

# Psychological Impact of a Peer-Led Life Skills-Based Intervention for HIV-Infected Adolescents

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## Research Article

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# Abstract

**Background:** Peers are salient in an adolescent's life, influencing attitudes and behaviours. This study examines the psychological impact of a peer-led life skills-based intervention for HIV-infected adolescents. We examined trends in change, following a peer-led life skills-based intervention for HIV-infected adolescents, on (i) emotional and behavioural problems and pro-social behaviours, and (ii) coping self-efficacy.

**Methods:** This study is a pre and post intervention cross-sectional study done among 33 HIV-infected adolescents (14 boys and 19 girls) between 12 to 18 years of age from a semi-urban community. Peer-led life skills-based intervention encompassed aspects of HIV-infection including adolescent health, living with HIV, disclosure of HIV status, treatment adherence, substance use, and reproductive health. Life skills comprised of self-awareness, empathy, problem solving, decision making, effective communication, coping with stress, and interpersonal relationships in the context of living with HIV. Outcome measures were (i) Strengths and Difficulties Questionnaire (SDQ), and (ii) Coping Self-Efficacy Scale (CSES).

**Results:** The mean age of sample was 16 years ( $15.61 \pm 1.78$ ). On SDQ, there was significant increase in peer problems ( $Z = -2.75, p = 0.01$ ) and decrease in pro-social behaviours ( $Z = -3.76, p = 0.00$ ). Trends suggested decrease in emotional problems ( $Z = -1.31, p = 0.19$ ). On CSES, there was significant decrease in coping self-efficacy ( $Z = -2.96, p = 0.00$ ).

**Conclusions:** Peer-led life skills-based intervention for HIV-infected adolescents increased peer problems; decreased pro-social behaviours, coping self-efficacy, and emotional problems.

## Key Messages

HIV-infected adolescents experience mental health issues that need to be addressed. Peers may be trained using structured modules and can then support other HIV infected adolescents. There is a need to evaluate the impact of such peer led interventions.

## Introduction

India houses amongst the most number of HIV-infected persons in the world. Improvements are noted in the incidence and management; contributing to decreased mortality from AIDS and increase in number of persons living with HIV [1–2]. However, this favourable development with a chronic disease status comes with concomitant mental health concerns. Studies document a range of mental health issues in the HIV-infected population inclusive of cognitive deficits, adjustment disorders, substance use, anxiety disorders, depression, mania, psychosis, suicide, and bereavement [3–4]. Thus, an increase in the number of persons living with HIV implicates a possible increase in the mental health needs of this population. This is especially true in a country like India; where discrimination, isolation, and social stigma associated with HIV is prominent [4].

In discussing the lives of HIV-infected adolescents in India, Mothi et al. [5] cautions regarding the psychological issues faced by them, and the need to address the same. Social support is proposed to be key to ensuring adequate care for mental and physical health issues [5]. For adolescents, peers are critical sources of support and influence. Peers have been noted to be effective change agents in promotive and preventive interventions amongst adolescents for HIV management [6–8]. The same with regard to targeted interventions with HIV-infected adolescents is lacking. This is particularly stark in India, where bulk of interventions are targeted at healthy adolescents, and are educational in nature [9–11]. The pertinence of life skills is well established [12–13]. Adolescence is an apt time to develop and hone life skills, as a stepping stone into adult life.

This paper presents findings from a larger study on a peer-led life skills-based intervention to promote healthy behaviours among HIV-infected adolescents. Psychological impact was assessed as a secondary outcome measure. The specific objectives were to examine trends in change on (i) emotional and behavioural problems and pro-social behaviours, and (ii) coping self-efficacy. These post-intervention findings on these aspects are the focus of this paper.

## **Material And Methods**

### **Sample**

Study participants were drawn from the beneficiary pool of the not-for-profit organization Association for Rural Community Development (ARCOD) which caters to HIV-infected persons in the semi-urban district of Krishnagiri, Tamil Nadu, India. ARCOD provides for the medical and nutritional needs of the HIV-infected children and adolescents.

Sampling was purposive. Inclusion criteria were adolescents (i) diagnosed as HIV positive, (ii) between the age of 12 to 18 years, and (iii) medically stable for participation in the study. From the recruited sample, peer-leaders were selected based on the recommendation of ARCOD staff. The staff maintained regular correspondence with all adolescents, and hence were in a position to judge their leadership capacities.

