondary schools in Asaba Metropolis was rejected.

Table 2: Mean Responses and t-test Analysis on Food Hygiene Practices Adopted by Food Vendors in Public Secondary Schools in Asaba Metropolis.

S/N	Personal Hygiene Practices	$_m$	SD_m	$_f$	SD_f	$_g$	SD_g	t-cal	Decision
1	Store foods appropriately both before and after cooking	2.41	1.53	2.34	1.18	2.90	0.89	0.59	Sig.
2	Always properly cook and prepare foods	1.26	2.26	2.29	0.87	3.28	1.55	0.77	Sig.
3	Always serve the food with clean plates and dishes	2.41	2.43	3.45	1.01	3.47	1.75	1.49	Sig.
4	Always wash the vegetables before cutting	2.64	2.25	2.53	1.01	8.85	0.52	1.52	Sig.
5	Do not leave used pots and plates overnight	2.52	2.36	2.35	1.00	2.90	1.63	0.75	Sig.
6	Always clean the cooking utensils after cooking	2.63	2.83	2.24	0.96	2.95	1.45	1.05	Sig.
7	Use tools or utensils to serve food whenever possible	2.26	2.43	2.03	1.13	2.98	1.46	0.18	Sig.
8	I do not wear jewelry in food preparation areas especially rings	2.92	2.54	2.34	0.99	2.86	1.36	1.10	Sig.
9	Keep the kitchen and canteen clean	2.45	2.28	2.42	1.08	2.90	1.47	0.12	Sig.
10	Keep raw meat and other raw animal products away from other foods	2.91	2.51	2.34	0.93	2.95	1.46	0.79	Sig.
	Total	2.62	1.08	2.39	1.00	2.58	1.47	0.08	Sig.

No of male vendors 42; No of female vendors = 74; $_m$ = mean responses of male vendors; SD_m = Standard deviation of male vendors; $_f$ = mean of responses of female responses, SDf = Standard of female vendors, $_g$ = Grand mean, t-cal = calculated t-test result

Table 2 shows that food vendors had higher total mean (= 2.62; SD = 1.08) than female vendors (= 2.39; SD = 1.00).The Table further shows that there was no significant difference in the mean responses of male and female food vendors on the food hygiene practices adopted by food vendors in public secondary schools in Asaba Metropolis. Therefore, the hypothesis that stated that there is no significant difference in the mean responses of male and female food vendors on the food hygiene practices adopted by food vendors in public secondary schools in Asaba Metropolis not rejected.

Discussion of Findings

The findings reveals that there is no significant difference between the mean responses of male and female food vendors personal hygiene practices adopted by food vendors in public secondary schools in Asaba Metropolis. The study discovered that the personal hygiene practices adopted by food vendors in public secondary schools in Asaba Metropolis include: do not use aprons to dry your hands, do not smoke in food preparation areas, always wear hand glove while cooking, always properly cut their finger nails, always cover their hair while cooking, cover any cuts with a bandage and wear clean gloves, wear hair nets to help prevent loose hair from falling on food, report immediately any symptoms of illness or infection to your supervisor and wash hands before and after handling raw food, especially meat and poultry. This view was supported by Ebirim (2015) who posited that food contamination can occur at any point during its preparation, bringing to bear the importance of food safety and hygiene in the prevention of food borne diseases. Good hygiene practices have been documented to prevent several food-borne diseases when practiced. It is broadly acclaimed that deliberate or accidental contamination of food due to inappropriate handling of food might endanger the lives of consumers.

Findings on the food hygiene practices adopted by food vendors in public secondary schools in Asaba Metropolis as contained in research question two and hypothesis two include: always properly cook and prepare foods, always wash the vegetables before cutting, do not leave used pots and plates overnight, always clean the cooking utensils after cooking, they use tools or utensils to serve food whenever possible, they do not wear jewelry in food preparation areas especially rings, keep the kitchen and canteen clean, keep raw meat and other raw animal products away from other foods. This finding is in line with Uzoka (2018) observed that it is also a common practice for most food vendors to communicate without wearing mouth and nose cover to prevent droplets of saliva from entering the food while selling. Food vending is increasingly becoming popular perhaps due to some vital roles it plays such as providing of quick and cheap food services to the people as well as creating employment opportunities for women. Ohiokpehai (2018) while acknowledging the vital role played by food vendors to the city dwellers observes that such foods can pose significant health hazards to the people due to the vendors lack of food hygiene practices. Agba (2019) observes that unhygienic practices by food vendors expose children to diseases like vomiting, abdominal pains, diarrhea and other forms of health risks in the environment. Although school children enjoy food from these food vendors, in many cases the food is of poor quality and it poses a serious health risk to the school children. Also some of these food handlers wear long, polished nails, brackets and do not cover their hair while preparing and selling food, these could serve as a medium for germ transfer into the food.

