Lafia Journal of Scientific & Industrial Research (LJSIR), Vol. 4(1), 2026
p-ISSN: 3026 – 9288 e-ISSN: 3027 – 1800 pages: 63 – 68
https://lafiascijournals.org.ng/index.php/ljsir/index ⇒ Published by the Faculty of Science,
Federal University of Lafia, Nasarawa State, Nigeria

Nutritional Assessment of Children Living with HIV/AIDS in Selected HAART-Providing Hospitals in Abia State, Nigeria

Philip Kelechukwu Ogbuta[1], Matthew Obinna Ndubuisi[2], Nelson Tochukwu Echibuogu[3], Precious Amarachi Ajah[4], Oluwatuyi Samson Afolabi[5]*

[1]Department of Obstetrics and Gynecology, Lagos State Maternal and Child Centre, Eti-Osa, Nigeria
[2]Department of Radiology and Radio Diagnosis, University of Port Harcourt Teaching Hospital, Nigeria
[3]Department of Primary Health Centre, Crouch Hall Road Surgery, London
[4]Department of Nursing, County Hospital Ltd, Aguda, Ogba, Ikeja–Lagos State, Nigeria
[5]Department of Environmental Health, Lagos State Primary Health Care Board, Nigeria

Abstract

Malnutrition occurs when the body lacks sufficient essential nutrients. Children are more vulnerable than adults and face greater risks of serious health problems from poor nutrition. This study examined nutritional assessment for children living with HIV/AIDS. A descriptive cross-sectional study was conducted among 180 respondents at three HAART-providing hospitals in Abia State, namely Abia State University Teaching Hospital (ABSUTH), Seventh-day Adventist Hospital, and Living World Hospital. The study revealed that most caregivers were aged 30–34 years, with a mean age of 33.7 years, and nearly half of the children were between 5 and 9 years old. While over 80 % of caregivers knew the classes of food, only about half identified proper child nutrition, and many were unaware of the link between HIV and malnutrition. Exclusive breastfeeding was practiced by 55 %. Children's diets were predominantly carbohydrate-based due to low income. About 38 % had recent diarrhea, and 66 % were on ART. Anthropometric results showed most children within normal growth percentiles, likely reflecting ART adherence and moderate caregiver nutrition knowledge. The study concluded that although caregivers showed moderate awareness of nutrition, socioeconomic challenges and limited understanding of the relationship between HIV and malnutrition affect dietary diversity and child health outcomes. Based on the findings, it is recommended that continuous nutrition education be provided for caregivers of HIV-positive children, focusing on balanced diets and the nutritional impact of HIV. Government and NGOs should also support income-generating programs and provide nutritional supplements to improve dietary quality and child well-being.

Keywords: Malnutrition, breastfeeding, HIV/AID, children, nutritional, caregivers

Article History

Submitted
October 30, 2025

Revised
December 28, 2025

First Published Online
December 31, 2025

Correspondences
O. S. Afolabi ✉
samson08060@gmail.com

doi.org/10.62050/ljsir2026.v4n1.674

Introduction

Good nutrition is fundamental to the survival, growth, and development of children and serves as a cornerstone of public health and socio-economic advancement [1]. It provides the essential nutrients required for tissue formation, energy production, immune competence, and cognitive function. Adequate nutrition in early childhood, particularly during the first five years of life, is crucial for physical growth and organ maturation, thereby influencing health throughout the lifespan [1, 2].

Human nutrition consists of macronutrients, for example carbohydrates, proteins, fats, and water, as well as micronutrients, for example vitamins and minerals, each contributing uniquely to physiological and metabolic processes. Carbohydrates and fats provide the primary sources of energy, while proteins support cellular structure, repair, and enzyme synthesis. Vitamins and minerals, on the other hand, regulate biochemical pathways essential for growth, reproduction, and immunity [1, 2]. When these nutrients are insufficient, the result is malnutrition, a condition that remains one of the leading causes of morbidity and mortality among children in low- and middle-income countries [3, 4].

According to the World Health Organization (WHO), malnutrition represents an imbalance between nutrient supply and the body's metabolic requirements [4]. Among children, it manifests as underweight, stunting, and wasting, and is often linked to poverty, infection, and poor dietary diversity. In Nigeria, about 41 % of children are undernourished, with the highest burden recorded in the northwestern region [5]. The relationship between malnutrition and infection, particularly HIV/AIDS, is complex and bidirectional. HIV infection undermines nutritional status by

impairing immunity and increasing metabolic demands, while malnutrition, in turn, weakens the immune system and accelerates disease progression [6].