### **Procedure**

The study was carried out at St. John's Medical College (SJMC) and funded by the Rajiv Gandhi University for Health Science, Grant no:113/2016. The study protocol was approved by the Institutional Ethics committee of St John's National Academy of Health Sciences, no: 253/2016. Written informed consent from adolescents and their guardians was obtained. Additional informed consent for accepting peer leadership roles was obtained from peer leaders. Confidentiality and voluntary participation were ensured through the course of the study. All methods used were in accordance with relevant guidelines and regulations. Figure 1 displays the procedure followed in carrying out the study.

### **Intervention**

A peer-led life skills-based HIV-centric intervention for adolescents was developed by the authors. The intervention was based on the life-skills of self-awareness, empathy, problem solving, decision making, effective communication, coping with stress, and interpersonal relationships. The content domains of the intervention were finalized following a needs assessment via Focus Group Discussions (FGDs) with HIV-infected adolescents and discussions with ARCOD staff. There were two FGDs carried out, one with male and the other with female adolescents. Each FGD comprised around eight to 10 adolescents. The elicited domains comprised adolescent health, living with HIV, disclosure of HIV status, treatment adherence, substance use, and reproductive health. An intervention module, inclusive of a delivery guide was developed. The module and the guide made use of audio-visual and textual material, didactic lectures, discussions, experiential stories and activities, role plays, and group activities. Materials comprised flip chart, PowerPoint presentation, videos in the local language (Tamil), props, models, and worksheets.

### **Peer-leader training**

Peer-leaders were trained in a group-format to deliver the intervention. This was carried out across two days at SJMC, approximating eight hours per day. Using modelling as a technique, peer-leaders were delivered the intervention by the authors on day one; and were facilitated to deliver the intervention within their own group on day two.

### **Delivery of peer-led life-skills based intervention**

Peer-leaders delivered the intervention at the site of ARCOD to other adolescents, in small groups of six to eight. Training was carried out over five hours, segmented across two sessions – pre and post lunch. Genders were not segregated. Peer-leaders delivered the intervention utilizing the intervention module and guide. They were provided necessary laptops and privacy to deliver the intervention. Pre and post-intervention assessment was carried out by the authors prior to, and after the delivery of the intervention, on the same day. The questionnaires were administered in small groups of participants, monitored by the authors and ARCOD staff. Any queries of the participants in responding to the questionnaire were immediately clarified by the authors.

### **Measures**

The impact of the intervention was assessed on two mental health variables, namely (i) emotional and behavioural problems and prosocial behaviors, (ii) and coping self-efficacy. This was assessed on two self-report questionnaires.

**Strengths and Difficulties Questionnaire** [14]: The Strengths and Difficulties Questionnaire (SDQ) is of international repute, widely used to screen for emotional and behavioural disturbances in children and adolescents. The SDQ has been noted to have adequate reliability and predictive validity, with recent studies reporting internal consistency estimates of 0.70 to .92, across subscales [15-18]. It has also been found applicable to adolescents in India, demonstrating adequate psychometric properties [19-21]. For the purposes of this study, the Tamil self-report version, available on the SDQ website was utilized.

Comprising of 25 items, participants were required their response on a three-point scale for each item. Scores are computed for total difficulties and five subdomains, namely emotional problems, conduct problems, hyperactivity, peer problems, and pro-social behaviours. Higher scores on all domains, except pro-social behaviours is indicative of issues. On pro-social behaviours subdomain, higher scores are positively valenced. The scores are finally categorized on the four-band classification of "close to average", "slightly raised/lowered", "high/low", and "very high/very low". 'Close to average' compares with normative population norms.

**Coping Self-Efficacy Scale [22]:** The Coping Self-Efficacy Scale (CSES) is designed to assess perceived self-efficacy and coping when faced with challenges in life. While self-efficacy refers to confidence in one's ability to cope effectively, coping refers to strategies employed in managing stressful situations [22]. The CSES is a 26 item self-report questionnaire inquiring into respondents' belief in being able to carry out certain actions in response to stressful situations. The items are rated on an 11-point scale, ranging from not being able to carry out the action (rated 0), to certainly being able to carry out the action (rated 10). Higher the score, greater is the coping self-efficacy. The scale has been utilized with HIV-infected individuals and found to have adequate psychometric properties [22]. For the purposes of this study, the scale was translated and backtranslated in Tamil.

