

Prevalence of Malnutrition among School-aged Children in Abakaliki Education Zone

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Abstract

This study assessed the prevalence of malnutrition among school age children in Abakaliki Education Zone. Specifically, it determined stunting (height for age), wasting (weight-for age) and under weight (BMI-for-age). The design used was survey design. Instrument for data collection was anthropometry indicator. Population for the study comprised all public primary school pupils in the zone. 500 school-aged children were randomly selected for the study. Data were analyzed using National Centre for Health Statistics Reference Growth Chart, frequency and simple percentages. Major findings revealed that 26.4% children were underweight, 35.6% stunted and 46.2% wasted. Findings include long-term and present nutritional deprivations and prevalence was high and critical. Gender and location did not influence the nutritional status of the respondents. Recommendations include among others, that school lunch programme should be introduced and monitored in public primary schools by state government. Women should be empowered to ensure household food security.

Key words: Malnutrition, School-aged, Children, Stunting, Wasting, Underweight.

Introduction

Malnutrition is a common disorder among young children aged 6-12 years in developing countries and it is a major public health concern, (National Institute of Child Health and Human Development, (NICHD) 2006). The main positive factors of malnutrition are inadequate food intake and poor health status that are influenced by poverty,

lack of access to food, family size and feeding pattern. Though, it is not an infectious disease, its effect extends to millions of survivor who are left crippled, chronically vulnerable to infections, illness and intellectual disability (Azubuike, 2013). Malnutrition affects future productivity

and ultimately the viability of the society (Grigsby, 2006).

Malnutrition is a complex condition that can involve multiple overlapping deficiencies of protein, energy and micro-nutrient deficiencies (De-Regil Haddad, 2014). Malnutrition is linked with a variety of illness and other diet-related diseases. The most lethal form of malnutrition is protein energy malnutrition (PEM) (WHO, 2006). PEM develops when the consumption of protein and energy is insufficient to satisfy the body's nutritional needs (Ma, Savoys and Agim, 2013). PEM induced dysfunctions directly impinge upon and stunt the development of a child's intelligent quotient (Gratham and Ani, 2000). It is not a surprise that children affected with PEM tend to function at reduced levels of intellectual development and academic achievement. Micronutrient deficiencies such as Iodine, Zinc and Iron deficiencies are the world's greatest causes of mental retardation and brain damage such that can affect school performance (World Food Programme 2012; Young, 2012).

Malnutrition encompasses stunting, wasting and under-nutrition (WHO, 2014). Symptoms include weight loss. Lack of strength, breathlessness, fatigue, anaemia, changes in skin, hair, hands irritability, inability to concentrate etc. The body of a malnourished child has difficulty doing normal things such as growing and resisting diseases, physical work becomes a problem and even learning abilities are diminished. Malnutrition occurs when there is a deficiency of certain vital nutrients in a

person's diet. The deficiency fails to meet the demands of the body leading to defects on growth, physical health, mood, behaviour and other functions of the body (NICHD, 2006).

Malnutrition is a common disease or disorder especially in the rural areas. It is common among the low income groups (Zulkifi, 2004). Malnutrition raises the risk of infection with diarrhea, malaria, measles and respiratory tract infection in children. Malnutrition prevents a child from taking maximum advantage of the learning opportunities available to them in the environment. Recent studies have demonstrated that nutrition affects students thinking skills, behaviour and health (Li and O'Connell, 2012). Nutritional deficiencies early in life can affect cognitive development of school-aged children.

Prevalence indicate general existence of a condition in a particular area, it is a measure of the widespread of malnutrition in an area. It may be high or low depending on relative factors such as socio-economic status, culture, level or education, feeding pattern etc. According to Babatunde, Olagunju, Fakayode and Sola-Ojo (2011), chronic malnutrition experienced during early life inhibits growth, retards mental development; reduce motivation and energy life thereby causing a reduction in educational attainment and delay in school entry and exit. Sternberg (2011) also affirms that health problems due to measurable nutritional status are among the most common causes of low enrollment, high absenteeism, early

dropout and unsatisfactory classroom performance. However, this can vary as a result of gender. Females are more affected by malnutrition due to their physiological need. In situations of crisis, where food is in short supply, females are likely to reduce their food intake as a coping strategy in favour of other household members. These can contribute to under nutrition (UNICEF, 2011).

Nutritional status levels may be due to environment in which children live. Geographical region has been identified to influence food and nutrient composition of household diets (Townsend and Lake, 2009). Differences in food availability have been proposed as explanation for the disparities in disease risk between individuals living in rural and urban areas. Rural and urban differences have been reported, however these differences have not been consistent.

