AFRICAN MULTIDISCIPLINARY JOURNAL OF DEVELOPMENT

NUTRITIONAL ASSESSMENT OF ORPHANS RESIDENT IN ORPHANAGE HOMES IN NIGERIA

[1]Akano R.A., [2]Odusina, O.A., [3]Wahab N.O

[1,3]Home Economics Department, College of Vocational and Technology Education Tai Solarin University of Education, Ijagun, Ogun State, Nigeria.

bisolasobo@yahoo.com

[2] Department of Agricultural Science. College of Vocational and Technology Education, Tai Solarin University of Education, Ijagun, Ijebu-ode. Nigeria.

Corresponding author: bisolasobo@yahoo.com

ABSTRACT

The ever-increasing number of orphans as vulnerable children is of a great concern to nutritionists and health personnel, although, in Nigeria, few studies have been able to describe their nutritional status. This study was aimed at assessing nutritional status of orphaned school-age children resident in orphanage homes in Nigeria. A cross sectional descriptive survey was conducted among 6-10 year-old orphaned school-age children resident in orphanage homes in Lagos and Ogun State. Purposive and simple random sampling techniques were adopted to select one hundred (100) orphans from orphanage homes within the study area. Validated semi-structured questionnaire was used to obtain information on demographics characteristics, measurement of their weight and height were taken to arrive at their Body Mass Index (BMI) and 24-hour dietary recall questionnaire was administered. Nutritional status was determined using WHO-Anthro plus, food intake data was analyzed using Total Dietary Assessment software and further analyzed using descriptive statistics, Chi square test and ANOVA at p=0.05. Average age of the respondents was 8±2.5years, average height 135.5±14.1cm and average weight, 28.9±5.kg. The prevalence of obesity as measured by BMI for boys showed that none was overweight, 34% were mildly/moderately wasted and none was severely wasted, while for the girls, 2% were overweight, 40% normal, 58% were mildly/moderately wasted while none was severely wasted. The nutrient intakes of the respondents were lower than WHO recommendation and there was no difference in the nutrient intake of boys and girls (p<0.05%). Children in the orphanage homes in Nigeria are under-nourished. Findings suggest interventions aimed at decreasing malnutrition among them.

Keywords*: Nutritional Status, Orphans, Body Mass Index, ANOVA*

1.0 INTRODUCTION

An orphanage is an institution dedicated to the care and upbringing of children who have lost their parents. Historically in the past, such institutions were quite prevalent in Western societies. More than 50 years of research provide convincing evidence that the type of institutional care provided in western countries has a detrimental effect on cognition, behavioral, emotional and social development of young children. But in some poverty stricken countries it has been observed that the children in orphanages have better chances of cognitive development, when the children were encouraged to participate along with the staff in the decisions that influenced them in the institutions. Currently there are over 1.8 million orphans and vulnerable children in Nigeria, 47% of these as a result of HIV/AIDS (UNAIDS/WHO, 2009). The number of orphans and vulnerable children in Nigeria has been increasing steadily over the years (Rau, 2005). Children in orphanages may have suffered the loss of their families, depression, increased malnutrition, lack of vaccination or health care, increased demand for labor, lack of schooling, loss of inheritance, forced migration, homelessness, vagrancy, starvation, crime and exposure to HIV infection (Johnstone, Ferguson and Akoth, 2000). This outgrowth of the orphans and vulnerable children may create a lost generation, a large cohort of disadvantaged, under - educated and less healthy youths and the extended family struggling to take care of these orphans and vulnerable children (Irungu and Karis, 2006). Many orphans and vulnerable children lack basic needs and necessities for survival namely food, shelter, clothing, medical services and school fees among other needs. Most children in orphanages do not therefore have access to basic health services, and many of them are not likely to complete their primary education.

