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Social skills programme for adolescents with depression: initial outcomes of a hospital based study in Sri Lanka

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Abstract

Objective This quasi-experimental study aimed to describe the outcome of a social skills intervention for adolescents with depression followed up at an outpatient Child and Adolescent Psychiatry Unit. Twenty adolescents with depression attending a tertiary care facility in Colombo, Sri Lanka were recruited, who participated in two social skills training programmes (6 months apart), in addition to pharmacological treatment. Outcome of the programme was measured by a self-administered questionnaire that assessed perceived changes in social skills, before and after the intervention. Wilcoxon Signed Rank test was used to determine the statistical significance of improvement in social skills.

Results The sample consisted of 80% ($n=16$) female adolescents. Median scores (inter-quartile range) for social skills before and after the first social skills programme were 31.5 (21.0–36.0) and 33.0 (28.25–40.25) respectively, indicating a significant improvement in social skills following intervention ($p=0.011$, $r=0.57$). A similar improvement was observed after the second programme ($n=10$), reporting higher median scores for social skills after intervention (29.5 vs. 37.5, $p=0.005$, $r=0.89$). A significant improvement was also observed in perceived ability to cope with depressive thoughts after intervention ($p=0.032$), indicating that social skills training can be a useful adjunct to pharmacological interventions, in the management of depression in adolescents.

Keywords Social skills, Depression, Adolescents, Sri Lanka, South Asia

Introduction

Depression among adolescents is already a major public health concern worldwide. Approximately 11.2% of adolescents in the United States have experienced a depressive disorder by the age of 18 years [1] and in the South Asian region, a Bangladesh study reported a much higher prevalence of 26.5% [2]. A Sri Lankan study conducted using Center for Epidemiological Studies Depression Scale (CES-D) showed that around 36% of 14–18 year olds screened were positive for depression [3] and another study showed elevated levels of depressive symptomatology in 57.7% among adolescents [4]. As such, there are indications that the rates of adolescent depression are likely to be high in Sri Lanka.

Early intervention and prevention in adolescent depression is important due to the risk of continuity into adult depression and the associated morbidity and mortality [5]. Several studies report a correlation between adolescent depression and poor outcomes during adulthood

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[6]. Adolescent depression can in some cases, lead to stigmatization [7] and suicide/deliberate self-harm [8].

Among many factors that contribute to adolescent depression, researchers suggest an association between social skills and depression in adolescents [9]. This relationship can be bidirectional, with a good social network and skills acting as a protective factor to prevent depression, and depression itself causing a loss of social connections and skills, leading to further exacerbation of depressive symptoms.

When depression is looked at through a social model, two theories are frequently cited. The Social Skills Deficit Hypothesis initially emphasized the importance of social skills deficits in the maintenance of depression [10]. The Interactional Model of Depression explains the disorder through an interactional prism. It discusses how those with depression engage with others, only in a way that causes them to lose support and increase their depressive thought processes. This negative pattern in turn leads to a strengthening of depression and the social behaviours associated with the disorder [11].

The many changes happening during adolescence itself can be a source of stress for vulnerable adolescents. These changes include a trend towards less dependency on parents' support with a stronger dependency on peer relations [12]. Having the social skills to negotiate these transitions is important for adolescents. Thus, social skills in adolescents are defined very broadly to also include emotional competencies that are needed to deal with different and changing social situations.

Social skills are defined as the ability to accurately perceive and interpret social situations, their emotional understanding, with the ability to maintain strong social relationships and have high self-efficacy in one's ability to positively handle social situations [13]. As emotional competencies are entwined with social competencies, most social skills programmes also have aspects that focus on emotional competencies [13]. Emotional competencies can be affected by one's mood, with studies showing that depressed participants show a negative bias in the recognition of emotions depicted in facial expressions [14]. Further, there is a correlation between depression and social problem solving [15], indicating that the cognitive issues related to depression can also affect social skills. Thus, a social skills training programme for this population should include interventions that help in social, emotional and cognitive processes related to social interactions.