Haileselassie, Taddele, Adhana, Kalayou (2018) suggested that inadequate food safety laws, weak regulatory systems, lack of financial resources to invest in safer equipment, inadequate knowledge of food borne diseases and their causes, improper handling of food and unhygienic

environments among others have been identified as some of the causes of food borne diseases. Adewunmi, Ajayi and Omotoso (2019) also observed that many of the vendors who sell both raw and cooked food items are not regulated. They operate haphazardly without any monitoring of what they prepare and how they prepare it. The altering patterns of food consumption have had a great influence on the increasing incidence of food borne diseases. Traditionally, foods were produced and consumed locally. This is inline with Daniels, Mackinnon and Rowe (2016) who posited that food vendors play important role in ensuring food safety throughout the chain of food production and storage. Mishandling and pay no attention to hygienic measures on the part of the food vendors may enable pathogenic organisms to gain entry and in some cases survive and multiply insufficient numbers to cause illness in the consumer. Akintaro (2012) submitted that large quantity of food produced and distributed gets to the consumers in an unwholesome condition due to poor handling methods, inefficient processing equipment and storage practices, high ambient tropical temperature and humidity conditions.

Food contamination can occur at any point during its preparation, bringing to bear the importance of food safety and hygiene in the prevention of food borne diseases. Good hygiene practices have been documented to prevent several food-borne diseases when practiced. It is broadly acclaimed that deliberate or accidental contamination of food due to inappropriate handling of food might endanger the lives of consumers. Annor and Baiden (2019) posited that several hygiene practices such as poor personal and environmental hygiene, inadequate storage of food and drinks, improper preparation and cooking are known to cooperate the safety of food. Food is said to be hygienic when it is free of a hazardous substance that could be harmful to human or animal health. Though this is the case, microbiological hazards in ready to eat food and chemical hazards, mostly pesticides from agricultural products including fresh vegetables and fruits have been highlighted.

Conclusion

The findings of the study have shown that both male and female food vendors in the public secondary schools in Asaba Metropolis of Delta state are aware of personal hygiene practices that are important to adhere to. They are not only aware of the practices, the findings show that they adopt the practices.

Recommendations

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

1. That government through the school management should sensitize the food vendors in their premises on the importance of personal and food hygiene practices so as to reduce the occurrence of food borne diseases in and around the school.
2. That school management should regularly supervise the level of hygiene practices adopted by food vendors in their respective schools.
3. Food vendors should also avail themselves to available training and also implement the whatever they learnt so as to reduce the occurrence of food borne diseases in and around the school.

References

Abah, D.A. & Abah, P.O. (2015). Analysis of effects of food advertising on sales volume of an agro-allied company: A case of Benue Brewery Limited, Makurdi, Benue State Nigeria. *American Journal of Economics, Finance and Management.* 1(5), 473-481.

Adewunmi, A.R., Ajayi, J.O. and Omotoso, B.O. (2019). Assessment of the hygienic practices of food vendors and government intervention in selected secondary schools from Abeokuta South Local Government Area of Ogun State, Nigeria. *Journal of Science and Multidiscipline Resource*, 6(1):2277-0135

Akintaro, O.A. (2012). Food Handling, Hygiene and the Role of Food Regulatory Agencies in Promoting Good Health and Development in Nigeria. *Int. J. Health Med. Informal*, 1(3):2350-2150.

Ali, A. (2006). *Conducting Research in Education and the Social Sciences*. Enugu. TIAN Ventures

Annor, G.A. and Baiden, E.A. (2019). Evaluation of food hygiene knowledge, attitudes and practices of food handlers in food businesses in Accra, Ghana. *Food and Nutrition.* 2:830-836

Bhowmick, S.K. (2015). Street vendors in Asia: A review. *Economic and Political Weekly* 2256-2265.

