



Original Research Article

## Psychosocial and Nutritional Profile among Children with and without HIV in Northern Karnataka

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### ABSTRACT

**Context:** Children living with HIV may have decreased social functioning in comparison with their peers. This decline in social functioning or peer relations may signify the child's increased difficulty managing his or her HIV diagnosis and/or treatment regimen.

**Aims:** To study the difference in the psycho-social problems and nutritional status between HIV infected children and children without HIV/AIDS.

**Settings and Design:** Case control study involving children with and without HIV/AIDS

**Methods and Material:** Children in the age group of 5 to 15 years with and without HIV/AIDS were studied from March to August 2011. Child Behaviour Checklist (CBCL) was used to assess Psycho-Social Profile.

**Statistical analysis used:** Data was analysed with Epi info 7. Odds ratio (OR) for risk computation, correlation for bivariate association, chi-square test for categorical data and Z test for mean score of Psycho-social profile was used as tests of significance.

**Results:** The mean age of Children with and without HIV was 9.5 years and 8.5yrs. Mother to Child (92%) was the most common mode of transmission among HIV/AIDS children. Psychosocial problems mean scores were more among HIV/AIDS children and statistically significance ( $p < 0.01$ ) relation was observed with social problems. Acute and chronic malnutrition was more among HIV/AIDS (OR=4.33 Weight for Age & OR=4.1 Height for Age) and was statistically significant ( $p < 0.01$ ). A significant negative correlation was observed with BMI and Weight for Age in HIV/AIDS children with respect to age.

**Conclusions:** Children infected with HIV/AIDS are affected with psychosocial problems and poor nutritional status.

**Key-words:** HIV Positive children, Psycho-Social Profile, Child Behaviour Checklist, Malnutrition.

**Key Messages:** HIV children are prone for psychosocial problems especially the social problems and malnutrition. Adequate training of health care professional and creating an unstigmatised atmosphere in health care settings would help children and their parents.

### INTRODUCTION

Epidemic of Acquired Immuno Deficiency Syndrome (AIDS) had its

beginning in the late 1970s, more than 25 million deaths worldwide have occurred since then. In 2009, 33.3 million people

living with Human Immunodeficiency Virus (HIV) were reported; comprising 2.5 million children below 15yrs. [1] In India 2.4 million people were living with HIV in 2009, equating to a prevalence of 0.3% consisting of 70,000 children. The most common route of transmission was mother to child (Vertical transmission). [2,3]

HIV children are at increased risk of psychosocial problems. These children have been reported to have lower self-esteem, poorer body-image and more problems in psychological well-being, behaviour and social adjustment than those without chronic conditions. [4]

Children living with HIV may have decreased social functioning in comparison with their peers. This decline in social functioning or peer relations may signify the child's increased difficulty managing his or her HIV diagnosis and/or treatment regimen. Often families will shame or guilt their children into taking their medications consistently, who will wear down the patient mentally over time. India has addressed the issue of Paediatric HIV in National AIDS Control Program (NACP) III -2006 to 2011. The main highlights of NACP III with respect to Paediatric HIV being provision of assured access to paediatric ART for children infected with HIV, investment in community care centers to provide psychosocial support, outreach services, referrals and palliative care, address the needs of persons infected and affected by HIV, especially children through the sectors and agencies involved in child protection and welfare. [5]

In this regard this attempt is being made with the objective to study the difference in psycho-social profile and nutritional status among HIV children and children without HIV.

## **MATERIALS AND METHODS**

A case control study was conducted among children with and without HIV between 5 to 15yrs for a period of 6 months from March to August 2011. Sample size of three hundred in 1: 2 ratio (100 children with HIV and 200 children without HIV) were included in the study after obtaining informed consent from the care provider. 50 cases of HIV children were selected from the HIV high risk clinic, Anti-Retroviral Therapy (ART) centre and 50 cases of HIV were randomly selected by house visits with the help of link worker from a NGO Jeevanamukhi linked with ART centre. Controls (Children without HIV/AIDS) in the ratio of 1:2 were selected randomly from the hospital & neighbourhood of the cases. HIV positive children not on ART, suffering from any diagnosed mental illness and children without HIV diagnosed with any psychiatric illness were excluded from the study.

A pretested and structured questionnaire was used to collect the data on socio-demographic profile. Informed consent was taken from the care providers. Child behaviour checklist (CBCL) was used to assess the psychosocial profile. [6] Anthropometric measurements weight for age according to IAP classification, height for age according to Waterlows classification and Body mass index (BMI) was computed. [7,8] Data was analysed with Epi info-7. Odds ratio (OR) for risk computation, correlation for bivariate association, chi square test for categorical data and Z test for mean score of Psychosocial profile was used as tests of significance.  $P < 0.05$  was considered as statistically significant.

## **RESULTS**

A total of 300 subjects consisting of 100 cases (children with HIV) and 200 matched controls (children without HIV/AIDS) were studied. The mean age of

cases was 9.5 years and controls were 8.5 years. Majority of cases were males (52%). The duration of infection was less than 48 months in 76% of cases and the most common route of transmission was mother to child (92%). [Table -1]

Table -2; represents the mean scores were higher in children with HIV in relation to depression ( $7.92 \pm 3.56$ ), withdrawal problems ( $8.54 \pm 3.48$ ) and social problems ( $13.82 \pm 3.27$ ). A statistically significant association was observed with social problems ( $p < 0.01$ ) and no statistical

significance was observed for depression and withdrawal problems.

