Original Research Article

NUTRITIONAL STATUS OF SCHOOL CHILDREN ATTENDING PRIVATE AND PUBLIC SCHOOLS IN ANYIGBA, KOGI STATE.

Abstract

Under nutrition continues to be a primary cause of ill health among children in developing countries. Adequate nutrition is critical for optimal growth, health and development of children. The objective of the present study was to assess the nutritional status of school age children (6-12 years) attending public and private schools in Anyigba as well as certain pertinent socio economic and demographic factors. Subjects were randomly selected for the study. Consent was obtained from the parent(s) or guardian(s) through the head teachers and principals of the various schools to allow the selected children to participate in the study. Ethical clearance was obtained from the Health Research Ethics Committee, Kogi State Ministry of Health. With the aid of a validated semi structured questionnaire, interview was conducted to obtain information on demographic and physical activity levels after obtaining informed consent from the target population. Anthropometric measurements were carried out to ascertain the nutritional status of the subjects. Results on nutritional status of subjects revealed 79.0% underweight, 1.0% obesity, 6.0% overweight and 14.0% normal weight. Community and school based nutrition programs should be established to tackle the problems of malnutrition considering the severity of malnutrition as identified in this study.

Keywords: Nutritional status, children, private, public, schools

1. INTRODUCTION

Adequate nutrition is essential in childhood to ensure growth, proper organ function, a strong immune system, neurological and cognitive development. Child malnutrition impacts cognitive function and contributes to poverty through impeding individuals' ability to lead productive lives [1]. Poor socio-economic status is a contributing factor to deprivation of good and sufficient nutrition in children of school going age [2]. Inadequate nutrient intake during childhood leads to undernutrition, which results in decreased cognitive function, growth failure, greater developmental delays, diminished resistance to infection and reduced adult size, leading to decreased economic productivity[3,4,5,6]. Undernutrition is responsible for more than one third of all child deaths worldwide [6]. Undernutrition is an outcome of a complex interplay of multiple political, cultural, social, economic and health system related factors which remains a threat , globally.[7].

Nutritional assessment not only serves as a means for evaluating the health and nutritional status of children but also provides an indirect measurement of the quality of life of an entire population. School children provide an almost ideal population for growth assessment and future interventions.[8] Major contributors to childhood malnutrition are poverty, low levels of education and poor access to health

services [6]. Increasing wealth is a cornerstone of malnutrition reduction. Improving the level of education of youngsters can assist in increasing the socio-economic profile of the nation, and hence contribute to poverty alleviation [9]. The nutritional status of children is a good indicator of health status of a community [10]. Nutritional status is defined as a measurement of the extent to which an individual's physiologic need for nutrients is being met [11]. Individual nutritional status has been reported to vary on the basis of a person's living conditions, availability of the food supply, health and socioeconomic status [2]. Understanding the relationship between children's socioeconomic background and nutritional status is needed to develop effective intervention programmes [12]. Improvements in health and nutrition among disadvantaged children help in their cognitive development, and at a later stage would help in increasing work productivity, thus contributing to wealth creation. It has been shown that early nutritional improvements can have a powerful positive impact on the population's health, which is a prerequisite to economic development [5]. The objective of this study was to assess the nutritional status of school age children (6-12 years) attending public and private schools in Anyigba.

2. MATERIALS AND METHOD

2.1 Sample Size determination

The sample size for this study was obtained using the formula:

$$n = (z^2pq/d^2)$$

Where:

n = The desired sample size
z = The standard normal deviation, usually set at 1.96
p = The proportion in the target population having the particular trait or Prevalence.
q = 1.0-p
d = Degree of accuracy desired, usually set at 0.05. (Equation 1)

In Kogi state, an under nutrition prevalence of 20 % among adolescents was reported [6]. Therefore, at 20 % prevalence, using 5 % precision at 95 % confidence interval, the desired sample size n for this study was calculated as 246. But to ensure an equal number of participants from the selected schools, sample size was adjusted to 248.