## **Statistical Analysis**

Raw data was entered into SPSS, Version 16. Where appropriate, missing data was substituted using the guidelines provided for both SDQ and CSES. Since the data did not accommodate to a normal distribution, non-parametric statistics was employed. Specifically, the Wilcoxon-Signed Rank test was used to compare participants' scores on SDQ and CSES, pre and post the peer-mentored intervention.

# **Results**

## **Sample characteristics**

Of an initial pool of 67 participants, data from 34 participants could not be included in analyses, due to missing data. Results are presented for the remaining 33 participants, which were treated for missing data on specific tools, as per their issued guidelines. There were six peer-leaders in the participant sample, as the ratio of peer-leader to adolescent participant was maintained at 1:5. The mean age of the sample was around 16 years ( $15.61 \pm 1.78$ ). In terms of gender, there were 14 boys (42.4%) and 19 girls (57.6%).

## **Scores on SDQ**

There were changes in scores pre and post intervention on two subdomains of the SDQ, namely in peer problems and pro-social behaviours (Table 1). On peer problems, there was an increase in problem behaviours, as indicated by the higher median score at post-intervention assessment. On pro-social behaviours, the direction of change was negative, with a decrease in pro-social behaviours, noted in the lower median scores at post-intervention. The effect size of change for both subscales was moderate.

## Scores on CSES

Scores suggest significant decrease in coping self-efficacy, noted in the lower median and mean rank scores (Table 2). The effect size of the difference in scores was moderate.

## Discussion

This paper presents findings on the psychological impact of a peer-led life skills-based intervention for HIV-infected adolescents. Specifically, outcome variables were emotional/behavioural problems, pro-social behaviours, and coping self-efficacy. Findings revealed an increase in peer problems, decrease in prosocial behaviours and coping self-efficacy, and trend for decrease in emotional problems, post intervention. It must be made explicit that, to our knowledge, in India, this is probably the first research in this area of study. Thus, any finding from this study, albeit negative, is salient.

The focus of the peer-led intervention was not on mental health, but on enhancing HIV-related knowledge, attitude, and behaviours; towards improving self-care and facilitating infected peers to do the same. Mental health aspects were examined as an ancillary parameter. The increase in scores on peer problems, with concomitant decrease in scores of prosocial behaviours and coping self-efficacy suggest theoretical possibilities.

The intervention adopted in this study is peer-led, and thus rests on the valence of peer relationships amongst group members. Peers were grouped based on the commonality of having HIV and being from a similar sociodemographic background. However, research suggests that peer relationships are hinged on multiple factors and are multidimensional [23–24]. It is a possibility that the peers grouped for the purpose of the intervention did not match on other parameters, hence worsening the relations amongst them, especially when required to interact closely over the course of one day. Additionally, with specific regard to peer-intervention research, Brown, and Larson [24] attest the need to consider characteristics of the influence agent, the target of the influence, and individual's relationship. Peer-leaders in this study were chosen based on the suggestions of the ARCOD staff, thus precluding an understanding of the above suggested facets. This may have contributed to the findings of worsened peer relations post-intervention. Thus, the poorer scores on peer relationships post-intervention may be hinged on the complexities of peer relationships [24], which was not addressed in the design of the current study. The decreased scores on pro-social behaviours may also be attributable to the peer relations dynamic. In the background of less-cordial peer relations, sharing and provision of help (pro-social behaviours) is likely to be impacted.

The intervention was geared towards enhancing adolescents' knowledge, attitude, and self-management with regard to their HIV infection. It is expected that this would tangentially enhance their self-efficacy. In this regard, the opposite direction of findings is counter intuitive. The tool utilized to assess self-efficacy may be a contributory factor. While the CSES has been found applicable to this population, it is not exclusive to assessing HIV-related self-efficacy. This is critical as the concept of self-efficacy is innately goal-specific, i.e., belief that one can/has the capacity to achieve a specific target set for oneself.

Nonetheless, it is possible that the intervention in itself challenged beliefs of inherent capacities to manage health. For instance, HIV status disclosure can raise concerns regarding initiating and maintaining romantic relationships, a critical aspect associated with adolescence. Likewise, committed treatment adherence in the context of routine life, is a challenge for an adolescent. These may have contributed to doubts on self-efficacy, reflecting diminished scores post-intervention. There is also a probability of it being associated with decreased pro-social behaviours, with diminished help-provision for others reflective of poor help-provision for self.

