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# Self-esteem and self-efficacy among HIV-positive adolescents: an intervention study

Rosa Nimmy Mathew[1,2], Manjula M.Y.[3]

[1]Department of PG Studies and Research in Psychology, SDM College, Ujire, Karnataka, India
[2]Department of Counselling, School of Social Work, Roshni Nilaya, Mangaluru, India
[3]Department of Psychology, Christ (Deemed to be University), Hosur Road, Bengaluru, India

## Abstract

**Introduction:** The aim of the present study was to understand the impact of comprehensive intervention program on self-esteem and self-efficacy among human immunodeficiency virus (HIV)-positive adolescents.

**Material and methods:** Participants of the research were perinatally HIV-infected adolescent boys and girls, currently living in HIV care and support center. The study adopts a quasi-experimental non-equivalent control group design. Sample consisted of 97 adolescents (47 boys and 50 girls). Self-esteem was assessed using Morris Rosenberg's (1965) self-esteem scale, and self-efficacy was assessed using general self-efficacy scale (GSE) (1995) by Ralf Schwarzer & Matthias Jerusalem. It was hypothesized that there would be a significant improvement in the level of self-esteem and self-efficacy among participants of experimental group and no such improvement would be noticed in control group. Group intervention was conducted for experimental group focusing on four domains – physical, cognitive, affective, and social, for 44 hours spread over 6 months. Comprehensive intervention was implemented through innovative expressive strategies. Participants were assessed pre and post-intervention. Results were analyzed using correlated *t*-test for self-esteem and Wilcoxon signed-rank test for self-efficacy scores.

**Results:** There is a significant improvement in the level of self-esteem ($t = 21.154$; $p < 0.001$) and self-efficacy ($z = 6.036$; $p < 0.001$) post-intervention in the experimental group, and no such improvement was observed on both the variables in control group.

**Conclusions:** The current study reveal that post-intervention there is a significant improvement in the level of self-esteem and self-efficacy among HIV-positive adolescents.

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**Key words:** HIV-positive adolescents, intervention, self-esteem, self-efficacy.

## Introduction

Human immunodeficiency virus (HIV) is a virus, which attacks T cells in human immune system, and acquired immune deficiency syndrome (AIDS) is a syndrome that appears in advanced stage of HIV infection. HIV infection can cause AIDS, and it is possible to be infected with HIV without developing into AIDS [1]. According to the World Health Organization (WHO) [2], individuals confronted with their HIV-positive status experience uncertainty and stress over physical, medical, personal, and social situations. They must tolerate adverse side-effects of medication, social discrimi-

**Address for correspondence:** Rosa Nimmy Mathew, Research Scholar, Department of PG Studies and Research in Psychology, SDM College, Ujire, Karnataka, India, e-mail: rosanimmym@gmail.com

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nation, and death of their loved ones, and these effects and challenges are faced across the life span in varied forms.

HIV-infected children, who transverse into adolescence, encounter physical limitations, grief, bereavement, dealing with stigma, and coming to terms with HIV-positive status. Common challenges are also emphasized by their illness [3-5]. At the same time, they are prone to psychiatric and behavioral issues, mostly anxiety, depression, and low self-esteem [3, 6]. These issues prevent coping with ability to adhere to medicines, future orientation, and impede healthy functioning of HIV-positive adolescents [7, 8]. To mitigate these challenges, there is a need to enhance psycho-social support for HIV-positive youths.

Empirical research over the last few years indicates that self-esteem is a vital psychological factor contributing to health and quality of life of adolescents [9]. Prior research has identified that self-esteem is significantly associated with depressive symptoms in a diverse sample of people living with HIV [10-12]. Chronicity of HIV infection can cause important changes in life of HIV-positive adolescents, and negative effects of these experiences are further intensified by stigma and discrimination at home, school, community, or society at large. This is further exacerbated by growth delay and skin disfiguration, resulting in poor self-confidence, low self-esteem, and risk of poor mental health [5, 13]. Studies have identified that low self-esteem in people living with HIV is due to rejection, loss of social identity, and physical consequences of HIV disease. Increased level of self-esteem makes an individual living with HIV to positively perceive own self [14]. Self-efficacy is another factor that is associated with symptoms' management among HIV-positive individuals [15], and it has been positively related to medication adherence and negatively correlated with psychological distress [16]. Earlier studies have reported that self-esteem and self-efficacy are linked with positive adaptation, promote psychological and social development in adolescents, and contribute to maximize their potential. However, fewer programs are formulated for screening and building intervention to enhance these variables [17-19].