Although several nutritional interventions have been implemented, a significant proportion of children living with HIV/AIDS continue to suffer from undernutrition. Approximately 29 % of such children remain underweight despite access to antiretroviral therapy and community-based programs [7]. Poor dietary practices, limited caregiver knowledge, and socio-economic challenges have been identified as key contributors. The nutritional status of HIV-infected children not only influences disease outcomes but also affects treatment efficacy and survival rates [8]. Thus, early nutritional assessment using dietary recall, anthropometric, biochemical, and clinical indices is critical in pediatric HIV management [9].

Previous research has shown that malnutrition in children is associated with parental literacy, immunization status, and birth spacing. Baker *et al.* [10] found higher rates of malnutrition among girls and children of illiterate parents, while Solomon [11] reported increased malnutrition among children with short sibling intervals and incomplete immunization. Laditan and Johnson [12] highlighted stunting, underweight, and wasting as the main indicators of undernutrition. Socio-cultural practices, for example early introduction of complementary feeding, pre-lacteal feeding, and the rejection of colostrum, further exacerbate poor feeding habits in many African communities [13, 14]. Maternal education remains a strong determinant of appropriate feeding and overall child nutritional status [15].

Given the complex relationship between HIV and nutrition, integrating nutritional assessment and counseling into HIV care is vital to ensure adequate growth, immune function, and improved survival [16–18]. Food insecurity, poverty, and cultural beliefs continue to hinder optimal feeding practices for HIV-positive children in sub-Saharan Africa [13, 14].

In Abia State, Nigeria, limited data exist on the nutritional status of children living with HIV/AIDS and on caregivers' knowledge of appropriate nutritional practices. This study therefore seeks to assess the prevalence and determinants of malnutrition, evaluate caregiver knowledge, and identify factors that influence adequate feeding among HIV-infected children. The findings provide evidence to strengthen nutrition-focused HIV programs and improve child health outcomes in the region.

Materials and Methods

Study design

This study adopted an analytical cross-sectional design to evaluate the nutritional status of children living with HIV/AIDS in Abia State, Nigeria. A simple random sampling method was used to select participants from designated health facilities providing Highly Active Antiretroviral Therapy (HAART) services. Structured questionnaires and anthropometric assessments were employed to obtain data from caregivers and children. This design enabled a contemporaneous assessment of the prevalence of malnutrition, associated risk factors, and caregiver knowledge on nutrition among HIV-positive children within the study area.

Study area

This research was conducted in Abia State, Nigeria, located in the south-eastern region of the country. The state, created in 1991 from the former Imo State, covers an area of 5,234.7 km² and has a population of approximately 2,833,999 people according to the 2006 census. Its capital is Umuahia, and it lies along coordinates 5°25′N and 7°30′E. Data were collected from three major health facilities providing pediatric HIV care and HAART services:

1. Abia State University Teaching Hospital (ABSUTH), Aba
2. Seventh-Day Adventist Hospital, Aba
3. Living Word Hospital, Aba

These centers were selected because they serve as primary referral points for children living with HIV/AIDS and are equipped with adequate facilities and trained personnel for effective HIV management and nutritional assessment.

Study population

The study involved children living with HIV/AIDS in Abia State who were confirmed HIV positive and were receiving antiretroviral therapy at the selected facilities. Children previously enrolled in nutritional therapeutic programs within the past three months, those planning to relocate from the study area, those co-infected with tuberculosis, and infants under six months who were only HIV-exposed but not confirmed positive by DNA PCR testing were excluded from the study.

Ethical considerations

Ethical approval for this study was obtained from the Department of Community Medicine, Abia State University, Uturu. Additional permissions were granted by the management boards of the selected hospitals. The objectives of the study were clearly explained to caregivers, and informed consent was obtained prior to participation. All data were treated confidentially and used solely for research purposes.

Statistical analysis

Data collected were coded, entered, and analyzed using the Statistical Package for the Social Sciences (SPSS), IBM SPSS Statistics for Windows, Version 20.0. Descriptive statistics like frequencies and percentages were used to summarize the data. Results were presented in tables, bar charts, and pie charts where appropriate.