In the background of these negative findings, it is pertinent to address a positive finding, albeit not statistically significant. On Table 1, the median scores for the emotional problems subdomain shows a categorical difference from 'slightly raised' (median score = 4.0) to 'close to average range' (median score = 3.0), at post-intervention. From the vantage of the study, this suggests that the intervention addressed certain emotional aspects of the participants' lives. It may be that the group-based intervention allowed participants to share experiences, which in itself would have been cathartic. Also, the likely similarity of experiences may have contributed to less personalization, and thereby less personal distress. Indeed, groups have been noted to be supportive, such as in self-help groups, support groups, encounter groups, group therapy, etc.

In examining the findings together, there is an improvement in emotional aspects (emotional problems) and a worsening in behavioural (peer relationships and pro-social behaviours) and belief aspects (coping self-efficacy). A single-contact intervention lasting a couple of hours is insufficient to cause changes in behaviours and beliefs, which are more deep-seated aspects of functioning. On the other hand, mere talking is known to alleviate emotional distress. This explicates the findings in this study; with negative outcome on behaviours and beliefs, being due to earlier discussed possibilities.

The afore-mentioned discussion of findings highlights some of the limitations of this study, such as in selection of peer-leaders and peer-group allocation. Also, assessment tools were not exclusive to the HIV-infected population. However, there is a gross absence of psychological assessment tools specific to adolescents with HIV. On hindsight, given the novelty of the intervention and study, a qualitative assessment paradigm, utilizing either focus groups or interviews may have been ideal for this outcome measure.

The cathartic effect of this intervention suggests that early attention to emotional issues is necessary for HIV-infected adolescents. Early intervention is likely to bring down the necessity of subsequent interventions, both in term of requirement and intensity. Indeed, a recent review attested the need for interventions in persons between 10 to 19 years of age [25]. Finally, the noted limitations suggest a need to develop assessment tools specific to this population.

## **Conclusion**

This study offers avenues for practice and research in HIV treatment among adolescents. The successful completion of this study certainly attests the feasibility of such an endeavour with adolescents, both for

purposes of research and healthcare. There is a gross absence of research amongst HIV-infected adolescents; this study is a preliminary step in bridging that gap.

HIV-infected adolescents experience mental health issues that need to be addressed. Peers may be trained to support each other emotionally. The study process implicates that adolescents may be empowered to help themselves, and there is a need for a structured peer-driven approach for the same.

## **Declarations**

### **Availability of data:**

The datasets generated during and analysed during the current study are available from the corresponding author on reasonable request.

### **Authors' contributions**

#### **1. Uttara Chari**

- i. Designing study, data acquisition, data analysis, and data interpretation
- ii. drafting manuscript and critical evaluation for intellectual content
- iii. final approval of the version to be published
- iv. agreement for being accountable for all aspects of the work

#### **2. Chitra Dinakar**

- i. Designing study, data acquisition, data analysis, and data interpretation
- ii. Funding application
- iii. Critical evaluation of manuscript for intellectual content
- iv. Editing and final approval of the version to be published
- v. Agreement for being accountable for all aspects of the work

#### **3. Nancy Angeline Gnanaselvam**

- i. Data acquisition, data analysis, and data interpretation
- ii. Final approval of the version to be published
- iii. Agreement for being accountable for all aspects of the work

### **Declaration of competing interests:**

The authors declare no competing interests

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## Tables

**Table 1: Median scores on Strength and difficulties questionnaire (SDQ) pre and post intervention**

Domain		Median	Interquartile range	Mean Rank	Z	p-value	Effect size
Emotional Problems	Pre	4.00	2.50	14.55	-1.31	0.19	-0.23
	Post	3.00	5.00	14.47			
Conduct problems	Pre	2.00	2.00	14.93	-0.86	0.39	-0.15
	Post	2.00	3.00	11.83			
Hyperactivity	Pre	3.00	4.00	14.78	-1.87	0.06	-0.33
	Post	4.00	2.00	12.44			
Peer Problems	Pre	3.00	2.00	14.02	-2.75	0.01**	-0.48
	Post	4.00	1.50	16.70			
Pro-Social Behaviours	Pre	9.00	3.50	8.25	-3.76	0.00**	-0.65
	Post	5.00	7.50	15.00			
Total Difficulties	Pre	12.00	6.00	16.11	-1.19	0.24	-0.21
	Post	12.00	6.50	14.58			

\*\* $p \leq 0.01$ ; N = 33.

'Close to average' score range: Emotional problems (0-3), conduct problems (0-2), hyperactivity (0-5), peer problems (0-2), prosocial (8-10), total difficulties (0-13).

