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Assessment of the Food Habits and School Feeding Programme of Pupils in a Rural Community in Odogbolu Local Government Area of Ogun State, Nigeria

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Abstract: The food habits and school feeding programme of pupils in a rural community in Odogbolu local government area of Ogun State, Nigeria was assessed in this study. A total of 68 pupils from primaries I to III in both public and private primary schools were involved in the study. It was found that majority of the school children had three meals daily. Majority of the pupils do not bring food to school from home. The amount of money brought to school to purchase mid-day meal foods was higher with pupils from private school than those from public schools. However, generally the quantity and quality of the mid-day meal purchased on both schools were poor and therefore did not have significant contribution of their nutritional status.

Key words: Assessment, food, habits, school, feeding

INTRODUCTION

Malnutrition has continued to be a public health problem in developing countries where the poor socio economic condition has continued to work in synergy with malnutrition. The most recent Food Consumption and Nutrition Survey in Nigeria (FCSN 2001-2003) cited by Adebambo (2006) reveals that the nutritional status in Nigerian children is very poor. The data showed that 42% of Nigerian children were stunted, 25% were underweight and 9% were wasted. 29.5% of the children under five years of age suffer from vitamin A deficiency while over 27% were at different stages of iron and iodine deficiency.

Although the importance of education had been internationally acknowledged, it is estimated that in developing countries as many as 26% of boys and 30% girls of primary school age are not attending school (UNDP, 2003). A further 11% of children attending school do not reach grade 5 (Wachs, 2000). Malnutrition has been identified to affect the cognitive development of children (Pollitt, 1995; Grantham-McGregor and Ani, 2001). Apart from the adverse effect of malnutrition on the cognitive achievement of school children, malnutrition is also likely to result in poor attendance at school, low health status which will invariably lead to high withdrawal rate. If the millennium goal of education for all by 2015 is to be achieved, there is the need to put in place measures that will increase children enrolment, retention and improved academic performance. Poverty and poor eating habit have been linked to poor child growth and low school age enrolment among Nigeria children (Adebambo, 2006). Although the Universal Basic Education (UBE) programme had been embarked upon in Nigeria, measures to boost school enrolment, attendance at school and completion as well as improve the learning achievement of the school children must also be put in place. A veritable tool for achieving this is the introduction of good and effective school feeding programme. Although school feeding programme is currently being practiced in Nigeria, there is the need to assess its effectiveness especially in achieving the goals earlier on identified.

The purposes of this study therefore are to assess the food consumption pattern and practice of school feeding programme among school children in a rural community in Ogun State, Nigeria, with view to determining their effect on the nutritional status of the pupils and their attendance in school.

MATERIALS AND METHODS

The study was carried out in Ijagun, a rural village in Odogbolu local government area of Ogun State Nigeria between January and April, 2008. The Tai Solarin University of Education is located in this village. There are two primary schools in the village, one private (government approved) and the government public primary school. Both schools were involved in the study. All the pupils in primaries I to III in both schools were involved in the study. There were thirty nine (39) and twenty nine (29) respondents from the public and private schools respectively. Thus the total sample population was sixty-eight (68).

Information about the food habits of pupils were obtained through a questionnaire designed in line with that used in the assessment of food vending schemes of primary schools in Nigeria (FME/FBI/FAO, 1997). The class teachers were tutored on the objective of the study and use of the questionnaire and thereafter employed in the administration of the questionnaire on the pupils.

The ages of the children and attendance at school were obtained from the school register. Height was measured

using a specifically constructed wooden stadiometer and measurement was to the nearest centimeter. Weight was determined using a Salter bathroom scale. The scale was calibrated periodically with standard weight to ensure its reliability. The pupils heights were determined bare footed and weights determined in their underwares only. Thereafter, the weight for age, height for age and weight for height were converted to the corresponding Z-scores and were them compared with the standard reference measurement by the National Centre for Health and Statistics (NCHS, 1986).

RESULTS

The general characteristics of the school children are show in Table 1. In the private school, 46.2 and 53.8 percent were male and female respectively while in the public school, there were 48.3 and 51.7% male and female respectively. With respect to the father's occupations, majority, 51.3% of pupils' fathers in the private school were engaged in paid employment and 43.6% were traders. In the public school, majority (48.3%) of the fathers were farmers; 34.5% traders and 13.8% engaged in paid employment. With respect to the mothers, majority (59.0%) of mothers of pupils in the private school were traders. The same trend was observed with mothers of pupils in the public school with 51.7% involved in trading. While none of the mothers of pupils in private school was involved in farming, 31.0% mothers of pupils in public schools were engaged in farming.

