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EFFECT OF UNICEF-NUTRITION AND HEALTH PROGRAMME ON RURAL UNDER-5 CHILDREN'S NUTRITIONAL STATUS IN SOUTH-EAST NIGERIA

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ABSTRACT

The study determined the effect of the UNICEF Nutrition and Health Programme on the nutritional status of under-5 children in South-East Nigeria. A multi-stage random sampling was used to source for the 288 women and children. The data collected through questionnaire and scheduled interview sessions were analyzed using descriptive statistics such as mean scores, Mid Upper Arm Circumference (MUAC), and Ordinary Least squares (OLS) regression. Results showed that the mothers of under-5 children presented them actively in the programme activities ($\bar{x}$=2.92). The under-5 children were regularly immunized against killer diseases ($\bar{x}$=3.32), they were sleeping under insecticide-treated bed nets ($\bar{x}$ = 2.75). The under-5 children in the South-East are well nourished (MUAC=15.34cm). The OLS regression results show that participation of the Under-5 children in the programme activities has significant effect on their nutritional status with the F-ratio of 26.74 being statistically significant at a 1% alpha level. The study recommended the inclusion of more women and their Under-5 children in the programme while also advocating for the use of the women participants as sensitizers to get other rural women aware and interested in the programme for the betterment of their under-5 children.

Keywords: *Effect, Nutrition, Health, Programme, MUAC, Under-5 children*

INTRODUCTION

Nutrition is the process of getting food into the body and using it as raw materials for growth, fuel for energy, and (vitamins and minerals) that keep the body healthy and functioning properly (Gropper *et al.,* 2005). Adequate nutrition is essential for the healthy development of children (Better Care Network, 2024). The first 1000 days of a child's life offer a unique window of opportunity for preventing undernutrition and its consequences (UNICEF, 2015). Breastfeeding is an important aspect of nutrition (UNICEF, 2008). Early initiation of breastfeeding is important for both the mother and the child. Early sucking stimulates the release of prolactin which helps in the production of milk, and oxytocin which is responsible for the ejection of milk. It also stimulates contraction of the uterus after childbirth and reduces postpartum blood loss (FMOH, 2008). The first liquid to come from the breast, known as colostrum, is highly nutritious and contains antibodies that provide natural immunity to infants. It is recommended that babies be fed colostrum immediately after birth - within one hour (WHO, 2014). WHO also maintained that babies be exclusively breastfed during the first six months of life, after which breastfeeding should continue with complementary feeding. Exclusive breastfeeding is recommended because breast milk is uncontaminated and contains all the nutrients necessary for children in the first few months of life. Breastfeeding protects babies from common infectious diseases and boosts children's immune systems, providing the key nutrients children need to grow and develop to their full potential UNICEF & WHO (2023). They equally maintain that babies who are not breastfed are 14 times more likely to die before they reach their first birthday than babies who are exclusively breastfed. The mother's antibodies in breast milk provide immunity to diseases. UNICEF and WHO maintained their recommendation of the introduction of solid food to infants around the age of six months because, at that age, breast milk alone is no longer sufficient to maintain a child's optimal growth. They submitted that at this transition to eating a family diet, small quantities of solid and semi-solid foods should be fed to them throughout the day at least four times. During this period (ages 6–23 months), the prevalence of malnutrition increases substantially in many rural areas, communities, and countries because of increased infections and poor feeding practices (WHO, UNICEF, UNFPA, World Bank and UNPD, 2015). What constitutes a high-quality diet is what makes it matter to the wellbeing and health of the consumers. According to Global Panel (2017), WHO's range of criteria can be used to characterize high quality diets, which should; start early in life; notably with breastfeeding. Balance intake and expenditure of energy (calories), include fruits, vegetables, legumes, nuts, and wholegrain. Adding at least 400g of fruit or vegetables per day (excluding starchy roots such as cassava and potatoes) and limiting fat to not more than 30% of total energy intake will bring balance (Global Panel, 2017). Poor diets and malnutrition fundamentally affect health and well-being throughout the life course. Six of the top nine risk factors driving the global burden of disease are now related to diet (Global Burden of Diseases Risk Factor Collaborators, 2017).

