

Pilot Study - Impact of Multifaceted Interventional Package to Address the Dietary Pattern, Nutritional Status & Psychosocial Wellbeing among Children Infected with HIV/AIDS in Bagalkot, Karnataka

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ABSTRACT

Background of the study: HIV-infection and malnutrition are strongly linked for many years, the most common malnutrition form observed among HIV-infected children and adolescents worldwide was the acute malnutrition or wasting syndrome, characterized by significant decrease in body fat, and lean and bone mass, that was accompanied by growth retardation.¹

Diet plays a crucial role in the immune system of HIV/AIDS patients, as sufficient amounts of macro- and micronutrients are essential for its normal functioning, whereas psychosocial wellbeing has been found to improve the mental ability in HIV-infected children. Therefore, adherence to a healthy diet and achieving an optimal psychosocial wellbeing from the early to advanced stages of HIV infection in this population is essential in order to maintain a good nutritional status, quality of life and self esteem to optimize health outcomes and to prevent future chronic complications.²

Aims: The aim of the study was to assess impact of multifaceted interventional package on dietary pattern, nutritional status and psychosocial wellbeing among children infected with HIV/AIDS.

Objectives:

- To assess the dietary pattern, nutritional status & psycho-social well being of children
- To find out the effectiveness of multifaceted interventional package on dietary

pattern, nutritional status & psycho-social well being of children

- To find out the association between dietary pattern, nutritional status & psycho-social well being with selected socio-demographic variables
- To identify the correlation between dietary pattern with nutritional status & psycho-social well being of children
- To find out the correlation between nutritional status & psycho-social well being of children

Methodology: A true experimental research study was conducted to assess the impact of multifaceted interventional package on dietary pattern, nutritional status and psychosocial wellbeing among children infected with HIV/AIDS. 20 children aged between 8-17 years attending Taluka ART Center Hungund, Dist Bagalkot has been selected for the study. Disproportionate stratified random sampling technique was used. Data was collected by using the following tools rating scale for dietary pattern, electronic weighing scale for weight, height measurement board for measuring height and Shakir's tape for MUAC. Rosenberg Self Esteem Scale and Pediatric Quality of Life Inventory (PEDsQL 4.0) were used to assess the self esteem and quality of life of children. Interventions used in the study are nutrition training intervention and life-skill training programme. Mann Whitney's U test was used to find the effectiveness of intervention, Spearman's Rank order Correlation coefficient

was used to assess the correlation between variables and frequency, Percentage distribution were used to describe the variables under the study

Results: The mean pre post test score of children in experimental group was 29.2 ± 4.26 which increased to 34.6 ± 3.41 in post test whereas the mean pre-test score of control group was 29.9 ± 3.6 which increased to 30.8 ± 3.77 in post-test. The Mann Whitney U value was 2 and P Value <0.000 , which shows that the Nutritional training intervention was effective in improving the dietary pattern of children with HIV/AIDS. Hence the alternative hypothesis the post test dietary pattern scores will be significantly higher than pre-test scores in experimental group than control group was accepted. Spearman's Rank order correlation coefficient was used to calculate the correlation between dietary pattern and self-esteem of children with HIV/AIDS. A moderate positive correlation ($R= 0.300$) was found between Dietary pattern and self-esteem of children.

Conclusion: The pilot study revealed that both the nutritional training intervention and life-skill training programme are effective in improving the nutritional status, self esteem & quality of life of children with HIV/AIDS. A strong positive correlation ($R= 0.85$) was found between self esteem and Nutritional status of children. A strong positive correlation ($R= 0.76$) was found between quality of life and nutritional status of children. it is also revealed that tools used in the study are highly reliable and the study is feasible and practicable. Further-it will be examined in the main research study with large sample size.

Keywords: Impact, Multifaceted Interventional package, effectiveness, HIV children, Self esteem, quality of life, dietary pattern, nutritional status, nutritional training intervention, psycho-social wellbeing, ART center.