Results and Discussion

A total of 180 caregivers participated in the study, with ages ranging from 15 to 59 years and a mean age of 37.0 years. As shown in Table 1, most caregivers (43.9 %) were between 30 and 34 years old, while there were

no respondents aged 15–19 or 20–24 years. Only a small proportion (5 %) was over 50 years. Nearly half of the children (48.9 %) were between 5 and 9 years old. The majority of respondents (90.8 %) were of Igbo ethnicity, reflecting the predominantly Igbo-speaking nature of the study area. Most parents (82.2 %) had completed secondary education and a large proportion were artisans (41.1 %) or traders (39.5 %). Regarding income, 37.8 % of parents earned less than ₦5,000 per month, while only 3.3 % reported earnings between ₦41,000 and ₦80,000. More than half of the children (87.8 %) lived with both parents, and 6.1 % lived with their mothers.

Table 1: Socio-demographic data of the respondents

Age of caregiver	Frequency (N=180)	Percentage (%)
15-19	0	0
20-24	0	0
25-29	14	7.8
30-34	79	43.9
35-39	31	17.2
40-44	23	12.8
45-49	24	13.3
50 and above	9	5
Total	**180**	**100**
Age of child		
0-4	16	8.9
5-9	88	48.9
10-15	76	42.2
Total	**180**	**100**
Marital status		
Single	10	5.6
Married	159	88.3
Widowed	9	5
Divorced	2	1.1
Total	**180**	**100**
Educational level		
None	0	0
Primary school level	20	11.1
Secondary school level	148	82.2
Tertiary level	12	6.7
Total	**180**	**100**
Occupation		
Trader	71	39.5
Professionals	13	7.2
Artisans	74	41.1
Others	22	12.2
Total	**180**	**100**
Family income		
>5000	68	37.8
600-10,000	51	28.3
11,000-20,000	36	20
21,000-40,000	19	10.6
41,000-80,000	6	3.3
>81,00	0	0
Total	**180**	**100**
Who the child lies with		
Parents	158	87.8
Father	5	2.8
Mother	11	6.1
Relatives	6	3.3
Total	**180**	**100**

Table 2: Knowledge of caregivers regarding adequate nutrition

Variables	Yes (N=180)	%	No (N=180)	%
Knowledge of caregivers about adequate nutrition				
What are the classes of food	148	82.2	32	17.8
What are the different types of food under protein	137	76.1	43	23.9
What are the different types of food under Carbohydrates	129	71.7	51	28.9
What are the different types of food under vitamin	112	62.2	68	37.8
What are the different types of food under minerals	103	57.2	77	42.8
What is the proper food for a child	97	53.9	83	46.1
Are fruits important to the nutritional benefit of your child	159	88.3	21	11.7
What are the functions of the different classes of food	133	73.9	47	26.1
What are the signs of malnutrition	128	71.1	52	28.9
Does HIV have any effect on nutrition in children	67	37.2	113	62.8
Are you aware of your child's weight	131	72.8	49	27.2
What are the different methods of breast feeding	109	60.1	71	39.4
Did you practice exclusive breast feeding	99	55	81	45

Knowledge of caregivers regarding adequate nutrition

Table 2 showed that 82.2 % of caregivers know the different classes of food while 17.2 % did not know the different classes of food. Over half (76.1 %) of caregivers knew the different types of food under protein while 71.6 % also know the different types of food under carbohydrate. In a similar response, 62.2 % knows the different types of food under vitamins while a little over 57.2 % answered correctly the different types of food under minerals. In assessing the proper food for a child, the study found out that 53.8 % have knowledge about the proper food for the child, representing that over half of the study while 46.2 % answered wrongly about proper food for the child. 62.8 % did not know that HIV have an effect on malnutrition (which is somewhat worrying) in children and 72.8 % are aware that their child is losing weight. In this study, 55 % of the caregivers especially mothers practiced exclusive breastfeeding while 60.1 % answered correctly the different methods of breastfeeding.

Health diet consumption among children living with HIV/AIDs

In Table 3, over 81.7 % of the study participants took water regularly, while 18.3 % rarely took water. In this study, 37.2 % ate fruit at least four times a week, while 68 participants, representing over 37.8 %, consumed mainly Garri. Much needed to be done in these areas through health education to inform caregivers about the importance of a balanced diet. In this study, only a few participants reported losing weight (about 48.9 %), and more than half of the participants (65.6 and 59.4 %, respectively) observed safety measures in preparing their food.

