

Original Research Article

A cross-sectional study of behavioural disorders in children with human immunodeficiency virus / acquired immuno deficiency syndrome attending an anti-retroviral therapy centre

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ABSTRACT

Background: HIV is a chronic disease which also significantly affects the behavior. This study aims at evaluating behavioral disorders in children with HIV/AIDS.

Methods: This Cross-sectional study utilized the Child Behaviour Check List.

Results: The overall prevalence of borderline and clinically significant behavioral problems were 69.3% (n=104). The prevalence of behavioral disorders were observed in the eight categories - anxious/depressed (borderline-7.7%, clinically significant-18.3%), withdrawn/depressed (6.7%, 18.3%), somatic problems (7.7%, 6.7%), rule-breaking behavior (7.7%, 18.3%), aggressive behavior (10.6%, 21.1%), attention problems (15.4%, 2.9%) and thought problems (9.6%, 2.9%). No social problems were observed. Internalizing problems were common in girls and externalizing problems were common in boys. As age advanced a simple linear progression in prevalence of Behavior Problems was found. There were 47.1% of Orphans in study and behavioral problems were more common in them.

Conclusions: High prevalence of behavioural abnormalities warrants comprehensive management including Behavioural counselling and therapy and not just drugs for these children.

Keywords: Behavioural Problems, Child Behaviour Check List, Human immunodeficiency virus / Acquired immuno deficiency syndrome, Orphans

INTRODUCTION

Human Immunodeficiency Virus (HIV) forms a significant burden to the pediatric population.¹ HIV now forms a chronic disease which significantly affects the behavior of the child infected with HIV.² HIV not only affects the children, but also affects their families and their parental care and affection. According to United Nations Children Emergency Fund (UNICEF), many

children are drop out of school and they are engaged in labor to survive because of parental infection with HIV.

Neurological and neuropsychological problems caused by HIV infection are well known in the past few decades. Children with HIV are likely to have learning problems and attention disorders, behavioral problems, and cognitive deficits.³⁻⁸ The psychological problems of HIV in children are compounded as they are orphaned, highly exposed to abuse, exploited and neglected due loss of

parent(s). This is found in Sub-Saharan part of the world extensively.⁹

World organizations like UNICEF in collaboration with national organizations and Government of India have implemented the National Aids Control Program for the prevention of parent to child transfer of the disease and provide care and medical treatment to the children infected with HIV. HIV infection affects all dimensions of person's life - Physical, Psychological, Social and Spiritual.¹⁰ In order to enhance the quality of life, Counseling and Social Support and Rehabilitation have to be implemented along with treatment. Children with HIV face a lot of challenges in their life with loss of parents, drugs, side effects of drugs, social and nutritional problems due to death of the parents.¹¹ Children have equal emotional liability as an adult. Pediatrician forms the first point of contact for the identification of problems in these children.

This study was done to identify the behavioral problems in the HIV children attending the Anti-Retroviral Therapy (ART) Plus Centre in our hospital, which will help in planning a program to support these children. In the continuum of health care for children with HIV/AIDS, a multi-disciplinary approach is essential. All the aspects of care including second line drugs in ART therapy, treatment for opportunistic infections, monitoring for side effects and nutritional support for these children are provided in ART Plus centers. But still gap exists in the area of psychological support and behavioral therapy for these children. In India only a few studies are available to document the behavioral problems in children with HIV/AIDS.

The aim of the study is to find out prevalence and pattern of behavioral disorders in children with HIV/AIDS.

METHODS

This study is a single center cross-sectional study done on a sample of 104 HIV positive children in the age group of 6 to 12 years of age attending the ART plus center in Govt. Mohan Kumaramangalam Medical College Hospital, Salem, Tamilnadu, India. Our hospital ART center was upgraded as ART plus center in the year 2012 to treat patients with second line ART drugs. This study utilized the Child Behavior Check List (CBCL) which is standard tool to identify the behavior problems in children.¹² The CBCL is the well-researched tool with more than 200 papers published using it.¹³ CBCL has been used in western countries to screen school children routinely for Behavioral Problems. CBCL consists of questionnaire on which the child was rated on various behavioral and emotional problems. The checklist consists of a number of statements of child's behavior. There are 113 questions. Responses are recorded on a Likert scale. There are two types of CBCL available - CBCL for Preschool age (1½-5 years) and CBCL for school age (6-18 years). CBCL Questionnaire is filled by

either the parents or the caregivers. The time frame for the item response is past six month. Using the syndrome profile card, the total problems are categorized as Internalizing problems and Externalizing problems. Altogether CBCL includes eight clinical syndrome scales namely anxious/depressed, withdrawn/depressed, somatic problems, rule-breaking behavior, aggressive behavior, social problems, attention problems and thought problems.

