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A Survey Of Awareness Of Nutritional Values And Feeding Practices Among Secondary Schools Teachers In Nigeria: Implications For Enhanced Teachers' Productivity

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Abstract

This study adopted cross-sectional survey and examined the structure of secondary school teachers' awareness of nutritional values and adoption of proper feeding practices for enhanced productivity. The population comprised all 8,465 secondary school teachers. Using a previously validated nutritional values questionnaire, data were collected from 847 teachers proportionately sampled from selected secondary schools in Nigeria. The sample was split into two categories male and female (n_1 = 340 and n_2 = 507) to allow for the factor analysis procedure. A 30-item structured questionnaire titled "levels of awareness of nutritional values, attitude and adoption proper feeding practices among teachers (LANVAAPFP)" instrument was adapted and used for data collection. Data collected for the study were analyzed using mean scores and standard deviation to answer the research questions while z-test statistic was used to test the null hypotheses at 0.05 level of significance. The study revealed that teachers' awareness of the nutritional values and proper feeding practices is not yet widespread among teachers. It was also found that teachers do not adopt proper feeding practices based on their low awareness of nutritional values. The result confirmed the study's hypotheses regarding low level of awareness and readiness to adopt proper feeding practices. After the analysis few suggestions have been given which could enhance the adoption of proper feeding practices among secondary school teachers

Keywords: Nutritional value, feeding practices, awareness, teachers and Productivity.

Introduction

Awareness of the nutritional values of food components is very important for ensuring that consumers of food have the knowledge of the various nutrient elements required by the body system for healthy growth and development. Nutritional value is the measure of a well balanced

ratio of the essential nutrients such as carbohydrates, fats, protein, minerals, water and vitamins in items of food or diet concerning the nutrients requirement of the consumer. Nutrition is both a field of study and a necessity for sustainable healthy living standard requirements of human beings to perform some work (Nnam, 2011). Food nutrients are substances that people eat and drink to maintain life and growth. Nutrients are essential dietary factors or substances in food that provide nourishment for the maintenance of life. Their absence in the diet has been experimentally or epidemiologically demonstrated to be associated with the development of poor health in man (British Nutrition Foundation, 2019). Nutrients composition could only be identified through the chemical analysis of a particular food and the result is normally presented in food composition table (Okoye & Okaka, 2009) . These nutrients have their specific functions in the body and generally grouped into two main headings such as macro and micro nutrients. Macro nutrients are carbohydrates, protein and fats while micro nutrients are vitamins and minerals (Shallon, 2012). Carbohydrates are the body's main source of energy and should be the major part of total daily intake. Proteins supply amino acids to build and maintain healthy body tissues, increase the hormones and enzymes. There are twenty amino acids considered essentials because the body must have all of them in the right amount to function properly. Fat supplies energy and transport nutrients. Vitamins are crucial for skin, hair, nails and mucous membranes. Vitamins are usually used in conjunction with enzymes to help cells go through metabolism. Iron for instance, helps to keep cells strong and healthy, calcium keeps teeth and bones healthy, and minerals are chemical elements needed by the body to produce various tissues and accelerate metabolic process. Lastly, water constitutes 70% of the body system (Hollingsworth, 1995). Water helps to maintain metabolic processes and detoxify waste. Hence, nutrients are molecules in food that the body needs to make energy, grow, develop and reproduce cells. Every food eaten contains varying amounts of nutrients and nutritional value (Adigbo & Moddah, 2011).

Value as a concept remains a complex subject with a range of different interpretations and therefore denotes desire or level of importance. From a conceptual perspective, Okafor (2006) perceived value as an intrinsic worth which determines an individual's rational choice or behaviour towards achieving a particular goal. Values refer to something which people attach great importance to their lives (Kalusi, 2011). The above definitions suggest that people should regard and treat as important nutritional values to their body. Nutritional value depends on the composition of nutrients in the food eaten which is digested, absorbed and in the right amounts essential to the body. Nutritional values are a function of food intake and the efficiency of the extraction of nutrients from the food during digestion. Nutrient deficiencies lead to a great number of serious diseases including heart disease, cancer, kwashiorkor, scurvy, river blindness among others. However, even with the right amounts of nutrients, composition and excessive consumption of food may lead to improper feeding.