Study population

The study population was randomly selected school age children (6-12years) attending private and public primary schools in Anyigba, Kogi State. Nigeria.

Inclusion criteria

School age children (6-12 years) attending public and private primary schools in Anyigba Kogi State were randomly selected for the study.

Exclusion criteria

All children above or below school aged (6-12 years) were excluded from the study.

Informed consent

Consent was obtained from the parent(s) or guardian(s) through the head teachers and principals of the various schools to allow the selected children to participate in the study.

Ethical clearance

Ethical clearance was obtained from the Health Research Ethics Committee, Kogi State Ministry of Health in accordance with the code of ethics on human experimentation drafted by the World Medical Association in 1964.

Sampling technique

A multistage sampling frame was used to select the 248 participants in the study. In the first stage of the sampling, simple random sampling was used to select the two private and two public schools. Proportionate sampling was used in the second stage to calculate the number of participants to be selected in each of the two private and two public schools. In each school and for each grade, ballots were picked by the research assistant, in turn to select the class to be sampled in each grade. This formed the third stage of the multistage sampling. The class to be used in each grade was picked by simple random sampling. For each class, the register was used to exclude those pupils who did not fall within the study age group of 6-12 years. Those who fell within the study age group were stratified into males and females. Ballots were then picked by all eligible pupils in the stratum. Based on the required number, ballot papers were marked “yes” or “no”. Those that picked a “yes” were included in the study while those that picked a “no” were excluded.

Data collection

Information obtained from parents/subjects with a validated semi structured questionnaire was used to determine the socio demographic and household characteristics of subjects. Measurements were taken in school compound. Weight and height measurements were done according to standard procedures. Weight was measured to the nearest 0.1 kg using a standard weighing scale with the subject barefooted and wearing only underpants in a well-screened room. Height was measured with a stadiometer to the nearest 0.1 cm without shoes. Weight-for-age and height-for-age values were obtained, from where the BMI was calculated.

Data analysis

The data obtained from the questionnaires were analyzed using Statistical Package for Social Sciences (SPSS) version 20.0 for descriptive statistics, frequencies and percentages.

3. RESULTS

3.1 Socio-demographic characteristics of school children (6-12years) attending public and private primary schools, Anyigba, Kogi State.

The result as presented in table 1, showed that majority (60.5 %) of the respondent were within the age group of 9 - 12, 50.8 % of the respondent were female, 50.0 % of the respondent were from private primary schools, 46.8 % of the respondent were within the class group of primary 1 - 3, and 65.7 % of the respondents were from the Igala tribe.

3.2 Household characteristics of school age children attending public and private secondary schools, Anyigba, Kogi State

The result showed that majority (37.9 %) of the respondent parents were traders, 80.2 % of the respondent parent were married, 41.9 % of the respondent had 7-10 members in their household, 65.3 % of the respondent purchased food from markets and 75.8 % eat thrice per day as shown in table 2.

Table 1: Socio-demographic characteristics of school children (6-12years) attending public and private secondary schools, Anyigba, Kogi State

Characteristics	Group	Frequency	Percentage

		(F)	(%)
Age	5 – 8	98	39.5
	9 – 12	150	60.5
Sex	Male	122	49.2
	Female	126	50.8
Type of School	Public School	124	50.0
	Private School	124	50.0
Present Class	Primary 1 – 3	116	46.8
	Primary 4 -6	132	53.2
Ethnicity	Igala	163	65.7
	Igbo	41	16.5
	Yoruba	23	9.3
	Others	21	8.5

Table 2: Household characteristics of school age children attending public and private secondary schools, Anyigba, Kogi State

Characteristics	Group	Frequency	Percentage

		(F)	(%)
Parent Occupation	Civil Servant	39	15.7
	Trader	94	37.9
	Farmer	68	27.4
	Artisan	22	8.9
	Others	25	10.1
Monthly Income of parents	< N5,000	102	41.1
	N5,000 - N14,000	107	43.1
	N15,000 - N24,000	17	6.9
	N25,000 - N34,000	20	8.1
	N35,000 - N44,000	2	0.8
	N45,000 - N54,000	0	0
		3	2.2
No of household children	1-3	90	36.3
	4-6	104	41.9
	7-10	54	21.8
	Above 10	0	0
Main source of food	Bought	162	65.3
	Home grown	86	34.7
No. of Meals fed per day	Once	0	0
	Twice	44	17.7
	Thrice	188	75.8
	Others	16	6.5

3.3: Household Hygiene Practices of School Age Children Attending Public and Private Secondary Schools, Anyigba, Kogi State.