Boyce, J.M., Bliss, S.J., Roy, A.K., Das, K.K., San, A.K., Biswas, R. & Baker, C.J. (2010). Guideline for hand hygiene in health care setting. Recommendation of the healthcare infection control practices advisory committee and the morbidity and mortality. *Weekly Report*, 25(12), 530-540.

Chaudhari, N., Landin, A. and Roper, S. (2019). A metabotropic glutamate receptor variant functions as a taste receptor. *Nature Neuroscience. 3 (2): 113–9*.

Codex, A. (2017). Definition food hygiene. Retrieved from http//www.FAv.Org/AG/Magazine/0702sp/heml.

Daniels, NA, Mackinnon, L. & Rowe, S.M. (2016). Food borne disease outbreaks in United States schools. *Pediatr. Dis. Journal*. 21(7):623-628.

Ebirim, F.N. (2015). *Principles of food preservation*. Onitsha: Noble Publisher.

Haileselassie, M., Taddele, H., Adhana, K. and Kalayou, S. (2018). Food safety knowledge and practices of abattoir and butchery shops and the microbial profile of meat in Mekelle City. *Asian Pacific Journal of Tropical Biomedication*. 3:407-412.

Okeke, S.U.N. (2009). *Home economics for schools and colleges*. Onitsha: Africana First Publishers Plc.

Osagbemi, G.K., Abduyllahi, A. & Aderibigbe, S.A. (2010). Knowledge Attitude and Practice concerning food poisoning among residents of Okene Metropolis, Nigeria. Research *Journal of Social Science*; 1(5): 4-16.

Preetha, N. (2015). Why is kitchen hygiene important and how to maintain it. *Home>Health India Women Fashion Blog.*

UNICEF (2013). Personal hygiene, life skill competency 5th standard. http//unicef.org. Retrieved October 2019.

Uzoka, F.A (2018) *Home Management for Tertiary institutions.* Enugu: Chombus Communication Ventures.

World Health Organization (2013). *Reducing risks, promoting healthy life*. Geneva. World Health Organization.

World Health Organization (2015). *School health and youth health promotion*. Geneva: World Health Organization.

JHER Vol. 29 (2), December 2022, pp. 171 – 179

Utilization of Fabric Scraps Skill Needed by Home Economics Students for in Production of Patch-Work Articles in Colleges of Education in Anambra State

Arinze, A .U., Chidolue, I.B. & Onuchukwu, R.N
Department of Home Economics,
Federal College of Education (Technical), Umunze, Anambra State.

Corresponding author: arinzeukamaka@gmail.com

Abstract

This study examined the skills needed for utilization of fabric scraps for patch-work articles by Home Economics students in Colleges of Education in Anambra State. Specifically, the study determined skills needed for: sourcing of fabric scraps for patchwork production, preparing materials for patchwork production, stitching patchwork articles, and finishing patchwork articles. Four research questions were answered. The study adopted descriptive survey research. Population for the study comprised 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 analyzed using mean and standard deviations. Results reveal 10 needed skills for sourcing fabric scraps. These include, among others, ability to keep containers/bags for the tailors in their workshop, collect the scraps personally, collect the scraps. Other findings are 16 skills for fabric scraps preparation, including ability to determine the design, cut pattern piece correctly, place pattern piece correctly and others. Further findings are 21 stitching skills. These include ability to, match stripes well before stitching, thread the machine properly, use tailors chalk when needed and others, other findings are skills for finishing patchwork articles. These include ability to tack the patchwork and lining together, iron the patchwork on the wrong side, stitch smoothly on the wrong side among others. Based on the findings five recommendations were made for improving the students' skills in patchwork. These include, Home Economics teachers should lay more emphasis on entrepreneurship skills development, adequate exposure to skills, knowledge and attitude essential for them to acquire self-reliance, the basic skills in garment making should be stressed as the students engage in such task, and others.

Keywords: Finishing, Scraps, Patchwork, Stitching, Fabric, Students, Skills.

Introduction

Allied craft is an aspect of Clothing and Textile offered in Colleges of Education in Nigeria. Allied craft focuses on utilization of elements designs, including lines, forms, style, pattern and texture, with relevant materials, tools and processes to produce artistic articles that could be used in home interior decoration, clothing construction, and many other purposes (Wigjig, 2010; Anyakoha 2013; Aiamurwe el,at. 2014).

