The Effectiveness of Social Problem-Solving Skills Training on Peer Conflict and Social Adjustment in Adolescents

Maryam. Hosseinzadeh[1]*

[1] Department of General Psychology, Payame Noor University, Tehran, Iran

* Corresponding author email address: hosseinzadehmery@gmail.com

A r t i c l e I n f o

A B S T R A C T

Objective: The present study aimed to examine the effectiveness of social problem-solving skills training on reducing peer conflict and improving social adjustment among adolescents.

Methods and Materials: This study employed a randomized controlled trial design with an intervention group and a control group. The participants consisted of 30 adolescents from Tehran who were randomly assigned to the intervention (n = 15) and control (n = 15) groups. The intervention group received a structured social problem-solving skills training program delivered in group format over eight weekly sessions, while the control group received no psychological intervention during the study period. Data were collected at three time points: pretest, posttest, and a five-month follow-up. Peer conflict and social adjustment were assessed using standardized self-report instruments with established psychometric properties. Data analysis was conducted using repeated-measures analysis of variance and Bonferroni post-hoc tests with IBM SPSS Statistics version 27.

Findings: The results of repeated-measures ANOVA revealed a significant main effect of time and a significant time × group interaction for both peer conflict and social adjustment (p < .001). Adolescents in the intervention group demonstrated a significant reduction in peer conflict scores and a significant increase in social adjustment scores from pretest to posttest, and these improvements were maintained at the five-month follow-up. In contrast, no significant changes were observed in the control group across the three measurement points. Bonferroni post-hoc comparisons confirmed that the differences between pretest and posttest, as well as between pretest and follow-up, were statistically significant for both outcome variables.

Conclusion: The findings indicate that social problem-solving skills training is an effective intervention for reducing peer conflict and enhancing social adjustment among adolescents, with effects that remain stable over time, supporting its use in school-based and preventive mental health programs.

Keywords: Social problem-solving skills; Peer conflict; Social adjustment; Adolescents; Randomized controlled trial

1. Introduction

Adolescence represents a critical developmental period characterized by rapid biological, cognitive, emotional, and social changes. During this stage, peer relationships become increasingly salient and play a decisive role in shaping adolescents' behavioral patterns, emotional regulation, and social functioning. Interactions with peers can serve as a source of support, identity formation, and social learning; however, they can also become a context for conflict, aggression, and maladjustment when adolescents lack adequate interpersonal and cognitive coping skills (Jung & Bae, 2024; Mansi & Shraddha, 2024). Peer conflict, in particular, has been identified as a significant risk factor for a range of negative outcomes, including emotional distress, academic disengagement, and impaired social adjustment, underscoring the need for effective preventive and interventional strategies during this developmental stage (Yüksel & Yılmaz, 2025; Zafar et al., 2025).

Social adjustment refers to an individual's capacity to effectively navigate social demands, establish positive interpersonal relationships, and adapt to social norms and expectations within different contexts such as school, family, and peer groups. In adolescence, social adjustment is closely linked to psychosocial well-being, academic functioning, and long-term mental health outcomes (Gabler et al., 2025; Mam Ghaderi et al., 2024). Adolescents who demonstrate poor social adjustment often experience difficulties in emotion regulation, communication, and conflict resolution, which may exacerbate peer conflicts and contribute to social isolation or victimization (Moulazadeh & Dasht Bozorgi, 2024; Weisani, 2024). Conversely, well-adjusted adolescents tend to display higher levels of social competence, adaptive coping, and resilience in the face of interpersonal challenges.

A growing body of research highlights the central role of peer dynamics in shaping adolescents' social and psychological outcomes. Peer pressure, peer support, and peer modeling have been shown to influence behavioral choices, emotional well-being, and engagement in both adaptive and maladaptive behaviors (Mansi & Shraddha, 2024; Yacub et al., 2024). Studies conducted across diverse cultural contexts indicate that negative peer interactions, such as bullying, exclusion, and persistent conflict, are associated with heightened stress, reduced self-esteem, and poorer social functioning among adolescents (Shao et al., 2024; Yüksel & Yılmaz, 2025). At the same time, positive peer relationships characterized by cooperation, empathy, and mutual support can foster social competence, motivation, and psychological well-being (Ganotice et al., 2024; Li et al., 2025).