The result showed that majority (60.5 %) of the respondent wash their hand with soap and water, 86.3 % of the respondent wash their hand before and after eating, 45.6 % of the respondent sometimes wash fruits before eating it with the skin, 62.1 % of the respondent cooking fuel was firewood, 62.5% of the respondent main source of drinking water was from public tap and 46.0% of the respondent main type of toilet was water system. As shown in table 3

3.4 Nutritional Status of school Age Children Attending Public and Private Secondary Schools, Anyigba, Kogi State.

Nutritional status of school age children attending public and private school at Anyigba, Kogi State showed that 79% of the sample population were underweight with males at 48% and females at 31%, obesity was recorded at 1% for females only, overweight was observed at 6% with males at 2% and

females at 4%, normal weight was recorded at 14% with males at 6% and females at 8%. As shown in figure 1.

Table 3: Household Hygiene Practices of School Age Children Attending Public and Private Secondary Schools, Anyigba, Kogi State

Characteristics	Frequency (F)	Percentage (%)
Do you wash your hand with soap and water after using toilet?		
Yes	150	60.5
No	98	39.5
Do you wash your hand before and after eating?		
Yes	214	86.3
No	34	13.7
Do you wash fruits before eating it with the skin?		
Always	56	22.6
Sometimes	113	45.6
Never	79	31.8
Main cooking fuel		
Gas	42	17.0
Kerosene	14	5.6
Charcoal	38	15.3
Firewood	154	62.1
Main source of drinking water		
Public tap	155	62.5
Stream water	50	20.2
Rain water	13	5.2
Borehole water	16	6.5
Well water	14	5.6
Main type of toilet		
Water system	114	46.0
Pit latrine	98	39.5
Bucket system	13	5.2
Bush	23	9.3