There are different types of Allied craft through which Home economics students of Colleges of Education can acquire saleable skills. Such skills can equip the students to became self-employed and self-reliant then become useful members of the society. Some of the craft include appliqué, crocheting, embroidery knitting, macramé, quilting, weaving, patchwork among others.

Patchwork is the process of stitching different pieces of fabrics together to make elaborate designs with the help of thread and needle. The product of such patchwork could then be used to produce assorted types of articles. Patchwork involves a careful piecing together of often contrasting bits of fabric to create a larger design. It is most often used to make quilts, it can also be used to make bags, wall-hanging, bedcovers, cushion covers, skirts, and place mats, among other textile items. Patchwork production thus involves technical operations that require knowledge of elements of design, fabric, principles of clothing construction and necessary skills. Patchwork is often considered to be profitable income generating opportunity during graduation by the Colleges of Education Home economics students, as it is easy to obtain raw materials which are fabric scraps (remnants) from tailoring work. Patchwork also serves as income generating potentials since it can be used to produce variety of article such as quilt, hand bags, bedspread, among others, which the Home economics graduates can produce and earn a living through it.

Abiamuwe, Seriki-Mosadolurun and Lemon (2014) opined that students are supposed to learn practical skills which would be useful to them and enable them also to get jobs in industries or other formal sectors of the economy. Yusri& Mohammad (2013) postulated that employability skills are group of skills that help in supporting the ability of an individual to perform effectively in the workplace. Akunaya (2012), discussed, that training has been found as a tool capable of illurninating creative abilities.

Patchwork is an entrepreneurial opportunity could enable Home Economics students turn waste into wealth and enhance their creativity, while also contributing to solid waste management. The raw material (fabric scraps) can be sourced from clothing industries, dressmaker's shops or tailoring workshops and these can be a source of livelihood for unemployed Home economics graduates when they are converted to useful articles. Scraps from tailoring and dressmaking workshops are found in any places where there are dressmakers in Anambra State. They obtained in market or places where there are normally many tailors and dressmakers. Tailors and dressmakers are individuals who are involved in clothing construction with a view of making their customers satisfied with items they produced (Phyllis, 2011). Textile scraps are remnants that are left after cutting textile materials for clothing construction. Scraps from tailoring and dressmaking workshops can be obtained with very minimal or without cost by the unemployed graduates. The idea of converting waste materials to useable items is not new in Nigeria. In some states in Nigeria, waste materials especially of the cellophane types are daily converted into useful materials (Amasa, 2011). According to Amasa (2011), the waste to wealth scheme was designed for employed youth and provided them training in how to convert neglected materials such as snails' shells,

horns, bamboos among others into decorative ornamental household items. The Home Economics students in the Colleges of Education as well as the graduates should be encouraged and helped to acquire appropriate skills in patchwork production. One way of doing this is to find out the technical skills they need and use such as basis for evolving suitable patchwork skill acquisition for them, hence this study.

Purpose of the study

The main purpose of the study was to evolve skills needed for production of patchwork with fabric scraps by Home Economics students in Colleges of Education (COEs) in Anambra State. Specifically, the study identified skills needed for:

1. sourcing of fabric scraps for patchwork production from fabric scraps.
2. preparing materials for patchwork production.
3. stitching patchwork articles.
4. finishing patchwork articles.

Research questions

What are the skills needed by Colleges of Education Home Economics students (COEs) in each of the following patchwork production procedures?

1. sourcing of the materials (fabrics scraps)?
2. preparing materials for patchwork production?
3. stitching patchwork articles?
4. finishing patchwork articles?

Methodology

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

***Area of the Study*:** Area of the study was Anambra State. In the area, one of the colleges is owned by federal government while the second is owned by the Anambra state. Anambra state has many tailors and dressmaking workshops that one can get enough scraps which can be converted into a useful material by the colleges of education students.