There are only a few studies evaluating the effectiveness of formal social skills programmes in adolescents with depression. In a small study on developing social competencies, self-evaluation skills, and appropriate affective expression appeared to significantly reduce depression in the male population, but not the female population [16]. There is some evidence that formal social skills programmes can mitigate the effects of depression, but takes a longer time than therapeutic support in general for these beneficial effects to be seen [17]. However, in most instances of this being used as intervention, social skills training has been incorporated into more evidence-based treatments for depression such as Cognitive Behavior Therapy (CBT) rather than a stand-alone intervention. Furthermore, studies are few in the Asian and especially South Asian context where this would be a much more easily implemented strategy as opposed to therapies such as CBT [18]. Social competencies as part of life skills training are taught at schools in Sri Lanka. However how social skills per se effect outcomes have not been evaluated. Furthermore, we could not find any publications specifically in relation adolescents with depression and social skills training in Sri Lanka.

In this backdrop, we hypothesized that a social skills training, conducted as an adjunct to pharmacotherapy, would be beneficial in improving the social competencies and the ability to cope with depressive thoughts in adolescents with depression. As such, the objective of this initial study was to assess the outcome of a social skills group for adolescents with depression followed up at an outpatient clinic of a Sri Lankan tertiary care facility. The findings will provide valuable information on what aspects may be effective for a social skills programme for adolescents with depression in the South Asian context.

Methods

This was a quasi-experimental study conducted among a sample of adolescents clinically diagnosed with depression attending Child and Adolescent Psychiatry unit, Colombo South Teaching Hospital (CSTH), Sri Lanka. This hospital mainly caters to an urban population from the commercial capital and a suburban population from the surrounding areas. Ethical clearance for the study was obtained from the Institutional Review Board (Ref. No 940) and permission was obtained from the Hospital Director.

Initially, twenty adolescents who had been followed up for depression as outpatients were enrolled in the programme on a voluntary basis. The training was limited to 20 participants due to the practical issues of conducting the programme, and considering that this is a preliminary study, all participants who fulfilled the eligibility criteria were included in the study. Those admitted due to severe depressive symptoms and those with learning disabilities and other diagnosable psychiatric comorbidities and developmental disorders were excluded. Hence, all participants would have had depressive symptoms in the mild to moderate range, with some also having anxiety related to depression.

The intervention consisted of two social skills training sessions of four hours each. Their participation in the social skills group was in addition to the pharmacological interventions they were already on. Written informed consent was obtained from all participating adolescents aged 16 years and over, as well as from the parents or legal guardians of any participant under the age of 16 years, prior to their participation.

The first session focused on macro skills including conversations skills, criticism, dealing with bullying, helping others, expressing feeling, taking turns, apologizing, listening, dealing with arguments, negotiating and micro skills including posture, eye contact, speech, head and body movements, gestures and social distance. An occupational therapist, a social worker and a medical officer facilitated the group under the supervision of a Child and Adolescent Psychiatrist. Participants were given the option of withdrawing from the group at any point in time. Undirected interactions between the participants were minimised and a parent was able to participate or observe the activities.

The second training session was held 6 months later and focused more on the emotional aspects of social interactions. At this initial stage, although there was no clear indication from previous research when a second programme would be needed, it was important that it was not too close to the original programme so that the effects of time could be understood. Furthermore, previous studies had indicated that the effects of social skills training can take a longer time to be useful in interventions for adolescent depression [17].

The activities included combinations of different types of interactions such as storytelling. Role-plays were done to demonstrate how to handle hypothetical social situations. Activities like talking to the person next to them, finding the things that interest their neighbours were also done. The participants were also helped in identifying social situations where they experienced negative emotions and were then helped briefly in processing these emotions.

The improvement in social skills was assessed under ten different aspects through a pre- and post-session questionnaire (Supplementary file 1). The participants marked their responses to the items on a Likert scale, which assessed the subjective level of competence in maintaining attention to a conversation, maintaining appropriate eye contact during a conversation, managing conflicts with others, formulating and asking questions appropriately, asking for help, volunteering help, being assertive, responding to antisocial acts, and dealing with depressive thoughts. The questionnaire was judgmentally validated by a multidisciplinary team of mental health professionals, and adolescents themselves. Based on the responses to different items, a cumulative sore was calculated which was used in the subsequent analysis.

