



## ASSESSMENT OF GOVERNMENT FEEDING PROGRAMME ON IMPROVED NUTRITIONAL HEALTH STATUS OF SECONDARY SCHOOL STUDENTS IN MAIDUGURI, BORNO STATE

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### ABSTRACT

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This study assessed government feeding programme on improved nutritional health status of secondary school students in Maiduguri, Borno state, Nigeria. Objectives and corresponding research questions were used in the study. The research design adopted for this study was survey research method. The target population for this study comprised of day public secondary schools in Maiduguri, Borno state, with a total population of nine thousand three hundred and thirty eight (9,338) students. Five public secondary schools were selected using purposive sampling technique. The sample of 934 students was selected using simple and stratified random sampling techniques. A self-developed questionnaire on government feeding programme among students in Maiduguri, Borno State was the instrument of data collection. The response mode for the instrument was a modified four(4) points Likert type scale with a response mode of strongly agree, agree, disagree and strongly disagree. Descriptive statistics of frequency counts, and percentage scores were used to answer the research question, while Chi-square was used to test the hypotheses at 0.05 level of significance. The results showed that the school feeding programme improved the nutritional health status of the students. Based on the findings of the study, it was recommended that Government should employ qualified food scientists, nutritionists, dieticians and caterers to assist in running the programme and to make them responsible for the purchase of needed food items to be cooked in schools. Furthermore, Government should also encourage more international donor agencies like the International Non-governmental organizations to come in with more improved varieties of school meals to increase the nutritional health status of the internally displaced students in the society. School feeding programmes should encompass both public and private primary and secondary educational institutions across the country. Feeding should be well guided by a menu which reflects the nutritional need for energy and micronutrients body requirements of the particular geographical area.

### 1. INTRODUCTION

School feeding programme has been adopted in many countries throughout the world to fight short-term hunger by ensuring at least one daily nutritious meal to support access to education. It is possible to improve nutritional status in an undernourished population if school meals are provided over a long period of time. There is considerable evidence that children who are better nourished have more efficient cognitive function than those who are undernourished. It is therefore conceivable that school meals could indirectly improve cognitive function by improving the nutritional status of undernourished children. It is also possible that better-nourished children will

attend school more often. However, only a few studies have shown an improvement in children's nutritional status with school feeding. This may be because these studies focused on adequately nourished populations. Another explanation may be that, as with many supplementation programs, the school meal is used as a substitute for part of the children's usual diet (Simeon and Grantham-McGregor, 1990).

School meals have been seen to increase the nutritional status of school-age children in a variety of ways. For example, there is a notable reduction in malnutrition via diet diversification and an increased absorption of micronutrients. Overall, the amount of kilocalories in a child's diet is expanded when they are given nutritional resources that they would otherwise have little to no access to. By increasing the amount of nutrition a child receives at school, that child's family's nutrition status also increases as their familial demand and requirement for food is decreased (Lawson, 2012). Targeted take-home rations therefore increase the nutrition of the family as a whole, and not just the members of a given family that are of primary-school age. However, criticisms of school meals' impacts on nutrition stem from the idea that increased nutrition through school meals is only a temporary fix and does not target the underlying causes of malnutrition, such as high food prices and poor food distribution systems that prevent food security (Tomlinson, 2007).

According to Amanda (2010) Hunger and malnutrition among children in developing countries continue to impair health, quality of life, and survival. It is estimated that a child dies every six seconds from hunger related causes (Food and Agriculture Organization, 2004) and one out of four children in developing countries are underweight (UNICEF ( United Nations Children Funds), 2006). School-age children are particularly vulnerable to under-nutrition as the priority in nutrition interventions is often to prevent malnutrition during fetal development and the first years of life – the most critical period for growth and development (Bundy *et al.*, 2009). Under nutrition represents both a cause and consequence of poor human health, development, and achievement across the lifespan (West *et al.*, 2006). It is commonly reflected in a high prevalence of wasting, stunting, and micronutrient deficiency. Stunting, or low height for age, is a physical indicator of chronic or long-term malnutrition, whereas wasting or underweight (low weight for age) is an indicator of both chronic and acute malnutrition (Bundy *et al.*, 2006). Both are widespread in school-age children in developing countries. Perhaps most common, however, are less apparent, "hidden" forms of undernourishment with respect to energy, protein, and micronutrient deficiencies that can adversely affect child growth, development, life quality, resistance to infection, and chances of survival (West *et al.*, 2006).