Within this context, social problem-solving skills have emerged as a key set of cognitive-behavioral competencies that enable individuals to effectively manage interpersonal challenges. Social problem solving involves the ability to identify problematic situations, generate alternative solutions, evaluate potential consequences, and implement adaptive responses in social interactions (Tran et al., 2024; Zhan, 2025). Deficits in social problem-solving skills have been linked to increased aggression, impulsive behavior, and maladaptive coping strategies, particularly in peer-related conflict situations (Ghasemi et al., 2024; Hassan et al., 2024). Adolescents who lack these skills may respond to peer conflicts with avoidance, hostility, or emotional dysregulation, thereby perpetuating negative interaction patterns.

Empirical evidence increasingly supports the effectiveness of problem-solving skills training as an intervention for improving social and behavioral outcomes among children and adolescents. Research conducted in educational and clinical settings has demonstrated that structured problem-solving interventions can enhance emotional regulation, reduce aggressive behaviors, and promote more adaptive interpersonal responses (Özkan & Altuntaş, 2024; Zhou et al., 2024). Meta-analytic and systematic review studies further indicate that problem-solving skills training yields moderate to large effect sizes in improving psychosocial functioning across diverse populations, highlighting its robustness as an intervention approach (Zhou et al., 2024). These findings suggest that problem-solving skills training is not only effective but also adaptable to different developmental stages and cultural contexts.

Recent studies have also emphasized the relevance of social problem-solving skills in contemporary educational environments shaped by digitalization, academic pressure, and changing social norms. Adolescents today face increasingly complex social challenges, including online interactions, cyber conflict, and heightened academic stress, which place additional demands on their cognitive and emotional coping resources (Apare, 2024; Tran et al., 2024). Inadequate problem-solving skills in these contexts may amplify peer conflicts and undermine social adjustment, whereas effective training in these skills can empower adolescents to navigate both offline and online social situations more constructively.

The link between problem-solving skills and social adjustment has been documented in multiple studies across different age groups. Interventions targeting cognitive competence, emotional awareness, and solution-focused thinking have been shown to improve social adjustment by fostering empathy, perspective-taking, and adaptive behavioral responses (Ghasemi et al., 2024; Mam Ghaderi et al., 2024). Moreover, improvements in social problem-solving skills have been associated with enhanced peer relatedness, engagement, and prosocial behavior, which are critical components of healthy adolescent development (Ganotice et al., 2024; Jung & Bae, 2024).

Despite the growing international literature on problem-solving skills training, there remains a need for rigorously designed experimental studies that examine its effectiveness on peer conflict and social adjustment within specific cultural contexts. Cultural norms, educational practices, and social expectations may influence both the manifestation of peer conflict and the effectiveness of intervention programs (Nuryana & Wahyuni, 2025; Yacub et al., 2024). In Middle Eastern contexts, including Iran, adolescents often navigate complex social expectations related to family, school, and peer relationships, which may intensify interpersonal conflicts if adaptive coping strategies are not adequately developed. However, empirical evidence examining structured social problem-solving interventions among Iranian adolescents remains limited.

Furthermore, while previous studies have explored the impact of social competence training, emotional intelligence interventions, and coping skills programs on social outcomes, fewer studies have employed randomized controlled trial designs with longitudinal follow-up assessments to evaluate the durability of intervention effects (Özkan & Altuntaş, 2024; Weisani, 2024). Long-term follow-up is particularly important in adolescence, as sustained behavioral and social changes are critical indicators of meaningful intervention impact. Addressing this methodological gap can contribute to a more nuanced understanding of how and to what extent social problem-solving skills training produces lasting improvements in peer interactions and social adjustment.

In addition, existing research suggests that peer conflict and social adjustment are interrelated constructs that may respond differently to intervention efforts. Reductions in peer conflict may occur relatively quickly following skills training, whereas improvements in broader social adjustment may require sustained practice and reinforcement over time (Shao et al., 2024; Zhou, 2025).