INTRODUCTION

The findings of a recent research study indicated that children living with HIV/AIDS have lower academic and social self-esteem compared to non-HIV/AIDS children. The girls living with HIV/AIDS have a lower academic and social self-esteem compared to boys. The rural children living with HIV/AIDS have lower academic

and social self-esteem compared to urban children.³

Children with ART must be adequately nourished. Children with HIV/AIDS are with lower self esteem which negatively contributes for their personal life. Children with malnourishment and lower self esteem cannot have a standard quality of life. And previous research studies on children living with HIV/AIDS conducted in India have strongly recommended conducting studies on dietary pattern and psychosocial aspects of children living with HIV/AIDS. Hence by considering the above facts researcher felt the need to assess dietary pattern, nutritional status psychosocial well-being. The researcher aimed to help children infected with HIV/AIDS to attain optimal health.

Nutritional status and self-esteem are associated with mental well-being, happiness, adjustment, success, academic achievements and satisfaction and good quality of life.

MATERIALS & METHODS

A true experimental research study for 20 children aged between 8 years-17 years, 10 in each experimental & control group has been conducted in ART Centre Hungund Taluka Hospital Bagalkot District Karnataka. Children were selected by disproportionate random sampling technique. Data gathered by using the following tools rating scale for dietary pattern, electronic weighing scale for weight, height measurement board for measuring height and Shakir's tape for MUAC. Rosenberg Self Esteem Scale and Pediatric Quality of Life Inventory (PEDsQL 4.0) were used to assess the self esteem and quality of life of children. Interventions used in the study are nutrition training intervention and life-skill training programme. The children who are able to read and understand Kannada and who are willing to participate in the study were selected.

Instruments:

- 1. Rating Scale** for assessment of dietary pattern of children-based on frequency of food questionnaire was developed. The tool consists of 11 items with scores ranging from 1 to 4. The maximum possible score of the scale 44 and the minimum score is 11
- 2. Anthropometric measurements:** Height was measured by height measurement board, weight by electronic weighing scale and MUAC by Shakir’s tape
- 3. Rosenberg Self Esteem Scale-(RSES):** To assess the self esteem of children. The tool consists of total 10 items with the responses ranging from strongly agree to strongly disagree. The minimum possible score is 10 and the maximum possible score is 40.
- 4. WHO’s Paediatric Quality of Life Inventory (PEDsQL4.0):** To assess the quality of life of children. The tool is divided into 4 domains-Physical functioning emotional functioning Social functioning and School functioning. The tool consists of total 23 items with the responses ranging from never to almost always. The scoring ranges from 0-4. The least possible

score of the tool is 0 and the maximum possible score is 92.

Scales were translated to Kannada and then back translated to English. The reliability of the test was found out by using Karl Pearson’s co-efficient of correlation formula.

Data Collection Procedure: Prior permission was taken before collection of data. Permission was taken from Project director Karnataka State AIDs Prevention Society. Permission was taken from senior medical officer ART Plus Centre District Hospital Bagalkot. Permission was taken from Chief medical officer General hospital Hungund.

The children attending the ART centers were selected obtained consent from their parents to participate in the study. Children who fulfilled the inclusion criteria were selected for the study. Researcher has taken 40 minutes to collect the necessary data from each child.

Data Analysis: Data analysis is performed using SPSS v25. Frequency & Percentage distribution for description of Demographic Variables. Mann Whitney’s U Test to find the effectiveness of interventions. And Spearman’s Rank order Correlation coefficient was used to find the Correlation between variables.