Improper feeding refers to abnormal eating habits which are characterized by inad
or too much food intakes. According to Hudson, Hiripi, Pope and Kessler (2007) improper f
is a condition of abnormal eating habit that may involve either insufficient or excessive food
to the detriment of an individual's physical and mental health. An individual can decide to be in

this condition due to learned habit, sickness, high cost of feeding, continuous loss of weight, excessive appetite, and lifestyle among others. The condition can be induced by voluntary idea of individual or body's food consumption needs (Eze, 2015). According to Winter (2009) improper feeding is consumption pattern that affects individual's physiological and mental functions of the body. In the contexte4 of this study, improper feeding involves a condition of excessive or under consumption of food which becomes harmful to the body system. The right quality of food to eat depends on the body's capacity to digest, absorb and manage the food content without rendering harm to any of the body's organ (Nordgvist, 2015).

Proper feeding is used to explain individual's attitude to just accept sufficient food intake that can carter for the nutritional requirement of such individuals. Proper feeding according to Andersen (2009) is enough food intakes with adequate dietary nutrients to meet the nutritional requirements of the body. The contextual meaning of proper feeding adopted in this study is that defined the World Health Organization (WHO) (2010) which is when the right quantity of food with right amount of nutrient contents is taken at the right time. This definition is central and germane to the description of acceptable feeding practices worldwide. Feeding practices is likely to differ from one individual to another. Feeding practices simply means the way and manner people go about with their feeding habits. Poor feeding practices can lead to health complications (Frederich, Raymond & Pomeney, 2007). In severe cases, poor feeding practices may lead to severe malnutrition and even death. Unfortunately, poor feeding practices seem to have permeated the teaching profession due to perceived ignorance and economic challenges.

Teachers are regarded as the most nutritionally vulnerable among the working population of civil servants due to poor salaries especially in developing countries (Babalola,2008). Teachers in the low income settings often consume inadequate amount of micronutrients because of resource limitation. They have a limited intake of animal source foods, fruits and vegetables. Adequate nutritional status of teachers is important for good health and increased work capacity. If teachers are well nourished they will have enough strength to withstand the job stress and academic demands. Severely malnourished teachers have reduced academic concentration. More than 1.8 million teachers in Nigeria is said to be living below the poverty line (Babalola,2008) This discovery seems to be one of the major majors factor affecting teachers' attitude towards nutritional values and inclination towards improper feeding practices. Malnutrition is likely to have a major impact on health and productivity globally. In recent times, teachers' feeding practices have generated some disturbing concerns in the public health sector. Paradoxically, teachers have been associated with such a class of citizens that eat little in order to save more for tomorrow without considering critical health implications. Such attitude portend to their health. They tend to economize their little income by spending on only cheap commodities, such as snacks, low priced foods, fast food, pastries and cheap alcohol like illicit gin (Liquor) as sustaining food. Many a times, they skip eating wholesome foods that will have sufficient nutritional value. These kinds of eating practices may precipitate health problems among teachers due to malnourishment. Okoli (2009) stated that poor feeding practices account for 45% of recorded cases of sick people hospitalized majority of whom are within the low income bracket. Awareness of

nutritional value is important to get this class of people adequately informed of the implications of their nutritional behaviour which might impinge on both their productivity level and health condition.

Awareness is the knowledge of existence of a phenomenon. Awareness according to Cronin (2014) is the degree to which individuals in the target population are cognizant of existing phenomenon and behaving in a manner that enables them achieve objective. Oko (2016) posited that awareness is an understanding of certain phenomenon by acquiring lasting knowledge and skills needed and responding favourably towards its beneficial effects. Biesta and Osberg (2007) opined that awareness is one's ability to notice things, a state of being fully conscious of what exists and responding positively in order to achieve a better result. In this context, awareness is the consciousness of an individual about existence of something and the prospects of harnessing opportunities towards the achievement of expected benefits. Awareness of nutritional values helps the individual to become conscious of vital nutritional elements in the choice of food to eat that will help maintain a healthy living standards irrespective gender differential communities baseline.