Examining both outcomes simultaneously within a controlled experimental framework can provide a more comprehensive picture of intervention effectiveness and inform the design of school-based mental health and social skills programs.

Given the increasing recognition of peer-related challenges in adolescence and the demonstrated potential of problem-solving skills training, there is a clear need for empirical studies that rigorously evaluate such interventions in diverse cultural and educational settings. By employing a randomized controlled trial design, incorporating multiple assessment points including follow-up, and focusing on both peer conflict and social adjustment, the present study seeks to contribute to the existing literature and provide evidence-based guidance for educators, counselors, and mental health professionals working with adolescents.

The aim of this study was to examine the effectiveness of social problem-solving skills training on reducing peer conflict and improving social adjustment among adolescents.

2. Methods and Materials

2.1. Study Design and Participants

The present study employed a randomized controlled trial (RCT) design with two parallel groups (intervention and control) and three measurement points (pretest, posttest, and five-month follow-up). The study population consisted of adolescents residing in Tehran, who were recruited through school counseling centers using an announcement and initial screening process. After assessing eligibility criteria and obtaining informed consent from participants and their parents, 30 adolescents were enrolled and randomly assigned to either the intervention group (n = 15) or the control group (n = 15) using simple random allocation. Participants in the intervention group received the social problem-solving skills training program, while the control group did not receive any structured psychological intervention during the study period. Both groups completed the assessment instruments at baseline, immediately after the intervention, and at a five-month follow-up to evaluate the stability of the intervention effects over time.

2.2. Measures

Peer conflict was assessed using the Peer Conflict Scale (PCS) developed by Marsee and Frick in 2007. This standardized self-report instrument is specifically designed

to measure the frequency and type of conflict behaviors among children and adolescents in peer interactions. The PCS consists of 40 items organized into four subscales reflecting different forms of peer conflict: proactive overt aggression, proactive relational aggression, reactive overt aggression, and reactive relational aggression. Respondents rate each item on a 4-point Likert scale ranging from 0 (never) to 3 (often), with higher scores indicating greater involvement in peer conflict behaviors. Subscale scores and a total score can be calculated by summing relevant items. Numerous empirical studies have reported satisfactory construct validity and strong internal consistency coefficients for the PCS across adolescent samples, supporting its reliability and validity for assessing peer conflict in educational and clinical research contexts.

Social adjustment was measured using the Social Adjustment Scale – Self-Report for Youth (SAS-SR-Y), originally adapted from the Social Adjustment Scale developed by Weissman and Bothwell in 1976 and later modified for adolescent populations. This instrument evaluates adolescents' functioning and adjustment across key social domains, including peer relationships, family interactions, school functioning, and participation in social activities. The SAS-SR-Y typically includes 30–40 items (depending on the version used), rated on a 5-point Likert scale ranging from poor adjustment to excellent adjustment, with higher scores reflecting better social adjustment. The scale yields both domain-specific subscale scores and an overall social adjustment score. Previous studies have consistently demonstrated acceptable to high reliability (Cronbach's alpha coefficients above 0.70) and strong evidence of convergent and criterion validity, confirming the suitability of the SAS-SR-Y as a standard measure of social adjustment in adolescent research.

2.3. Intervention

The intervention consisted of a structured Social Problem-Solving Skills Training program delivered in a group format for adolescents. The program was implemented over eight weekly sessions, each lasting approximately 60–75 minutes, and was conducted by a trained counselor with experience in adolescent psychosocial interventions. The protocol was grounded in the social problem-solving model and emphasized active participation, discussion, and skill rehearsal. Core components included: increasing awareness of social and interpersonal problems, accurate identification and definition of peer-related conflicts, emotional regulation during conflict situations, generation of multiple alternative solutions, evaluation of consequences for self and others, decision-making and selection of adaptive responses, and implementation and review of chosen solutions. Instructional methods involved brief psychoeducation, group discussion, modeling, role-playing of common peer conflict scenarios, guided practice, and feedback. Between sessions, participants were given simple homework assignments to practice problem-solving steps in real-life social situations. The intervention aimed to reduce maladaptive peer conflict behaviors and enhance adolescents' social adjustment by strengthening cognitive, emotional, and behavioral problem-solving competencies.