Malnutrition is a direct or underlying cause of 45 percent of all deaths of under-5 children. Nigeria has the highest burden of stunted children in the world, with a national prevalence rate of 32 percent of children under 5 (UNICEF, 2015). According to UNICEF, an estimated 2 million children in Nigeria suffer from severe acute malnutrition (SAM). They maintained that exclusive breastfeeding rates have not improved significantly over the past decade, with only 17 percent of babies being exclusively breastfed during their first six months of life. This is just as 18 percent of children aged 6-23 months are fed the minimum acceptable diet (UNICEF, 2015). The poor are particularly at high risk of malnutrition, and also malnutrition fuels greater poverty. According to the 2017 Global Hunger Index (GHI), it is those with the least social, economic, or political power- those who are disadvantaged or discriminated against, including children, women, ethnic minorities, indigenous people, rural dwellers, and the poor- who suffer from hunger and malnutrition (IFPRI, 2017). According to UNICEF, 2022, the impact of

discrimination on children shows the extent to which their fundamental rights are denied them and impacts their education, health, access to a registered birth, and a fair and equal justice system. Catherine (2022) maintained that systemic discrimination puts children at risk of deprivation and exclusion that can last for a lifetime. Nigeria has 18.3 million children who are not in school, however, a high number of children are attending schools but not getting a solid education that can translate into good prospects for their future. While this crisis affects children across the country, girls, children with disabilities, children from the poorest households, street children, and those children affected by displacements or emergencies are affected the more (UNICEF, 2022). The outcome of discrimination and exclusion deepens intergenerational deprivation and poverty and results in poorer health, nutrition, and learning outcomes for children, a higher likelihood of incarceration, higher rates of pregnancy among adolescent girls, and lower employment rates and earnings in adulthood (UNICEF, 2022). Nigeria is among the ten countries in the world with the largest number of underweight children, with an estimated six (6) million children under 5 underweight. They maintained that undernourished children have lower resistance to infection and are more likely to die from common childhood ailments such as malaria, diarrhoeal diseases, or respiratory infections. About 55% of the nearly 12 million deaths each year of adults and children aged below five years are attributable to malnutrition in developing countries (UNICEF, 2008).

According to the National Bureau of Statistics and UNICEF (2022), the Multiple Indicator Cluster Survey (MICS) results revealed that Nigeria has made progress in some sectors. Child mortality has decreased a bit from 1 in 8 children dying before their fifth birthday to 1 in 10 children. The report also recorded significant progress made in exclusive breastfeeding (from 24 % to 34 %) and birth registration rates with nearly 60 % of the Nigeria children now registered at birth with the civil authorities when compared with what it used to be before. UNICEF has been supportive of the Government in implementing a National plan on food and nutrition by strengthening health and community systems thereby integrating nutrition fully into all aspects of the primary health care (PHC) system, having a particular focus on community management of acute malnutrition and micronutrient supplementation, antenatal care, the prevention and control of pneumonia and diarrhea, immunization, de-worming, distribution of insecticide-treated mosquito nets and adolescent girls' and maternal nutrition. They also support the education and counseling of mothers and caregivers on how to adequately feed their children, and by providing free micronutrient supplements to children and pregnant women (UNICEF, 2015). This study was therefore conducted to determine the effectiveness of UNICEF nutrition and health programme on Under-5 children in the south-east region of Nigeria. The specific objectives of the study are to: -describe the participation level of the Under-5 children in the programme activities. ascertain the effect of Under-5 children's participation in the programme on their nutritional status.

METHODOLOGY

The study was conducted in South-East geo-political zone of Nigeria. The zone has five states namely, Abia, Anambra, Ebonyi, Enugu, and Imo states. The zone occupies a land mass area of about 109.524 square kilometers (km^2) representing 11.86% of the total land mass of Nigeria (Ekong, 2010). The south-east states are situated in the rainforest region of Nigeria.

The population of the study comprised all the women residing in rural communities in South–East geo-political zone of Nigeria, who participated in the programme activities in 2020. The programme activities of UNICEF Nutrition and Health are spread in the region.

A multi-stage random sampling was used for the study. In the first stage, 3 states (Abia, Ebonyi and Enugu), out of the 5 states were purposively selected based on the fact that they all had the programme activities carried out in them. In the second stage of selection, two senatorial zones each were randomly selected, from Abia (Abia Central and Abia North), Ebonyi (Ebonyi South

and Ebonyi Central), and Enugu (Enugu East and Enugu West). In the third stage, two Local Government Areas were purposively selected from each senatorial zone of Abia Central (Umuahia North and Ikwuano), Abia North (Bende and Isiukwuato), while in Ebonyi South (Afikpo North and Afikpo South) were selected, in Ebonyi Central (Ezza North and Ezza South) were selected. Enugu East (Nkanu East and Nkanu West) was selected while Enugu West (Awgu and Ani-nri) was selected. In the fourth stage, two communities each were randomly selected and from each Local Government Area, and this gives twenty-four communities. In the fifth stage, village each was randomly selected from the twenty-four communities. In each village, 6 women and 6 Under-5 children's participants were randomly selected bringing the total sample size to 288. Interviews and well-structured questionnaire were used to generate data in the study area. Data collected were analyzed using descriptive and inferential statistics. The level of participation of the Under-5 children participants was ascertained with a 4-point Likert type rating scale of Always (A) =4, Often (O) =3, Seldom (S) =2, and Never (N) =1. Thus, any mean score greater than or equal to the upper limit of 2.55 (2.5 + 0.05) benchmark implies active participation, and below 2.55, was regarded as poor participation.