RESULTS

Section-I

Description of Socio-demographic variables

Description of Demographic characteristics of children

Table No 1: Distribution of cases and controls according to their baseline factors data

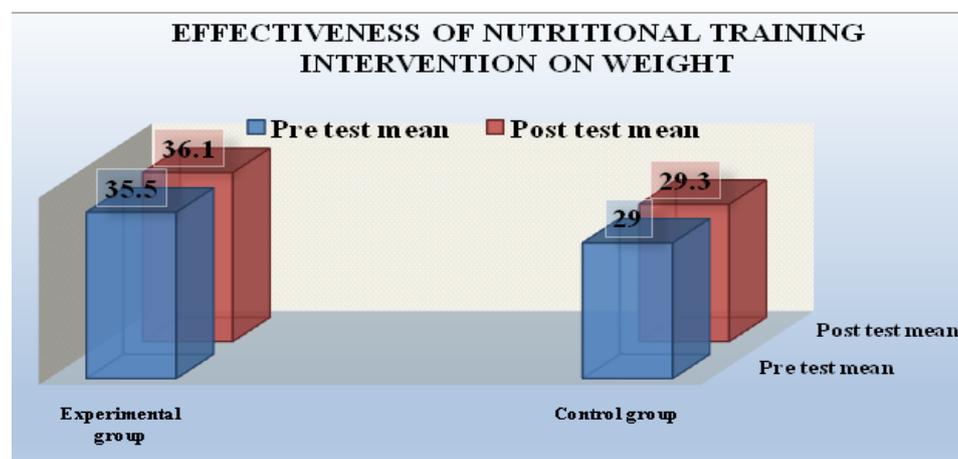
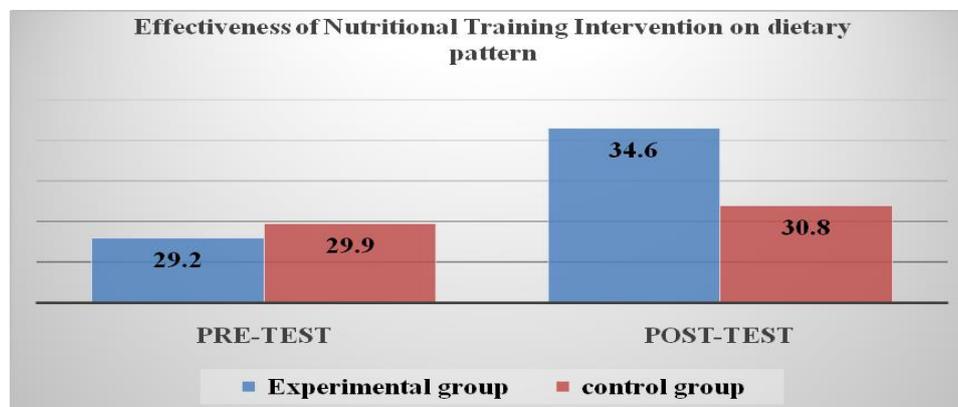
Baseline Factors	Categories	Experimental group N ₁ =10		Control N ₂ =10	
		F	%	F	%
Age of The child at diagnosis (In Yrs)	Birth – 1 Yr	2	20%	3	30%
	2-5 Yrs	3	30%	2	20%
	6-10 Yrs	2	20%	2	20%
	11-14 Yrs	3	30%	3	30%
Current Age (in Yrs)	8-10 Yrs	3	30%	4	40%
	11-14 Yrs	3	30%	4	40%
	15-17 Yrs	4	40%	2	20%
Duration of Illness (in Yrs)	2-5 Yrs	3	30%	4	40%
	6-10 Yrs	4	40%	2	20%
	11-14 Yrs	3	30%	4	40%
Duration of ART	2-5 Yrs	3	30%	2	20%
	6-10 Yrs	5	50%	6	60%
	11-14 Yrs	2	20%	2	20%
Gender	Boys	6	60%	5	50%
	Girls	4	40%	5	50%

Table no 1 continued...