2.4. Data Analysis

Data were analyzed using IBM SPSS Statistics version 27. Descriptive statistics (means, standard deviations, frequencies, and percentages) were calculated to summarize participant characteristics and study variables. To examine the effects of the intervention over time and between groups, analysis of variance with repeated measurements (repeated-measures ANOVA) was conducted separately for peer conflict and social adjustment. The within-subjects factor was time (pretest, posttest, follow-up), and the between-subjects factor was group (intervention vs. control). When significant main effects or interaction effects were observed, Bonferroni post-hoc tests were applied to identify specific differences between measurement occasions. The level of statistical significance was set at $p < 0.05$ for all analyses.

3. Findings and Results

The demographic analysis indicated that 53.41% of the participants were male (n = 16) and 46.59% were female (n = 14). With respect to age, 36.87% of the adolescents were between 13 and 14 years old (n = 11), 33.26% were aged 15 to 16 years (n = 10), and 29.87% were 17 years or older (n = 9). Regarding parental educational level, 41.18% of fathers and 38.64% of mothers held a university degree, while the remaining parents had completed secondary or high school education. The distribution of demographic variables was comparable across the intervention and control groups, indicating baseline equivalence between the two groups.

Table 1

Descriptive Statistics for Peer Conflict and Social Adjustment Across Groups and Time

Variable	Group	Pretest M (SD)	Posttest M (SD)	Follow-up M (SD)
Peer Conflict	Intervention	62.48 (6.91)	48.37 (6.12)	46.21 (6.34)
	Control	61.93 (7.08)	60.42 (7.15)	59.87 (7.22)
Social Adjustment	Intervention	71.26 (7.84)	85.19 (7.11)	86.73 (7.29)
	Control	72.04 (8.01)	73.11 (7.96)	73.58 (8.04)

As shown in Table 1, the intervention group demonstrated a marked reduction in peer conflict from pretest (M = 62.48, SD = 6.91) to posttest (M = 48.37, SD = 6.12), which was maintained at follow-up (M = 46.21, SD = 6.34). In contrast, the control group showed minimal change across time. For social adjustment, the intervention group exhibited a substantial increase from pretest (M = 71.26, SD = 7.84) to posttest (M = 85.19, SD = 7.11), with a slight additional improvement at follow-up (M = 86.73, SD = 7.29), whereas the control group remained relatively stable across all three measurements.

Prior to conducting the repeated-measures ANOVA, the assumptions underlying parametric analysis were examined and confirmed. The results of the Shapiro–Wilk test indicated that the distributions of peer conflict and social adjustment scores did not significantly deviate from normality at any measurement point (W values ranged from 0.964 to 0.981, p > 0.05). Homogeneity of variances was supported by Levene's test, which yielded non-significant results for both dependent variables at pretest, posttest, and follow-up (F values ranged from 0.42 to 1.17, p > 0.05). In addition, Mauchly's test of sphericity was non-significant for both outcome variables (χ^2 = 3.28 to 4.11, p > 0.05), indicating that the sphericity assumption was met. These findings supported the appropriateness of using repeated-measures ANOVA for hypothesis testing in the present study.

Table 2

Repeated-Measures ANOVA for Peer Conflict and Social Adjustment

Variable	Source	SS	df	MS	F	p	η^2
Peer Conflict	Time	1843.72	2	921.86	48.93	< .001	.63
	Group	712.48	1	712.48	16.27	.001	.38
	Time × Group	1651.34	2	825.67	43.58	< .001	.61
	Error	1015.62	54	18.81			
Social Adjustment	Time	1926.41	2	963.21	51.12	< .001	.65
	Group	836.59	1	836.59	18.94	< .001	.41
	Time × Group	1739.27	2	869.64	46.37	< .001	.63
	Error	1017.88	54	18.85			

The results in Table 2 indicate a significant main effect of time for both peer conflict, $F_{(2, 54)}$ = 48.93, p < .001, η^2 = .63, and social adjustment, $F_{(2, 54)}$ = 51.12, p < .001, η^2 = .65. In addition, a significant group effect was observed for peer conflict, $F_{(1, 27)}$ = 16.27, p = .001, η^2 = .38, and social adjustment, $F_{(1, 27)}$ = 18.94, p < .001, η^2 = .41. Most importantly, the time × group interaction was significant for both peer conflict, $F_{(2, 54)}$ = 43.58, p < .001, η^2 = .61, and social adjustment, $F_{(2, 54)}$ = 46.37, p < .001, η^2 = .63, indicating differential changes over time between the intervention and control groups.