Table 3: Health diet consumption among children living with HIV/AIDs

How often does your child take daily?	N=180	%
Does not take water	0	0
Frequently	147	81.7
Rarely take water	33	18.3
Which of these do you give your child at least four times a week?		
Carrot	6	3.3
Vegetables	22	12.2
Snacks	67	37.2
Biscuits	43	23.9
Sweets	5	2.8
Juice	37	20.6
Others	0	0
Which of these does your child take daily?		
Garri	68	37.8
Beans	42	23.3
Okpa	27	15
Rice	23	12.8
Yam	20	11.1
Does your child finish his/her food?		
Yes	169	93.9
No	11	6.1
How well is the child growing?		
Is he/her gaining weight	69	38.3
Is he/her losing weight	88	48.9
What safety measures do you take in preparing the food?		
Do you wash your hand before preparing the food	118	65.6
Do you close the food after preparation	107	59.4

Factors that affect Nutrition of children living with HIV/AIDS

About 68 caregivers, representing 37.8 % of the study population, said their children had passed watery stools within the two weeks before the survey. In addition, 32.8 % mentioned that their children lost weight during bouts of vomiting. More than half of the children (66.1 %) were on antiretroviral treatment, while 137 caregivers (76.1 %) believed their children were receiving the right amount of nutrients for their age (Table 4).

Table 4: Factors that affect nutrition of children living with HIV/AIDS

Factors	Yes (N=180)	No (N=180)	Total	% Yes	% No	Total %
Has your child passed watery stools in the last two weeks?	68	112	180	37.8	62.2	100
Did your child loss weight during the period of passing the watery stool?	59	121	180	32.8	67.2	100
Is your child on anti-retroviral treatment?	119	61	180	66.1	33.9	100
Do you think your child is getting all the nutrients expected of his/her age?	137	43	180	76.1	23.9	100

24 hour dietary recall

In this study, a 24-h dietary recall was conducted to assess what each child consumed within a day. The findings, as shown in Fig. 1, revealed that carbohydrates, mostly from starchy foods, made up the largest portion of the children's meals, followed by proteins, minerals, fats, and oils. Although more than half of the caregivers demonstrated good knowledge of the importance of minerals, many still relied heavily on carbohydrate-based meals. This trend appeared to be influenced by their socio-economic circumstances, as several caregivers explained that they could not easily afford a more diverse diet.

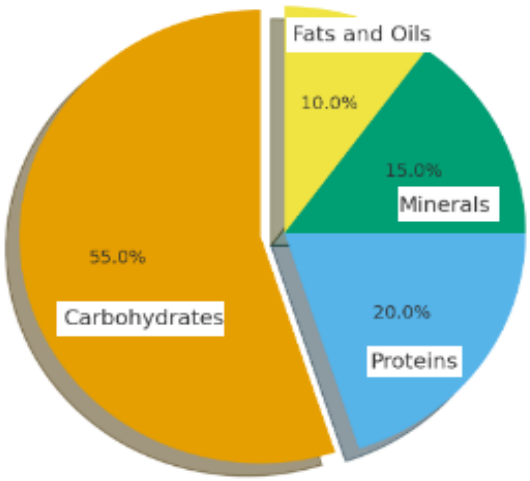

Figure 1: 24 hour dietary recall

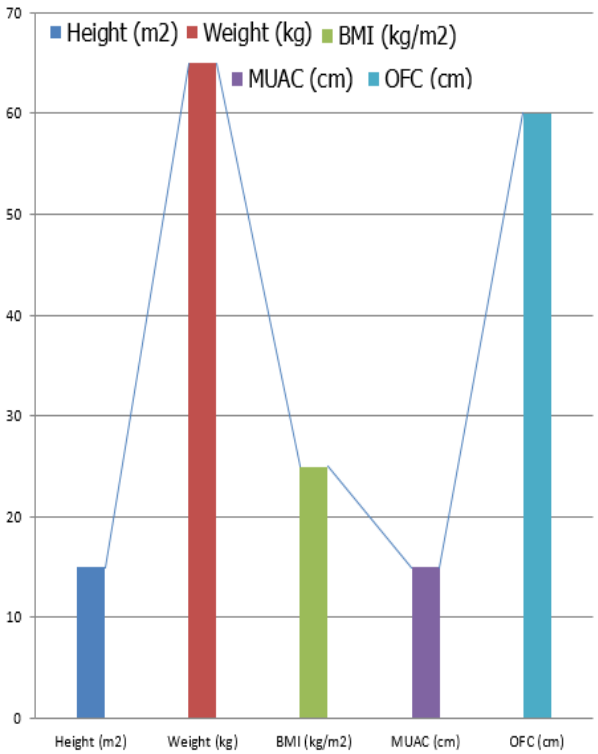

Figure 2: Shows the different Anthropometric Measurement

Generally, in the study as shown in Fig. 2, the different anthropometric measurement done was within the 3rd and 95th centile. These may be due to the adequate malnutrition knowledge of most of the caregivers as seen in these studies. Adherence to the ART drugs has also played a huge role in these studies. Most of the children on ART in these studies were taking their drugs and are up to date with their scheduled visits.