Educational Status	No Formal Education	0	0	0	0
	Primary Education	5	50%	3	30%
	Secondary Education	3	30%	2	20%
	PUC	2	20%	5	50%
Type of Family	Nuclear	6	60%	7	70%
	Joint	4	40%	3	30%
	Extended	0	0	0	0
Religion	Hindu	6	60%	6	60%
	Christian	1	10%	2	20%
	Muslim	3	30%	2	20%
	Others	0	0	0	0
Family Monthly Income in Rs	6000-10000	3	30%	4	40%
	11000-15000	5	50%	3	30%
	16000-20000	2	20%	3	30%
Child living with	Both parents	2	20%	3	30%
	Single parent	5	50%	4	40%
	Relatives	3	30%	3	30%
	Any other	0	0	0	0
Residence	Rural	7	70%	4	40%
	Urban	3	30%	6	60%
	Semi Urban	0	0	0	0
Type of care giver	Father	1	10%	1	10%
	Mother	6	60%	5	50%
	Relatives	3	30%	4	40%
Care givers HIV status	Yes	10	100%	10	100%
	No	0	0	0	0
Parental living status	Both alive	2	20%	2	20%
	One expired	5	50%	6	60%
	Both expired	3	30%	2	20%

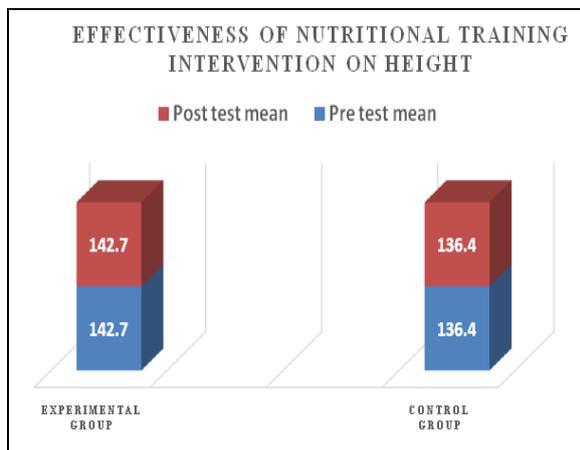
Section-II

Effectiveness of multi-faceted interventional package on dietary pattern, nutritional status, self esteem and quality of life of children with HIV/AIDS

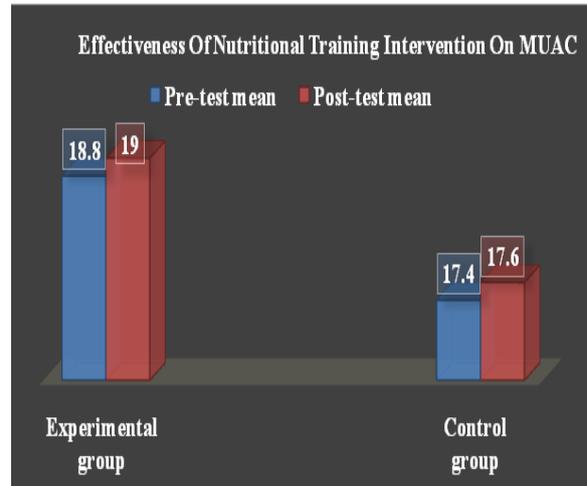


The above table depicts that mean pre-test score of children in experimental group was 29.2 ± 4.26 which increased to 34.6 ± 3.41 in post test. Whereas the mean pre-test score of control group was 29.9 ± 3.6 which increased to 30.8 ± 3.77 in post-test. The Mann Whitney U value was 2 and P Value < 0.000 , which shows that the nutritional training intervention was effective in improving the dietary pattern of children with HIV/AIDS.

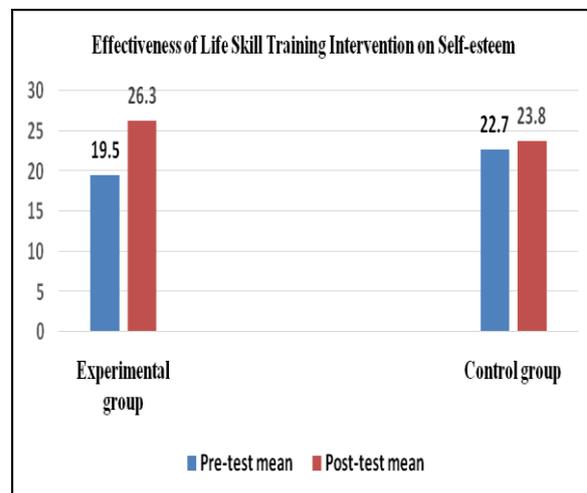
The above table depicts that mean pre-test score of children in experimental group was 35.5 ± 8.92 which increased to 36.1 ± 8.76 in post test. Whereas the mean pre-test score of control group was 29 ± 7.15 which increased to 29.3 ± 6.93 in post-test. The Mann Whitney U value was 25.5 and P Value < 0.042 , which shows that the nutritional training intervention was effective in increasing weight of children with HIV/AIDS in experimental group as compared to control group.