The food consumption pattern of pupils at home are presented in Table 2. Majority of the pupils, 92.3 and 89.7% for private and public schools respectively, had their breakfast at home. Generally the breakfast, lunch and dinner were prepared at home. All pupils in both schools claimed to have lunch everyday. However, while 92.3% of pupils in private school had lunch at home, all the pupils in the private school (100.0%) had lunch at home. Eating snacks between lunch and dinner was not a common practice among the pupils in both schools as 74.4 and 89.7% of, pupils in the private and public schools respectively, claimed not to be involved in the practice. All the pupils in both schools had dinner in their respective homes.

The description of the staple foods commonly eaten at various meals at home by the pupils is presented in Table 3. For the breakfast, the most popular food is rice among the pupils of both the private and public schools, 43.6 and 30.5% respectively. However, while 10.3% of pupils in private school consumed cassava based food at breakfast, 31.0% of the pupils consumed cassava-based diet among the public schools. Among the pupils of both private and public schools, the most common staple foods for lunch and dinner was cassava based, 48.7 and 72.4% respectively for lunch and 56.3 and 62.1% respectively for dinner. This was followed by rice in both groups, 23.1 and 20.7% in the private and public schools respectively. Majority of the foods for lunch and dinner were consumed along with soup or stew with animal of fish products. However, more pupils in the private school consumed animal and fish products along with the staples than pupils in public schools.

The food consumption pattern of the pupils outside the home are presented in Table 4. This involved bringing food to school from home, buying and eating foods before the beginning of school, during break and after school hours before reaching home. Majority of pupils in both schools were not involved in the practice of bringing food to school from home. Specifically, 74.4 and 100% of pupils in the private and public schools respectively did not bring food to school from home. Buying food during the break within the school premises constituted the major food eaten outside the school by the pupils for both schools. Among the pupils in the private school, 20.5, 64.1 and 41.0% bought food before the commencement of school, during the break time within the school and after the school hours from vendors outside the school respectively. The corresponding values for the pupils in the public school are 10.3, 58.6 and 27.6%.

The frequency of bringing money and the amount brought to school are presented in Table 5. Among the pupils in the private and public schools, 79.5 and 62.1% respectively brought money to school. Among those that brought money to school majority, 41.9%, of pupils in private school brought ten naira (₦ 10.00) while majority, 72.2% of those in public school brought five naira (₦ 5.00). The major type of food purchased after school hours by pupils in both the private and public schools are fruits, 48.7 and 82.8% respectively. With respect to the type of food sold in the school during the break time, cooked rice with fish or meat stew was dominant in both schools.

The nutritional status of the pupils from both schools are presented in Table 6. Majority of the pupils were underweight from primaries I to III in both the public and private schools. In the public schools the prevalence of the underweight pupils ranged from 49.3% in primary I to 51.3% in primary III while that of private school ranged from 40.3-43.6%. With respect to stunting, the prevalence for the public school ranged from 21.6% for primary I pupils to 27.7% for the primary III pupils. The range for the private school is 15.4-20.3% from primary I to primary III. For wasting, 14.2-16.3% were found to be wasted with the highest occurring in among the primary II pupils in the public school. This is at variance with the usual trend where the highest incidence of malnutrition was found among the primary III pupils. But for the private school, the range of the prevalence of wasting was from 7.7% in primary I to 10.5% in primary III. Inspite of the high degree of malnutrition observed, some level of overweight was observed. This ranged from 0.8%

Table 1: General characteristics of school children by school type

	Schools			
	Private		Public	
	Frequency	%	Frequency	%
Sex of Pupils				
Male	18	46.2	14	48.3
Female	21	53.8	15	51.7
Total	39	100	29	100
Occupation of Father				
Farming	02	5.1	15	51.7
Trading/self employed	17	43.6	10	43.5
Gainfully employed	20	51.3	04	13.8
Unemployed	-	-	-	-
Total	39	100	29	100
Occupation of Mother				
Farming	-	-	09	31.0
Trading/self employed	23	59.0	15	51.7
Paid employments	14	35.9	03	10.3
Unemployed	02	5.1	02	7.0
Total	39	100	29	100

