

Prevalence of Stunting amongst Preschool Aged Children in Awka South LGA, Anambra State, Nigeria

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ABSTRACT

The Study was conducted in Awka-South Local Government Area of Anambra State, Nigeria to determine the current prevalence of stunting amongst preschool aged children using anthropometry. The study sample consisted of 449 children (240 boys and 209 girls) between 0 and 5 years of age. Anthropometric survey data of height were collected using standardized method. The height was measured using standiometer. Socioeconomic and health related data such as class, age, sex and clinical signs of the children were also collected. From the measurements, anthropometric indicator (height-for-age) was generated by analysis of the data using WHO Anthro Survey Analyser (Version 3.2.2). The study revealed that 0.4% of the children were stunted (suffered chronic malnutrition). Stunted children were observed among 2 years (24-35 months) and 3 years (36-47 months) with prevalence rates of 1.2% and 0.7% respectively. There was no case of stunting among preschool children below 2 years (12-23 months) and 4-5 years (48-60 months) of age. Stunting was more prevalent among girls than boys. There seemed to be decreased in the rate of stunting as age increased. This decrease may be due to the ability of children to eat well and eat enough food as age increases which is a major contributory factor to linear growth. It was concluded that the result of this study showed a great decline in the prevalence of stunting amongst preschool aged children below 5 years in Awka-South LGA, Anambra State, Nigeria which was satisfactory. The result equally justified the impacts of several nutrition and health interventions by governments, stakeholders, public and private sectors aimed at reducing childhood stunting and other forms of malnutrition.

Keywords: Stunting, malnutrition and anthropometric measurements.

INTRODUCTION

Stunting also known as chronic malnutrition is the impaired growth and development that children experience from poor nutrition, repeated infection, and inadequate psychosocial stimulation [1,2,3,4,5]. Children are defined as stunted if their height-for-age is less than minus two standard deviation below the World Health Organization (WHO) child growth standards median [6,7,8,9]. Stunted growth refers to the failure to reach one's full potential for growth. The most direct causes of stunting are inadequate nutrition (not eating enough or eating foods that lack growth-promoting nutrients) and recurrent infections or chronic or diseases which cause poor nutrient intake, absorption or

utilization and lack of care and stimulation for development [10,11,12,13]. Stunting is largely irreversible. A child cannot recover height in the same way that they can regain weight. Stunted children fall more often sick due to poor immune system, miss opportunities to learn, perform less well in school due to poor brain function and grow up to be economically disadvantaged, and more likely to suffer from chronic diseases [14,15]. Chronic malnutrition is often intergenerational: children who are stunted are also more likely as adults to have stunted children. A stunted child is also more prone to becoming overweight as an adult, posing more health risks [1,3,6]. Stunting is one

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of the forms of malnutrition, and malnutrition is a major public health problem affecting every nation. Malnutrition is all deviations from the adequate nutrition [1]. It could be defined as deficiencies or excesses in nutrient intake, imbalance of essential nutrient or impaired nutrient utilization [10]. A great proportion of deaths of young children worldwide is due to malnutrition and efforts to reduce malnutrition should be an important task. Malnutrition affected as many as 828 million people globally in 2021, 46 million people more from 2020 and 150 million more from 2019. The population of people affected was 8% of the world population in 2019, 9.3% in 2020 and a rise to 9.8% in 2021 [8]. In Nigeria, the situation is said to be alarming. UNICEF said in its 2022 report that five in 10 children under five years old suffer from effects of being malnourished. Nigeria has the second highest burden of stunted children in the world with a national prevalence rate of 32% of children under five [9] Out of the four types of malnutrition (undernutrition, overnutrition, micronutrient malnutrition and protein energy malnutrition), undernutrition is more common. Undernutrition results to low height-for-age (stunting), low weight-for-height (wasting) and low weight-for-age (underweight). However, there is need