Between the first and second sessions, six participants no longer required clinic follow up. However, all original participants were offered the opportunity to participate in the second session as well. Ten adolescents (7 females and 3 males) participated in the second session. (The ten adolescents who did not participate included the six who had been discharged from the clinic.) A diagrammatic representation of the flow of participants from the 1st to 2nd session is shown in Fig. 1. Participants were assessed before and after the session using the same questionnaire.

The pre- and post-session data of the two training sessions were analysed separately using SPSS software (Version 22.0). Considering the small sample size and skewed distribution of individual item scores, Wilcoxon Signed Rank test was used to compare the pre- and post-session scores. The effect size (r) for the test was calculated using the formula, $r = Z/\sqrt{N}$, where Z is the standardized test statistic value from the Wilcoxon test and N is the number of paired observations. The gender differences in the scores were compared using the Mann-Whitney U test. The level of probability was set at 0.05.

Results

Of the twenty adolescents 16 (80%) were females. They belonged to ages between 11 and 18 years, with a mean age of 15 years (inter-quartile range = 14–16 years).

The overall median score for the social skills questionnaire at baseline was 31.5 with an inter-quartile range (IQR) of 21.0–36.0 (Table 1). At the end of the first training, the post-session scores showed a significant improvement (median = 33.0, IQR = 28.25–40.25). When the pre- and post-session scores of the second training were considered, there was a significant improvement in the overall median score [29.5 (IQR = 24.5-33.75) vs. 37.5 (IQR = 36.0–40.0)]. Wilcoxon signed-rank test showed that the both training programmes independently could elicit a statistically significant positive change in social skills in adolescents with depression at both time points (Z=-2.552, $p = 0.011$, $r = 0.57$ and Z =-2.807, $p = 0.005$, $r = 0.89$ respectively).

When considering the specific aspects of training, a significant improvement was reported in the following skills after the first training session: paying attention to a conversation ($p = 0.039$), starting and maintaining a conversation ($p = 0.011$), maintaining appropriate eye contact during a conversation ($p = 0.006$), conflict management ($p = 0.024$), asking for help ($p = 0.001$), responding to anti-social acts ($p = 0.005$) and coping with depressive thoughts ($p = 0.003$). The adolescents did not report significant improvement in formulating and asking questions appropriately, volunteering help and being assertive (all $p > 0.05$). However, when the overall