***The Population for the Study*:** The population of the study was made up of 22 Home Economics Lecturers. This consisted of the entire Home Economics lecturers in two Colleges of Education in Anambra State that offer Home Economics namely Federal college of (T) Umunze (F.C.E (T)) and Nwafor Orizu College of Education Nsugbe (NOCE) comprising of male and female made up of Chief lecturers, Senior lecturers, Lecturers 1 & 11, Assistant lectures, Higher instructors and Senior instructors with academic qualifications ranging from PhD, M.ed/M.edSc, Bsc and HND respectively (Source: Statistics units of the two Colleges of Education, 2020). The entire population was used for the study since it was a manageable size. Hence, no sampling was done.

***Instrument for Data Collection*:** Data was collected through structured questionnaire consisting of fifty-nine (59) item**.** It was developed through literature review based on the specific purposes of the study. 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 face validated by three expects, two of the validates came from Home Economics Department and one from the Department of Measurement and Evaluation of Federal College of Education (Tech) Asaba. The reliability of the instrument was established using Cronbach Alpha

statistical tool which yielded the reliability co-efficient of 0.87.

***Data Collection Method*:** A total of 22 copies of the instrument were administered by hand to Home Economics Lecturers at the various institutions. All were returned properly completed and used in the analysis of data. There was percent return.

***Data Analysis Techniques*:** Data collected from the study were analyzed using mean score and standard deviation. A mean score of 2.50 and above was agreed to the skills needed for production of patchwork from fabric scraps while a mean score below 2.50 were seen as disagree.

Findings of the study

Skills for Sourcing of Fabric Scraps for Patchwork Production.

Table 1: Mean And Standard Deviations of Responses Skills Needed for Sourcing of Textile Scraps for Patchwork Production.

S/N	Skills for sourcing fabric scraps	$_1$	SD_1	$_2$	SD_2	Remark
	Ability to:					
1	keep containers/bags for the tailors in their workshops	4.39	1.02	4.30	0.91	Agreed
2	go personally to collect the scraps one's in a week	4.31	1.14	4.39	0.96	Agreed
3	assign persons to collect the scrap when necessary.	4.56	0.97	4.49	0.85	Agreed
4	pick fabric scraps from the dust bin where the tailors dispose solid.	4.34	1.08	4.32	1.01	Agreed
5	pay for the scraps appropriately	4.36	1.13	4.29	0.99	Agreed
6	employ relations to pick them for you	4.31	1.14	4.39	0.96	Agreed
7	sort fabric scabs according to size and colour	4.31	1.14	4.39	0.96	Agreed
8	remove all dirt particles from the scraps	4.53	1.08	4.23	1.05	Agreed
9	Sort them according to the texture of the fabrics	4.44	1.05	4.40	0.89	Agreed
10	sort fabric scabs according to design	4.56	0.97	4.49	0.85	Agreed

Note: $_1$= mean for FCE(T)Umunze lecturers, SD_1 = standard deviation for FCE(T) Umunze; $_2$= mean for NOCEN Nsugbe lecturers;SD_2 = standard deviation for NOCEN Nsugbe. N =22

Table 1shows the mean response and standard deviation of respondents concerning the skills for sourcing fabric scraps. All the respondents agreed that all the items are skills for sourcing fabric scraps. They all had means and standard deviations ranging from 4.31 to 4.56and 0.85 to 1.14 which indicates that home economics lecturers agreed with the skills for sourcing fabric scraps for patchwork production.

Skills in Preparing Materials for Patchwork Production

Table 2: Mean and Standard Deviation of Respondents on Skills for Preparation of Fabric Scraps

S/N	Skills in Preparation of Fabric Scraps for Patchwork Production	$_1$	SD_1	$_2$	SD_2	Remark
	Ability to:					
1	determine the design	4.53	1.08	4.29	1.01	Agreed
2	develop the design on a template based on the size of the textile scrap	4.53	1.08	4.23	1.05	Agreed
3	cut pattern piece correctly	4.16	0.93	4.34	1.00	Agreed
4	place pattern piece correctly	4.53	1.08	4.29	1.01	Agreed
5	place/lay the fabric on the table	4.44	1.05	4.40	0.89	Agreed
6	fold fabrics correctly before cutting	4.39	1.08	4.43	0.88	Agreed
7	cut out the shapes, including sewing allowance	4.39	1.23	4.14	1.13	Agreed
8	arrange the patches according to the design	4.36	1.22	4.25	1.02	Agreed
9	place left hand side on the fabric while cutting	4.53	1.08	4.28	0.98	Agreed
10	measure lines and distances on the template	4.44	0.97	4.22	1.15	Agreed
11	mark round the shapes with pencil	4.61	0.93	4.28	1.09	Agreed
12	select the matching thread	4.47	1.03	4.37	0.78	Agreed
13	reduce scraps to the required patterns size	4.16	0.93	4.34	1.00	Agreed
14	enlarge patterns where necessary	4.42	1.08	4.35	1.06	Agreed
15	Check for flaw and observe wrong sides	4.42	1.07	4.44	0.98	Agreed
16	Iron out all creases out of the fabric	4.53	1.08	4.39	1.23	Agreed