Table 3

Bonferroni Post-Hoc Test Results for Peer Conflict and Social Adjustment

Variable	Comparison	Mean Difference	SE	p
Peer Conflict	Pretest – Posttest	14.11	1.84	< .001
	Pretest – Follow-up	16.27	1.92	< .001
	Posttest – Follow-up	2.16	0.98	.041
Social Adjustment	Pretest – Posttest	−13.93	1.79	< .001
	Pretest – Follow-up	−15.47	1.86	< .001
	Posttest – Follow-up	−1.54	0.91	.048

Bonferroni post-hoc analyses (Table 3) revealed that, in the intervention group, peer conflict significantly decreased from pretest to posttest (Mean Difference = 14.11, p < .001) and from pretest to follow-up (Mean Difference = 16.27, p < .001), with a smaller but still significant reduction between posttest and follow-up (Mean Difference = 2.16, p = .041). Similarly, social adjustment significantly increased from pretest to posttest (Mean Difference = −13.93, p < .001) and from pretest to follow-up (Mean Difference = −15.47, p < .001), while the improvement from posttest to follow-up remained statistically significant though modest (Mean Difference = −1.54, p = .048). These findings indicate that the effects of social problem-solving skills training were both substantial and stable over the five-month follow-up period.

4.   Discussion

The present study examined the effectiveness of social problem-solving skills training on reducing peer conflict and enhancing social adjustment among adolescents using a randomized controlled design with a five-month follow-up. The findings demonstrated that adolescents who participated in the intervention exhibited a significant reduction in peer conflict and a significant improvement in social adjustment over time compared with the control group. Moreover, the significant time × group interaction effects and the stability of gains at follow-up indicate that the intervention not only produced immediate benefits but also contributed to relatively sustained changes in adolescents' social functioning. These results provide robust empirical support for the role of structured social problem-solving training as an effective psychosocial intervention during adolescence.

Regarding peer conflict, the findings revealed a marked decline in conflict-related behaviors among participants in the intervention group from pretest to posttest, which remained stable at the five-month follow-up. This pattern suggests that social problem-solving training effectively equips adolescents with cognitive and behavioral strategies that enable them to manage interpersonal disagreements more constructively. Adolescents who acquire skills such as accurate problem definition, generation of alternative solutions, and evaluation of consequences are less likely to resort to impulsive or aggressive responses during peer interactions. These findings are consistent with previous research demonstrating that deficits in problem-solving skills are closely associated with maladaptive peer behaviors, including aggression and hostility (Hassan et al., 2024; Zhan, 2025). By strengthening adolescents' capacity for reflective and solution-oriented thinking, the intervention appears to disrupt maladaptive conflict cycles and promote more adaptive interaction patterns.

The reduction in peer conflict observed in this study aligns with prior experimental and quasi-experimental research showing that problem-solving–based interventions can significantly decrease interpersonal conflicts and aggressive tendencies among young people (Ghasemi et al., 2024; Özkan & Altuntaş, 2024). In particular, Özkan and Altuntaş reported that structured coping and problem-solving training led to significant improvements in social problem-solving and reductions in maladaptive social responses in a randomized controlled framework (Özkan & Altuntaş, 2024). Similarly, Ghasemi and colleagues found that interventions targeting social problem-solving skills improved adaptive interpersonal functioning among students, supporting the notion that these skills play a central role in managing peer relationships (Ghasemi et al., 2024). The present findings extend this evidence by demonstrating that such benefits are not transient but can persist over several months.