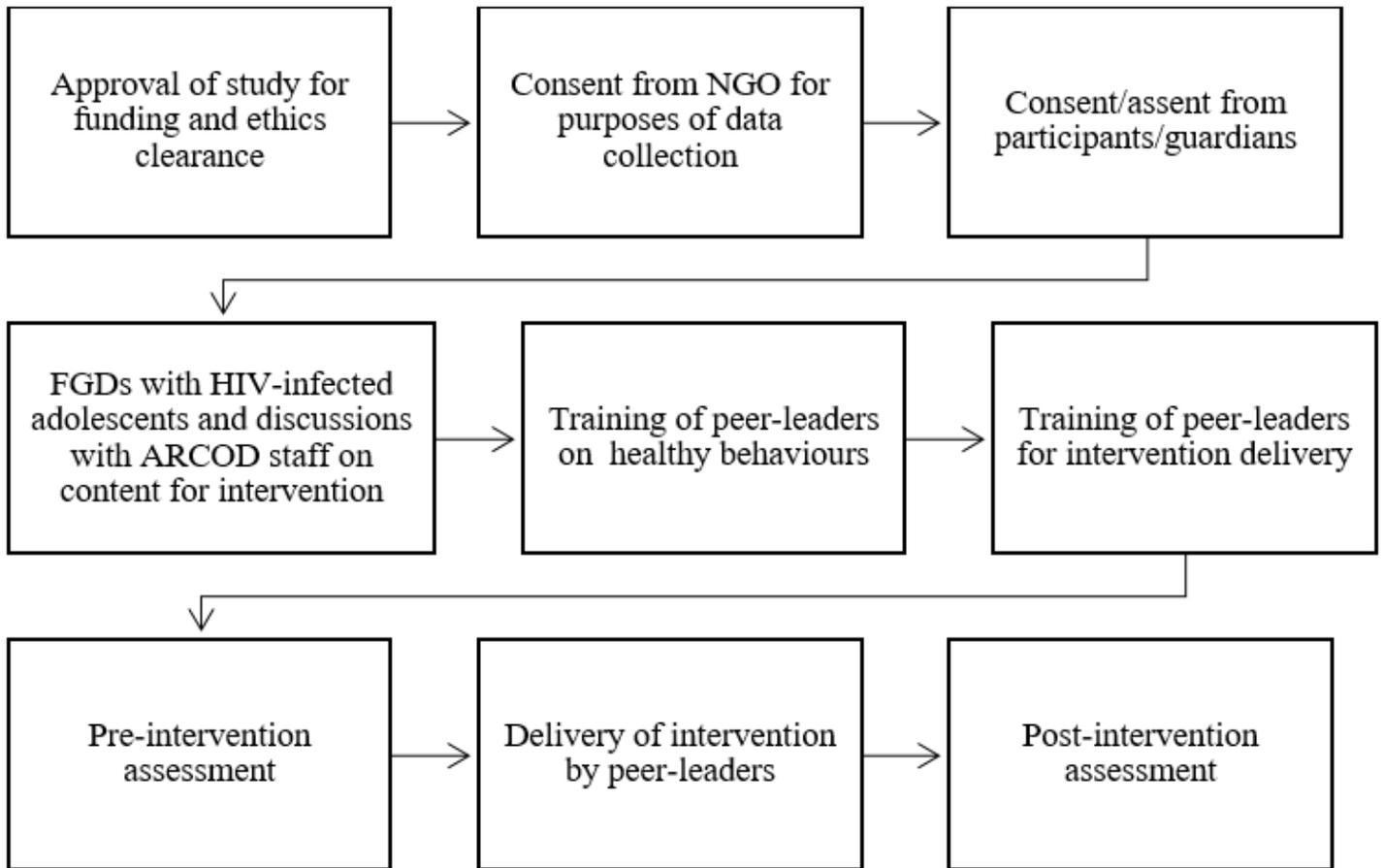
**Table 2: Median scores on 'coping and self-efficacy scale (CSES)' pre and post intervention**

Domain		Median	Interquartile range	Mean Rank	Z	p-value	Effect size
CSES Score	Pre	8.38	1.31	11.40	-2.96	0.00**	-0.52
	Post	7.27	2.33	19.39			

\*\* $p \leq 0.01$ ; N = 33.

Higher the score, better is the coping self-efficacy

## Figures



**Figure 1**

Study procedure