Objective 2 was realized using Mid Upper Arm Circumference (MUAC). The Mid Upper Arm Circumference (MUAC) for nourished children was ascertained. The MUAC classification thus entails that any child whose measurement falls within the red column (6cm-11.4cm) was stunted/malnourished, while within yellow (11.5cm-12.4cm) indicates a moderate to mild state of malnutrition but anyone on green (12.5cm-20.9cm) was well- nourished. However, any child above 26cm was regarded as obese (WHO & UNICEF, 2009).

It was hypothesized that the Participation of Under-5 children in UNICEF nutrition and health programme activities had no significant effect on their nutritional status. This was tested using the Ordinary Least Squares multiple regression model.

RESULTS AND DISCUSSION

Level of participation of the U5 children in the UNICEF nutrition and health programme activities

Result in Table 1 showed the different UNICEF nutrition and health programme activities that the women took their Under-5 children to participate in. The result showed that the Under-5 children actively participated in the programme activities ($\bar{x}$=2.92). The programme activities the Under-5 children actively participated in were Vitamin A supplementation ($\bar{x}$= 3.21), Exclusive breastfeeding (0-6 months babies) ($\bar{x}$=3.13), Complementary feeding (after 6 months of exclusive breastfeeding along with breastfeeding) ($\bar{x}$=3.02), regular immunization against killer diseases ($\bar{x}$=3.32), sleeping under insecticide-treated bed nets ($\bar{x}$= 2.75), and HIV testing of mother to child ($\bar{x}$=2.67). However, the Under-5 children poorly participated in Screening for malnutrition ($\bar{x}$=2.29). This could be attributed to the fact that the children were not manifesting symptoms of sicknesses often to prompt such. The Under-5 children were active in their level of participation in the UNICEF nutrition and health programme. The level of participation of the children Under-5 being active entails a high level of participation in the programme activities.

Table1: Level of participation of the U5 children in the UNICEF nutrition and health programme activities

Level of participation of the Under-5 children in UNICEF-Nutrition and Health programme activities	Abia (n =96)		Ebonyi (n =96)		Enugu (n =96)		S/E
	$\sum f(x)$	$\bar{x}$	$\sum f(x)$	$\bar{x}$	$\sum f(x)$	$\bar{x}$	Pooled $\bar{x}$
NUTRITION ACTIVITIES							
Vitamin A supplementation (6-24 months)	274	2.85	323	3.36	329	3.43	**3.21**
Exclusive breastfeeding (0-6 months)	326	3.41	275	2.86	299	3.11	**3.13**
Complementary feeding appropriately (after 6 months of exclusive breastfeeding) along with breastfeeding	252	2.63	263	2.74	355	3.70	**3.02**
HEALTH ACTIVITIES							
Immunization against killer diseases (0-59 months)	325	3.39	306	3.19	324	3.38	**3.32**
Sleeping under insecticide-treated bed nets	221	2.30	260	2.71	310	3.23	**2.75**
Screening for malnutrition	213	2.22	214	2.23	231	2.41	**2.29**
HIV testing for mother-to-child transfer	215	2.24	277	2.89	289	3.01	**2.67**
Grand mean		**2.72**		**2.85**		**3.18**	**2.92**

Source: Field Survey. (Benchmark=2.55)

Nutritional Status of the Under-5 Children Participants

Table 2 presents the result of the nutritional status of the Under-5 children participants of UNICEF nutrition and health programme activities in the study area. The result shows that the Under-5 children in South-East Nigeria are well nourished (MUAC=15.34cm). The result also shows that the individual states of Abia (MUAC= 15.32cm), Ebonyi (MUAC= 16.31cm), and Enugu (MUAC= 14.39cm) have their children well-nourished. This implies that the participation of Under-5 children in the programme has influenced their well-being. This agrees with the submission of Barroso, *et al.* (2012) that mothers' nutritional status has also been associated with that of their children.