UNICEF ESTIMATES OF ORPHAN CHILDREN

UNICEF estimates that as of 2010 there were 153 million orphaned children and adolescents living in the world (UNICEF, 2012). Communities and families in sub-Saharan Africa have been faced with a growing challenge of providing care to these vulnerable children. Over 90% of all orphans not living with a surviving parent are cared for by extended families (UNICEF (2006). As of 2004, 17% of households with children in sub-Saharan Africa were taking care of an average of 1.8 orphans (Monasch and, Boerma, 2004). Several studies have found that orphaned children lived disproportionately in the poorest households, and are more likely to be underweight compared to

their non-orphaned counterparts (Lindblade, et al, 2003, Sarker et al,2005, Watts, et al, 2007, . Miller et al, 2007). While the extended family is considered the ideal environment for taking care of orphaned children, a child's relatives may be unwilling or unable to adequately support them, either because of cultural issues (Nyambedha, et al, 2003) or competing financial obligations (for example with one's own biological children). What is not clear is whether orphaned children living in other types of environments fare better. Institutions have traditionally been seen as places of last resort, with organizations such as UNICEF and others taking a clear position about the role of institutional environments in caring for orphaned children: ''This strategy is not a viable solution.'' (UNICEF, 2004). Children in orphanages may have suffered the loss of their families, depression, increased malnutrition, lack of vaccination or health care, increased demand for labor, lack of schooling, loss of inheritance, forced migration, homelessness, vagrancy, starvation, crime and exposure to HIV infection (Johnstone *et al*., 1999). This outgrowth of the orphans and vulnerable children may create a lost generation, a large cohort of disadvantaged, under - educated and less healthy children. Bicego, Rutstein and Johnson, (2003) in their study noted that double orphans were particularly disadvantaged and loss of a mother was more detrimental for schooling than loss of a father. The disadvantage was more pronounced for primary education than secondary education. Lindblade et al. (2003) found that fostered children are more likely to be stunted, underweight, and wasted, but the effects are not statistically significant for stunting and wasting. Findings by Sadik (2010) indicate low intake of both micro and micronutrients except protein by orphanage children in Ghana.

CHILDREN'S VULNERABILITY AND ORPHAN-HOOD IN AFRICA

In Sub- Saharan Africa the number of orphans and vulnerable children is predicted to comprise up to 8.9% of the global orphan children under the age of 15 years. It is estimated that by 2015 the number of orphans and vulnerable children will still be overwhelmingly high in Sub Saharan Africa. The size of the population at risk of the HIV/AIDS and the increasing spread of the pandemic in Africa means that the problem will continue to worsen. Currently Kenya has an estimated burden of 2.4 million orphaned and vulnerable children (13% of all children under 18 years of age), Rwanda has 850,000 orphaned children (19% of all children), South Africa has 2.5 million orphaned children (14 % of all children), Sudan has 1.3 million orphaned children (8% of

all children), Uganda has 2.1 million orphaned children (13% of all children), Zambia has 1.1 million orphaned children (19% of all children) (UNAIDS, 2008).

MALNUTRITION AMONG CHILDREN IN ORPHANAGES.

One of the consequences of malnutrition epidemic in Sub-Saharan Africa is the increase in the number of children in orphanages resulting from the increase in number of orphans, estimated to have reached 6-10% of the children less than 15 years old in the year 2000 (UNAIDS, 2006). Children in orphanages may be at increased risk of poor health due to trauma and loss of parental care (UNAIDS, 2005). Children in orphanages' nutritional status registered almost 0.3 Standard Deviations lower than non-orphanage children (Lindblade *et al.,* 2003). A study carried out in Malawi established that the prevalence of malnutrition in children in orphanages (≤ 6 years old) was 55 % compared with 30 % of non-orphanage children (Lindblade *et al.,* 2003). Among the children in orphanages, 64 % were stunted compared with 46 % of the non-orphanage children. The mean (SD) Z-score of Height for Age was significantly lower in the children in orphanages group, -2.75 (1.29) and -1.61 (1.57) in non-orphanage children (p=0.05). Conversely, older children in orphanages (>5 years) were less stunted and wasted than non-orphanage children. Illness of children in the last one month was reported to be higher among the children in orphanages, especially diarrheal disease, which occurred 30% compared with 7 % of non-orphanage children. Girls in orphanages were more likely to be malnourished than boys in orphanages. Children who had been admitted to an orphanage for more than one year were less malnourished (Panpranish *et al.,* 1999). A study in Botswana found that children in orphanages were 49% more likely to be underweight than non-orphanage children (Mishra and Bignami, 2008). In Zimbabwe a strong association was found between living in an orphanage and nutritional and health outcomes such as diarrhea, acute respiratory infection, and underweight status among 5-10 year old children. In the same study children in orphanages were more wasted (9%) compared to non-orphanage group (2%). In both groups there was a negative and significant relationship between child's age and wasting, stunting and underweight. However among the older children, age had a significant and positive relationship with stunting (Young and Jaspars, 2006). A study in Nicaragua found a direct correlation between the prevalence of underweight among orphanage school children and diarrheal, coughs/colds and length of stay in the orphanage. In the same study younger children were found to be more likely to be wasted than older ones (Morris *et al.*, 2004). In Dar-es-Salam, Tanzania, a study documented adverse potential consequences of orphan hood