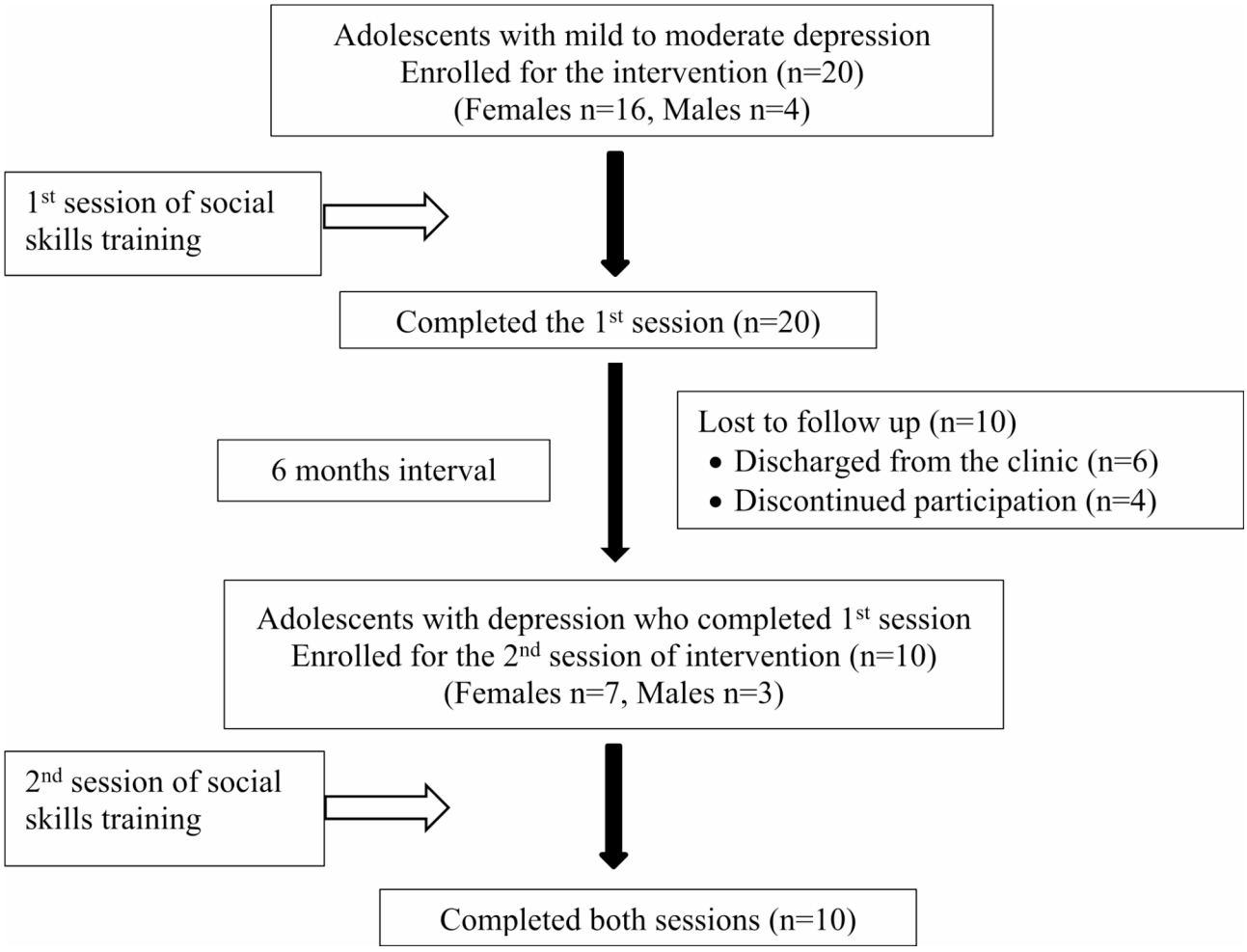

Fig. 1 The flow of participants from the first training session to second training session

Table 1 Comparison of pre- and post-intervention overall scores following social skills training in adolescents with depression

Training programme	Scores for social skills questionnaire Median (IQR)	Significance*	Effect size (*r*)
1st training (n = 20)			
Pre-session	31.5 (21.0–36.0)	Z= -2.552	0.57
Post-session	33.0 (28.25–40.25)	***p* = 0.011**	
2nd training (n = 10)			
Pre-session	29.5 (24.5–33.75)	Z= -2.807	0.89
Post-session	37.5 (36.0–40.0)	***p* = 0.005**	

* Wilcoxon Signed Rank test

training was considered, only three of these skills i.e. paying attention to a conversation ($p=0.016$), asking for help ($p=0.016$) and coping with depressive thoughts ($p=0.032$), remained significantly improved. In contrast, the skill of being assertive, which did not show a significant improvement in the first training, also showed a statistically significant improvement ($p=0.016$) after both training sessions (Table 2).

When the post-session scores of the first training and pre-session scores of the second training were compared among the 10 adolescents who completed both sessions, there was a statistically significant reduction in the overall median score after the six months interval (33.0 vs. 29.5, z=-2.082, $p=0.037$). However, when median overall score at baseline was compared with the corresponding score after completion of both training programmes, there was a statistically significant perceived improvement (31.5 vs. 37.5, z=-2.814, $p=0.005$, $r=0.89$), indicating the large overall positive effect they had on social skills of the adolescents with depression.

There were no statistically significant gender differences in the overall scores at baseline or after each training programme (Table 3).

When analyzing the general comments of the participants who attended both sessions, nine out of 10 (90%) participants had responded positively to the question on whether this programme was a major contributor to the perceived changes in social skills.

Table 2 Comparison of pre- and post-intervention scores of the overall training for individual aspects of the social skills training ($n=10$)

Aspect of social skills training	Median Score (IQR)		*p* value*
	Pre-session 1st training	Post-session 2nd training	
Paying attention to a conversation	3.0 (3.0-4.25)	5.0 (4.0–5.0)	**0.016**
Starting & maintaining a conversation	2.0 (0.75-4.0)	4.0 (2.75-4.0)	0.055
Maintaining appropriate eye contact during a conversation	3.0 (0.75–4.25)	4.0 (3.0–5.0)	0.057
Managing conflict with others	3.0 (1.75-3.0)	4.0 (2.50–4.25)	0.130
Formulating and asking questions appropriately	3.0 (2.5-4.0)	4.0 (3.0–5.0)	0.201
Asking for help	3.0 (1.0-3.25)	4.0 (3.75–4.25)	**0.016**
Volunteering help	4.0 (2.75-5.0)	5.0 (4.0–5.0)	0.109
Being assertive	3.0 (1.0–4.0)	4.5 (3.0–5.0)	**0.016**
Responding to anti-social acts	3.5 (1.0–5.0)	4.5 (3.75-5.0)	0.089
Dealing with depressive thoughts	3.0 (1.0-4.25)	4.0 (4.0-4.25)	**0.032**