for individuals on monthly basis to assess their nutritional status and then take adequate measures to maintain a healthy life. Community programmes should be encouraged to ensure household access to proper sanitation, availability of clean water and diversified food, poverty reduction support for families in need, education on how to feed young children and protect them from infection, and adequate accessible health services to prevent and treat infections can collectively reduce stunting in populations [12]. Previous nutritional surveys though done at state level in Anambra State, have revealed high incidences of stunting among preschool aged children. [6], observed 11.5% and 7.7% incidence of stunting respectively amongst preschool aged children in the same state by the National Centre for Health and Statistics (NCHS) criteria. [2], using the presently recommended WHO standard, observed a decline in prevalence of stunting to 1.1%. Therefore, the present study was designed to determine the current prevalence of stunting among preschool aged children 0-5 years in Awka-South LGA, Anambra State, Nigeria using [11] standard and Z-score. This work is important for evaluation of performance of impacts of set nutritional intervention of goals.

METHODS AND MATERIALS

Study Design

The study was a descriptive cross sectional study, involving preschool aged children (0-5 years) in public primary

schools in Awka-South LGA, Anambra State, Nigeria.

Study Area

The study area is Awka South Local Government Area (LGA) of Anambra State, Nigeria which counts as one of the 21 existing LGAs of the State. Awka South is located at latitude's 6°20'N and 6°33'N and longitude 7°00'E and 7°15'E and is situated in the South-East geopolitical zone of Nigeria. Awka South LGA is made up of nine towns, namely, Amawbia,

Awka, Ezinato, Isiagu, Mbaukwu, Nibo, Nise, Okpuno and Umuawulu. Awka South LGA has a population of 189,654 (one hundred and eighty-nine thousand, six hundred and fifty four) according to the 2006 national population census figures. There are 45 registered public primary schools in Awka South LGA, Anambra State.

Selection of Samples

The study population included preschool aged children 0-5 years in Awka South LGA. Data collection was carried out at the primary school level. 15 primary

schools were randomly selected out of 45 primary schools with at least one primary school per a town in nine towns that make up Awka South LGA. 30 preschool

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children were selected from each of the 15 randomly selected primary schools in Awka South LGA. The total number of samples was 450 children. Preschool children 0 to 5 years old and free from skeletal deformities, medical disorder

such as kidney diseases, diabetes mellitus, asthma were considered for this study. Children above 5 years old and those whose age could not be ascertained were excluded from this study.

Data Collection

A structured questionnaire was designed which includes socioeconomic and health related questions (such as class, age, sex,

occupation of parents and clinical signs) and anthropometric measurements of height and age.

Anthropometric Measurements

Anthropometric measurements of height were undertaken for all selected preschool children. Their heights were measured with standiometer placed on a flat surface. The children were asked to stand straight and look straight in a horizontal plane with feet together,

without shoes. The top of the standiometer (movable head piece) was lowered to the top of the head. Their heights were recorded to the nearest 0.5cm. Two measurements were taken and the average value was obtained.

Statistical Analysis

Anthropometric indices and cut-offs based on WHO (2006) normalized reference tables of Height-for-age and mean Z-scores were used to determine the prevalence of stunting. WHO Anthro

Survey Analyser (Version 3.2.2) was used for data analysis. Mean Z-scores and standard deviations of the parameter were used to summarize the data for each age group.

RESULTS

Table 1: Prevalence of low height-for-age (stunting) between both sexes within the age groups in a sample of 449 preschool aged children from Awka-South LGA.

