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Nutritional Status and Feeding Practices among Primary School Children in Anambra State

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Abstract

This study seeks to assess the nutritional status and feeding practices among primary school pupils in Anambra State. Two research questions guided the study. A descriptive survey design was used for the study. The population of the study comprised all primary school pupils aged 6-12 years in public primary schools in Anambra State. The sample size was 480 pupils aged 6-12 years selected through multistage sampling procedure. Data collection was collected using a self-structured questionnaire constructed by the researcher titled Nutritional Status and Feeding Practices among Primary School Children (NSFPS and anthropometric measurements. The questionnaire instrument was validated by three experts. The questionnaire was pretested on 20 pupils from a non -participating .school. Cronbach Alpha was used to test the reliability of the instruments, which yielded a reliability coefficient of 0.80. Five trained research assistant administered the questionnaires to obtain information from the pupils. Anthropometric measurements were taken using standardized techniques. Height was measured with a portable Stadiometer to the nearest 0.1cm with children standing upright without shoes. Weight was taken using a digital weighing scale to the nearest 0.1kg with children wearing light clothing. Data was analyzed using SPSS version 20.0. Nutritional status was assessed by converting height and weight measurements into Z scores using the WHO AnthroPlus software. This study revealed that malnutrition remains a significant health burden among school children in Anambra State considering its high prevalence. Findings of the study also revealed that poor feeding practices were common among the pupils. Based on the findings, it was recommended that Ministry of Health should introduce Nutrition education programs in all primary schools to improve knowledge of pupils' feeding best practices among parents, teachers and pupils among others.

Keywords: Nutritional status, Stunting, Underweight, Wasting, Feeding Practices

Introduction

Proper nutrition during childhood and adolescence is crucial for growth and development as children have increased nutritional needs relative to body size (Raiten et al., 2015). Martins, Toledo Florêncio et al. cited in Ike Oluwapo and Oyediran et al (2023) opined that school-age children are growing fast physiologically and depend mainly on the nutrients supply from the family foods. If the level of nutrients intake is below the requirements, the nutritional status will be negatively affected and this could be reflected in the level of stunting, wasting and under-weight. The United Nations International Children Emergency Fund's (UNICEF) data revealed that about 90% of children in the developing countries are undernourished, while 40% of the worlds malnourished live in India. Nearly half of deaths among children are attributed to

under nutrition. It was reported that 104 million underweight children live in South East Asia and in sub- Saharan Africa. (UNICEF, 2018). Mwaniki (2013) opined that Nigeria has the second highest burden of stunted children in the world with a nation- al prevalence rate of 32% of children under five.

Malnutrition includes stunting, wasting, underweight and micronutrient deficiencies. Stunting is low height for age, wasting is low weight for height while underweight is low weight for age. Understanding the determinant of childhood nutrition is essential for developing effective and targeted to address the issues. Li et al. (2020) posits that factors influencing children nutritional status are dietary habits, physical activity levels, socio-economic status and cultural norms.

Observations have shown that globally, 149 million children less than 5 years are stunted while 49 million are wasted. World Health Organization (WHO, 2022). The WHO (2021) also estimates that in 2020, 22 5% of children under five years in Africa were stunted, 6 % were wasted while 14 % were overweight. Iron deficiency and anemia affects 1.2 billion people globally, mostly children and women of reproductive age in low and middle income countries like Nigeria (WHO, 2022). In Nigeria, 32% of children under 5 years are stunted, 21% underweight and 7% wasted (United Nations International Children Emergency Fund (UNICEF), 2019). Micronutrient deficiencies are also widespread – 60% of children aged 6-59 months are anemic while 40% have vitamin A deficiency (Nigeria National Living Standards Survey (NLiSS, 2018)