Note: $_{1:}$= mean for FCE(T) Umunze lecturers, SD_1 = standard deviation for FCE(T) Umunze; $_2$= mean for NOCEN Nsugbe lecturers;SD_2 = standard deviation for NOCEN Nsugbe. N =22

Table 2 shows that, the data had their means ranging from 4.22 to 4.53and standard deviation ranging from 0.78 to 1.22 which indicates that home economics lecturer agreed with the Skills in preparation of fabric scraps for patchwork production.

Skills Required for Sewing the Patchwork Article

Table 3: Mean and Standard Deviation of the Home Economics Lecturers on Sewing of Patchwork Produced Using Textile Scraps

S/N	Skills Required for Stitching Patchwork Articles	$_1$	SD_1	$_2$	SD_2	Remark
Ability to:						
1	Cut fabric correctly.	4.44	1.05	4.41	0.80	Agreed
2	match stripes well before cutting.	4.52	1.00	4.42	0.77	Agreed
3	thread the machine properly.	4.50	1.11	4.41	0.81	Agreed
4	use tailors chalk when needed.	4.47	1.03	4.37	0.78	Agreed
5	laying the fabric/scrap on the table.	4.44	1.08	4.36	0.81	Agreed
6	place your left hand side on the fabric while cutting.	4.53	1.08	4.44	0.98	Agreed
7	measure lines and distances on the template.	4.44	0.97	4.22	1.15	Agreed
8	mark round the shapes with pencil.	4.61	0.93	4.28	1.09	Agreed
9	tack the patchwork and lining together.	4.61	0.93	4.36	0.87	Agreed
10	cut out the shapes, including sewing allowance.	4.39	1.23	4.14	1.13	Agreed
11	iron the patchwork on the wrong side.	4.28	1.16	4.33	1.01	Agreed
12	arrange the patches according to the design.	4.36	1.22	4.25	1.02	Agreed
13	tack them together.	4.16	0.93	4.34	1.00	Agreed
14	stitch them together on the wrong side to accurately match point to point, angle to angle.	4.42	1.08	4.35	1.06	Agreed
15	work exactly on the seam allowance.	4.39	1.02	4.42	0.97	Agreed
16	continue to sew the pieces together till the required size is obtained.	4.39	1.08	4.43	0.88	Agreed
17	sew the lining at the accurate positions.	4.50	1.00	4.29	1.04	Agreed
18	remove the tacking thread after sewing.	4.42	1.11	4.38	0.90	Agreed
19	iron the patchwork on the wrong side.	4.39	1.29	4.30	1.04	Agreed
20	hem the edges.	4.47	0.97	4.39	0.92	Agreed
21	continue to sew the pieces together until the size is obtained.	4.28	1.16	4.22	1.15	Agreed

Note: $_1$= mean for FCE(T) Umunze lecturers, SD_1 = standard deviation for FCE(T) Umunze; $_2$= mean for NOCEN Nsugbe lecturers;SD_2 = standard deviation for NOCEN Nsugbe. N =22

Table 3 shows the mean response and standard deviation of respondents concerning the Skills required for stitching patchwork articles. They all had mean and standard deviations ranging from 4.14 to 4.61and 0.77 to 1.23 which indicates that home economics lecturers agreed with the Skills required for stitching patchwork articles.

Finishing Produced Articles Using Textile Scraps.

Table 4: Mean and Standard Deviation of the Respondents on Skills Needed for Finishing of Patchwork Article.