on children's psychosocial well-being and emotional health as anxiety, sense of failure, pessimism and suicidal tendency (Mishra and Bignami, 2008). Another study in North Western Tanzania found higher stunting levels among children in orphanages and this increased with increase in age of the children (Ainsworth and Semali, 2000). In Uganda much higher levels of anxiety, depression and anger were found among children in orphanages than among non-orphanage children. In rural Zimbabwe, children in orphanages were found to have significantly higher psychosocial distress than non-orphanage children (UNICEF, 2006). Malnutrition needs to be viewed as an indication of inadequate realization of some of the most basic of all human rights, as a reflection of inadequate investment and progress in a range of issues related to human capital development and as significant influence on future economic development of a country (WHO, 2010). In a healthy, well fed population of children, it is expected that only two to three percent of children would fall below two standard deviations from the median of the reference population for each of the three nutrition indices namely wasting, stunting and underweight (UNICEF, 2005). Encompassing more than just hunger, malnutrition can lead to weakened immune systems when vitamin A is lacking and a child is neither hungry nor underweight (Mattimore and plangemann, 2008). Even when it does not cause death, malnutrition can inflict lifelong damage on a child's health and development (UNAIDS, 2006). in Nigeria, few studies have been able to describe the nutritional status of orphans. This study was therefore aimed at assessing nutritional status of orphaned school-age children resident in orphanage homes in Nigeria.

METHODOLOGY

The study was carried out in Lagos State and Ogun State (Ijebu Ode Local Government Area), Nigeria using a descriptive cross-sectional design. Lagos State is an administrative division of Nigeria, located in the Southwestern part of the country. It is located in the South- Western part of the Nigerian Federation. In the North and East, it is bounded by Ogun State; in the West it shares boundaries with the Republic of Benin. Behind its southern borders lies the Atlantic Ocean. The land mass has 22% (3,577 km2) as lagoons and creeks. Ijebu –Ode Local government area (LGA), is one of the present twenty Local Government Areas that make up Ogun State and has its headquarter at Ijebu-Ode. The LGA is bounded in the North by Ijebu-North LGA and Ijebu-East LGA, in the East by Ijebu-East LGA, and in the South by, Lagos State while Odogbolu is to the Western side of the LGA. The population for this study was made up of orphans in orphanage

homes in Lagos and Ogun state who were purposively selected among 8-11 year-old orphaned school-age children resident in orphanage homes in Lagos and Ogun State. A minimum of fifty-four (54) orphans each (equaling 108) from the two study areas was purposively selected, but just a hundred were eventually included in the study using inclusion and exclusion criteria. A validated semi-structured and interviewer-administered questionnaire was used to obtain information on demographic characteristics, anthropometric measurements using digital bathroom weighing scale and heightometer to the nearest 0.1Kg and 0.1cm respectively. Information on food consumption pattern using Food Frequency Questionnaire and dietary intake using 24hours dietary recall was also obtained**.** Data were analysed using WHO Anthro for anthropometric measurements and Total Dietary Assessment (TDA) Software for dietary intake. Statistical Package for Social science (SPSS) 16.0 was used to analyze the data obtained from the study and the results were presented in simple frequency and percentage tables. Chi square test and analysis of variance (ANOVA) were used to test the differences in the hypothesis at 0.05 level of significance.

RESULTS AND DISCUSSION

Table 1: Demographic characteristics of the respondents

Particulars	Frequency	Percentages (%)
Sex		
Boys	48	48
Girls	52	52
Total	100	100
Ethnicity		
Hausa	3	3
Igbo	20	20
Yoruba	77	77
Total	100	100
Religion		
Christian	76	76
Islam	23	23
Traditional	1	1
Total	100	100

Table 1 above shows that 48% of the respondents were boys and 52% girls. This implies that there were more female respondents than male. Also, 3% were Hausa, 20% Igbo and 77% Yoruba tribes respectively. The religious affiliation of the subjects showed that 76% were Christians, 23% Muslims and 1% was of the traditional religion.