Table 2: Food consumption, pattern and practice of pupils at home

	Schools			
	Private		Public	
Characteristics	Frequency	%	Frequency	%
Have breakfast at home				
Yes	36	92.3	26	89.7
No	03	7.7	03	10.3
Total	39	100	29	100
Frequency of breakfast at home (per week)				
Less than four times	05	12.8	09	31.0
More than four times	34	87.2	20	69.0
Total	39	100	29	100
Source of break fast				
Prepare at home	35	89.7	21	72.4
Bought from food vendor	04	10.2	08	27.6
Total	39	100	29	100
Home lunch everyday				
Yes	39	100	29	100
No	-	-	-	-
Place of lunch				
At home	36	92.3	29	100
From food vendor	03	7.7	-	-
Total	39	100	29	100
Meal between lunch and Dinner (snacks) per week				
None	29	74.4	26	89.7
Less none than four times	06	15.4	03	10.3
Four or more times	04	10.2	-	-
Total	39	100	29	100
Dinner everyday				
Yes	39	100	29	100
No	-	-	-	-
Total	39	100	29	100
Place of Dinner				
At home	39	100	29	100
From Food Vendor	-	-	-	-
Total	39	100	29	100

among the primary III pupils in the public school to 3.6% among the primary I pupils in the private school. Also the incidence of pupils of normal nutritional status ranged from 5.0% among pupils in primary III in the public school to 32.8% among primary I pupils in the private school.

Attendances of the pupils in both schools are presented Table 7. Generally, attendance of pupils in the private

Table 3: The daily consumption of common staple foods of school children at home

	Schools			
	Private		Public	
Characteristics	Frequency	%	Frequency	%
Breakfast staple food				
Food based on				
Rice	17	43.6	10	34.5
Yam	02	5.1	02	6.9
Plantain	00	0.0	00	0.0
Maize e.g. Pap	03	7.7	05	17.2
Beans	01	2.5	00	0.0
Wheat e.g. bread	12	30.38	03	0.2
Cassava	04	10.3	09	31.0
Total	39	100.0	29	100.0
Presence of animal products in their soup or stew for breakfast				
Yes	29	74.4	17	53.6
No	10	25.6	12	41.4
Total	39	100.0	29	100.0
Lunch staple foods				
Food based on				
Rice	15	38.5	08	27.6
Yam	00	00.0	00	00.0
Plantain	00	00.0	00	00.0
Maize	00	00.0	00	00.0
Beans	02	5.1	00	00.0
Wheat	03	7.7	00	00.0
Cassava	19	48.7	21	72.4
Total	39	100.0	29	100.0
Presence of animal products In their soup or stew for lunch				
Yes	31	79.5	13	44.8
No	08	20.5	16	55.2
Total	39	100.0	29	100.0
Dinner staple foods				
Food based on				
Rice	09	23.1	06	20.7
Yam	01	2.6	00	00.0
Plantain	02	5.1	02	6.9
Maize	00	0.0	00	0.0
Beans	04	10.3	03	10.3
Wheat	01	2.6	00	0.0
Cassava	22	56.3	18	62.1
Total	39	100.0	29	100.0
Presence of animal/fish products in their soup or stew for dinner				
Yes	34	87.2	19	65.5
No	05	12.8	10	34.5
Total	39	100	29	100.0

school was higher than in the public school. In both schools the highest attendance was recorded on Monday while the least was recorded on Friday.

DISCUSSION

Food habit is a major determinant of nutritional status. The study revealed that majority of the school children had three meals daily. This is highly commendable and should be encouraged. In particular, having breakfast will help in holding the attention of the pupils in school, especially in the morning lessons. In fact it has been reported that missing break fast had detrimental effect on cognition (Pollitt *et al*., 1982; Simeon and Grantham-McGregor, 1989; Pollitt *et al*., 1996; Wyon *et al*., 1997; Benton and Parkner, 1998).

That cassava based foods were consumed by majority of pupils in the public school is probably due to the fact that majority of their fathers are engaged in farming, with cassava as the major food cultivated. This type of positive correlation between the staple foods commonly eaten by school children and the major agricultural produce of the community has been reported in previous study (FME/FBI/FAO, 1997). Surprisingly however, rice is the food commonly eaten by the school children for breakfast. This is most probably due to the ease of preparation. It also saves time. Hence most families found it convenient to prepare and serve for breakfast.