Age Groups (Months)	Sex	Number	% Z<-2 SD	% Z<-3 SD	Mean Z-score	SD
0-5	Boys	0	-	-	-	-
	Girls	0	-	-	-	-
	Combined	0	-	-	-	-
6-11	Boys	0	-	-	-	-
	Girls	0	-	-	-	-
	Combined	0	-	-	-	-
12-23	Boys	32	0	0	2.57	1.61
	Girls	31	0	0	2.61	1.78
	Combined	63	0	0	2.59	1.68
24-35	Boys	44	0	0	1.33	1.53
	Girls	39	2.6	0	1.17	1.50
	Combined	83	1.2	0	1.25	1.51
36-47	Boys	78	1.3	0	1.35	1.44
	Girls	63	0	0	1.53	1.49
	Combined	141	0.7	0	1.43	1.46
48-60	Boys	86	0	0	1.33	1.36
	Girls	76	0	0	1.27	1.17
	Combined	162	0	0	1.30	1.27
0-60 (Total)	Boys	240	0.4	0	1.50	1.50
	Girls	209	0.5	0	1.52	1.49
	Combined	449	0.4	0	1.51	1.50

From the above result (table 1), No case of stunting was noticed among under 2 years old and 4 to 5 years old children.

Stunting was observed within age groups 2 years and 3 years old. Total prevalence rate of stunting in the entire population

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was 0.4%. Stunting seemed to be higher amongst girls (0.5%) than boys (0.4%) in

the age groups studied.

Table 2: Prevalence of low height-for-age (stunting) amongst 240 preschool male children 0-5 years from Awka-South LGA.

Age Groups (Months)	Number	% Z<-3 SD	% Z<-2 SD	Mean Z-score	SD
(0-5)	0	-	-	-	-
(6-11)	0	-	-	-	-
(12-23)	32	0	0	2.57	1.61
(24-35)	44	0	0	1.33	1.53
(36-47)	78	0	1.3	1.35	1.44
(48-60)	86	0	0	1.33	1.36
Total (0-60)	240	0	0.4	1.5	1.5

In table 2, only one age group (36-47 months) i.e. 3 years and less than 4 years old 78 male preschool children were

stunted (1.3%): The total prevalence of stunting for the male population was 0.4%.

Table 3: Prevalence of low height-for-age (stunting) amongst 209 preschool female children 0-5 years from Awka-South LGA.

Age Groups (Months)	Number	% Z<-3 SD	% Z<-2 SD	Mean Z-score	SD
(0-5)	0	-	-	-	-
(6-11)	0	-	-	-	-
(12-23)	31	0	0	2.61	1.78
(24-35)	39	0	2.6	1.17	1.5
(36-47)	63	0	0	1.53	1.49
(48-60)	76	0	0	1.27	1.17
Total (0-60)	209	0	0.5	1.52	1.49

From the result in table 3, No case of stunting was observed amongst female preschool children less than 2 years and

between 3 to 5 years old. Only 39 female children 2 years old (24-35 months were stunted).

Table 4: Comparison of prevalence of low height for-age (stunting) between preschool aged children (0-5 years) in Urban and Rural communities in Awka-South LGA.

Cluster	Number	% Z<-3 SD	% Z<-2 SD	Mean Z-score	SD
Urban	239	0	0	1.59	1.52
Rural	209	0	1	1.42	1.47
Total	448	0	0.4	1.51	1.5

The result in table 4, indicated zero prevalence of stunting amongst preschool aged children 0-5 years in urban communities of Awka-South LGA compared to preschool children in rural communities which had prevalence of 1% stunted children.

Figure 1 depicts the comparison of the prevalence of low height-for-age (stunting) between preschool aged children (0-5 years) in Urban and Rural communities in Awka-South LGA.