In Nigeria, malnutrition is a major contributor to under-five mortality, which is estimated at 120 per 1000 live births (National Population Commission (NPC, 2019). The common forms of malnutrition in children are stunting, underweight, and wasting. Stunting indicates chronic malnutrition resulting from prolonged inadequate dietary intake. Wasting results from acute significant food shortage and/or disease. Underweight is a result of both acute and chronic malnutrition (de Onis & Branca, 2016). In Nigeria, 37% of children under five are stunted, 21% underweight and 7% wasted (NPC, 2019). This depicts a high magnitude of malnutrition. Ayogu, IAfiaenyi, Madukwe, and Udenta (2018) in their study found out that underweight was found among 18.2% of the school children; 20.0% of them were thin and 41.6% were stunted. Only 9.3% were overweight and no (0%) child was obese. Observation has shown that poor feeding practices are common in many Nigerian communities, and this increases the risk of malnutrition.

Feeding practices have been identified as an important proximal determinant of children's nutritional status (Maitra, 2018).Feeding practices are an important determinant of children's nutritional status, which is directly related to the risk of becoming sick and dying (Ganga, 2020). In the context of this study, feeding practices are food prepared by caregivers that supply nutrient to school children. Feeding practices refer to the behaviors and strategies used by caregivers to provide nutrition to infants and young children. These practices are influenced by various factors and can have significant impacts on child health and development (Specht et al., 2020).

Key factors associated with feeding practices are Socioeconomic status: Family income and education levels can affect food choices and feeding styles (Vázquez-Vázquez et al., 2023); Cultural background: Cultural beliefs and traditions play a role in shaping feeding practices across different communities (Westerberg et al., 2021).; Parental knowledge and attitudes: Caregivers' understanding of nutrition and child development influences their feeding decisions (Pérez-Escamilla et al., 2021), Child characteristics: Factors such as temperament, appetite, and food preferences can impact feeding interactions (Bergmeier et al., 2020) and Environmental factors: Food availability, marketing, and social norms contribute to feeding practices (Ventura & Worobey, 2023). .Appropriate feeding practices such as exclusive

breastfeeding, timing of complementary feeding, meal frequency and dietary diversity are essential to ensure adequate intake of macro and micronutrients needed for growth and development (Aguayo & Paintal, 2017). Poor feeding practices are common in many Nigerian communities, and this increases the risk of malnutrition of primary school age children.

School-age is a period of slow growth compared to early childhood and adolescence. However, proper nutrition is still crucial at this age to enable children achieve their full growth potential and support their health, cognition and school performance. According to Black. et al (2013), primary school age is a critical stage of growth and development both physically and mentally for children. Studies conducted in different parts of Nigeria show that malnutrition remains a public health problem among school children (Ijarotimi & Ijadunola; Senbanjo et al., 2011; 2018; Sunday & Uchendu, 2019). However, there is limited research on the nutritional status and feeding practices of primary school children in Anambra State. Therefore this seeks to assess the nutritional status and feeding practices of primary school children in Anambra State. The finding of this study will contrite to the existing body of knowledge on childhood nutritional status in the Nigeria context and serve as a basis for designing an effective strategies for improving the nutritional status and feeding practices of primary school children in Anambra State.

Purpose of the Study

The purpose of the study is to assess the nutritional status and feeding practices of primary school children in Anambra State. Specifically the study sought to:

1. determine the prevalence of malnutrition (stunting, underweight, wasting and overweight) among primary school children in Anambra State; and
2. determine the feeding practices (meal frequency, dietary diversity) among primary school children in Anambra State.

Research Questions

The following research questions guided this study

1. What are the prevalence of malnutrition (stunting, underweight, wasting and overweight) among primary school children in Anambra State?
2. What are the feeding practices (meal frequency, dietary diversity) among primary school children in Anambra State?