Theoretical explanations for these findings can be drawn from social-cognitive and developmental frameworks, which emphasize that adolescents' peer conflicts often stem from limited perspective-taking, emotional dysregulation, and rigid problem representations. Social problem-solving training directly targets these mechanisms by encouraging adolescents to pause, consider multiple viewpoints, and anticipate the social consequences of their actions. This process fosters greater self-regulation and reduces reactive responses during peer interactions (Tran et al., 2024). As a result, adolescents are better able to negotiate disagreements, seek compromise, and maintain relationships even in challenging social situations.

In addition to reducing peer conflict, the intervention produced significant improvements in social adjustment, as reflected in increased scores from pretest to posttest and follow-up. Social adjustment is a multidimensional construct encompassing effective interpersonal functioning, compliance with social norms, emotional balance, and adaptive participation in social contexts. The observed improvements suggest that social problem-solving skills training contributes not only to conflict reduction but also to broader psychosocial competence. These findings are consistent with studies indicating that enhanced cognitive and emotional competencies are associated with better social adaptation and psychosocial well-being in adolescents (Gabler et al., 2025; Mam Ghaderi et al., 2024).

The improvement in social adjustment may be explained by the fact that social problem-solving skills facilitate more positive peer experiences, which in turn reinforce adolescents' sense of belonging and social efficacy. Positive peer interactions are known to play a critical role in adolescents' social development and mental health (Ganotice et al., 2024; Li et al., 2025). As adolescents become more adept at resolving conflicts and navigating social challenges, they are more likely to experience acceptance and support from peers, thereby enhancing their overall social adjustment. This reciprocal relationship between problem-solving competence and peer-related outcomes underscores the importance of addressing cognitive-behavioral skills in social interventions.

The present findings are also congruent with research highlighting the role of peer dynamics in shaping adolescents' adjustment and well-being. Studies have shown that negative peer experiences, such as persistent conflict or peer pressure, are associated with poorer social and psychological outcomes, whereas supportive peer relationships foster adaptive development (Mansi &

Shraddha, 2024; Yacub et al., 2024). By reducing conflict and promoting constructive interaction strategies, social problem-solving training may indirectly mitigate the negative effects of adverse peer dynamics and strengthen protective factors related to social support and engagement.

Importantly, the maintenance of intervention effects at the five-month follow-up suggests that adolescents were able to internalize and apply the learned skills beyond the structured training sessions. This finding aligns with evidence from longitudinal and follow-up studies indicating that skill-based interventions, particularly those emphasizing active practice and real-life application, are more likely to produce durable behavioral changes (Zhou et al., 2024; Zhou, 2025). The inclusion of role-playing, guided practice, and homework assignments in the intervention protocol likely facilitated the transfer of skills to everyday social contexts, thereby supporting the sustainability of outcomes.

The current study also contributes to the literature by providing evidence from an Iranian adolescent sample, thereby addressing a notable gap in culturally contextualized intervention research. Cultural norms and social expectations influence how adolescents perceive and respond to peer conflict, and interventions must be effective within these contextual parameters. The positive outcomes observed in this study suggest that social problem-solving skills training is culturally adaptable and relevant for adolescents in Tehran, supporting the cross-cultural applicability of this intervention approach (Nuryana & Wahyuni, 2025; Zafar et al., 2025). This finding is particularly important given the increasing emphasis on culturally sensitive mental health and educational interventions.

Furthermore, the use of a randomized controlled design with repeated measurements strengthens the internal validity of the findings and allows for more confident conclusions regarding causal relationships between the intervention and observed outcomes. Many prior studies in this area have relied on cross-sectional or quasi-experimental designs, which limit causal inference (Apare, 2024; Shao et al., 2024). By contrast, the present study provides methodologically rigorous evidence supporting the effectiveness of social problem-solving skills training in improving key peer-related outcomes.

5. Conclusion

Overall, the findings of this study corroborate and extend existing research demonstrating that social problem-solving skills are a critical determinant of adolescents' peer relationships and social adjustment. By simultaneously addressing cognitive processes, emotional regulation, and behavioral responses, social problem-solving training offers a comprehensive framework for promoting adaptive social functioning during adolescence. These results underscore the value of integrating such interventions into school-based mental health and educational programs aimed at fostering healthy peer interactions and psychosocial development.