S/N	Skills in finishing patchwork articles	$_1$	SD_1	$_2$	SD_2	Remark
	Ability to:					
1	tack the patchwork and lining together	4.53	1.08	4.29	1.01	Agreed
2	iron the patchwork on the wrong side	4.53	1.08	4.23	1.05	Agreed
3	stitch smoothly on the tacked line	4.16	0.93	4.34	1.00	Agreed
4	maintain the normal seam allowance	4.53	1.08	4.29	1.01	Agreed
5	sew the lining at the accurate positions	4.44	1.05	4.40	0.89	Agreed
6	remove the tacking thread after sewing	4.39	1.08	4.43	0.88	Agreed
7	lining is firm enough to avoid stretching	4.39	1.23	4.14	1.13	Agreed
8	lining lie smoothly with no puckers	4.36	1.22	4.25	1.02	Agreed
9	seams are stitched with correct stitch length	4.53	1.08	4.28	0.98	Agreed
10	the entire seams are smooth, flat without puckers or pulls	4.44	0.97	4.22	1.15	Agreed
11	seam pressed to avoid ridges	4.61	0.93	4.28	1.09	Agreed
12	hem finished smoothly to prevent ravel	4.47	1.03	4.37	0.78	Agreed

Note: *$_1$= mean for FCE(T) Umunze lecturers, SD_1 = standard deviation for FCE(T) Umunze*
$_2$= mean for NOCEN Nsugbe lecturers;SD_2 = standard deviation for NOCEN Nsugbe. N =22

Table 4 shows the mean response and standard deviation of respondents concerning the Skills required for stitching patchwork articles. They all had mean and standard deviations ranging from 4.14 to 4.61 and 0.77 to 1.23 which indicates that home economics lecturers agreed with the Skills required for stitching patchwork articles.

Discussion

The result of the data analyzed in table 1 identified some sources of obtaining fabric scraps from garment establishment (tailoring and dressmakers' workshops) as ability to keep containers/bags for the tailors in their workshop, collect the scraps personally, send people to help and collect the scraps, pick the scraps from the dustbin where they are thrown, pay for the scraps to be kept for you, employ relations to pick the scraps for you from the garment establishment (tailors workshops). The respondents agreed with all the item as ways of sourcing textile scraps for patchwork production and skill acquisition. This finding agrees with Egun (2012) who observe that waste in itself can never be wealth unless it is created and processed; the process of creating it into wealth has some cost implications that the market forces construe as the price. Also the sourcing ability can help graduates in wealth creation, this is in line with Idoko (2014), who revealed skill acquisition as the form of training by individuals or group of individuals that can lead to acquisition of knowledge for self-sustenance. This finding is supported also by Ohwovoriole and Ochnogor (2018) who noted that the acquisition of skills offers diverse knowledge virtually in all areas of Home Economics. Lemchi and Anyakoha (2006) also stressed the important of skill acquisition by Home Economics students for adaptable employment situation of which self -

employment is inclusive to enable them fend for themselves and provide job for seekers.

The result of the analyzed data in table two (2) revealed that all the skills in preparing materials for patchwork production was agreed with by the respondents. This finding is in agreement with the assertion of Cella (2003) who states that the need for precise positioning as well as accurate cutting, joining and agreeable colour combinations is very important in construction of patchwork. These patches are usually carefully arranged so that they will be aesthetically appealing. Item study identified sixteen skills in preparation of the fabric scrap and other materials needed for patchwork production. This indicates that there are many skills required for preparing patchwork from fabric scraps. The finding is in agreement with Jain (2011) who posited that students" learning garment making should be able to repair sans in knits, mend seams, patch holes, darn tears, replace fasteners/buttons and hem sewn garments.

Table 3 and 4 reveals that the stitching and finishing of patchwork produced using fabric scraps include among others Ability to cut fabric correctly, Ability to match stripes well before cutting, Ability to thread the machine properly, laying the fabric/scrap on the table and Placing of left hand side on the fabric while cutting. This finding is supported by Ohwovoriole and Ochnogor (2018) who stressed the fact that skills provide chances for students to be directly involved in practicing theoretical knowledge that will enable them function effectively in the society within the limits of his capacity. Douli (2012) affirmed that skill acquisition is the manifestation of idea and knowledge through training which is geared towards instilling in individuals, the spirit of entrepreneurship needed for meaningful development. Donli (2012) added that if individuals are given the opportunity to acquire relevant skills needed for self-reliance, it will boost the economy and also promote their charisma in any work environment.