Although majority of the pupils brought money to school, the amount brought by majority of the pupils (₦ 5.00) is so small that the food purchased with it was not likely to

Table 4: Food consumption pattern and practice of school children outside the home

	Schools			
	Private		Public	
Characteristics	Frequency	%	Frequency	%
Frequency of bringing food to school from home per week				
Do not bring food from	29	74.4	29	100.0
Less than three times	07	17.9	00	0.0
Three or more times	03	7.7	00	0.0
Total	39	100.0	29	100.0
Buy food before the beginning of school				
Yes	08	20.5	03	10.3
No	31	79.4	26	89.3
Total	39	100.0	29	100.0
Buy food during the school break within the school				
Yes	25	64.1	17	58.6
No	14	39.9	12	41.4
Total	39	100.0	29	100.0
Buy food after school from food vendors outside the school premises				
Yes	16	41.0	08	27.6
No	23	59.0	21	72.4
Total	39	100.0	29	100.0

Table 5: Amount of money brought daily to school by the pupils

	Schools			
	Private		Public	
	Frequency	%	Frequency	%
Brought money to School daily				
Yes	31	79.5	18	62.1
No	08	20.5	11	37.9
Total	39	100.0	29	100.0
Amount of money Brought to school				
₦ 5.00	10	25.8	21	72.2
₦ 10.00	16	41.9	06	22.2
Above ₦ 10.00	13	32.3	02	5.6
Total	39	100.0	29	100.0

Table 6: Classification of nutritional status based on Z-Scores

		Pry I		Pry II		Pry III	
		Public School	Private School	Public School	Private School	Public School	Private School
Nutritional classification	Z-Scores	(%)					
Under weight (weight for age)	<-2SD	49.3	40.3	49.8	42.3	51.3	43.6
Stunting (height for age)	<-2SD	21.6	15.4	26.2	18.7	27.7	20.3
Wasting (weight for height)	<-2SD	14.2	7.7	16.3	8.4	15.2	10.5
Over weight	>+2SD	1.4	3.6	1.2	3.4	0.8	3.0
Normal	Between -1 and +1SD	13.5	32.8	6.5	27.2	5.0	22.6

have any significant effect on their nutritional status. It is not surprising, therefore, that the incidence of malnutrition is high among the pupils studied especially among pupils in the public school. The socio-economic status of the parents might be responsible for this. Previous study (Olusanya, 1997) has shown that the food purchased by school children during break time is poor in both quantity and quality. The poor socio-economic status of the parents of majority of pupils, especially in the public schools is partly responsible for the meagre amount brought to the school by the pupils.

The high prevalence of malnutrition reported in this study further confirms the high degree of malnutrition among school children in developing countries (Oni and Blossner, 1997). In all the anthropometric indices measured, the pupils from the public school were more malnourished than their counterpart from the private school. This was not surprising as the pupils from the public primary school were from the rural community, with very low socio-economic status. The prevalence of stunting, in particular, in the public school was almost double that of private school. Similar finding was

Table 7: Mean (±SD) of pupils attendance at school during the week for the second term of the school year

	% Attendance at school					
	Pry I		Pry II		Pry III	
Days of the week	Public School	Private School	Public School	Private School	Public School	Private School
Monday	81.4±3.1	87.2± 5.1	83.1±2.1	90.4±3.2	84.9±2.7	89.6±2.6
Tuesday	73.6±2.8	81.7±3.7	76.3±2.1	88.7±4.1	77.4±3.6	91.7±4.1
Wednesday	63.1±4.2	84.3±2.8	70.2±3.6	85.4±3.6	71.1±2.8	86.2±3.1
Thursday	70.2±3.3	90.2±4.1	73.4±3.6	92.1±4.5	74.6±3.1	91.8±3.7
Friday	57.4±2.9	87.3±2.1	60.1±2.1	90.2±2.6	63.5±3.2	91.6±3.3

reported by Tee *et al.* (2002). Stunting, which occurs mostly in the first three years of life, reflects long-term under nutrition and poor health. Similarly, the higher prevalence of overweight among pupils in private school could be associated with the higher socio-economic status of the parents. Such high prevalence of overweight and obesity among children of higher socio economic portion has been reported in some developing countries (Tee *et al.*, 2002; Soekirman *et al.*, 2002; Florentino *et al.*, 2002).

The relief of hunger is most likely to improve a child's ability to concentrate which should facilitate learning. Children's memory may also improve so they are more likely to learn. In fact some previous studies have shown the benefits to cognition especially memory, from early morning glucose drinks or breakfast in elderly and young adults (Korol and Gold, 1998).

Conclusion: Provision of school meal will definitely impart positively on both the attendance and cognition of the pupils. Although provision of school meal is in practice in Nigeria, it is still at a very low ebb and optional. If the huge amount being invested on the Universal Basic Education is to yield the desired results urgent and appropriate action should be placed on the provision of government subsidized school meals. Also, the school meals should be well planned to ensure good nutrient quality. In this respect, the Home Economics units of both the schools and ministry of education should be involved in the planning, formulation and preparation. If school meals are of good nutrient quantity and quality and the supply is efficient and continues for some time, the children's underlying nutrition status such as wasting should improve. However, it is more difficult but possible, to improve stunting (Powell *et al.*, 1998).

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