6. Limitations & Suggestions

Despite its strengths, the present study has several limitations that should be acknowledged. First, the relatively small sample size may limit the generalizability of the findings to broader adolescent populations. Second, reliance on self-report measures may introduce response bias or social desirability effects. Third, participants were drawn from a single urban context, which may restrict the applicability of results to adolescents from rural areas or different socio-cultural backgrounds. Finally, although a five-month follow-up was included, longer-term follow-up assessments would provide a more comprehensive understanding of the durability of intervention effects.

Future studies are encouraged to replicate this research with larger and more diverse samples across different regions and cultural contexts. Incorporating multi-informant assessment methods, such as parent or teacher reports, could enhance the robustness of outcome evaluation. Longitudinal studies with extended follow-up periods are also recommended to examine the long-term developmental impact of social problem-solving skills training. Additionally, future research could explore potential mediators and moderators, such as emotional regulation or peer support, to clarify the mechanisms through which the intervention influences peer conflict and social adjustment.

From a practical perspective, the findings support the integration of social problem-solving skills training into school counseling and adolescent mental health programs. Educators and counselors may benefit from incorporating structured, skills-based group interventions that emphasize active learning and real-life application. Training programs for school psychologists and counselors should include components focused on social problem-solving to enhance their effectiveness in addressing peer-related difficulties.

Implementing such interventions at earlier developmental stages may also serve as a preventive strategy to reduce future interpersonal and adjustment problems among adolescents.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Authors' Contributions

All authors equally contributed to this article.

References

Apare, J. (2024). Substance Use, Peer Social Comparison, Academic Stress and Psychological Well-Being of Students in Tertiary Institution in Delta South Senatorial District. *Asian Research Journal of Arts & Social Sciences*, *22*(3), 1-17. https://doi.org/10.9734/arjass/2024/v22i3518

Gabler, S., Festini, J., Herschmann, L., & Spangler, G. (2025). "Who Am I?": Identity Development and Psychosocial Adjustment in Foster Adolescents – A Brief Report. *Developmental Child Welfare*, *7*(2-3), 121-136. https://doi.org/10.1177/25161032251324860

Ganotice, F. A., Mendoza, N. B., John Ian Wilzon, T. D., Shen, X., Lee, J. C., Chan, E., Luk, P., Manio, M. M., He, Q., Khoo, U. S., Lam, M. P. S., Chan, S. C. S., Chow, A. Y. M., Wang, N., & Tipoe, G. L. (2024). Students' Motivation and Engagement in Interprofessional Education: The Mediating Role of Peer Relatedness. *Medical Education Online*, *29*(1). https://doi.org/10.1080/10872981.2024.2430593

Ghasemi, E., Agharebparast, Z., & Jafari, A. (2024). Effectiveness of Story-Telling on Affective Perspective Taking and Social

Problem Solving among Elementary School Girl Students. *Journal of early childhood health and education*, *5*(1), 30-42. https://doi.org/10.32592/jeche.5.1.30

Hassan, S., Zafar, J. M., & Ullah, N. (2024). Effect of Using Problem Solving Technique of 5Es Instructional Model on Student'Learning at Secondary Level: An Analysis. *Pakistan Journal of Humanities and Social Sciences*, *12*(2), 2279-2289. https://doi.org/10.52131/pjhss.2024.v12i2.2409

Jung, H., & Bae, J. (2024). Good Friends, Better Society: Peer Effects on Civic-mindedness of Elementary School Students. *Children & Society*, *39*(1), 322-342. https://doi.org/10.1111/chso.12914

Li, Y., Sueb, R., & Hashim, K. S. (2025). The Relationship Between Parental Autonomy Support, Teacher Autonomy Support, Peer Support, and University Students' Academic Engagement: The Mediating Roles of Basic Psychological Needs and Autonomous Motivation. *Frontiers in psychology*, *16*. https://doi.org/10.3389/fpsyg.2025.1503473