Malnourishment was observed predominantly in HIV children. HIV children were 4.33 times at a greater risk of developing acute malnutrition and 4.10 times at risk of having stunted growth. A statistically significant association ( $p < 0.001$ ) was observed between children with and without HIV in relation to nutritional status. [Table -3] In table- 4; a significant negative correlation was observed for weight for age and BMI among HIV children.

Table - 1: Socio-demographic profile of study subjects

Socio-demographic profile		HIV Children (n=100)	Children without HIV (n=200)
Age	5 to 10yrs	46	96
	> 10yrs	54	104
Sex	Male	52	100
	Female	48	100
Care provider	Both parents	36	192
	Guardian	32	3
	Mother	26	3
	Father	2	2
	Orphanage	4	0
Duration of Infection	<48 months	76	-
	>48 months	24	-
Mode of Transmission	Mother to child	92	-
	Others	8	-

Table - 2: Psycho-social profile among the study subjects

Psychosocial profile	HIV children Mean $\pm$ SD	Children without HIV Mean $\pm$ SD	p value
Depression	$7.92 \pm 3.56$	$6.84 \pm 2.62$	0.087
Withdrawal Problems	$8.54 \pm 3.48$	$8.16 \pm 3.46$	0.586
Social problems	$13.82 \pm 3.27$	$12.22 \pm 3.45$	0.019**

\*\*  $p < 0.01$ , statistically significant

Table - 3: Nutritional status among the study subjects

Nutritional status		HIV Children	Children without HIV	Odds ratio (Confidence limits)	p value
Weight for age	>80	20	104	4.33 (2.47, 7.61)	<0.001
	71 to 80	18	40		
	61 to 70	24	44		
	51 to 60	38	12		
Height for age	>95	14	80	4.095 (2.18, 7.70)	<0.001
	87.5 to 95	24	64		
	80 to 87.5	30	28		
	<80	32	28		
BMI	< 18.5	70	168	0.444 (0.25, 0.79)	<0.001
	18.5 to 24.9	24	16		
	>25	6	16		

Table -4: Correlation of anthropometric indicators with respect to age

Anthropometric indicators	HIV children	Children without HIV
Weight for age	-0.360*	-0.263
Height for age	0.131	-0.149
BMI	-0.303*	0.004

\*\* Correlation is significant at 0.01 level (2-tailed), \* correlation significant at 0.05 level

## DISCUSSION

Children affected with HIV are often traumatized and suffer a variety of psychological reactions to parental illness and death of parents. In HIV-infected children, malnutrition has been associated with reduced length of survival and increased infectious complications.

In our study it was observed that majority of the HIV children (64%) had lost either of their parents. Similar observations were made by Ira Shah in his study with 57% of HIV children had lost either of their parents, <sup>[9]</sup> and Sirikul Isaranurug et al found that grandparents were the caregiver in majority (41.1%) of HIV children. <sup>[10]</sup> The death of a parent especially mother during the child's first years of life implies the loss of his or her principal caregiver but also jeopardizes the fulfilment of basic needs such as access to health care, sufficient food etc.

The most common mode of transmission observed in our study was Mother to child (92%). Ramesh R. Pol et al reported vertical transmission in 94.37% of HIV children similar to our observation. <sup>[3]</sup> Mother can pass the virus to her baby during pregnancy, delivery and breastfeeding. Children can also be infected through contaminated blood during transfusions or by sexual abuse. Hence HIV infection can directly affect children in the absence of prevention.

In our study psychosocial mean scores (depression, withdrawal and social problems) were higher in HIV children. A statistically significant association was observed only with the mean scores of social problems. Renee van Gelder et al in South Africa found that there were no significant differences in the levels of depression/anxiety, withdrawal and social problems between children with and without HIV even after controlling several possible covariates. <sup>[11]</sup> Atwine B in rural Uganda,

observed high levels of psychological distress in children affected by AIDS/HIV. <sup>[12]</sup> In a report by Lucie Cluver et al, children affected with AIDS had significantly more psychological problems. <sup>[13]</sup> Stigmatization of HIV children with the assumption that they too are infected with HIV or that their family has been disgraced by the virus may all impact negatively on current and future mental health. They tend to show internalizing rather than externalizing symptoms in response to such impacts- depression, anxiety and withdrawal- as opposed to aggression and other forms of antisocial behavior.

Our study reported HIV children were 4.33 times at a greater risk of developing acute malnutrition and 4.10 times at risk of having stunted growth. A statistically significant association ( $p < 0.001$ ) was observed between children with and without HIV in relation to nutritional status. Isaranurug S et al found that HIV infected children had significantly high proportions of stunting and underweight compared to children without HIV. <sup>[10]</sup> Similar observations were made by Priyadarshini et al, among 231 HIV children, majority 63% was undernourished and 58% of children had stunting. <sup>[14]</sup> S R Shah et al and A R Daga et al in their study also reported similar rates of under nutrition among HIV-infected children varying from 60 to 62%. <sup>[15,16]</sup> HIV-infected children are prone for infections and nutritional disorders decreasing the chances for their survival. Hence, the need for adequate and timely growth monitoring to allow timely interventions is needed.

HIV children are prone for psychosocial problems especially the social problems and malnutrition. The study recommends for good support and care from extended family to ensure satisfactory upbringing for the HIV positive child. Adequate training of health care

professional and creating an unstigmatised atmosphere in health care settings would help children and their parents to access nearest health facility for care and support which in turn improves the health status of such children.

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