In developing countries such as Nigeria, India, Pakistan and Sri Lanka, school meals are often the only regular and nutritious meals a child receives, serving as an investment in the child's future. Without such meals, hunger and micronutrients deficiencies can cause irreversible damage to their growing brains and bodies. When school meals are combined with deworming and micronutrients fortification, especially when tailored to specific nutritional needs, the investment in a child's future is multiplied (Lawson, 2012). Maintaining a balanced diet and regular exercise is important for all individuals, especially school adolescents. These children are required to eat a variety of foods from each food group to ensure optimal intake of all vitamins and minerals. At the same time, they may face new challenges regarding food choices and habits. Decisions about what to eat are partly determined by what is provided in school, at home, the influences from friends at school, and the media especially television. Poor nutrition compromises both the quality of life of school aged children as well as their potential to benefit from education. Attaining optimal nutrition involves eating three meals a day, as well as limiting the intake of high sugar and high fat foods. According to Mokdad *et al.* (2000) consuming generous amounts of fruits, vegetables, lean meats and low fats dairy products including three servings of milk, cheese or yoghurt to meet their calcium requirements can also prevent many medical problems such as becoming overweight and developing weak bones.

Proper nutrition is very essential to the physical and mental development of children and youth. Scrimshaw (1998) observed that early malnutrition can adversely affect physical, mental and social aspects of a child's health. Its effect on physical health may include under weight, overweight, stunted growth and obesity. Physical health is

considered as the condition of one's body that is when your body is functioning as it was designed to function. Prior to onset of modern medicine one would have considered someone physically healthy, if he /she was not stricken with a serious illness. With modern medical innovations, came longer lifespan which changed the way we define physical health. Today physical health is considered everything ranging from the absence of disease to fitness level. The requirements for physical health include physical activity, nutrition and diets, medical self-care, rest and sleep. All the aforementioned components when taken appropriately and in the right proportion will guarantee the physical health of an individual (Kendall, 2007). Other health problems that can be associated with food and feeding are kwashiorkor, marasmus, pellagra, rickets, beri-beri, scurvy, goiter, etc. These diseases are mostly associated with over or under utilization of food nutrients in a person's meal.

Early malnutrition and/or micronutrient deficiencies have been linked to poorer cognitive functioning. Short term hunger was found to affect attention and interest in school children (Wilkins (1983) cited in Lavinger, 1996). Psycho-social functioning includes thinking, feeling, enhancing relationships with others, ability to adapt and cope with stress, and the capacity to develop values and beliefs. Psychosocial health according to Dewin (2010) is the psychological and social wellbeing of an individual and incorporates emotional, social and spiritual dimensions. Psychosocially healthy people tend to react in positive ways to situations compared to psychosocially unhealthy people who react negatively to everything in life. Reasoning, judgment and rational thinking are components of the mental dimension. The emotional dimension is subjective and includes one's feelings, while beliefs and values that give meaning to life comprise the spiritual dimension.

Adolescents grow significantly but at a slower rate, while being physically very active in general. As a result, their nutritional needs are high and critical. Additionally, genetic background, gender, body size and shape are all important determinants of nutrients requirement. A review of research on the effects of deficiencies in zinc, iodine, iron and folate on the cognitive development of school aged children showed that nutrition has an impact on children's ability to think. For example, deficiencies in iron and zinc have been linked to neuro- psychological function, retardation of growth and development, reduced immunity and increased vulnerability to infectious diseases (Lawson, 2012). Carbohydrates and fats provide energy for growth and physical activity. During periods of rapid growth, appetites increase and children tend to eat constantly. When growth slows, appetites diminish and children eat less at meal times. The brain needs energy to function properly and hence the supply of glucose is relevant and critical. Cognitively demanding tasks such as school work require regular supplies of glucose to the brain in order to enhance cognitive functioning and improves memory and mood (Benton, 2001).

Another promising school feeding effort is LIFE Outreach International's (LOI) Mission Feeding Program, which feeds 200,000 Angolan children. Through a partnership with Joint Aid Management (JAM), LIFE's Mission Feeding Program operates on the basis of the Complete Community Assistance (CCA) model, which is founded on a school-based platform and contributes to more holistic community development. This approach attempts to provide a comprehensive foundation for community engagement and development and is comprised of four complimentary interventions: nutritional feeding, water and sanitation programming, agricultural development, and HIV prevention education (Life Outreach International, 2010). Additionally, LOI/JAM recently announced plans for the development of a new food processing facility in Angola. This facility will have the capacity to process over 1 million meals per day, and store up to 10,000 metric tones of food, potentially helping to avoid the bottlenecks in the nation's school feeding food supply. LOI has committed to the production of fortified foods at this facility, addressing the country's need for additional micronutrient-fortified food products (LOI, 2010).

