An experimental study to evaluate the effectiveness of an interventional package on selected physiological and psychological parameters among children with HIV infection in selected settings, Chennai

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ABSTRACT

Introduction:
Human Immunodeficiency Virus infection (HIV) is the greatest health crisis the world faces today. HIV in children poses a great challenge globally. The Human Immune deficiency Virus is a retrovirus that attacks the body’s immune system. Among the special features of HIV infection are, “once infected, will be infected for life”. Children infected with HIV presents continuously with troubling symptoms such as malnutrition, fatigue, muscle wasting, weight loss and stress. Nurse is the HIV primary care provider ensuring health maintenance, preventing opportunistic infection and providing array of services including comprehensive care. Hence designing and planning effective nursing care in the form of Interventional package comprising Nutritional supplementation, Aerobic and Muscle strengthening Exercise, Relaxation techniques, Group games, Foot massage, IEC package on prevention of opportunistic infections enable the HIV infected children to be healthy and enter adulthood, promotes longevity and enhances their quality of life.

Objective of the study: To develop and evaluate the effectiveness of an Interventional Package on Selected Physiological and Psychological parameters among Children with HIV Infection.

Materials and Methods:
Research Design: Pre test - post test control group design which comes under True Experimental Design

Setting: Positive Friends Welfare Association, Chennai was chosen for Experimental Group and Network for Chennai People living with HIV, Chennai was chosen for Control Group
Sampling technique: Simple Random Sampling technique (lottery method) was used to select the Children with HIV Infection. 110 Children with HIV Infection were assigned to Experimental Group and 110 Children with HIV Infection were assigned to Control Group.

Study Participants: 209 Children with HIV Infection (105 in Experimental Group and 104 in Control Group) between the age group of 10-15 years, who fulfilled the inclusion criteria.

Procedure for data collection: Pre interventional level of Selected Physiological and Psychological parameters in Experimental and Control Group was assessed on 1st day. Instruments used to collect the data included proforma for Demographic characteristics from Children with HIV infection and tools for Selected Physiological and Psychological parameters. Tools for selected Physiological parameters included Anthropometric measurements for Weight, Height, Body Mass Index, Mid Arm Circumference, Nutritional Status was evaluated based on IAP classification Nutritional Health was assessed by head to toe examination, Level of ART adherence was assessed, Biochemical measures included CD4 cell count from medical record perusal, Haemoglobin estimation done by Cyanmethemoglobin method and tools used to assess the Psychological parameter (Stress level) included Perceived Stress Scale for Children. Data on baseline characteristics were collected and Stress level was assessed using interview method. Observation and rating was done to assess the Selected Physiological parameters. Interventional package was administered to Experimental Group from 2nd day where Nutritional mix porridge provided daily from 2nd day for 4 months, IEC package on prevention of opportunistic infections provided on 2nd day, Video assisted supervised demonstration on Aerobic and Muscle Strengthening Exercise prepared by investigator taught thrice weekly for 6 months from 2nd day, Audio assisted supervised demonstration of Deep breathing exercise and Progressive Muscle Relaxation prepared by Investigator taught twice weekly for 6 months from 2nd day, Children were involved in Group games under the supervision of Investigator for one hour thrice weekly for 6 months from 2nd day, Foot massage was provided once a week for 6 months from 2nd day. Control Group received routine services. Post interventional assessment of Selected Physiological and Psychological parameters were done after 6 months that is on 180th day for Experimental and Control Group

Results: The Study findings on comparison of pre interventional level of selected Physiological and Psychological parameters between Experimental and Control Group revealed that there was no statistically significant difference in the pre interventional level of Selected Physiological and Psychological parameters between Experimental and Control Group at p>0.05 level.
The Comparison of post interventional level of Selected Physiological parameters between Experimental and Control Group revealed a highly significant difference except Height. The calculated unpaired ‘t’ value for selected Physiological parameters viz Weight (t= 3.19; p<0.01), Body Mass Index (t= 3.70 ; p<0.01), Mid Arm Circumference (t=2.30 ; p<0.05), Nutritional Health (t=11.14 ; p<0.001), Nutritional Status (t= 5.40 ; p<0.001), ART adherence (t= 3.22 ; p<0.001), CD4 cell count (t= 1.97 ; p<0.05), Haemoglobin (t= 3.98 ; p<0.001) were highly significant in Experimental Group than Control. There was no significant difference in the mean scores for Height between Experimental Group and Control Group with the calculated unpaired ‘t’ value 0.07 at p>0.05.

The Comparison of post interventional level of selected Psychological parameters between Experimental and Control Group revealed that there was highly significant difference. The mean scores for Stress level was lower in Experimental Group than Control Group with the calculated unpaired ‘t’ value 16.19 at p<0.001.

The study findings on comparison of post interventional level of Selected Physiological and Psychological parameters between Experimental and Control Group revealed that there was a statistically significant difference in the post interventional level of selected Physiological and Psychological parameters between Experimental and Control Group.

**Conclusion:** The Interventional Package administered to the Children with HIV Infection in Experimental Group had showed a significant enhancement in the post test level of Selected Physiological parameters and reduction in the Selected Psychological parameter (Stress) than the Children with HIV Infection in the Control Group receiving routine services. Hence the Interventional package is a simple, feasible, safe, non invasive, cost effective interventions which enhances the quality of life and promotes healthy lifestyle, longevity in Children with HIV infection.

**Implications for clinical practice:** The study findings suggests that the Nurses play a vital role in planning and implementation of safe and effective nursing care to promote physical and mental health of Children with HIV infection. Further research have suggested with increased duration of intervention and follow-up to determine the impact of interventions on the health outcomes in children living with HIV and also the study recommends the utilization and administration of interventional package by the caretakers and volunteers in charge for the children with HIV infection, implementation by policy makers and stake holders to enhance the quality of life in HIV infected Children.
**Key Words:** Human Immune Deficiency virus, Children with HIV infection, Opportunistic infection, Interventional Package, Nutritional Supplementation, Aerobic and Muscle strengthening Exercise, Deep Breathing Exercise and Progressive Muscle Relaxation, Foot Massage, Group Games, IEC Package.