Gender is a socio-cultural construct of societies that indicate the position or place of men and women in the society. Lee (In Okoro, 2018) referred gender as an ascribed attribute that determines the roles played by men and women in the society. Okeke (2004) stated that gender is sociological constructs of societies which determine assignment of roles along sex line which may be culturally determined. In this context, gender is a social factor that determines which type of roles is played by men and women in the society. Gender as social construct influences decision of males and females towards their consumption pattern as the kinds of foods that appeals to women tend to differ slightly from those of the men. While women tend to like more of light foods, the men prefer heavy starchy foods. A research report by Hughes (2005) indicated discrepancy in the habit of females from males which revealed that males appear more resilient, shroud but more extravagant to eating than females. On the other hand, females have higher appetite to eating varieties of foods that predispose them to achieving of better nutritional requirements than males. However, the extent to which they are all aware of nutritional values of food consumed and proper feeding practices that will give them better health condition for optimal performance remains unknown. Because of the critical importance of healthy living towards boosting productivity of teachers, the study is therefore, poised to investigate the extent to which teachers are aware of the nutritional values and good feeding practices. The problem of this study in question form is "To what extent are teachers aware of nutritional values of food consumed and adopt proper feeding practices?"

Research Objectives

This study, therefore, was an attempt to examine the awareness of nutritional values and adoption of proper feeding practices among secondary school teachers. Specifically, the study sought to

1. Identify levels of awareness of nutritional values among secondary school teachers
2. Find out the levels of adoption of proper feeding practices among secondary school teachers.

Hypotheses

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

1. Significant difference does not exist in the mean response of secondary school teachers on level of awareness of nutritional values.
2. There is no significant difference in the mean response of secondary school teachers on levels of awareness of proper feeding practices.

Research Method

A cross-sectional survey research design was adopted. This design seeks to document or describe what exists or the present status of existence or the absence of what is being investigated. (Nworgu, 2015). The data for this study were obtained from 847 teachers in public secondary schools in Nigeria. A majority of the sample were female 507 and male 340. The respondents have at least three years of teaching experience and cut across all levels of ranks. Four research questions posed were answered using mean and standard deviation while four null hypotheses formulated to guide the study were tested using z-test statistics at 0.05 level of significance. To collect the data the researchers used a self-reported 30-item structured questionnaire titled: "Level of awareness of nutritional value, attitude and adoption of feeding practices of teachers' questionnaire (LANVA AFPQ)" was developed from an extensive review of literature. The LANVAAFPQ has two section; A and B. Section A contains information on personal characteristics of respondents while section B contains information on nutritional value and feeding practices of teachers. The instrument had a 4-point rating scale of strongly (SA), Agree (A), Disagree (D) and strongly Disagree (SD) with values 4, 3, 2 and 1 respectively. The instrument was face validated by three experts, two in the Nutrition and Dietetics department and 1 from the Measurement and Evaluation Unit of Science Education, Faculty of Education University of Nigeria, Nsukka. To determine the internal consistency, data collected during trial testing were tested using the Cronbach Alpha statistical tool and a reliability coefficient of 0.76, 0.87 and 0.77 for the three clusters (1-3) are overall of 0.82 were established. The arithmetic mean of 2.50 and above was considered significant awareness or acceptable while any mean less than 2.50 was considered not significant (not aware) or not accepted. The null hypotheses of no significant difference was accepted for any cluster mean whose z-calculated value was less than the z-table value of 1.96 for the three null hypotheses.

Results

The results of this study were presented according to research questions and hypotheses that guided the study.

Research Question I: What are the levels of awareness of teachers on nutritional values?

Table I: Mean ratings of responses of teachers on level of awareness of nutritional values.

S/N	Items	Teachers					
		Male			Female		
		$\overline{X}$	SD	Dec	$\overline{X}$	SD	Dec
1.	Enough carbohydrates in food gives energy for work	2.18	0.88	NA	2.29	0.94	NA
2	Proteinous food helps to rejuvenate and regenerate worn out tissues	2.49	0.66	NA	3.37	0.85	NA
3	Adequate vitamins are good especially for pregnant mothers.	2.41	0.51	NA	2.47	0.78	NA
4	Fats and oils are essential food for regulation of body temperature	3.04	0.94	A	2.40	0.38	NA
5	Adequate water intake is essential for cells-balance	2.22	0.68	NA	2.38	0.29	NA
6	Minerals help for fast digestion of food.	2.47	0.42	NA	2.48	0.38	NA
7	Protein helps for rapid growth especially in children.	2.55	0.43	A	3.71	0.67	A
8	Balanced diet cures some sickness.	2.43	0.55	NA	2.21	0.33	A
9	Vitamins help to strengthen the gums of teeth	2.39	0.54	NA	2.17	0.42	NA
10	Adequate intake of vegetables and fruits helps to restores and maintain longevity of life.	2.27	0.36	NA	2.82	0.84	A
	Cluster mean	**2.43**	**0.58**	**A**	**2.38**	**0.48**	**NA**