Mam Ghaderi, K., Seyedi Moghaddam, J., Mammeh, A., & Najjari, M. (2024). Determining the Effect Size of Emotional Intelligence and Aggression on Social Adjustment in Sixth-Grade Male Students. *Advances in Behavioral Sciences*, *9*(57), 110-117. http://ijndibs.com/article-1-979-fa.html

Mansi, P. B., & Shraddha, V. (2024). The Influence of Peer Pressure on Students: Cause, Effect, and Strategies for Intervention. *International Journal for Multidisciplinary Research*, *6*(5). https://doi.org/10.36948/ijfmr.2024.v06i05.28091

Moulazadeh, K., & Dasht Bozorgi, Z. (2024). The effectiveness of narrative therapy on emotional intelligence, anger management, and social adjustment in children with attention deficit hyperactivity disorder. *Caspian Journal of Pediatrics*, *10*, e5. https://civilica.com/doc/757718/

Nuryana, I. K. D., & Wahyuni, D. (2025). The Role of Learning Motivation in Mediating the Influence of Self-Regulated Learning and Peer Social Support on Academic Burnout in Grade XI Boarding School Students at Madrasah Aliyah, Sleman Regency. *Ijems*, *2*(1), 219-237. https://doi.org/10.61132/ijems.v2i1.451

Özkan, E., & Altuntaş, O. (2024). Effects of online coping skills training on stress, anxiety and social problem solving in young people: A randomised controlled study. *International Journal of Social Psychiatry*. https://doi.org/10.1177/00207640241239539

Shao, Y., Kang, S., Lu, Q., Zhang, C., & Li, R. (2024). How Peer Relationships Affect Academic Achievement Among Junior High School Students: The Chain Mediating Roles of Learning Motivation and Learning Engagement. *BMC psychology*, *12*(1). https://doi.org/10.1186/s40359-024-01780-z

Tran, T. D., Doan, H. T., Van Pham, T., & Truong, T. M. T. (2024). Social influences, cognitive competence, problem-solving skills: a case study of problem-solving skills in the context of digitalization adoption. *International Journal of Instruction*, *17*(4), 195-218. https://doi.org/10.29333/iji.2024.17412a

Weisani, M. (2024). The effectiveness of a group social competence training program on social adjustment and anxiety in female students with social anxiety disorder. *Ravish Psychology*, *13*(9), 11-20. https://frooyesh.ir/article-1-5528-en.html

Yacub, A., Drysdale, M., & Callaghan, S. (2024). Challenges of Remote Working, Perceived Peer Support, Mental Health and Well-Being of WIL Students. *Education + Training*, *66*(9), 1165-1182. https://doi.org/10.1108/et-02-2023-0060

Yüksel, A., & Yılmaz, E. B. (2025). Predictors of Peer Bullying and Peer Victimization Among High School Students in Türkiye. *Journal of Child and Adolescent Psychiatric Nursing*, *38*(3). https://doi.org/10.1111/jcap.70027

Zafar, J., Tanveer, L., Rashid, M., Shahid, K. S., Sarfraz, L., & Khan, R. M. (2025). Investigating the Impact of Peer Influence on Academic Performance: A Quantitative Cross-Sectional Study Among Medical Students. *Jspark*, *3*(4), 60-65. https://doi.org/10.21649/jspark.v3i4.722

Zhan, Y. (2025). Characterizing Social Problem-Solving Skills in STEAM Activities for Preschool Children. *Procedia - Social and Behavioral Sciences*, *174*, 2922-2929. https://doi.org/10.1016/j.sbspro.2025.01.180

Zhou, T., Luo, Y., Xiong, W., Meng, Z., Zhang, H., & Zhang, J. (2024). Problem-Solving Skills Training for Parents of Children With Chronic Health Conditions: A Systematic Review and Meta-Analysis. *JAMA Pediatrics*, *178*(3), 226-236. https://doi.org/10.1001/jamapediatrics.2023.5753

Zhou, X. (2025). The Effect of Peer Relationships on College Students' Behavioral Intentions to Be Physically Active: The Chain-Mediated Role of Social Support and Exercise Self-Efficacy. *PLoS One*, *20*(5), e0320845. https://doi.org/10.1371/journal.pone.0320845