The study population included all children with HIV/AIDS from the age 6 to 12 years attending the ART plus center. The newly diagnosed children (less than 6 months) were excluded. The CBCL was administered either to the parents or the caregivers. The responses were scored using the Hand scoring syndrome profile for boys and girls available separately. The patterns of behavioral disorders in children were analyzed. To eliminate observer bias all the responses from the parents or caregivers were recorded by the first author alone. The Statistical Co-relation was done using SPSS Ver. 20.0 (Statistical Package for Social Studies). Institutional ethical committee clearance was obtained.

RESULTS

The results are tabulated in Tables 1-3. During the study, 104 children in the age group of 6 to 12 years were recruited into the study and were administered the CBCL. The Mean age of the Male children was 9.43 years and for female children it was 9.78 years in the study group. The male: female ratio in the study group was 1.8:1. The entire children in the study population had both their parents tested HIV positive. This implies that all the children in the study group acquired the HIV/AIDS perinatally. About 82.7% of children in the study group had lost both the parents. Only about 4.8% of children had both living parents. About 47.1% of children in the study group were found to be living in the orphanages.

About 69.3% of children in the study group were found to have borderline or clinically significant behavioral abnormalities. On analyzing the eight syndrome scales screened under CBCL, the abnormalities were graded into two categories - borderline and clinically significant. In the borderline abnormalities all the eight syndrome scales were found to have an almost equal prevalence ranging from 6.7% to 15.4%. In the clinically significant category, anxious/depressed, withdrawn/depressed and rule breaking behavior were found to be common with 18.3% prevalence of each disorder. Somatic, thought and attention disorders were less common. Clinically significant social problems were not identified in the study population.

On analyzing the gender differences in the behavioral abnormalities, the internalizing problems like anxious/depressed, withdrawn/depressed and somatic problems were more common in girls than boys (Table: 2). The externalizing problems like rule breaking and

aggressive behaviors were found to be more common in boys. These observations were statistically significant.

The social problems and thought problems did not have any statistically significant gender preference.

Table 1: Profile of children with HIV/AIDS.

Age and gender distribution						
Age	Boys		Girls		Total	
	No	Percentage	No	Percentage	No	Percentage
6 years	7	10.3	4	11.1	11	10.6
7 years	12	17.6	4	11.1	16	15.4
8 years	5	7.4	4	11.1	9	8.7
9 years	8	11.8	-	-	8	7.7
10 years	7	10.3	8	22.2	13	12.5
11 years	15	22.1	8	22.2	23	22.1
12 years	14	20.6	10	27.8	24	23.1
Total	68	100	36	100	104	100
Parental life status						
			No.		Percentage	
Both parents alive			5		4.8	
Father dead			13		12.5	
Mother dead			-		-	
Both dead			86		82.7	
Place of domicile						
			No.		Percentage	
Home			55		52.9	
Orphanage			49		47.1	
Prevalence of behavioral problems						
			No.		Percentage	
Normal			32		30.7	
Borderline/clinical			72		69.3	
Distribution of clinical range of behavioral disorders						
Syndrome scale	Normal		Borderline		Clinical	
	No.	%	No.	%	No.	%
Anxious/depressed	77	74.0	8	7.7	19	18.3
Withdrawn/depressed	78	75.0	7	6.7	19	18.3
Somatic	89	85.6	8	7.7	7	6.7
Social problems	99	95.2	5	4.8	0	0
Thought problems	91	87.5	10	9.6	3	2.9
Attention problems	85	81.7	16	15.4	3	2.9
Rule breaking behavior	77	74.0	8	7.7	19	18.3
Aggressive behavior	71	68.3	11	10.6	22	21.1

Table 2: Gender distributions of syndrome scales.

Syndrome scales	Anxious/depressed		Withdrawn/depressed		Somatic problem		Social problem		Thought problems		Attention problems		Rule breaking behavior		Aggressive behavior	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Sex																
Male	1	5.3	2	10.5	0	0	0	0	2	66.7	3	100	18	94.7	20	90.9
Female	18	94.7	17	89.5	7	100	0	0	1	33.3	0	0	1	5.3	2	9.1
Chi square	48.43		34.99		33.11		0		0.14		2.59		8.9		17.68	
Degree of freedom	2		2		2		0		2		2		2		2	
p-value	0.00		0.00		0.00		0		0.93		0.27		0.01		0.00	

All the eight syndrome scales identified with CBCL had a simple linear progression with increasing age (Table: 3). However statistical significance was found for this linear progression only in the anxious/depressed,

withdrawn/depressed and rule breaking behaviors. For the other disorders statistical significance was not observed as the sample size was small in number in each of the subgroups.

Table 3: Age distribution of behavioral problems.