Developing and implementing a comprehensive therapeutic intervention program that can support building skills and create positive living among HIV-positive adolescents is necessary. This can increase their chance for healthy adulthood and sequentially mobilize their contribution to society and community development. The current study aims to understand the level of self-esteem and self-efficacy among HIV-positive adolescents, to develop and implement comprehensive intervention program, and to enhance the level of self-esteem and self-efficacy.

## Material and methods

### Aim

The aim of this study was to evaluate the effect of comprehensive intervention program on the levels of self-esteem and self-efficacy among HIV-positive adolescents. The objectives of the study include 3 phases: Phase 1. To assess the levels of self-esteem and self-efficacy among HIV-positive adolescents; Phase 2. To develop a comprehensive intervention program to enhance self-esteem and self-efficacy; Phase 3. To reassess the levels of self-esteem and self-efficacy among HIV-positive adolescents.

### Hypotheses

It was assumed that there would be a significant improvement in the levels of self-esteem and self-efficacy among experimental group. Moreover, there would be no significant improvement in the levels of self-esteem and self-efficacy among control group.

### Variables

Independent variable was applied to evaluate comprehensive intervention program, whereas dependent variable was used to assess the levels of self-esteem and self-efficacy.

### Sample and inclusion criteria

A purposive sample of 97 adolescents (47 boys and 50 girls) with perinatally (mother-to-child transmission) acquired HIV was selected from a pool of 150 HIV-positive adolescents. The participants were between 12 to 17 years of age, undergoing antiretroviral therapy, and living in an HIV care and support home.

### Ethical consideration

The present study has been approved by the Doctoral Committee of Mangalore University, Karnataka, India. The purpose of the research, benefits, and possible challenges were explained to ethics committee of the institution, from which the participants were selected for the study, and approval was obtained for the research. As the participants were minors, a consent was obtained from the director of the institute to recruit the participants for the research; informed consent was also obtained from all participants. The participants were made aware of their 'right to decline or withdraw participation 'at any phase of the study. The researcher ensured high level of sensitivity, and was particularly cautious to prevent intentional harm and avoided potential harm.

To maintain confidentiality, the collected data were stored in a password-protected file, which was accessible only to the researcher. The study involved data-processing in the group, hence the aspect of confidentiality and respect was conveyed. Also, the participants were informed about rules to be followed during group's sessions. A shorter intervention from comprehensive intervention program was planned for HIV-positive adolescents in the control group, and 50% of it was executed after analyzing the effectiveness of intervention program in the experimental group. Rest of the interventions will be conducted for the control group after COVID-19 pandemic situation improves.

### Tools

Socio-demographic data sheet was prepared and subjected to expert validation by the researcher to collect socio-demographic information from the participants. Rosenberg's self-esteem scale by Morris Rosenberg (1965) was used to assess global self-esteem level, and involve ten statements about self-worth and self-acceptance. Rosenberg's self-esteem scale showed internal consistency of 0.77, whereas the minimum coefficient of reproducibility was at least 0.90. General self-efficacy scale (GSE) (1995) developed by Ralf Schwarzer and Matthias Jerusalem was used to assess general sense of perceived self-efficacy for predicting coping with daily difficulties as well as adaptation after experiencing all kinds of stressful life events. Internal reliability for GSE was Cronbach's $\alpha$ coefficients between 0.76 and 0.90.

### Study design and procedures

A quasi-experimental non-equivalent control group design was adopted. The present study was conducted in 3 phases:

Phase 1. Pre-assessment consisted of assessing baseline levels of self-esteem and self-efficacy over a period of two weeks.

Phase 2. Design module and comprehensive intervention programme (Table 1) was executed for 44 hrs. in the experimental group, which was separately spread for boys and girls over 6-month period. Participants who achieved low scores in at least one of the variables were chosen for intervention. This comprehensive intervention program was shared with a guide and experts who work in HIV care and practitioners. Necessary modifications were made after receiving the feedback.

Phase 3. Post-intervention assessment was done for the experimental group after a week of completing the intervention. A second assessment was performed for the control group in two weeks, around the same time as post-intervention assessment for the experimental group.

Overall, the span of intervention with pre- and post-assessments was spread over 9 months.