Key: $\overline{X}$ = mean, SD = standard deviations, Decision NA = Not Aware, A = Aware

The data presented above shows that many teachers were not aware of the nutritional values of food nutrients consumed. The teachers were not aware of most of the nutritional value of food in items as captured in the items above for both males and females. This is an indication that teachers still need orientation regarding nutritional values about food nutrients and therefore further nutritional education.

Ho_1: There is no significant difference between the mean ratings of teachers on level of awareness of nutritional values of food eaten.

Table 2: Summary of z-test analysis of the difference between the ratings of teachers on the levels of awareness of nutritional values

S/N	Status	N	$\overline{X}$	SD	Levels of sig.	Z-cal	Z-crit	Df	Dec
1	Male	340	2.43	0.58	0.05	0.62	1.96	845	NS
2	Female	507	2.38	0.48					

Table 2 revealed that no significant difference exists between the level of awareness of nutritional values of food eaten by respondents. There is also no significant difference between level of awareness of nutritional values among male and female teachers. This is because the calculated z-value of 0.62 is less than z-critical value of 1.96 at 845 degree of freedom and at a 0.05 level of significance.

Research Question 2: What are the levels of awareness of teachers on proper feeding practices?

Table 3: Mean ratings of responses of teachers on levels of awareness of proper feeding practices.

S/N	Items	Teachers					
		Male			Female		
		$\overline{X}$	SD	Dec	$\overline{X}$	SD	Dec
1.	I should not eat too often a particular type of food	2.47	0.48	NA	3.51	0.71	A
2.	Could not eat excessive snacks or greasy foods.	3.07	0.32	A	2.49	0.88	NA
3	I know that I should not eat in between meal time.	2.48	0.22	NA	2.33	0.41	NA
4	I know that I have to eat variety of food.	3.51	0.23	A	3.48	0.58	A
5	I know that I have to take adequate water.	1.52	0.45	NA	2.32	0.43	NA
6	I have to ensure feeding on balance diet per day	2.67	0.11	A	2.61	0.52	A
7	Avoid eating too much of sugary food.	2.57	0.41	A	2.33	0.59	NA
8	I should not unnecessarily starve myself.	3.68	0.39	A	3.42	0.61	A
9	I should not over eat	3.732	0.32	A	2.51	0.43	A

10	I should eat sufficient meal each time.	3.65	0.38	A	2.67	0.51	A
	Cluster mean	**2.55**	**0.41**	**A**	**2.97**	**0.52**	**A**

From the data shown in Table 3, the mean responses of teachers show that teachers were not much aware of proper feeding practices as many items were rated below 2.50. As indicated in items 1, 2, 3, 5, and 7 results also show teachers' lack of awareness of proper feeding practices. This is an indication that both male and female teachers were not aware of proper feeding on those items. However cluster mean shows that there is a fair awareness about proper feeding practices.

Ho_2: There is no significant difference between the mean ratings of teachers on levels of awareness on proper feeding practices.

Table 4: Summary of z-test analysis of the difference between the mean ratings of teachers on levels of awareness of proper feeding practices.

S/N	Status	N	$\overline{X}$	SD	Levels of sig.	Z-cal	Z-crit	Df	Dec
1	Male	340	3.05	0.41	0.05	0.57	1.96	845	NS
2	Female	507	2.97	0.52					

From Table 4 above, it is concluded the null hypothesis was not rejected since the calculated z-value of 0.57 is lower than the z-critical value of 1.96 at 291 degree of freedom and at 0.5 level of significance. The result revealed that there is no statistically significant difference between the opinion of male and female teachers regarding their levels of awareness of proper feeding practices.