This discussion focused on the nutritional assessment for children living with HIV/AIDS. The study examined the dietary habits of children living with HIV, their caregivers' understanding of nutrition, and how adherence to ART influenced their overall health and growth.

Most caregivers had at least a secondary education (82.2 %), while only a few (6.7 %) had no formal schooling. The findings showed that education influenced how caregivers understood and managed their children's nutrition. This agrees with Baker *et al*. [10], who reported that malnutrition was more common among children of parents with little or no education. Although the study settings differed, both suggest that caregiver education contributes to better nutritional outcomes in children.

Dietary recall results showed that most children depended largely on carbohydrate-based meals like garri, rice, and yam, with limited intake of protein and vitamin sources. This pattern was strongly linked to low household income, which restricted food variety. Lomescu [14] observed a similar situation where families with limited financial resources mainly consumed starchy staples due to affordability issues. These findings point to the need for community-driven nutrition education and social support initiatives that can help families provide more balanced meals using locally available foods.

The anthropometric results indicated that most children maintained normal growth ranges (3rd–95th percentile). This finding suggests that despite financial challenges, nutritional interventions and caregiver awareness may have contributed to maintaining stable growth among these children. Laditan and Johnson [12] also observed that while undernutrition remains a problem in developing countries, continuous education and basic support programmes can improve nutritional outcomes, especially among vulnerable groups.

In this study, about 66 % of children were on antiretroviral therapy (ART), and most adhered to their treatment schedules. Their anthropometric measurements, which generally fell within the 3rd–95th percentile, suggest that regular ART use supports better growth and nutrition. This finding agrees with Grobler *et al*. [13], who reported improved weight-for-age scores among Ugandan children with over 95 % ART adherence, and Adejuyigbe *et al*. [17], who found that 83 % of adherent Nigerian children maintained normal BMI-for-age compared to 48 % among non-adherent ones. Regular ART use reduces infection frequency, improves appetite, and improves nutrient absorption, all of which contribute to healthier nutritional outcomes.

Conclusion

The study acknowledged the important role caregivers play in managing HIV in children. Most caregivers were female family members aged 30–34 years, and care mostly took place at home. Knowledge, attitude, and practice of adequate nutrition among caregivers have generally improved. Anti-retroviral therapy usage and adherence were found to be positive in relation to caregivers' attitudes and practices. Improving caregivers' nutritional knowledge improves child care, supports growth, and promotes positive health outcomes. Based on these findings the following recommendations were suggested:

- Children living with HIV should be assessed, classified, and managed through a structured nutritional care plan that addresses their specific growth and developmental needs.
- Government and relevant agencies should actively participate in the planning and delivery of care for children living with HIV/AIDS.

Implementing these recommendations is expected to make nutritional assessment more effective and improve health outcomes, particularly through multi-sectoral and collaborative efforts.

Conflict of interest: The authors have declared that there is no conflict of interest reported in this study.

Reference

[1] Hendrickse, R. G., Coulter, J. B., Omer, M. I., Suliman, G. I., Moody, J. B. & Macfarlane, S. B., (1988). Protein-energy malnutrition in northern Sudan: Prevalence, socio-economic factors and family background. *Annals of Tropical Paediatrics*, 8(2), 96–102. https://doi.org/10.1080/02724936.1988.11748548

[2] Anabwani, G. & Navario, P. (2005). Nutrition and HIV/AIDS in sub-Saharan Africa: An overview. *Nutrition, 21*(1), 96–99. https://doi.org/10.1016/j.nut.2004.09.013

[3] Ogunlibeju, O. O., Van Schalkwyk, F. E. & Van Den Heever, W. W. M. (2003). The HIV epidemic: Factors responsible for the epidemic and the impact of HIV/AIDS. *Review Medical Journal*, 28, 56–62.