Table 2 Nutritional Status of the Under-5 Children Participants in the study area

Nutritional status	Abia	Ebonyi	Enugu	S/E	Decision
Mid Upper Arm Circumference (MUAC).	15.32	16.31	14.39	15.34	**Well-nourished**

Source: Field Survey.

Effect of participation of Under-5 children in UNICEF nutrition and health programme on their nutritional status

Table 3 shows the Ordinary Least Squares Regression estimates of the relationship between the participation of Under-5 children in the UNICEF nutrition and health programme and their

nutritional status in the study area. Four functional forms of multiple regression were tried, and the double log functional form was selected based on the magnitude of the R^2value, number of significant variables, and F-ratio. The R^2 (coefficient of multiple determination) value was 0.809, which implies that 80.9% of the total variation in the dependent variables (Y) was accounted for, while 19.1% of the variations were due to error. F statistic was significant at 1% indicating the fitness of the model for the analysis.

The coefficient of Vitamin A supplementation was statistically significant at 10% alpha level and positively related. This implies that any increase in participation of Under-5 children in vitamin A supplementation will lead to a corresponding increase in their nutritional status. This relationship implies that as the Under-5 children participate in vitamin A supplementation their nutritional status increases.

The coefficient of Breastfeeding was statistically significant at 1% alpha level and positively related. This implies that any increase in the participation of Under-5 children in breastfeeding will lead to a corresponding increase in their nutritional status.

The coefficient of Breastfeeding in children more than 6 months was statistically significant at 5% alpha level and positively related. This implies that any increase in participation of Under-5 children in breastfeeding in children more than 6 months will lead to a corresponding increase in their nutritional status.

Table 3: Effect of Participation of Under-5 children in UNICEF Nutrition and health programme on their nutritional status

Parameters	Linear	Exponential	Semi-log	Double log +
NUTRITION ACTIVITIES				
Constant	-2338.142	8.980	103.027	11.173
	(-0.032)	(9.566)***	(4.714)***	(4.507)***
Vitamin A supplementation (6-24 months)	2945.011	.023	38490.305	.298
	(1.841)*	(1.714)*	(2.284)**	(1.876)*
Breastfeeding	.133	.130	.091	.004
	(2.844)***	(1.904)	(.956)	(3.026)***
Exclusive breastfeeding	.012	.020	.021	.010
	(0.560)	(2.778)**	(2.691)**	(0.512)
Breastfeeding in children more than 6 months	.098	.039	.103	.095
	(1.274)	(.919)	(0.227)	(2.348)**
HEALTH ACTIVITIES				
HIV testing for mother-to-child transfer	0.017	2.345	1.4938	0.028
	(0.487)	(0.775)	(0.005)	(0.232)
Routine immunization against killer diseases	246.548	0.011	1613.220	0.188
	(10.152)***	(5.537)***	(7.055)***	(6.611)***
Sleeping under long-lasting Insecticide-treated bed nets	11.125	5.368E-5	164878.706	.844
	(0.307)	(0.044)	(0.803)	(0.788)
Screening for malnutrition and treatment	18136.906	.037	31148.830	.150
	(0.768)	(0.121)	(1.098)	(0.198)
R^2	0.680	0.665	0.750	0.809
R Adjusted	0.652	0.641	0.726	0.788
F – Ratio	34.833***	27.157***	18.906***	26.738***

Field Survey data

Key: * Significant at 10%, ** Significant at 5%, * Significant at 1% ***, + = Lead Equation and the values in parenthesis are the t-value; H_o was rejected at 5% alpha level.**

The coefficient of routine immunization against killer diseases was statistically significant at 1% alpha level and positively related. This implies that any increase in the participation of

Under-5 children in routine immunization against killer diseases will lead to a corresponding increase in their nutritional status.
The F-ratio of 26.74 shows that the result was statistically significant at 1% alpha level and positively related. The null hypothesis which stated that participation of Under-5 children in the UNICEF-Nutrition and Health programme has no significant effect on their nutritional status was therefore rejected and it was concluded that participation of the under-5 children in the programme has significant effect on their nutritional status in the south-east, Nigeria.

CONCLUSION AND RECOMMENDATIONS

The study has revealed that the under-5 children's participants of the UNICEF nutrition and Health programme in the South-east region of the country were well nourished. Moreover, the under-5 children's participation in the programme activities has significant effect on their nutritional and health status.

Taking cognizance of the well-nourished state of the under-5 children's participants of the programme activities in the South-east region of Nigeria, the inclusion of more Under-5 children was recommended, especially those from the poorest households, those discriminated against, those with disabilities, and those affected by displacements or emergencies. In addition, more women should be made aware, sensitized and encouraged to participate in this programme, as to harness the attendant benefits for their children.

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