Table 2: Characteristics of respondents

	Mean	SD
Age (yrs)	11.01	2.36
Height (cm)	135.44	14.08
Weight (kg)	28.94	5.60
HAZ	-1.26	1.68
BMZ	-0.96	1.23

Table 2 shows the mean age and the anthropometric characteristics of the respondents. The averages are given for age as 11.01±2.4years, the height 135.4±14.1cm, weight 28.9±5.6kg, while mean z-scores were HAZ -1.26±1.7. The Body Mass Index Z (BMZ) score was -0.96±1.2

Table 3: BMI for age category by

Gender	Overweight	Normal	Underweight	Total	P-value
Boys	0	34(34%)	14(14%)	48(48%)	
Girls	2(2%)	40(40%)	10(10%)	52(52%)	
Total	2(2%)	74(74%)	24(24%)	100(100%)	0.154

From table 3 above, none of the respondents is overweight, 34% had normal BMI for age and 14% were underweight. Furthermore, the table shows that 2% of the female respondents were overweight, 40% had normal BMI for age and 10% were underweight. It was also discovered that boys within the study area were more wasted (14%) than the girls (10%). There was no significant difference in the nutritional status of boys and girls measured by anthropometric indices (p>0.05).

Table 4 Mean energy and macronutrient intake of the respondents

Nutrient	Boys (n=28)	Girls (n=32)	Total	P
Energy(Kcal)	1,752.7 ±427.49	1,779.5 ±363.7	1,712.6 ±314.5	0.215
Protein(g)	30.42 ±12.3	28.7 ±11.25	29.5 ±11.7	0.331
Fat (g)	27.10 ±77.67	14.90 ±13.58	20.83 ±53.46	0.101
Carbohydrate(g)	251.0 ±69.8	239.9 ±78.0	245.92 ±74.50	0.215

The table above describes the mean energy and macro nutrient intakes of the respondents in the study area, the calorie intakes were 1,752.7±427.49kcal and 1,779.5±363.7kcal for the boys and girls respectively. The protein intakes were 30.42±12.3g and 28.7±11.25g for the boys and girls respectively, while for carbohydrate, the intakes were 251.0±69.8g and 239.9±78.0g for boys and girls respectively. The table shows that none of the nutrient intakes was significantly different among the two genders at $p<0.05$.

Micro-nutrient

Nutrient	RDA	Mean±SD	Mean±SD	Total	P-value
Vitamin A(µg)		**Boys**	**Girls**		
Boys	800	429.8±91.3	590.5±112.2	456.8±1.8	0.368
Girls	800				
Vitamin C(mg)					
Boys	40	25.6±2.3	24.4±4.9	7.0±3.2	0.020
Girls	40				
Folate (µg)					
Boys	300	208.3±2.8	229.9±2.1	225.3±3.6	0.720
Girls	300				

Adapted Total Dietary Assessment Software for Nigeria

The table shows the mean micro-nutrient intake of the respondents; for Vitamin A the average intake was 429.8±91.3 µg and 590.5±112.2 µg for boys and girls respectively; for Vitamin C it was 25.6±2.3mg and 24.4±4.9 mg for the boys and girls respectively. The mean intake for folate was 508.3±2.8 µg and 529.9±2.1 µg boys and girls respectively. The table shows that only Vitamin C intake was significantly different among the boys and girls at $p<0.05$

Table 5: Percentage nutrient intake compared with RDA

Macro nutrient

Nutrient	RDA	Mean±SD	Percentage intake
Calorie(kcal)			
Boys	1,800	1,752.7.3±427.49	97.7

Girls	1800	1,779.5±363.7	98.9
Protein(g)			
Boys	55	30.42±12.3	53.3
Girls	55	28.7±±11.25	52.2
Carbohydrate(g)			
Boys	270	251.0±69.8	93.0
Girls	270	239.9±78.0	88.5

FAO/UNU 2004 equation and median Singapore weights and Elsevier, (2012).