* Wilcoxon Signed Rank test

Discussion

This study assessed the improvement in social skills following a social skills intervention programme in a group of adolescents with depression attending a tertiary care facility. The findings of this initial study indicate that there can be a perceived benefit in a range of social skills and related emotional and cognitive skills through such an intervention.

The areas that showed significant subjective improvements such as the ability to pay attention to a conversation, are likely to help in the day to day activities of the participants and likely to provide more positive experiences that may in turn help with their depression [19]. The ability to ask for help is an important area that may be adversely affected in depression [20]. Improvements in this ability are likely to be of benefit for these adolescents with depression. Conflict management is known to be a factor important in mitigating the effects of depression [21]. The perceived improvement in the ability to deal with depressive thoughts and being assertive is also important in that many therapies such as Cognitive Behaviour Therapy specifically work on these thoughts in order to improve depressive symptoms [22]. As such the social skills group is likely to have many direct as well as indirect benefits for these adolescents in dealing with their depression. The information from this initial study enabled identification of the areas where there were no statistically significant improvements after the intervention. These include the ability to start and maintain a conversation and maintaining appropriate eye contact during a conversation, managing conflict with others, formulating and asking questions appropriately, volunteering help and responding to anti-social acts. While the small sample size could be an explanation for the non-significant findings, the underlying reasons for the failure of improvement in these areas need an in-depth exploration, to facilitate further development of the programme and enhance its success in improving social skills.

A previous study among adolescents using a structured programme showed a significant improvement in depression in males, compared to females [16]. Another study exploring this relationship indicated that, low levels of social skills in early adolescence predicted increases in depressive symptoms for both girls and boys and that low levels of friend support in middle adolescence mediated this relationship for girls, but not for boys [23]. However, we were unable to find any significant differences in the way gender effects the outcomes of the programme, probably owing to the small sample size and the wide age range of the participants spanning from early to late adolescence (11–18 years), who would have responded to the training differently. A stratified analysis in a larger sample would be beneficial to establish the differential effects of age and gender on the outcomes of the intervention.

The above-mentioned study by Reed & Michael [16] used a Structured Learning Therapy (SLT) model in treating adolescent depression. SLT treatment focuses on developing social competencies, self-evaluation skills, and appropriate affective expression. The current study used a set of social competency activities, keeping in mind the socio-cultural sensitivities of the local population. While experience from working with this population in an out-patient setting was used to initially formulate the programme, the feedback from this initial phase will be used to further modify the program as needed.

Table 3 Comparison of median scores for social skills questionnaire between male and female adolescents with depression

Intervention	Median score for social skills questionnaire					
	1st training programme		*p* value*	2nd training programme		*p* value*
	Male ($n=4$)	Female ($n=16$)		Male ($n=3$)	Female ($n=7$)	
Pre-session score	26.0	33.0	0.218	29.0	32.0	0.253
Post-session score	30.5	40.0	0.072	36.0	38.0	0.199
Improvement in overall score	4.5	6.0	0.705	8.0	8.0	0.909

*Mann–Whitney U test

There was a significant reduction in the overall median score for social skills after the six months interval between the two training sessions. However, after the first training, the median scores between the participants and non-participants of the second training had not been significantly different (33.0 vs. 41.0, z=-0.872, $p=0.383$) and there were no reinforcements for social skills during the clinic follow up of the adolescents. Therefore, we assume that the drop in the pre-session scores of the second training could not have been due to those lost to follow up, especially the six subjects who were discharged from the clinic. Nevertheless, the drop in social skills between the two trainings could be an indication that multiple reinforcements are necessary for maintaining the level of social skills acquired during initial training.