Methods

This aim of this study is to assess the nutritional status and feeding practices of primary school children in Anambra State, Nigeria. Two research questions guided the study. A descriptive survey design was used for the study .The population of the study comprised all primary school pupils aged 6-12 years in public primary schools in Anambra State. A multistage sampling procedure was used to select 480 participants. In stage one, 12 out of 74 Public primary schools were randomly selected by balloting. In stage two, two upper classes (Primary 5 and 6) were purposively selected from each school. Then in stage three, 20 pupils were randomly selected by balloting from a sampling frame of each class to get a total of 40 pupils per school making it 480 pupils All children aged 6-12 years who provided verbal assent and whose parents gave written consent were included in the study. Children with physical deformities and known chronic diseases were excluded. Data was collected using a

self-structured questionnaire constructed by the researcher title Nutritional Status and Feeding Practices among Primary School Children (NSFPSC).and anthropometric measurements.

The instrument was validated by three experts, one expert from Department of Health Promotion and Public Health Promotion, one from the Department of Early Childhood and Primary Education and another expert from Department of Educational Foundations (Measurement and Evaluation), all from Faculty of Education Nnamdi Azikiwe University, Awka. The questionnaire was pretested on 20 pupils from a non-participating school and necessary adjustments made to ensure understandability, clarity and logical flow of questions. Cronbach Alpha was used to test the reliability of the instruments, which yielded a reliability coefficient of 0.80. Five trained research assistants administered the questionnaires to obtain information from the pupils. Anthropometric measurements were taken using standardized techniques (WHO, 2021). Height was measured with a portable stadiometer to the nearest 0.1cm with children standing upright without shoes. Weight was taken using a digital weighing scale to the nearest 0.1kg with children wearing light clothing. All measurements were taken in duplicates and averages recorded to improve accuracy. Data was analyzed using SPSS version 20.0. Nutritional status was assessed by converting height and weight measurements into Z scores using the WHO AnthroPlus software (WHO, 2021). The Z score cut off used to classify nutritional status was stunting: height-for-age Z score (HAZ) < -2 Standard Deviations (SD), underweight: Weight-for-Age Z score (WAZ) < -2 SD, wasting: Weight-for-Height Z score (WHZ) < -2SD while overweight was WHZ > +1SD.

Results

Table 1: Percentage Score of Respondent on the nutritional Status of Primary School Pupils in Anambra State (n= 480)

Nutritional Indices	**Frequency N-480**	**Percentage %**
Stunting		
Normal	240	**50.0**
Moderate	134	**27.9**
Severe	106	**22.7**
Total Stunted	240	32.7
Nutritional Indices	**Frequency N-480**	**Percentage %**
Underweight		
Normal	344	71.7
Moderate	48	10.0
Severe	88	18.3
Total Underweight	136	11.0
Nutritional Indices	**Frequency N-480**	**Percentage %**
Wasting		

Normal	335	68.9
Moderate	132	27.5
Severe	13	2.7
Total Wasted	145	2.7
Nutritional Indices	**Mean Z Score**	**SD**
Overweight		
HAZ	-1.12	1,16
WAZ	-0.73	1.09
WHZ	0.45	0,99
Overweight	37	7.7

Results in Table one revealed that the overall prevalence of nutritional status 44.4%. Stunting was most prevalent in 32.7% of the pupils followed by underweight (11.0%) and wasting (2.7%). Overweight prevalence was 7.7%. The mean HAZ, WAZ and WHZ scores were -1.12 ± 1.16, -0.73 ± 1.09 and 0.45 ± 0.99 respectively. Half (50.0%) of the pupils had normal HAZ scores while 47.3% and 69.8% had normal WAZ and WHZ scores respectively.

Table 2: Percentage scores of respondents on the feeding Practices among Primary School Children in Anambra State

Feeding Practices	**Frequency N- 480**	**Percentage %**
Meal Frequency Per Day		
One Meal	116	24.2
Two Meal	204	42.5
Three Meal	184	38.3
Carbohydrates (Rice, bread etc)	426	88.8
Protein	172	35.8
Fruits and Vegetables	186	38.8

Result in table two shows that irregular meals were common among the pupils. Only 38.5% had three meals per day as recommended while 61.5 % either had one or two meals per day. The most commonly consumed foods were carbohydrate-based including rice, bread, noodles, cassava products and sweetened beverages 426 (88.8%). Proteins and fruits were less frequently consumed by 172 (35.8%) and 186 (38.8%) of the respondents respectively.