Syndrome scales	Anxious/depressed		Withdrawn/depressed		Somatic problems		Social problems		Thought problems		Attention problems		Rule breaking		Aggressive	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
6 years	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 years	0	0	0	0	0	0	0	0	0	0	0	0	2	10.5	2	9.1
8 years	0	0	1	5.3	1	14.3	0	0	1	33.3	1	33.3	0	0	1	4.5
9 years	0	0	0	0	0	0	0	0	1	33.3	1	33.3	0	0	2	9.1
10 years	5	26.3	5	26.3	1	14.3	0	0	1	33.3	1	33.3	2	10.5	3	13.6
11 years	6	31.6	6	31.6	2	28.6	0	0	0	0	0	0	10	52.6	10	45.5
12 years	8	42.1	7	36.8	3	42.9	0	0	0	0	0	0	5	26.3	4	18.2
Chi square	27.61		24.1		12.4		0		18.9		16.6		24.1		16.49	
Degree of freedom	12		12		12		0		12		12		12		12	
p-value	0.01		0.02		0.413		0		0.09		0.16		0.02		0.17	

On analyzing the correlation between the residential status of the children and the behavioral problems, no statistical significance was observed.

DISCUSSION

This study is done to evaluate the behavioral problems in HIV positive children attending our ART plus centre. There only a few studies available in the literature for comparison of behavioral disorders in children with HIV/AIDS in India.¹⁴⁻¹⁶ This study was done on relatively larger study population (n=104), when compared to similar studies by Mendoza, with a sample size of 43.¹⁷ Among the 104 children who formed the study group 72 (69.3%) children were found to have behavioral problems. This corresponds to the similar study which also utilized the CBCL to analyze the behavioral symptoms in a group of 43 Dominican children.¹⁷ The Prevalence of behavioral problems was 46% in that study. Another study by Grover reported the prevalence of behavior problems in HIV positive children as 80.7% which was in the higher range.¹⁸ That random sampling study was done in India to analyze the behavioral disorders in HIV infected children. A study by Musisi reported a Prevalence of 51.2%.¹⁹

Out of 72 children in the study group who were found to have behavioral problems 61.1% were Male children and 38.9% were female children. The Mean age of the study population is 9.43 (SD=2.1) for male children and 9.78 (SD=2.15) for female children. This correlates with the sample of older children in study by Mendoza, with mean age of 6.3, (SD=2.2).¹⁷ In these studies 82.7% of children

lost both their parents and were orphaned due to the HIV infection. Mussi also reported 97.6% of orphans in the study, of which 68.3% live with non-parental relatives.²⁰ This is also supported by Burgos and Mendoza, who also reported that a significant number of children in the study group were living with caregivers.²¹

Our study showed a linear progression of behavior problems with advancing age which was also observed in other studies.¹⁷

Other studies also reported that on comparison between non-parental and parental caregivers, about 45% of children were reported with higher incidence of Externalizing and Internalizing problems.¹⁷ This is because most of these children lost their parents. They were taken care of by care-givers and orphanages which influences the behavioral and emotional symptoms. Burgos also reported this pattern of higher behavioral problems reported in the Non-Parent caregivers' group than the group of children who were with the mother who cared the children.²⁰ Borderline/Clinical behavior abnormalities were reported to be higher in the caregiver group with anxious/depressed (44%), somatic complaints (44%) and in withdrawn (13%) syndrome scales in this study. However, in the present study no such statistically significant difference was observed between parental and non-parental caregivers.

On analysis of the behavioral problems in our study, it is evident that Internalizing behaviors like anxious/depressed, withdrawn/depressed and somatic problems were more common among female children

which are similar to other studies which also observed 46% of Internalizing problems.¹⁷ Among the Internalizing problems 46% were the anxious/depressed, 45% were withdrawn/depressed and 27% were reported with somatic problems. Burgos and Mendoza also reported more Internalizing behavior with female children. Among them withdrawn /depressed was more common in females.²⁰

The Externalizing problems were more common among males which are similar to other study which also showed aggressive and rule breaking behavior in the clinical range for 10% of children.¹⁷ A study by Mellins also supported this finding that anxiety and depression were more associated with female children and aggressive problems were more associated with male children.²¹ Musisi reported that Anxiety (45%), Depression (40.8%) and Somatization disorder (18.0%) were common in female children.¹⁹

CONCLUSION

The mean survival age of the children with HIV has increased in the recent times and the disease has also been classified as a chronic disease rather than a fatal disease. So, the Behavioral counseling and therapy should form a part in Continuum of care for children with HIV. In the last few decades HIV has rendered many children as Orphans - a holocaust similar to world wars. These children reside in Orphanages and are more prone to develop behavioral problems. So, Behavioral counseling and therapy for these children who are future adults in our society will be counterproductive. The Internalizing Problems, if untreated will lead to adverse effects like suicide which will make a serious setback to the AIDS Control Programs. On the other hand, the Externalizing Problems, if untreated will be a serious threat to the society as these children are prone to develop Anti-social activities. All ART centers should have a psychiatrist and psychologist for identifying and treating behavioral problems in these children. The high prevalence of behavioral abnormalities warrants comprehensive management including Behavioral counseling and therapy and not just drugs.