The table above shows the percentage intake of the Recommended Dietary Allowance (RDA) of nutrients by the respondents. The percentage intake of the RDA of calorie was for boys: 97.7% and the girls: 98.9%. The percentage intakes of Protein were 53.3% and 52.2 % for boys and girls respectively, while for carbohydrate, the percentage intakes were 93.0% and 88.5% for boys and girls respectively.

DISCUSSION OF FINDINGS

From this study it was found out that prevalence of malnutritition among orphans in the orphanage homes is low, this may be because of the attention malnutrition has received in the last few years by government agencies in charge of health, researchers and non-governmental organizations. The result of this study showed that only few of the orphans were overweight, while more were of the underweight, this result agrees with the study of Deshmukh, Guptas and Bharambe, (2010), who reported in their study that only 2.2% of the adolescents were overweight, while the findings disagreed with the same study as the prevalence of wasting in the study was more than that of this study. In the study carried out by Akano and Sanusi (2015), it was reported that the prevalence of wasting and underweight was high among primary school children of whom some of them might have been of the adolescent age. Also the result of this study disagrees with the study of Choudhary Mishra, Shukla, (2004) who reported that 68.52% of adolescents had BMI less than 18.5kg/m^2 in Varanasi., but, Shahabuddin, et al; (2000) reported a high prevalence of wasting in Bangladesh. In this study, wasting is reported to be lower than that reported by Olumakaiye (2008). For nutrient intakes, it was found that among all the nutrients, the difference in the intake of Vitamin C and Zinc was significant at $p<0.05$, while the differences in intakes of the other nutrients were not

significant. It was also found out from this study that the calorie intake of the boys was lower than that of the girls. likewise the protein intakes for girls and. For the micronutrients, a significant difference in the intake of only Vitamin C was reported, while for others, there was no significant difference in the intakes of the boys and girls. The result of this study is higher than Ijarotimi (2004) where it was discovered that adolescents did not meet up the recommended dietary allowance, but the result of Ogechi et al; (2007) showed a greater mean in energy intake and carbohydrates compared to the result of this findings. The percentage intake of the RDA of calorie was for both boys and girls in this study was just a slightly lower than the RDA, while the percentage intakes of Protein for both sexes were just about the average. The micronutrient intakes of the respondents were below RDA. Although, the nutrient intakes reported in this study were lower than the RDA, it could still be deduced that the nutrient intake of respondents were higher than few other studies. This could be attributed to the level of support orphanage homes receive from Nongovernmental Organizations, religious groups and individuals in Nigeria.

CONCLUSION

Although, the prevalence of undernutrition among orphans in orphanage homes in this study established to be low, which may be attributed to the fact that, some of the registered orphanage homes seek and get support from NGOs, individuals and on rare occasions, government, there is still need to educate their caregivers on the importance of micronutrients and their food sources to address hidden hunger among the respondents, as these might be devastating to their health and nutritional status.

RECOMMENDATION

Continuous and regular support from individuals, government and non-governmental organizations to orphanage homes is strongly advocated for. There may also be need to determine the nutritional status of the orphans from the non-registered homes and thereafter make a comparison between those from registered and non-registered homes.

REFERENCES

Ainsworth M, Semali J (2000) the impact of adult deaths on children's health in North Western Tanzania. Policy research working paper.

Akano, R. and Sanusi, R. (2015). Pattern of undernutrition among U-5 and primary school children in Nigeria using anthropometric indices. *Journal of Developmental Origins of Health and Disease (DOHaD). 6(2). 82.*

Bicego, G.,S. Rutstein, and K. Johnson.(2003).'Dimension of the emerging orphan crisis in

Cox A, Horrii T, Granby B and Morgan B (2006) The importance of Early Childhood Development: Assessing the quality of care in Uganda. Masters in International Development, Capstone project. GWU and CARE/HACI,21-28.

Deshmukh, P.R., S. Guptas and M.S. Bharambe, 2006. Nutritional status of adolescents in rural Wardha. Indian J. Pediatr., 73: 139-141.