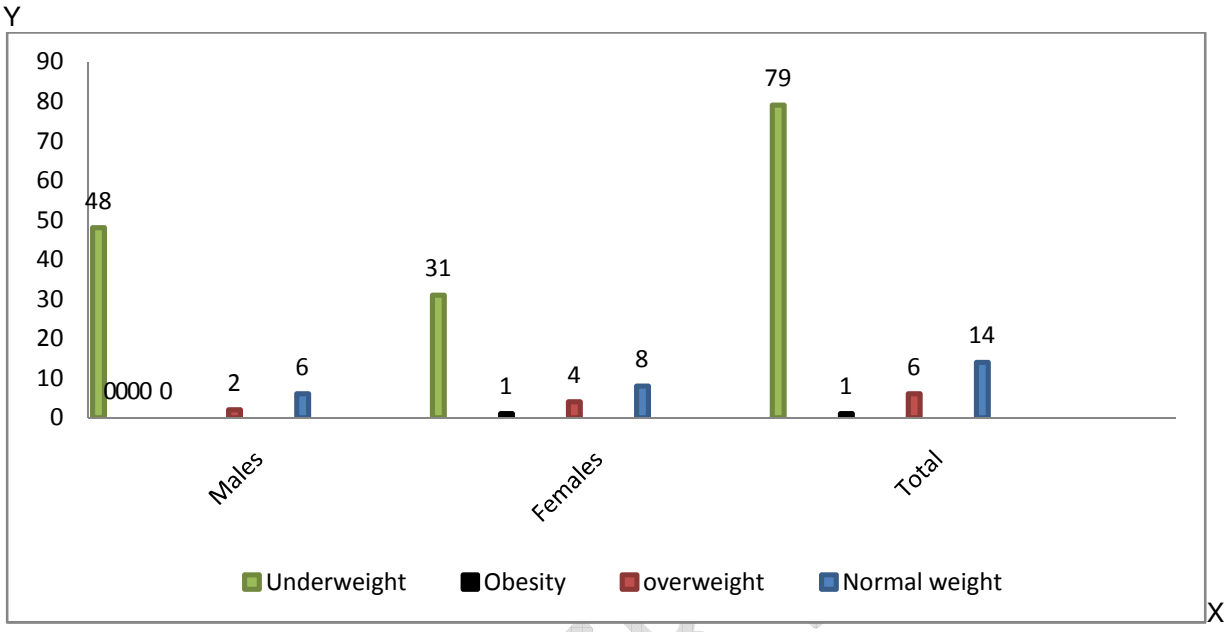

Fig.1 Nutritional status of school children attending private and public schools in Anyigba, Kogi state.

Y axis: Percentage of school age children.

X axis: Nutritional status of school age children.

Discussion

Underweight could be seen to be predominant (79%) in these school age children, making them most vulnerable and this calls for early nutrition interventions at both family and school levels. Under nutrition was found more in boys (48 %) as compared to 31 % in girls this finding is in agrrement with the findings of Similar studies conducted in Ecuador (13) and Tanzania (14) which showed that boys were more commonly affected than girls. This also agrees with the findings of Goon et al. (15) on school children in Makurdi, a metropolis in Nigeria, which recorded predominance of underweight (52.7%) in school age children. The findings of the present study showed a percentage higher than 60.9% of underweight found among school children in some part of India (16). The finding is in contrast to the findings of Heath and Pamaretto (17) who found more children in their study tending towards overweight and obesity than underweight.

Economic capacity to obtain food is an important determinant of nutritional status of an individual (18). Most of the respondent parents in sampled primary schools in Anyigba were farmers, petty traders and the likes that could not conveniently afford or sustain an adequate feeding pattern at home. This is in line with the submission of Hamitton (19), who stated that parents with low socioeconomic status cannot afford first class proteins like milk, egg, meat etc. which are sourced mainly from animals. And children that consume less vegetables and dairy products are significantly likely to suffer from anemia, iron depletion, and eosinophilia (17), which are diseases associated with low nutritional status. The educational status of a mother is known to be a critical determinant of the health and nutrition of the

family. The education of the parents particularly the mothers may have affected the eating pattern of the children (20). This study showed that 37.9 % of the subject parents were traders, 15.7 % were civil servants, 27.4% were farmers, 8.9 % were Artisans, this goes further to justify the findings that nutritional status is greatly depended on income, seeing that the lowest percentage (0.8 %) of parents earn between 35,000-45,000 Naira monthly and very high percentages of low income 107 % between 5,000 – 14,000 Naira and 102% earns 5,000 Naira or less. With respect to the present economic situation it will be extremely difficult to sustain family needs with these incomes.

Mothers are the key providers of care and feeding of children. Women are crucial gatekeepers of their household food security. This burden of multiple roles of women in the family requires maturity in age and experience (21). Children depend solely on their mothers to provide their food. However, this need if not adequately met may affect their nutritional status. With respect to the predominant (41.9%) family size for household children (4-6), food intake may not be adequate to share with the family members. Poverty is closely correlated with under nutrition (21). The limited financial resources of the families could have affected their ability to buy food for the family.

CONCLUSION

Maternal illiteracy, occupation, inadequacy of dietary knowledge and low per capita income are found to be significantly associated with nutritional status of children. Based on the findings of this study, it could be seen that poor feeding in school children maybe as a result of several factors such as food insecurity, poverty, poor socioeconomic status, low quality of food, large households, limited or no access to clean water and adequate health services.
Inclusive and comprehensive school health programmes for all, are imperative first steps that could be taken towards achieving and sustaining a healthy future.

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