Discussion of Findings

The study from the research table indicated that the awareness of nutritional values and feeding practices among teachers both male and female is not at a satisfactory level. Precisely, data in table 1 and 2 revealed that there is low level of awareness of teachers concerning nutritional values of food nutrients towards maintenance of healthy living. In other words, the study revealed that awareness is not yet widespread among the teachers of awareness of nutritional values and feeding practices. The teachers just have little awareness but did not have a good idea of proper feeding practices or adopt a comprehensive approach towards proper feeding practices. They literally know that taking adequate food or nutrition is important to life and supply of energy to do work. This is in line with Nnam (2011) who found that adequate nutrition with balanced diet enhances healthy development of the body tissues and cells leading to healthy life. This implies that the more we keep having balanced diet day by day the more we keep away from the chances of dysfunctional

body system. This could be so for the fact that food with adequate nutritional values gives the body most of the needed nutrients required, the opposite is the case of malnourishment which increases chances of sickness. This finding is in agreement with Shallon (2012) who found that a wholesome food provides energy, protection and body building. These three main requirements are good for the teachers to perform optimally and enhance immunity against certain diseases and overcome minor sicknesses. This is also in line with Eze (2015) who in a study on "Eating disorder among female undergraduates of University of Nigeria, Nsukka found out among others that poor feeding style of female students were responsible for many emergency health disorder and a major determinant of their normal monthly menstrual cycle.

However, reasons for low level of awareness of nutritional values and adoption of proper feeding practices by teachers could be linked to high poverty level among Nigerian teachers arising from poor salaries (Babalola 2008). Teachers with low-pay packages are often undernourished because of resource limitations.

Results as indicated in tables 2 and 3 also show that gender is not a significant factor regarding awareness of nutritional values among secondary school teachers. This is in line with the study of Maduabum (2015) that stated that both male and female bank workers in the investigated areas are equally aware of the nutritive value of consumed foods irrespective of sex. The study maintained that the sex of the teachers did not significantly affect their opinions on the eating practices they usually engaged in.

Data in table 3 and 4 showed that there is a moderate level of awareness of teachers on proper feeding practices except for some few items where the teachers had appreciable awareness. In the other words, this moderate awareness is translated in the significant opinion ratings (mean) of the items on the table. The result suggest that it is beneficial if teachers embark on nutritional education for proper feeding habit as a panacea to many avoidable sickness such as cancer, heart diseases, stroke and diabetes. This is in line with the findings of Novdgvist (2015) that proper feeding helps in overcoming and treating certain diseases. This could be so because even though teachers appear to have awareness of proper feeding many teachers being hospitalized were diagnosed to have nutritionally related deficiencies which suggest that teachers may have no proper information or knowledge about proper feeding habit. If they have the knowledge and been implementing the knowledge they have about proper feeding practices many avoidable sickness resulting from poor feeding practices would have not emerged on a scale as reported in the literature.

Possible explanation for no gender difference in adoption of proper feeding practices could be as a result of similar administrative climate in which both male and female teachers are asked to operate. Every secondary school teacher (male or female) is placed in a low income status following poor remuneration. Thus awareness of nutritional values and adoption of proper feeding practice depends to a large extent on the environment in which teachers are asked to operate. Poor

salaries or lack of financial supports, work-overload among others tend to inhibit awareness of nutritional values vis-à-vis productivity.

Generally, it is proper for everyone aiming at high productivity to strive for maintaining proper feeding as increased productivity cannot be achieved in isolation of proper feeding practices. For instance, it is good for everybody to ensure eating of wholesome foods that are nutritionally acceptable (British Nutrition Foundation, 2019). In all, there was no statistically significant difference in the opinion of male and female teachers regarding level of awareness on nutritional values and feed practices adopted. Finally, the result of this study supported the hypothesized framework that guided the study and found statistically no significant difference between respondents.

Conclusion

From the findings of this study, it is not to be believed that every one who is educated has awareness of nutritional values and good feeding practices. It must be based on having the requisite training through nutrition education and proper orientation.
Therefore, the need to ensure nutrition education to inculcate the habit of proper feeding practices is vital to achieving sustainable healthy living . The mere attribution of teachers' knowledge of nutritional values and feeding practices to the level of certificate acquired or rank is wrong.

