

# A Comparative Study to Assess the Physical Growth of Children Living with HIV/AIDS in Family Based and in Institution Reared Children in Tamilnadu

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**Abstract:** According to world food program definition, malnutrition refers to under nutrition. Under nutrition is a major public health problem. Forty-eight per cent (i.e. 61 million children) are stunted 43% of Indian children under five years are underweight. Under nutrition. The risk of death is three times higher in HIV infected children compared to those who are not infected. There is a vicious circle contributes in depressing the child's immune system. Under nutrition on survival of HIV positive has not been well investigated, therefore this study aims to compare the nutritional status of children in family based., quantitative cross sectional survey approach. A significant deference was found in children in family based than children reared in institution, severe stunting were found in family based children. Early identification of malnutrition is necessary to undertake preventive measures and appropriate therapeutic strategies to improve the growth of HIV positive children.

**Keywords:** Human immune deficiency virus (HIV) Children living with HIV (CLHIV).

## 1. Introduction

Growth is an important indicator of a child's health. Children who are unhealthy tend to grow and gain weight more slowly than healthy children of their age. Human immune deficiency virus (HIV) infected children are at particular risk for problems related to growth. HIV and opportunistic infections often negatively influence the growth of young children. A lack of nutritious food necessary for normal growth complicates the lives of many HIV-infected children. Many factors affect children's growth, including general nutrition, overall health, diseases and caretaker nurturing. A cross sectional study has described the prevalence of underweight, stunting, and wasting in HIV infected children in south India. Anthropometric measurements and CD4 counts were performed on 231 HIV-infected children. Scores for height for age, weight for age, and weight for height were correlated with CD4 cell counts. Prevalence of underweight was 63%, stunting 58%, and wasting 16%, respectively. 33.45% of children were moderately or severely malnourished even at CD4 > 25%; sensitivity and specificity of stunting or underweight to predict HIV disease

severity was low. The study report that under nutrition and stunting common among HIV infected children at all stages of the disease in India.

In across sectional study among 97 CL HIV between the age of 5 and 12 years found that majority of children were within healthy score ranges based on WHO criteria for height (71%) and BMI (89%). One child qualified as obese. Three-quarters of children had CD4+ T cell levels greater than 500 cells/mm<sup>3</sup>. Accordingly, the majority of children had been diagnosed as Stage 1 or 2 by a clinician upto six months prior to the study (85%). About half of the children were on ART (54%), with average (SD) treatment duration of 2 years.

## 2. Statement of the problem

A study to compare the physical growth among the children living with (CLHIV) in selected family based and institution reared

## 3. Objective

To assess socio economic background of children living with HIV (CLHIV) in family-based and institution reared children. To find the association of socio economic background and physical growth of CLHIV in family based and institutionalized care settings with selected baseline variables.

## 4. Null hypothesis

- *H1:* There will be a significant difference in the Physical growth of CLHIV in family-based and institution reared care settings at 0.05 level of significance
- *H2:* There will be a significant correlation between the Physical growth of CLHIV at 0.05 level of significance.
- *H3:* There will be a significant association between the Physical growth of CLHIV in family based and institution reared care settings with selected baseline

Table 1  
 Findings regarding physical growth of CLHIV in both groups

	Family based CLHIV Frequency(%)	Institutionalized CLHIV Frequency(%)	Z	P
<b>BAZ</b>				
Underweight (<-1)	46(24.2%)	37(19.5%)	1.27	.529
Normal (-1.0- 2.0) Overweigh(t>2.0)	132(69.5%) 12(6.3%)	141(74.2%) 12(6.3%)		
<b>HAZ</b>				
Healthy(-2.0to2.0) Stunting(<-2.0)	68(35.8%) 122(64.2%)	106(55.8%) 84(44.2%)	15.3	.001

variables at 0.05 level of significance.

### 5. Research approach

As this study was attempted to compare the physical growth of CLHIV in family-based and institution reared, a quantitative cross sectional survey approach was found to be appropriate.

#### A. Research design

Research design used was cross sectional survey design Medical records were included in the study.

#### B. Study setting

The study was carried out in selected district hospitals in Tamil Nadu which has ART centers (Anti Retro Viral Therapy).

#### C. Population and sampling technique

The study Population were HIV infected children, between 5-17 years old, who were on ART follow up and registered in ART centers in selected 3district hospitals in Tamil Nadu, children. Study participants were taken from three hospitals based on the total number of children in the ART unit of the hospitals for 190 family based and from 3 institution care settings .190 CLHIV. Total 380.

#### D. Inclusion Criteria

Children who met the inclusion criteria, Children registered in ART Centers, Children belong to the age group of 5 to 17 years. Sampling technique selected for this study is convenient sampling. Children CLHIV/AIDS registered in ART center Institution. Children between 5 to 17years only Children diagnosed with HIV infection more than one year. Children who were not in the advanced stage of HIV/AIDS. Children who received ART more than one month were included in the study.

#### E. Description of the tool

Data collection tool was structured interview schedule, and necessary data were extracted by reviewing ART cards, and most recent laboratory test results of CD4 count were used as a base line value.

*Section 1:* Socio economic variables, Age, Gender, religion, Parental Status, Family income, Duration of stay in institution, CD4 count, Clinical Staging, (WHO criteria 2006) Duration of ART years,

*Section 2:* Z scores were calculated using anthropometric measurements according to the age and sex of the child (height and weight)

### 6. Data collection procedures

Permission obtained from personnel's, Informed consent was obtained from the guardian or parent of the child. Selection of child participants began by describing the study and answering questions individually. All questionnaires were administered face to-face, independently and confidentially, either in English or Tamil, the local language, depending on the child's preference. With the help of trained personnel height and weight of the children were measured. The interview took approximately 30 minutes for each child.