In Nigeria, most schools and homes caution students against missing meals, living on fast foods and carbonated beverages, avoiding fruits and vegetables as it might lead to poor structural and neurotic defects during the process of the body building. Similarly, emotional eating and living a sedentary or inactive life style by not participating in moderate physical activities which will also lead to poor postural defect. It has been observed; parents give their children packed lunch due to many hours spent at school, poor school services, cost of school meals, for the benefits

of providing a healthy diet. Thus during Parent –Teacher Association meetings or home visitation by school teachers, there is a need to stress the importance for students to eat three adequate meals each day. It is also important to emphasize the special needs and difference in adolescent boys and girls. For example, boys need more fat and carbohydrate than girls due to more physical exertion which they are known for, while girls need more of proteinous and iron-rich meals than boys due to blood loss during menstrual period (Moronkola, 2012).

The Food Consumption and Nutrition Survey in Nigeria (FCSN 2001-2003) reveal 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. Twenty nine (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 (Maziya-Dixon *et al.*, 2004). In Borno state, school feeding programme which was abandoned for fears was re-launched again during the peak of Boko Haram insurgency period precisely, on March 13, 2013 which included free education scheme. The Borno State secondary schools feeding committee has a feeding menu as shown on the table below;

Day	Breakfast	Lunch	Diner/super
Monday	Kunun gyada(groundnut porridge) and Kosai(bean cake)	Rice and stew with meat and vegetable.	Tuwo with okro and fish.
Tuesday	Bread and Stew	Semovita, kuka, fish and oranges	Spaghetti with vegetable and meat
Wednesday	Kamu(pap), bean cake (kosai)	Biski, yakuwa and fish	Yam and stew
Thursday	Tea and bread with eggs /kosai	Eba (gari) with okro and cucumber	Semovita, kuka with fish
Friday	Tea with panke	Jollof rice with beans	Biski and yakuwa with fish
Saturday	Kunun gyada with kosai	Yam pottage with vegetable and fish	Tuwo with okro soup and meat
Sunday	Tea and bread	Rice and beans with stew	Macaroni with pumpkin and fish

Source: Borno State Secondary Schools Feeding Committee, 2013.

## 2. METHODS

This study is design to assess the government feeding programme on improved nutritional Health Status of secondary school students in Maiduguri, Borno State. The research design adopted for this study was a descriptive survey method. The target population for this study comprised of day public secondary schools in Maiduguri, Borno state, with a total population of nine thousand three hundred and thirty eight (9,338) students. Five public secondary schools were selected using purposive sampling techniques. A sample of nine hundred and thirty four (934) students were selected representing 10% of the population served as sample for the study. Stratified random sampling technique and simple random sampling technique were used to select the sample. The students were selected through random sampling. A self-developed questionnaire containing items statements on Assessment of government feeding programme among secondary school students in Maiduguri was used for this study. The response mode for the instrument was a modified four (4) points Likert type scale with a response mode of strongly agree, agree, disagree and strongly disagree was used. Descriptive statistics of frequency counts, and percentage scores was also used to answer the research question. While, Chi-square was used to test the hypotheses at 0.05 level of significance.

## 3. RESULTS

**Research Question:** Does government feeding programme improve the nutritional health status of secondary school students in Borno State?

**Table-1.** Respondents' views on Government feeding programme and nutritional health status of respondents(n=930).

S/N	Statement	Response Categories			
		SA(%)	A(%)	DA(%)	SDA(%)
1.	School feeding enhances my physical wellbeing	138(14.8)	343(36.9)	273(29.4)	176(18.9)
2.	I am emotionally stable whenever am served food in school	152(16.3)	168(18.1)	247(26.6)	363(39)
3.	School feeding improves my eating habit	370(39.8)	210(22.6)	110(11.8)	240(25.8)
4.	School feeding provides essential nutrients my body needs	104(11.2)	152(16.3)	464(49.9)	210(22.6)
5.	The food served in the school contain carbohydrate, protein, fat and vitamin	98(10.5)	140(15.1)	168(18.1)	524(56.3)
6.	The school feeding programme improves my health and socialization	100(10.8)	166(17.8)	184(19.8)	480(51.6)

Source: Tijjani (2016)

Table 1 above shows the result of government feeding programme on nutritional health status. 138(14.8%) respondents strongly agreed and 343(36.9%) of the respondents agreed that school feeding enhances physical wellbeing, 273(29.4%) respondents disagreed and 176(18.9%) respondents strongly disagreed that school feeding enhances physical wellbeing. 152(16.3%) respondents strongly agreed and 168(18.1%) respondents agreed that they are emotionally stable whenever food is served at school, 247(26.6%) respondents disagreed and 363(39%) of the respondents however strongly disagreed that the feeding system of the students enhance their emotional stability. 370(39.8%) of the respondents strongly agreed and 210(22.6%) respondents agreed that school feeding improves their eating habit, 110(11.8%) respondents disagreed and 240(25.8%) respondents strongly disagreed that school feeding improves eating habit. 104(11.2%) respondents strongly agreed and 152(16.3%) respondents agreed that school feeding provides essential nutrient the body needs, 464(49.9%) of the respondents disagreed and 210(22.6%) respondents strongly disagreed that school feeding provides essential nutrients their body needs. 98(10.5%) respondents strongly agreed and 140(15.1%) respondents agreed that the food served in the school contain carbohydrate, protein, fat and vitamin, 168(18.1%) respondents disagreed and 524(56.3%) of the respondents strongly disagreed that food served in school contain carbohydrate, protein and vitamin in the right proportion. 100(10.8%) respondents strongly agreed and 166(17.8%) respondents agreed that the school feeding programme improves health and socialization, 184(19.8%) respondents disagreed and 480(51.6%) of the respondents strongly disagreed that school feeding programme improves health and socialization.