Child growth is recognized as an important public health indicator (Daelmeans and Saadeh, 2003). Childhood falls within ages five and fifteen years (Srivastava, Mahmood, Srivastava, Shotriya and Kumar, 2012). It is a time of actual growth in terms of physical size, mental, emotional, sexual maturation and psychological development (WHO, 2006). Normal growth is dependent on adequate nutrition and encompasses major transformations from birth to adulthood. These also may be the cause of the problem associated with how students cope with or accomplish different task given to them by their teachers. The present nutritional status

of school age children is an overall measure of the productivity level of that society.

Most parents especially in the rural areas have poor educational background and poor nutrition knowledge. The implication is that many children from these parents may not be properly provided for nutritionally. It was also noted that Ebonyi women feed more or less predominantly on starchy foods such as fufu with watery soup, boiled yam with little or no oil, etc. This type of food is what they give to their children. This also is a major determinant of the nutritional status of their children. However, poor nutrition knowledge, poor education and occupation background heightens the doubt on the nutritional status of the children. Furthermore, low rate of primary school enrolment, (Ebonyi State Ministry of Education, 2012), frequency of health problems, infection and poor academic performance make one to suspect prevalence of malnutrition in the study area and that is the interest of this study.

Purpose of the Study

The main purpose of the study was to assess the prevalence of malnutrition among school-aged children in Abakaliki Education Zone. It specifically determined the prevalence of:

- 1 underweight (BMI - for- age) among school age children.
- 2 stunting (height -for- age) among the children.

3 wasting (weight-for-age) among the children.

Research Question

Three research questions guided the study.

What is the prevalence of the following malnutrition factors among school-aged children in Abakaliki Education Zone?

1. Underweight
2. Stunting
3. Wasting

Hypotheses (H₀s)

The following two hypotheses guided the study, they include:

H₀₁: There is no significant difference in the nutritional status of school age children in Abakaliki education zone as a result of their location.

H₀₂: There is no significant difference in the nutritional status of school age children in Abakaliki education zone as a result of their gender.

Methodology

Design of the Study: The study adopted a descriptive survey design. Descriptive design aims at collecting pertinent information with which to describe a system.

Area of the Study: The area of the study was Abakaliki Education Zone, it comprised of Abakaliki, Izzi, Ebonyi and Ohaukwu L.G.A in Ebonyi State. The area is predominantly rural and poor (Egwu, 2004). The populace has poor education and socio-economic background thus indicating a situation of inadequate resources.

Population of the Study: The population of the study comprised all

the primary 4-6 pupils of public primary school in Abakaliki Education Zone. The zone has 451 public primary schools with 202,650 pupils (Ebonyi State Ministry of Education, 2012). Most of the pupils are aged 8-12 years.

Sample and sampling techniques: The sample for this study was 500 school age children. Random sampling technique was used to select the pupils. The zone comprised of four communities namely: Izzi, Ebonyi, Ohaukwu and Abakaliki. Ten schools were randomly selected from the study area using balloting without replacements, five from urban and five from rural communities. Fifty pupils were also randomly selected from primary four to six classes from each school to make up the sample size.

Instrument for Data Collection: Anthropometric indicator was used to measure the height and weight of the respondents. A height metre graduated to the nearest 0.1cm attached to the wall was used to measure their height while a weighting scale was used to obtain the weight of the respondents to the nearest 0.1kg.

Data Collection Technique: The anthropometric measurements taken were height and weight. With the help of research assistants, the body weights of the respondents were taken using a bathroom scale with minimum clothing on. The weights were measured to the nearest 0.1kg. The heights were measured using measuring tape, colored chalk, pen and paper. The subjects stood on flat floor, leaned on the wall with their feet parallel to their heels. Their buttocks, shoulder and back

of head touched the wall. The crown of the head was marked on the wall with a coloured chalk; the children were then asked to step out. The height measurement was taken to the nearest 0.1cm.

Data Analysis Technique:
 Anthropometric data collected were analyzed using frequency and simple percentages. The national centre for health statistic (N.C.H.S) percentile cut off standard was used to check conformity. The BMI was calculated using the formular $\text{weight}/\text{height}^2$ (kgm-2). Anthropometric indices percentile cut off standard is as follows:
 BMI-for-age < 5th percentile indicates thinness (underweight)
 Height--for-age < 5th percentile indicates stunting
 Weight-for-age < 5th percentile indicates wasting

Results

Table 1: Nutritional Status of School-aged Children in Abakaliki Education Zone

Variable	Frequency
BMI-for-Age (Underweight)	Normal 368 (73.6%)
	Abnormal 132 (26.4%)
	500 (100.0%)
Height-for-Age (Stunting)	Normal 322 (64.4%)
	Abnormal 178 (35.6%)
	500 (100%)
Weight-for-Age (wasting)	Normal 269 (53.8%)
	Abnormal 231 (46.2%)
	500 (100%)

Table 1 indicates the prevalence of underweight, stunting and wasting as 26.4%, 35.6% and 46.2% respectively.