Conclusion

It can be concluded that there is need to encourage home economics students on the use of fabric scraps to eliminate waste and to keep our environment clean also for the upkeep of the individuals and families. There is the urgent need for Home Economics students in Colleges of Education to be equipped with this skill to enable them become entrepreneurs and establish business on their own instead of looking for paid employment. The objective of Home Economics is to equip students with sellable skills for self-employment and hence self-reliance among others. One of such area in which lucrative business can be established is in making patchwork from fabric scrap from tailoring and dress making workshops. These scraps are considered waste but can be made useful by making it into patchwork. The procedure for its construction is exactly the same no matter the article one desires to make.

Recommendations

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

1. Home Economics teachers should lay more emphasis on entrepreneurship skills development, adequate exposure to skills, knowledge and attitude essential for them to acquire self-reliance.

2. Students should be encouraged on the need to press fabric as they sew garments to make it neater at the final production.
3. The basic skills in garment making should be stressed as the students engage in such task.
4. Federal and state government should make loan available on friendly terms to those who want to establish business in the area of patchwork making.
5. The identified patchwork skills should be integrated into the curriculum of tertiary level of education to enable the students to acquire the skills for self-employment.

References

Abiamuwe, N.O, Seriki-Mosadolorun,J.S& Lemon, A.B. (2014). Motivational Strategies for Improving Students' Skill Acquisition in Clothing and Textiles in Tertiary Institutions in Lagos State, *Journal of Home Economics Research,* 20 (1), 190-198.

Akunaya, E.I (2012) the role of entrepreneurship education in human capacity building for national development. *Nigerian Journal of national Education, Health and Technology Research,* 3(1)73-74.

Amasa, A. (2011), *Nigeria's Youth. "Turning Challenge to opportunity".* Country Director for Nigeria, Africa-Region. Business Management 4(6): 831-835.

Anyakoha, E.U. (2013), Entrepreneurship Education and Wealth Creation Strategies, *Practical Tips for Economic Empowerment and Survival,* Nsukka; Great AP Express Publication Ltd.

Cell, E. (2003), *A-Z of Handicrafts*. Nairobi: Octopus Books.

Douli, J.G (2012), *An overview of Nigeria's economic reforms.* Central bank of Nigeria Economics and Financial Review: 42;4.

Egun, N.K. (2012), *The waste to wealth concept: Waste Operation* in Delta State, Nigeria. Daily Triumph, March 7, p.32.

Frank, G. (2022), *Understanding Textiles, 5th edition. Prentice Hall Inc.*

Idoko, C.M. (2014). Skill acquisition and youth empowerment in Nigeria. *Global Journal of commerce and management Perspective.* 3(1):51-54

Jain, R. (2011). *Dress Making, Beginners Guide to making your own Dress*. Retrieved on 10th February 2021 from; http;//WWW.topseingmachinereviews.info.

Lemchi, S.N &Anyakoha, E, U. (2006), Specific Entrepreneurship Education in the NCE Home Economics programme, *Journal of Home Economics Research 8, special Edition,* 89-95

Ochongor, E.O &Onyebuke, D.O. (2008), Equipping NCE Home Economics students for Self –reliance. *Journal of Home Economics Research* 5, 68-73

Page, H. (2003). *The History of patchwork and Quillting*. New Jersy; Prentice Hall Inc.

Phyllis. E (2011), *Undertanding Textiles,* 4TH Edition. USA prentice hall Publishing Company.

Ugwu, E.N., Ozor, Patience &Egbuchulam, O.E (2017), Utilization of textile scraps from dress making and tailoring workshop by home economics graduates in making patchwork clothing for self-employment in Enugu state.*Journal of Home Economics Research (Nig. JHEC)* 6(1):62-67

Wigjig, (2010). *The free Online Jewelry Making with Beads and Wire*. What Beginner Needs to know? Wigjig University. Retrieved 12/8/2021.http;//www.tipsforjewelrymaking.htm

Yuri, B.K, Mohammed, S.B.S, &Audu,R, (2013). Acquisition of employability skills in technical vocational education: Necessity for the 21st century workforce. *Australian Journal of Basic and Applied Sciences 7(6): 9-14*