Discussion of Findings

This study revealed that nutritional status remains a significant health burden among school children in Anambra State considering its high prevalence. The 32. % stunting prevalence

shows chronic malnutrition is a major public health problem based on the WHO classification (WHO, 2010). This rate falls within the range of 25 % - 35 % reported by other Nigerian studies (Bamgbade & Barner, 2022; Okafor et al., 201; Senbanjo et al., 2011). However, it is much higher than the 18%national average (NPC & ICF, 2019). The findings indicate sub-optimal nutritional intake and repeated infections have led to poor linear growth. The prevalence of underweight was 11.0 %. This shows one in ten pupils suffered from both acute and chronic malnutrition. Wasting which indicates acute malnutrition was 2.7%. This implies overweight and obesity were bigger problems among the pupils based on their 7.7 % prevalence. The rate of overweight/obesity underscores the ongoing nutrition transition in Nigeria with changes in lifestyle and dietary patterns. In Nigeria, 32% of children under 5 years are stunted, 21% underweight and 7 % wasted (UNICEF, 2019). Ayogu*, IAfiaenyi, Madukwe and Udenta (2018) in their study found out that underweight was found among 18.2 % of the school children; 20% of them were thin and 41.6 % were stunted. Only 9.3% were overweight and no (0%) child was obese. The total prevalence of underweight in this study was also much lower compared to the results obtained among school children in Markurdi Nigeria (52.7) and Uyo, (39.2) as cited by Goon, Toriola, and Shaw (2011) Findings of the study revealed that poor feeding practices were common among the pupils. Most had inadequate meal frequency contrary to recommendations of 3 daily meals for this age group (WHO, 2021). Shimaa ; Salwa , Salah Al-Deen ,& Safynaz (2018) found out that 94.2& of the sample they studied skips meals, 50.8% skip breakfast while 39.7 % skip dinner. The low dietary diversity is worrisome considering that frequent consumption of carbohydrates with minimal animal proteins, fruits and vegetables would lead to micronutrient deficiencies. The high patronage of convenient ready-to-eat snacks and sweet beverages has also been reported among school children in other urban areas (Lawal et al., 2022). Appropriate feeding practices such as exclusive breastfeeding, timing of complementary feeding, meal frequency and dietary diversity are essential to ensure adequate intake of macro and micronutrients needed for growth and development (Aguayo & Paintal, 2017). Poor feeding practices are common in many Nigerian communities, and this increases the risk of malnutrition.

Conclusion

Nutritional status remains a significant public health problem among school children in Anambra State, Nigeria. About half of the pupils had an abnormal nutritional status indicating inadequate dietary intake. Stunting was most prevalent, showing chronic malnutrition is a bigger concern compared to acute malnutrition. Feeding practices were sub-optimal with widespread meal irregularities and poor dietary diversity. Large family size, low maternal education, food insecurity and infections were significant risk factors for stunting. To address the high malnutrition prevalence, nutrition education programs should be implemented to improve feeding knowledge, attitudes and practices among mothers and pupils. Growth monitoring, micronutrient supplementation, deworming and hygiene campaigns in schools could also help improve nutritional status. Government-supported school feeding programs should be expanded to all public primary schools to increase access to nutritious meals.

Recommendations

1. Ministry of Health should introduce Nutrition education programs in all primary schools to improve knowledge of pupils' feeding best practices among parents, teachers and pupils. This can help promote dietary diversity.
2. School feeding programs with micronutrient supplementation are essential to increase meal frequency and nutrient adequacy. Collaboration between the government, local communities, and development partners can facilitate this.
3. Parents and teachers have important roles to play in guiding children's food choices and should encourage intake of diverse nutritious meals to enhance early detection and management of malnutrition.

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