### Interventions

#### *Rationale for intervention planning*

Medical facilities are increasing the life span of HIV-positive adolescents. A large number of individuals are moving towards adulthood, but psychologically and socially are not ready to face the world. HIV-positive adolescents experience challenges in physical, emotional, and cognitive areas, which is increasing both effect of the disease condition as well as real-life challenges. Lack of social skills has complicated their concerns even more. Earlier studies have identified that there is a need for comprehensive intervention to create flourishing adulthood, sequentially leading to a positive medical outcome [20]. Implementing an intervention program addressing different dimensions of challenges can foster constructive living among HIV-positive adolescents.

The present study has combined behavior therapy, cognitive behavior therapy, mindfulness, and acceptance-based approaches creating four domains of intervention (Table 1), including physical, affective cognitive, and social, creating an opportunity for holistic development. Adopting a positive approach to enhance self–esteem and self-efficacy can equip HIV-positive adolescents with skills and strength towards their psycho-social development. Intervention in all the above-mentioned domains (Table 1) were conducted through activity-based group sessions (movement exercise, art and craft, music and dance, role-plays, and role reversals, prop exercise, dyads, triads, and rounds for processing the session/exercise) separately for male and female participants in the experimental group. The objectives of the intervention in different domains were as follows:

- Physical: To increase awareness and at the same time, address the needs of the body, and prepare an individual to move towards the mind.
- Cognitive: To identify dysfunctional or negative thoughts and replace them with functional and realistic feelings.
- Affective: To become recognize and enhance one's attitude, emotions, and feelings.
- Social: To equip HIV-positive adolescents to deal with future challenges, manage day-to-day activities, and move towards holistic development.

## Results

Data of the experimental and control groups on self-esteem and self-efficacy were analyzed for normality using Shapiro-Wilk test (Table 2). Data of the control group on self-efficacy did not meet the criteria of normality. Hence, pre- and post-assessment on self-esteem was analyzed using

**Table 1.** Comprehensive intervention program

| Physical domain | Social domain | Cognitive domain | Affective domain |
|---|---|---|---|
| Awareness of health | Time management and goal setting | Thought journaling | Non-judgmental awareness |
| Dental hygiene | Interpersonal effectiveness | Recognize the ABC | Mindfulness practice |
| Nutrition | Coping skills training | Challenging ineffective thoughts | Distancing negative thoughts |
| Puberty self-care | Conflict resolution | Thought diffusion | Self-soothing exercises |
| Self-grooming | Decision-making | Developing functional and effective thoughts | Cultivating self-compassion |

correlated *t*-test, and self-efficacy was evaluated with Wilcoxon signed-rank test.

## Discussion

Self-esteem and self-efficacy are factors generally associated with well-being, and are predictors of psycho-social well-being. Uncertainty, fear, and frequent illness seem to affect the level of self-esteem and self-efficacy among HIV-positive adolescents. Earlier studies had identified that material and medical support is not sufficient enough to deal with psychological distress experienced in HIV-positive adolescents [20]. Interventions targeting medical adherence, decreasing depressive symptoms, reducing the level of anxiety, and increasing coping style, has been applied alternatively to combat psychological issues in HIV-positive patients [21-23]. Cognitive behavior therapy and mindfulness-based therapy has been independently used to cope with psychological issues of HIV-positive adolescents. According to Atwine *et al.* [20], there is a need for comprehensive intervention to create flourishing adulthood, sequentially leading to a positive medical outcome. The present study has combined behavior therapy, cognitive behavior therapy, mindfulness, and acceptance-based approaches, creating four domains of intervention, including physical, social, affective, and cognitive domains in order to create an opportunity for holistic development and adopting a positive approach to enhance these variables by equipping adolescents with skills and strength towards psycho-social development.

The hypothesis that there would be an improvement in the experimental group subsequent to intervention, and no such improvement would be observed in the control group, was evaluated using correlated t-test. The significant *t*-value for the experimental group ($t$ = 21.15; $p$ = 0.001) and the non-significant t-value for the control group ($t$ = 1.58; $p$ = 0.121) (Table 3) showed that the comprehensive intervention program has enhanced self-esteem of the experimental group. The difference in the mean score in the experimental group between pre-intervention (11.02) and post-intervention (22.02) indicated a significant improvement in the self-esteem score in the experimental group. On the other hand, in the control group, there was a negligible change in the mean score of self-esteem pre-assessment (12.449) and post-assessment (12.775). This suggested that comprehensive intervention by itself has caused a significant change in the level of self-esteem among HIV-positive adolescents. Similar results have been reported in earlier studies, where community-based intervention enhanced self-esteem in HIV-positive youths [24], and cognitive intervention program reduced the level of anxiety and depression among young people living with HIV-positive status [22, 25, 26].