Grantham-McGregor S, CheungYB, Cueto S, Glewwe P, Richter L, et al. (2007) Development

Ijarotimi, O.S., 2004. Evaluation of energy and micronutrient intake of Nigerian adolescent females: A case study of institutionalized secondary schools in Akure South Local Government Area, Ondo State, Nigeria. Pakistian Journal of Nutrition, 3: 250-253

Irungu, J., and Karis, S (2006). Understand the scourge of HIV/AIDS in Sub-Saharan Africa. Med gen Med. 8(4): Retrieved on 13/10/2008. pg30

Johnstone, T., Ferguson, A., and Akoth, C (2000). A profile of adolescent AIDS

Lindblade KA, Odhiambo F, Rosen DH, DeCock KM (2003) Health and nutritional status of orphans ,6 years old cared for by relatives in western Kenya. Trop Med Int Health 8: 67-72.

Miller CM, Gruskin S, Subramanian SV, Rajaraman D, Heymann SJ (2006) Orphan care in Botswana's working households: growing responsibilities in the absence of adequate support. Am J Public Health 96: 1429–1435.

Mishra, V., and Bignami, S (2008). Orphans and vulnerable children in high HIV-prevalence countries in Sub-Saharan Africa. DHS analytical studies 15, United Nations on HIV/AIDS (USAID). Pg.15

Monasch R, Boerma JT (2004) Orphanhood and childcare patterns in sub- Saharan Africa: an analysis of national surveys from 40 countries. AIDS 18 Suppl 2: S55–65.

Nyambedha EO, Wandibba S, Aagaard-Hansen J (2003) Changing patterns of orphan care due to the HIV epidemic in western Kenya. Social Science Medicine 57: 301– 311.

Ogechi U.P, Akhakhia O.I., and Ugwunna U.A, (2007). Nutritional status and energy intake of Adolescents in Umuahia Urban, Nigeria. Pakistan Journal of Nutrition 6 (6): 641-646, 2007

Olumakaiye MF. Prevalence of underweight: a matter of concern among adolescents in Osun state, Nigeria. Pakistian Journal of Nutrition 2008; 7(3):503-508

Panpanich R, Brabin K, Gonania A, (1999) Are orphans at increased risk of malnutrition? Annals of tropical pediatrics: International child health 19: 279-285

Rau, B (2005). Work place HIV/AIDS programs: An action guide for managers. Family Health International, USAID Pg. 22.

Sadik A,(2010) "Orphanage children in Ghana: Are their Dietary Needs Met", Pakistan Journal of nutrition: 9(19), 844-852

Saharan Africa. Med gen Med. 8(4): Retrieved on 13/10/2008. pg30

Sarker M, Neckermann C, Muller O (2005) Assessing the health status of young AIDS and other orphans in Kampala, Uganda. Trop Med Int Health 10: 210– 215.

Shahabuddin AK, Talukdar K, Talukdar MK, Hassan M, Seal A, Rahman Q, Mannan A, Tomkins A, Costello A. Adolescent nutrition in a rural community in Bangladesh. Indian Journal of Paediatric 2000 Feb; 67(2) : 93-98. P

UNICEF (2004) The Framework for the Protection, Care and Support of Orphans

UNICEF (2012) The State of the World's Children: Urbanizatio n. Geneva: United Nations Children's Fund.

UNICEF (2003) Deininger, Garaic and subharao "Africas orphans generations" New York: United Nations childrens Fund Analysis for various countries documented by Subarao and Coury(2003)

United Nations on HIV/AIDS (UNAIDS) (2006). Halting the pandemic in Africa; UN, Geneva Switzerland. Pg. 141

United Nations on HIV/AIDS (UNAIDS) (2008). Global pandemic; UN, Geneva, Switzerland. Pg. 8-39

United Nations on HIV/AIDS (UNAIDS)/WHO (2009) AIDS in Africa. Three Scenarios to 2025, Joint Nations Programme on HIV/AIDS.

United States Agency for International Development(USAIDS) /United Nations International Children's Education fund (UNICEF) (2004). Children on the brink; strategies to support children isolated by HIV/AIDS. Arlington, VA; UNICEF. Pg 59-61

Watts H, Gregson S, Saito S, Lopman B, Beasley M, et al. (2007) Poorer health and nutritional outcomes in orphans and vulnerable young children not explained by greater exposure to extreme poverty in Zimbabwe. Tropical Medical International Health 12: 584–593.

Young H, Jaspars S (2006) The meaning and measurement of acute malnutrition in emergencies. A primer for decision-makers. The humanitarian practice network. United Kingdom.