Recommendations

Based on the above conclusion, the recommendations are made that:

1. Teachers should be regularly re-orientated on nutritional values and proper feeding practices through a structured programme incorporated into teacher education curriculum. This can be done by way of a holiday workshop and seminars or special programs organized for them.
2. A policy framework on proper nutrition guidelines and practices should be incorporated into the school curriculum so as to constantly remind both students and teachers of the danger of poor nutrition and feeding practices.
3. Finally, teachers are encouraged to periodically evaluate, assess and advice themselves concerning their nutritional needs and better feeding practices.

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References

Adigbo, T. A & Maddalu, O. J. (2011). Nutrient content and antinutritional factors in shea butter (Butryospernum Parkii) leaves. African Journal of Biotechnology. 8(21); 5888-5890.

Andersen, L. E. (2009). Value of traditional foods in meeting macro and micro nutrients needs. The will plant connect. Nutrition research Reviews 13: 31 – 46.

Babalola, J. B. (2008). Teacher education and the challenges of global economic meltdown. A lead paper delivered at Alayande College of Education Oyo.

Biesta, S. & Osberg, C. (2007). A framework of awareness of small groups shared workspace groupware. technical report. 99 – 100ed. University of Saskat Chewan, Canada. Department of Computer Science.

British Nutrition Foundation (2019) www.nutrition. Org.uk. Achived from the original on 2019-07-26

Eze, N. M. (2015). Eating disorder among female undergraduates. Ameliorating strategies: Case study of University of Nigeria Nsukka. Journal of Home Economics Research Association of Nigeria. 21(4) 157 – 163.

Hollingsworth, P. (1995). Functional role of water to body cells. Journal of food and nutrition science 62 (4) 139 – 144.

Hudson, J. I., Hiripi, E., Pope, H. G., & Kessler, R. (2007). The prevalence and correlates of eating disorder in the national commodity survey replication. Biological psychiatry 61(3), 348 – 358.

Hughes, M. (2005). Gender differences in whites' racial attitudes are women's attitude really more favourable? Journal of social psychology quarterly 66(4). 384 – 401.

Kalusi, A. (2011). Values healthy eating 6 essential nutrients and functions. Retrieved from healthy eating. Sfgate.comon3-12-2011

Lee, J. (2001). Interstate variation in rural students' achievement and schooling conditions. Retrieved from http://www.ericdigest.org/2002.

Maduabum F.O (2015) Nutritional awareness of bank workers in Lagos State, Nigeria. Unpolished Thesis University of Nigeria Nsukka.

Nnam, N. (2011). Nutrition and diatetics: Basics of foods and nutrition. University of Nigeria press.

Nordgvist, B. D. (2015). Feeding on African indigenous foods: An overview of the cultivated species natural resources institute /ACP-EU technical centre for food processing and rural cooperation. Chathau, United Kingdom. 214 – 219.

Nworgu, B. G. (2015). Advanced Educational research: Basics issues and methodology (2nd ed.) Nsukka. University trust publishers.

Okafor, R. U. (2006). 4 – circle base triangular model in aging and health education. 44th Inaugural lecture of University of Nigeria Nsukka April 17.

Okeke, E. A. C. (2004). Gender and Development awareness and sensitization in Nigeria. Afro-orbis Nigeria.

Oko (2016). Awareness of feeding properly for healthy development. Journal of health education 23 (1) 46-50.

Okoli, I. (2009). Parental influence on eating behaviour, conception to adolescence. The journal of law, medicine and ethics. 35(1); 22 – 34.

Okoye, C. E. & Okaka, M. A (2009) micronutrients and nutritional contents of selected food crops in Southeast, Nigeria. Nigeria Food Journal 25 (1). 112 – 117.

Shallon, E. (2011). Nutritional quality, sensory quality and consumer acceptability of sorghum and bread wheat biscuits fortified with defatted soya plour. International Journal of food science technology. 46: 74 – 83.

Winter, J. (2009). Diagnosis of eating disorder in primary care. American family physician 67(2), 297-304.

World Health Organization (WHO) Reports on (2010) endangered food plants. Rome. FAO.