The hypothesis that there would be an improvement in the experimental group subsequent to intervention, and no such improvement would be found in the control group, was assessed using Wilcoxon-signed rank test. The significant $z$-value for the experimental group ($z$ = 6.036; $p$ = 0.001) and the non-significant $z$-value for the control group ($z$ = –0.367; $p$ = 0.713) (Table 4) demonstrated that the intervention has enhanced self-efficacy level of the experimental group. The self-efficacy scores were significantly higher in the experimental group post-intervention among HIV-positive adolescents. The difference in the median score on self-efficacy in the experimental group pre-intervention (23) and post-intervention (33) further strengthens that self-efficacy has significantly improved. On the other hand, in the control group, there was a marginal reduction in the median score on self- efficacy pre-assessment (18) and post-assessment (16). In a study [27], the authors also mentioned that holistic intervention could increase coping and self-efficacy among HIV-positive adults.

As reported by the participants and their care givers, some of behavioral changes noticed post-intervention among experimental group were in quest of alternatives, managing stressors, counting on their blessings, increased peer interaction, peer support, initiating tasks, punctuality, talking about goals, team spirit, and increased their participation in activities organized by the center. Overall, the results of the present study indicated that comprehensive intervention program has create a significant increase in self-esteem and self-efficacy levels among HIV-positive adolescents.

**Table 2.** Test of normality using Shapiro-Wilk test

| Factor/Group type | Statistic | df | Sig |
|---|---|---|---|
| Self-esteem | | | |
| Experimental | 0.967 | 48 | 0.185 |
| Control | 0.983 | 49 | 0.674 |
| Self-efficacy | | | |
| Experimental | 0.973 | 48 | 0.329 |
| Control | 0.949 | 49 | 0.033 |

**Table 3.** Correlated *t*-value for pre- and post-intervention scores of control and experimental groups on self-esteem

| Group | Pre-intervention | Post-intervention | df | *t*-value | *p*-value |
|---|---|---|---|---|---|
| Experimental | Mean: 11.02<br>SD: 2.756 | Mean: 22.02<br>SD: 2.374 | 47 | 21.154 | 0.001 |
| Control | Mean: 12.449<br>SD: 2.677 | Mean: 12.775<br>SD: 2.460 | 48 | 1.580 | 0.121 |

**Table 4.** Wilcoxon-signed rank test for pre- and post-intervention scores of control and experimental groups on self-efficacy

| Group | Pre-intervention | Post-intervention | *n* | *z*-value | *p*-value |
|---|---|---|---|---|---|
| Experimental | Median: 23<br>Range: 21 | Median: 33<br>Range: 13 | 48 | 6.036 | 0.001 |
| Control | Median: 18<br>Range: 15 | Median: 16<br>Range: 12 | 49 | 0.367 | 0.713 |

## Limitations

The study was conducted in an institutional setup and has not involved young people living with families, which could have helped the researcher in identifying and studying other socio-cultural factors that influence self-esteem and self-efficacy of HIV-positive adolescents.

## Implications

The findings of the current study reveal that comprehensive intervention has enhanced self-esteem and self-efficacy among HIV-positive adolescents. Moreover, they show how interventions imparted in each domain collectively was effective. Hence, it can be said that HIV-positive adolescents would benefit from comprehensive intervention programs in order to improve their self-concept and live a more rewarding life. Therefore, these programs should be included in medical interventions of HIV care and management.

The findings of the present study provide a framework for the counselors in integrated counseling and testing centers (ICTC) to address psycho-social needs, care, and support for HIV-positive adolescents. The outcomes of the research can further be expanded by widening the application of intervention program across lifespan of a person living with HIV.

## Conclusions

The findings of the current study demonstrate that there was a significant improvement in the level of self-esteem and self-efficacy post-intervention in the experimental group, therefore, emphasizing the positive effect of comprehensive intervention program on the self-concept of HIV-positive adolescents.

## Conflict of interest

The authors have no conflict of interest.

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