H₀₁: There is no significant difference in the nutritional status of school age children in Abakaliki education zone as a result of their location.

Table 2: Summary of Chi-square Test Results of no Significant Difference in the Nutritional Status of School Age Children in Urban and Rural Schools

Variables	χ^2 cal	df	χ^2 crit	Decision
BMI-for-age and location	.692	1	5.991	Accept
height-for-age and location	.536	1	5.991	Accept
Weight-for-age and location	1.005	1	5.991	Accept

Table 2 indicates that there is no significant difference in the nutritional status of school age children in urban and rural schools because chi-square calculated is less than chi-square tabulated. The hypothesis is therefore accepted implying that location did not

influence the nutritional status of school age children in Abakaliki education zone.

H₀₂: There is no significant difference in the nutritional status of school age children in Abakaliki education zone as a result of their gender.

Table 3: Summary of Chi-square Test Result of no Significant Difference in the Nutritional Status among Male and Female School Age Children in Abakaliki Education Zone

Variables	χ^2 cal	df	χ^2 crit	Decision
BMI-for-age and gender	.558	1	5.991	Accept
height-for-age and gender	1.351	1	5.991	Accept
Weight-for-age and gender	3.343	1	5.991	Accept

Table 3 shows that there is no significant difference in the nutritional status among male and female school age children because chi-square calculated is less than chi-square tabulated. The hypothesis is therefore accepted implying that gender did not influence the nutritional status of school age children in Abakaliki education zone.

Discussion

The results indicate that in Abakaliki education zone, both present (wasting) and long term (stunting and underweight) nutritional deprivation were manifested. It also reveals that present nutritional deprivation is high such that is due to famine (hunger) and epidemic. The observed value of underweight and stunting presented a high prevalence and critical for wasting when matched with nutritional status cut-off value for public health significance, (WHO, 2006). When compared with the study of Uwem et al (2008) who observed a high prevalence of malnutrition among the pastoral Fulani in the South West of Nigeria, it was observed that there is a high prevalence of malnutrition among school age children in Abakaliki Education Zone. Furthermore, the study of Makoka (2013) revealed a

higher prevalence in the study area than in Malawi, Tanzania and Zimbabwe. Prevalence of malnutrition is higher in Makurdi, compared to the study area, based on the works of Goon, Toriola, Shaw, Amusa, Monyeki, Akinyemi and Alabi (2011). Prevalence of thinnes and stunting when compared with the average national prevalence of 40 percent is lower in Abakaliki education zone while wasting is higher (Ekpo, Omotayo and Dipeolu, 2008).

Nutritional status does not only directly reflect the socioeconomic status of the family and social well being of a community, it also reflect the efficiency of the health care system, the surrounding environment and family background (Srivastava *et al.*, 2012). Malnourished children according to Makoka (2013) are likely to be associated with frequent illness and infection. Poor nutritional status in childhood can affect brain development that controls fine motor functions (Chang et al., 2010). These can be seen after several years of malnutrition. Furthermore, poor nutritional status of children can become a risk for them to develop disease in later life thus hindering them from actualizing full intellectual or educational potentials. Malnourished children may never reach their full intellectual or educational

potentials. It also diminishes adult intellectual ability and work capacity causing economic hardship for individuals, families and society. The high prevalence could be as a result of current economic crisis (de Pee *et al*, 2010).

There is no significant difference in the nutritional status of the respondents as a result of their location and gender. This indicated that location and gender did not have influence on the nutritional status of the respondents: The apparent lack of association between these variables and nutritional status in this study may be ascribed to the probability that the children were exposed to the same nutrition and environmental condition. This also agrees with the study of Townsend *et al* (2009) who found that there was no significant difference in the nutritional status of children in urban and rural areas. On the contrary, Sozina *et al* (2013) found that adolescents living in urban highland were more predisposed to malnutrition in Ecuador. Also, Ngabo *et al* (2014) discovered that gender was very significant in determining the nutritional status of children in Rwanda as males were highly exposed to malnutrition compared to females in their study.

Conclusion

Based on the findings of the study, it was concluded that the children were thinned stunted and wasted. This indicated long term and present nutritional deprivation in the study area. Poor nutritional status may jeopardize the children's educational

potential and also future productivity. This is because adequate nutrition enables school-aged children to be sound, have good brain and behavioural development which prepares them to study. Thus there is need to provide intervention strategies to improve nutritional status of school-aged children in the study area.

Recommendations

1. School lunch programmes should be introduced and monitored in public primary schools by government and donor agencies so as to ensure that children get a balanced meal at least once a day.
2. Nutrition education via community based approach school be aggressively adopted and pursued.
3. Women empowerment for food security.

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