[4] Yusuf, T., Jiya, N. M. & Ahmed, H. (2014). $CD4^+$ T-lymphocyte counts among under-5 children with protein-energy malnutrition as seen in Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria. *Nigerian Journal of Paediatrics*, 41(4), 354–359. https://doi.org/10.4314/njp.v41i4.13

[5] Adeleke, S. I., Asani, M. O., Belonwu, R. O. & Gwarzo, G. D. (2008). Children with Protein Energy Malnutrition: Management and Outcome in a Tertiary Hospital in Nigeria. Retrieved from http://www.ajol.info/viewarticle.php?id=41523

[6] Penda, C. I., Eboumbou Moukoko, E. C., Nolla, N. P., Abomo Evindi, N. O. & Koki Ndombo, P. (2018). Malnutrition among HIV-infected children under 5 years of age at the Laquintinie Hospital Douala, Cameroon. *Pan African Medical Journal*, 30, 91. https://doi.org/10.11604/pamj.2018.30.91.15832

[7] Oyedeji, G. A. (1984). Socio-economic and cultural background of hospitalised children in Ilesha. (2024). *Nigerian Journal of Paediatrics*, 12(4), 111-117. https://www.njpaediatrics.com/index.php/njp/article/view/922

[8] World Health Organization (2005). Consultation on Nutrition and HIV/AIDS in Africa: Evidence, Lessons, and Recommendations for Action. Durban, South Africa. https://www.who.int/news-room/events/detail/2005/04/10/default-calendar/consultation-on-nutrition-and-hiv-aids-in-africa

[9] Abdool Karim, Q., Abdool Karim, S. S., Coovadia, H. M. & Susser, M. (1998). Informed consent for HIV testing in a South African hospital: Is it truly informed and truly voluntary? *American J of Public Health*, 88(4), 637–640. https://doi.org/10.2105/ajph.88.4.637

[10] Baker, J. P., Detsky, A. S., Wesson, D. E., Wolman, S. L., Stewart, S., Whitewell, J., Langer, B. & Jeejeebhoy, K. N. (1982). Nutritional assessment: A comparison of clinical judgement and objective measurements. *The New England Journal of Medicine*, 306(16), 969–972. https://doi.org/10.1056/NEJM198204223061606

[11] Solomons, N. W. (1985). Assessment of nutritional status: Functional indicators of pediatric nutriture. *Pediatric Clinics of North America*, 32(2), 319–334. https://doi.org/10.1016/S0031-3955(16)34789-7

[12] Laditan, A. A. O. & Johnson, A. O. K. (1999). Nutritional disorders in childhood. In J. C. Azubuike & K. E. O. Nkanginieme (Eds.), *Paediatrics and Child Health in a Tropical Region* (pp. 166–175). Owerri, Nigeria: African Educational Services. https://bit.ly/3yHk9kS

[13] Grobler, L., Siegfried, N., Visser, M. E., Mahlungulu, S. S. N. & Volmink, J. (2013). Nutritional interventions for reducing morbidity and mortality in people with HIV. *Cochrane Database of Systematic Reviews*, 2, CD004536. https://doi.org/10.1002/14651858.CD004536.pub3

[14] Lomescu C. (2006). Romanian parents keep HIV a secret from infected children. *The Lancet*, 2, 406-410.

[15] Lazarus R, Struthers H. & Violari A. (2010). Starting HIV positive babies on anti retroviral treatment: Perspective of mothers in Soweto, South Africa. *Journal of pediatric Health Care*, 24(3), 176-183.

[16] Brunn, E. G. (2009). Severe acute malnutrition and HIV in African Children. *HIV Therapy*, 3(6), 595-611.

[17] Adejuyigbe, E., Orji, E., Onayade, A., Makinde, N. & Anyabolu, H. (2008). Infant feeding intentions and practices of HIV-positive mothers in southwestern Nigeria. *Journal of Human Lactation*, 24(3), 303–310. https://doi.org/10.1177/0890334408317765

[18] Nalwoga, A., Maher, D., Todd, J., Karabarinde, A. & Biraro, S. (2010). Nutritional status of children living in a community with high HIV prevalence in rural Uganda;a cross-sectional population based survey. *Tropical Medicine and International Health*, 15(4), 414-442.

Citing this Article

Ogbuta, P. K., Ndubuisi, M. O., Echibuogu, N. T., Ajah, P. A., & Afolabi, O. S. (2026). Nutritional assessment of children living with HIV/AIDS in selected HAART-providing hospitals in Abia State, Nigeria. *Lafia Journal of Scientific and Industrial Research, 4*(1), 63 – 68. https://doi.org/10.62050/ljsir2026.v4n1.674