**Hypothesis (Ho):** Borno State Government School feeding programme do not significantly improve the nutritional health status of secondary school students.

**Table-2.** A summary of Chi-square ( $\chi^2$ ) test on the government feeding programme improve the nutritional health status of secondary school students in Borno State (n=930).

Nutritional Health Status	SA	A	DA	SDA	Total	df	$\chi^2$	X <sup>2</sup> Crit	P-val	Decision
Improved Nutrition status.	94(108.30)	154(153.40)	198(174.28)	241(251.02)	667	3	19.514	7.815	0.0002	*Rejected
Did not improve Nutrition status.	57(42.70)	52(52.60)	45(68.72)	109(98.98)	263					
<b>Total</b>	<b>151</b>	<b>186</b>	<b>243</b>	<b>350</b>	<b>930</b>					

$\chi^2$ , df 3 = 7.815 (P<0.05)

Results of Chi-square ( $\chi^2$ ) analysis in Table 2 shows that the  $\chi^2$  value 19.514 is greater than  $\chi^2$ Critical which is 7.815 at p-value 0.0002 is less than the significance level of 0.05 with degree of freedom 3 (19.514>7.815,

$p=0.0002<0.05,df.3$ ).The null hypothesis is thereby rejected. This implies that the State government school feeding programme significantly improves the nutritional health status of secondary school students in Borno State.

#### 4. DISCUSSION

The result of the study revealed that Borno state government school feeding programme significantly improves nutritional health status of secondary school students. This finding is in line with Lawson (2012) who reported that school meals increase the nutritional status of school age children in a variety of ways showing a notable reduction in malnutrition via diet diversification and increased absorption of micronutrients by increasing the amount of nutrition a child receives at school. The result is also in support of Bundy *et al.* (2009) who stated that school children are particularly vulnerable to under nutrition as the priority in nutrition interventions is often to prevent malnutrition. School feeding offers an excellent opportunity for targeted intervention as a means of enhancing nutrition and improving school attendance and educational outcomes. In addition, West *et al.* (2006) said that undernourishment with respect to energy, protein and micronutrient deficiencies have adverse effect on child growth, development, life quality, resistance to infection and chances of survival. In contrast, Del Rosso (1999) argued that school children are in fact, susceptible to a variety of nutritional difficulties.

The result of the study also indicated that the state government school feeding programme significantly improves the nutritional health status of secondary school students in Borno state. The finding is in line with, World Food Programme (2005) which stated that school meal is designed according to timing and nature of meals depend on the length of the school day. A nutritious meal or snack early in the school day enables these children to learn better and gain most from school. The opportunity for a nutritious meal is an incentive for parents to send their children to school. More so, West *et al.* (2006) who explained that under nutrition represents both a cause and consequence of poor nutritional health, development and achievement. Also, Labadorious (1997) reported that if school meals are of good nutrient and quantity and the supply is efficient and continues for some time would help to enhance physical and psychosocial health of students thereby improving cognition and attentiveness. Therefore, due to slight increment in the food quality there is an encourage able improvement in the nutritional health status of the students.

#### 5. CONCLUSION

Based on the findings and within the limitation of this study, it was concluded that Borno State Government School Feeding Programme indicated an improvement in the nutritional health status of the students despite the insurgency situation bedevilling the state. It was also noticed that the influx of International Non-governmental Organizations have greatly assisted in the improvement of nutritional health status of the students who are internally displaced (IDPs).

#### 6. RECOMMENDATIONS

Based on the conclusion made, the following recommendations have been advanced

1. The Federal Government should employ qualified food scientists, nutritionists, dieticians and caterers to assist in running the programme and make them responsible for the purchase of needed food items to be cooked in schools.
2. Borno State Government should encourage more international donor agencies like the International Non-governmental organizations to come in with more improved varieties of school meals to increase the nutritional health status of the internally displaced students in the society.
3. School Feeding Programmes should encompass both public and private primary and secondary educational institutions across the country.

4. Feeding should be well guided by a menu which reflects the nutritional need for energy and micronutrients body requirements of the particular geographical area, by the Borno State government.

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