The above table depicts that the mean pre-test score of children in experimental group was 142.7 ± 8.7 which increased to 142.7 ± 8.7 in post test whereas the mean pre-test score of control group was 136.4 ± 7.66 which increased to 136.4 ± 7.66 in post-test. The Mann Whitney U value was 25.5 and P Value < 1.00 , which shows that there is no significant difference in height of children with HIV/AIDS in experimental group and control group after implementation of nutritional intervention programme.

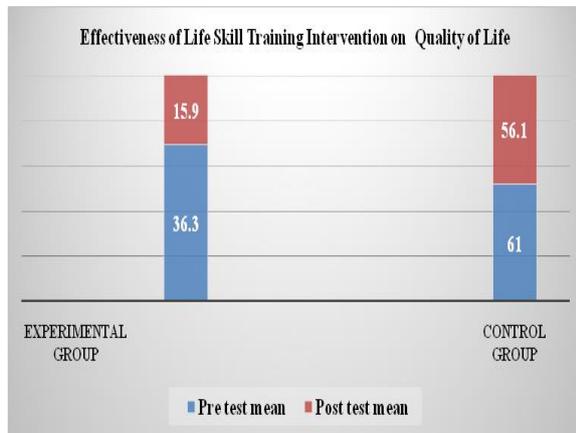


The above table depicts that mean pre-test score of children in experimental group was 18.8 ± 2.97 which increased to 19 ± 3.13 in post test whereas the mean pre-test score of control group was 17.4 ± 2.07 which increased to 17.6 ± 1.96 in post-test. The Mann Whitney U value was 50 and P Value < 0.042 , which shows that the nutritional intervention programme was effective in increasing mid upper arm circumference of children with HIV/AIDS in experimental group as compared to control group



The above table depicts that mean pre-post test score of children in experimental group was 19.5 ± 4.5 which increased to 26.3 ± 4.03 in post test whereas the mean pre-test score of control group was 22.7 ± 5.02 which increased to 23.8 ± 5.09 in post-test. The Mann Whitney U value was 24 and P Value < 0.00 , which shows that the

life skill training programme was effective in improving the self esteem of children with HIV/AIDS in experimental group as compared to control group.



The above table depicts that mean pre-post test score of children in experimental group was 36.3 ± 8.88 which changed to 15.9 ± 8.7 in post test whereas the mean pre-test score of control group was 61 ± 17.06 which changed to 56.1 ± 16.5 in post-test. The Mann Whitney U value was 32 and P Value < 0.00 , which shows that the life skill training programme was effective in improving the quality of life of children with HIV/AIDS in experimental group as compared to control group.

Section-III

Correlation between dietary pattern and Nutritional status of children in experimental group

Spearman's Rank order correlation coefficient was used to calculate the correlation between dietary pattern and Nutritional status of children with HIV/AIDS. A strong positive correlation ($R = 0.85$) was found between Dietary pattern and body weight of children. A poor positive correlation ($R = 0.261$) was found between Dietary pattern and height of children. A poor positive correlation ($R = 0.136$) was found between Dietary pattern and MUAC of children.

Correlation between dietary pattern and self-esteem of children

Spearman's Rank order correlation coefficient was used to calculate the correlation between dietary pattern and self-esteem of children with HIV/AIDS. A moderate positive correlation ($R = 0.300$) was found between Dietary pattern and self-esteem of children.