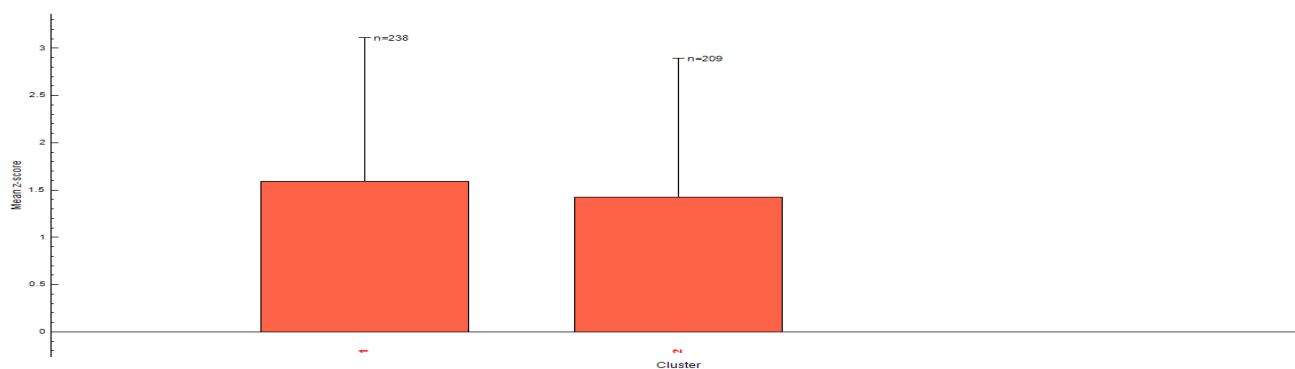


Figure 1: A graph of mean Z-score (HAZ) for preschool aged children (0-5 years) in Urban and Rural areas of Awka-South LGA.

The mean Z-score (HAZ) values in table 4 and figure 1 have 1.59 for urban areas and 1.42 for rural areas with total mean z-score as 1.51. The value for the rural is

lower than that of the total cluster which indicated that stunting was more prevalent in the rural areas of Awka-South LGA than in the urban areas.

DISCUSSION

In this work, a total of 0.4% out of the 449 preschool aged children 0-5 years included in the study were found to be stunted. There was no case of stunting among preschool children below 2 years (12-23 months) and 4-5 years (48-60 months) in Awka-South LGA, Anambra State. Stunted children were observed among 2 years (24-35 months) and 3 years (36-47 months) with prevalence rates of stunting (chronic malnutrition) of 1.2% and 0.7% respectively. For chronic malnutrition to affect children 2 years old means that it started in the womb due to poor economic situation which affected their mothers. Poor maternal health, lack of antenatal care facilities, insufficient feeding and care, insufficient infrastructure and healthcare facilities are among major risk factors for direct cause of childhood stunting [7]. From the result in table 1, there seemed to be decreased in the rate of stunting as age increased. This decrease may be due to the ability of children to eat well and enough as age increases which is a major contributory factor to linear growth. Poor economic status has a more destructive effects on

linear growth than on body weight [3]. Table 4 and figure 1, compares the prevalence of stunting across clusters (urban and rural areas) with mean z-scores of 1.59 for urban and 1.42 for rural areas of Awka-South LGA. The implication of this is that stunting was more prevalent in the rural areas than in the urban areas because rural areas had lower mean Z-score value and even lower than the total mean z-score. Poor sanitation and lack of good health services may be responsible for the more prevalence of stunting in the rural areas of Awka-South LGA, Anambra State. However, the result of this study (0.4%) showed a great reduction in prevalence of stunting when compared with the results of previous studies [5,8,11]. Victor *et al.*, (2008) observed that Anambra State in South Eastern Nigeria had the lowest rate of stunting (11.5%) amongst 36 states of the country. [6] observed a 7.7% rate while [1] recorded a prevalence of 6.9% by the same National Centre for Health Statistics (NCHS) criteria. [2] observed a stunting prevalence of 1.1% by [11] standard.

CONCLUSION

The results of this study showed a great decline in the prevalence of stunting amongst preschool aged children below 5 years in Awka South Local Government Area, Anambra State, Nigeria which was satisfactory. This result has equal justified the impacts of several nutrition

and health interventions by governments, stakeholders, public and private sectors aimed at reducing childhood stunting and other forms of malnutrition. More efforts should be directed towards eradicating malnutrition in the state and country at large.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interests. All

authors read and approved the manuscript.

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