Studies in adult populations have indicated that social skills training can be helpful in treating unipolar non-psychotic depression [24]. However, many such studies are small and have methodological difficulties due to the many variables that may mediate this benefit [24]. In the current study too, there were many variables involved. However, the pre and post session analysis indicated a better perceived ability to deal with depressive cognitions after the social skills training.

Overall, the evidence points to non-invasive interventions such as social skills training being a valuable adjunct to pharmacological treatments and other therapeutic modalities such as Cognitive Behaviour Therapy in the management of depression in both adults and adolescents. While it is difficult to assess considering the many variables involved, studies so far indicate that social skills training is likely to be of benefit in adolescent depression. However, these benefits are likely to take longer to become apparent than some other therapies [17]. As such, the 6-month interval in this study may not have been a sufficiently long time for the benefits of the intervention to manifest, which would partially explain the failure to show significant improvement in certain areas.

When considering lessons learnt in conducting such a program in the local context, it was seen that the perceived benefits of the program tended to wane with time. This highlights the need for a second programme. There was also a 50% ($n=10$) dropout rate from the first to the second session. There could be multiple reasons for dropouts including therapeutic success and discharge from the clinic, and many other socio-economic factors. Both parents working and being daily wage earners could be one such factor. This initial study highlights the need to understand and accommodated these factors when organizing a follow up programme.

To our knowledge, this is the first study in the South Asian region which assesses the effectiveness of a hospital-based training programme in improving social competencies of adolescents with mild to moderate depression. The findings, though limited by the quasi-experimental design, would provide useful insights into planning similar programmes in low-resource settings such as Sri Lanka.

Limitations

A major limitation of the current study were the small sample size and the high dropout rate. Despite these shortcomings, the intervention has shown significant improvement in the overall social skills and particularly the ability to deal with depressive thoughts, therefore, we can assume that it would be an effective adjunct to pharmacological treatment in managing adolescent depression. Replication of this study in larger samples and different settings, preferably as controlled trials, is recommended to strengthen the robustness of these findings.

The subjective nature of the assessment used to measure the improvement in social skills is another limitation of this study. However, this was an initial study conducted with the hope of modifying the programme with the lessons learnt, leading to a larger study later on. While self-rating is an important indicator in conditions such as depression, it is hoped to include observer rating by parents in a later study to minimise possible response biases.

Further, the inclusion of adolescents who had volunteered for the training may limit the generalizability of the findings, as they could have possessed reasonable social skills and a lower level of social anxiety, perhaps with a differential response to the training than those who would not have volunteered.

Finally, there is a possibility that the observed improvements could be due to the response to pharmacological treatment. At this stage, this study looked at social skills training only as an adjunct to the ongoing treatment. Furthermore, the participants expressed a perceived benefit on being able to deal with depressive cognitions, specifically related to the social skills training programme. A well-designed randomized controlled trial would overcome the above limitations with more concrete evidence on the effectiveness of social skills training in adolescents with depression.

Conclusions

This study shows that a social skills intervention can have many perceived benefits in improving social competencies in adolescents with depression, including a better ability to cope with depressive thoughts. Social skills interventions could be a useful adjunct to pharmacological interventions in the management of depression in adolescents. Although this was an initial study with a small sample size it provides valuable information in designing larger programmes in similar settings.

Abbreviations

CES	D-Center for Epidemiological Studies Depression Scale
CBT	Cognitive Behavior Therapy
CSTH	Colombo South Teaching Hospital
IQR	Inter-quartile range
SLT	Structured Learning Therapy
SPSS	Statistical Package for Social Sciences

Supplementary Information

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Supplementary Material 1

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Author contributions
U.R.A. and A.Y. conceptualized and designed the study and were responsible for data acquisition. C.J.W. contributed to the design and analyzed the data. All authors contributed in interpretation of data and drafting the manuscript, and approved its final version.

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Data availability
The data set used / analyzed in this study and other material is available from the first author (U.R.A.) on reasonable request.

Declarations

Ethics approval and consent to participate
Ethical approval for the study was obtained from the Ethics Review Committee of the Colombo South Teaching Hospital (Ref No. 940). Written informed consent was obtained from all participating adolescents aged 16 years and over, as well as from the parents or legal guardians of any participant under the age of 16 years, prior to their participation.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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