Correlation between dietary pattern and quality of life of children with HIV/AIDS

Spearman's Rank order correlation coefficient was used to calculate the correlation between dietary pattern and quality of life of children with HIV/AIDS. A moderate positive correlation ($R = 0.460$) was found between Dietary pattern and self-esteem of children.

Correlation between Nutritional status and self-esteem of children

Spearman's Rank order correlation coefficient was used to calculate the correlation between self esteem and Nutritional status of children with HIV/AIDS. A strong positive correlation ($R = 0.85$) was found between self esteem and Nutritional status of children. A poor positive correlation ($R = 0.361$) was found between self esteem and height of children. A poor positive correlation ($R = 0.36$) was found between Self esteem and MUAC of children.

Correlation between nutritional status and quality of life of children in experimental group

Spearman's Rank order correlation coefficient was used to calculate the correlation between Nutritional status and quality of life of children with HIV/AIDS. A strong positive correlation ($R = 0.76$) was found between quality of life and nutritional status of children. A poor positive correlation ($R = 0.461$) was found between height of children and quality of life of children. A poor positive correlation ($R = 0.426$) was found between MUAC and quality of life of children.

Correlation between Self-esteem and quality of life of children

Spearman's Rank order correlation coefficient was used to calculate the correlation between self esteem and quality of life of children with HIV/AIDS. A poor positive correlation (R= 0.410) was found between quality of life and self esteem of children

Section-IV

Association between Dietary pattern and Socio-demographic variables of children with HIV/AIDS

A significant association was found between dietary pattern of children with HIV/AIDS and their type of family (95%, AOR: 1.61, 1.0 to 1.98) and family monthly income family (95%, AOR: 1.754, 0.398 to 1.89)

Association between Nutritional status and Socio-demographic variables of children with HIV/AIDS

A Significant association was found between Nutritional status of children with HIV/AIDS and their duration of illness (95%, AOR: 1.84, 0.641 to 1.96), Duration of ART (95%, AOR: 1.24, 0.721 to 1.86) and educational status (95%, AOR: 1.682, 0.421 to 1.72).

Association between Self esteem and Socio-demographic variables of children with HIV/AIDS

A Significant association was found between self-esteem of children with HIV / AIDS and their present age (95%, AOR: 1.86, 0.64 to 1.68), Duration of illness (95%, AOR: 1.96, 0.421 to 1.84), duration of ART (95%, AOR: 1.746, 0.410 to 1.96) and educational status (95%, AOR: 1.684, 0.122 to 1.98).

Association between Quality of Life and Socio-demographic variables of children with HIV/AIDS

A significant association was found between quality of life of children with HIV /AIDS and their present age (95%, AOR: 1.74, 0.82 to 1.54), Duration of illness

(95%, AOR: 1.32, 0.62 to 1.92), duration of ART (95%, AOR: 1.81, 0.24 to 1.14) and educational status (95%, AOR: 1.17, 0.53 to 1.46).

$\alpha = 0.05$ AOR-Adjusted Odds Ration SE-Standard error. *Binary/multiple logistic regression analysis

CONCLUSION

Study results revealed that the nutritional training intervention is highly effective in improving dietary pattern and nutritional status of children with HIV/AIDS similarly life skill training programme is effective in improving the self esteem and quality of life of children.

A poor positive correlation (R=0.136) was found between Dietary pattern and MUAC of children. A significant association was found between quality of life of children with HIV/AIDS and their present age.

Recommendations: The similar study can be conducted in a large scale with a large sample size

Acknowledgement: None

Conflict of Interest: There is no conflict of interest

Source of Funding: Self

Ethical Consideration

The study was approved by the

- The Institutional Ethical Clearance Committee, Karnataka College of Nursing Bangalore
- The Institutional Ethical Clearance Committee BVV Sangha's Sajjalashree Institute of Nursing Sciences Navanagar Bagalkot.

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