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REFERENCES

- Nath A. Pediatric HIV in India: Current scenario and the way forward. *Indian J Public Health.* 2017;61(2):124-30.
- Sanmaneechai O, Puthanakit T, Louthrenoo O, Sirisanthana V. Growth, developmental, and behavioral outcomes of HIV-affected preschool children in Thailand. *J Med Assoc Thai.* 2005;88(12):1873-9.
- Brown, LK., Lourie, KJ, Pao M. Children and adolescents living with HIV and AIDS: A review. *J Child Psychol Psychiatry.* 2000;41(1):81-96.
- Fundaro C, Miccinesi N, Baldieri NF, Genovese O, Rendeli C, Segni, G. Cognitive impairment in school-age children with asymptomatic, HIV infection. *AIDS Patient Care STDS.* 1998;12(2):135-40.
- Bos S, Moss H, Brouwers P, Pizzo P, Lorion, R. Psychological adjustment of HIV-infected school age children. *J Devel Behavioral Pediatr.* 1994;15(3):526-33.
- Havens J, Mellins C, Pilowsky D. Mental health issues in HIV-affected women and children. *Int Rev Psychiat.* 1996;8(2-3):217-25.
- Havens J, Whitaker A, Feldman J, Ehrhardt A. Psychiatric morbidity in school-age children with congenital HIV-infection: A pilot study. *J Develop Behav Pediatr.* 1994;15:S18-25.
- Armstrong FD, Seidel JF, Swales TP. Pediatric HIV infection: A neuropsychological and educational challenge. *J Learn Disabil.* 1993;26(2):92-103.
- World Health Organization, Joint United Nations Programme on HIV/AIDS (UNAIDS) and United Nations Children Fund (UNICEF). Towards universal access: scaling up priority HIV/AIDS interventions in the health sector: progress report 2008. Geneva, World Health Organization, 2008. Available at: https://www.who.int/hiv/mediacentre/universal_access_progress_report_en.pdf. Accessed April 2007.
- Dalmida SG. Spirituality, mental health, physical health, and health-related quality of life among women with HIV/AIDS: integrating spirituality into mental health care. *Issues Ment Health Nurs.* 2006;27(2):185-98.
- Ayalu A. Reda and Sibhatu Biadgilign, Determinants of Adherence to Antiretroviral Therapy among HIV-Infected Patients in Africa. *AIDS Res Treat.* 2012;2012
- Achenbach TM, Edelbrock CS. Child Behavior Profile. *Psyc TESTS Dataset.* 1979;47(2):223-33.
- Rescorla L. Assessment of young children using the Achenbach System of Empirically Based Assessment (ASEBA). *Ment Retard Dev Disabil Res Rev.* 2005;11(3):226-237.
- Arun S, Singh AK, Lodha R, Kabra SK. Disclosure of the HIV infection status in children. *Indian J Pediatr.* 2009;76(8):805-8.
- Vranda M, Mothi S. Psychosocial issues of children infected with HIV/AIDS. *Indian J Psychol Med.* 2013;35(1):19.
- Leserman J. The effects of depression, stressful life events, social support, and coping on the progression of HIV infection. *Curr Psychiatry Rep.* 2000;2:495-502.
- Mendoza R, Hernandez-Reif M, Castillo R, Burgos N, Zhang G, Shor-Posner G. Behavioural symptoms of children with HIV infection living in the

- Dominican Republic. *West Indian Med J*. 2007;56(1):55-9.
18. Grover G, Pensi T, Banerjee T. Behavioural disorders in 6-11-year-old, HIV-infected Indian children. *Ann Trop Paediatr*. 2007;27(3):215-24.
 19. Musisi S, Kinyanda E. Emotional And Behavioural Disorders In HIV Seropositive Adolescents In Urban Uganda. *East Afr Med J*. 2009;86(1):16-24.
 20. Burgos N, Hernandez-Reif M, Mendoza R, Castillo R, Shor-Posner G. Caregivers' perception of HIV-infected Dominican children's behaviour. *West Indian Med J*. 2007;56(1):42-7.
 21. Mellins CA, Brackis-Cott E, Leu CS, Elkington KS, Dolezal C, Wiznia A, et al. Rates and types of

psychiatric disorders in perinatally human immunodeficiency virus-infected youth and seroreverters. *J Child Psychol Psychiatry*. 2009;50(9):1131-8.

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