#### A. Plan for data analysis

The collected data were examined for completeness and consistency. Obtained data were analyzed using both descriptive and inferential statistics based on the objectives and hypothesis of the study under the following headings, coded and tabulated.

Maximum of children are in the category of normal 74.2% based on the BAZ where as 44.2% of them indicated stunting in HAZ.

Majority of children in both groups (69.5% in family based and 74.2% in institutionalized) are in the category of normal according to their BAZ.122 (64.2%) of the family based children were in the classification of stunting in comparison with 84 (44.2%) in the institutionalized children, which showed statistical significance (p.001) between the group. Hence the hypothesis which is stated that is no significant difference between physical well-being of both families based and Institutional reared children is rejected.

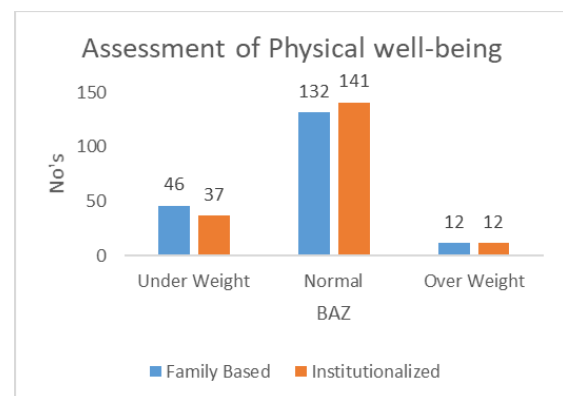


Fig. 1. Findings regarding physical growth of CLHIV in both groups

Majority of children in both groups (69.5% in family based

Table 2  
 Comparison between Physical growth of Family based with Institutionalized children

Base line variables	Family CLHIV/AIDS Mean SD	P	Institutionalized	P
Age				
5-7yrs	-.65(1.5)	.456	-1.2(1.1)	.542
8-11yrs	-1.04(1.4)		-.84(1.3)	
12-17yrs	-1.2(1.4)		-1.12(1.4)	
Gender		.795		.403
Male	-1.09(1.6)		-.96(1.3)	
Female	-1.04(1.1)		-.79(1.4)	
Parental status				
Maternal orphan	-.93(1.4)	.294	-.84(1.3)	.046
Paternal orphan	-.79(1.45)		-1.2(1.5)	
Double orphan	-1.44(1.3)		-.5677(1.2)	
Vulnerable child	-1.14(1.3)		-.8008(1.0)	
Family income				
<4000	-1.1(1.5)	.407		.616
400-5000	1.2(1.2)			
>=5000	-.90(1.4)			
Number of years in school				
Duration of stay in institution				
<1 year	-1.0(1.4)	.733	-1.2(1.1)	.479
>1year	-1.0(1.4)		-1.1(1.5)	
Clinical staging				
Stage 1-2	-1.0(1.1)	.468	-1.44(1.3)	.413
Stage 3-4	67.7(6.5)		-1.0(1.2)	
Duration of ART		.763	-1.1(1.3)	.873

and 74.2% in institutionalized) are in the category of normal according to their BAZ.122(64.2%) of the family based children were in the classification of stunting in comparison with 84 (44.2%) in the institutionalized children

The analysis on socio economic back ground of CLHIV/AIDS revealed that with regard to the frequency percentage distribution age group of CLHIV/AIDS majority 69.5% in family based and 74% in institution reared belong to the age group of 13-17. Regarding gender most of them 50.5% female in family based and 53.2% male in institution reared. Regarding religion 74.2% in family based and in institution reared 62.1% were Hindus, the current study demonstrated that majority of the institution reared children 34.7% were paternal orphans compared to family-based children only 16.8%.

With regard to the income of family-based majority of them 36.8% received monthly income of Rs 5000 and only 27.3% earned above 10,000. Although some of the children 11.6% in family based and 10.5% in institution reared were in either stage 2 or 4, none of them reported to have any serious illness. The improved health status of the infected children is likely to have been due to administration of ART, with mean year of ART treatment being more than 1 year 50.6% in family based and 51.1% institution reared children.

The present study compared the physical growth based on weight and height. BMI for the age score was calculated and categorized the children as underweight, normal and overweight. Height for the age Z score was calculated and categorized the children to stunting and healthy. According to their height. 64.2% of the family-based children were in the

classification of stunting in comparison with 44.2% in the institution reared children, overall physical well-being was better in the institution reared children as shown by lesser number of children with stunting 64.2% vs 44.2% as compared to the family reared children.

A study reported significant improvement in Height for age Z score (HAZ) (p=0.006) and Weight for age Z score (WAZ) (p=0.034) in children with HIV after the initiation of ART. But the present study did not show statistical difference in their physical growth between the children on ART, due to their normal CD4 count, in turn better health status.

The tests of hypothesis show significant positive relationship between the Demographic variables, Age, Gender, religion, Parental Status, family income, Duration of stay in institution, CD4 count, Clinical Staging, Duration of ART years, and anthropometric Measurements measuring Height and Weight. The institution reared children were not at risk for malnutrition and the family reared children are at risk for malnutrition they have stunted growth for their age. The study reveals poor physical growth in family based children, which implicates the need to provide good nutrition to children for better physical growth.

## 7. Conclusion

This paper presented an overview on a comparative study to assess the physical growth of children living with HIV/AIDS in family based and in institution reared children in Tamilnadu.

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