



# The Effectiveness of Anger Management Skills Training and Assertive Behavior Training on Interpersonal Relationships and Tendency Toward Drug Use Among Female High School Students

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### Article Info

#### Article type:

Original Research

#### How to cite this article:

Jalilzadeh, S., & Khanmohammadi Otaghsara, A. (2026). The Effectiveness of Anger Management Skills Training and Assertive Behavior Training on Interpersonal Relationships and Tendency Toward Drug Use Among Female High School Students. *Journal of Adolescent and Youth Psychological Studies*, 7(7), 1-11.  
<http://dx.doi.org/10.61838/kman.jayps.5342>



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### ABSTRACT

**Objective:** The study aimed to investigate the effectiveness of anger management skills training and assertive behavior training on interpersonal relationships and tendency toward drug use among female high school students in Qaem Shahr.

**Methods and Materials:** This study employed an applied quasi-experimental design with a pretest–posttest format and a control group. The statistical population consisted of all female high school students in Qaem Shahr during the 2024–2025 academic year ( $N = 15,435$ ). Using convenience and voluntary sampling, 45 eligible students were selected and randomly assigned into three groups: anger management training ( $n = 15$ ), assertive behavior training ( $n = 15$ ), and control ( $n = 15$ ). The anger management intervention was conducted in 12 weekly 90-minute sessions, whereas the assertive behavior intervention was implemented in 10 weekly 60-minute sessions. The control group received no intervention. Data were collected using the FIRO Interpersonal Relationship Scale and the Mirhashemi Tendency Toward Drug Use Questionnaire. Data analysis was performed using SPSS through descriptive statistics, repeated-measures analysis of variance, and Bonferroni post-hoc tests.

**Findings:** The repeated-measures analysis of variance revealed a significant effect of time on interpersonal relationships,  $F(1, 42) = 29.81, p = .001$ , and a significant time  $\times$  group interaction,  $F(2, 42) = 7.33, p = .002$ . Significant between-group differences were also observed,  $F(2, 42) = 6.06, p = .005$ . In addition, significant effects were found for tendency toward drug use, including the effect of time,  $F(1, 42) = 33.21, p = .001$ , and the time  $\times$  group interaction,  $F(2, 42) = 9.73, p = .001$ , with significant between-group differences,  $F(2, 42) = 5.44, p = .008$ . Bonferroni post-hoc comparisons indicated that both intervention groups differed significantly from the control group in interpersonal relationships and tendency toward drug use; however, no statistically significant difference was found between anger management training and assertive behavior training.

**Conclusion:** The findings demonstrated that both anger management skills training and assertive behavior training were effective in improving interpersonal relationships and reducing tendency toward drug use among female adolescents.

**Keywords:** interpersonal relationships, tendency toward drug use, anger management, assertive behavior

## 1. Introduction

Adolescence is recognized as one of the most sensitive developmental periods in the human lifespan, characterized by rapid biological, emotional, cognitive, and social changes that significantly influence psychological adjustment and behavioral functioning. During this developmental stage, adolescents encounter a wide range of emotional and interpersonal challenges that may increase vulnerability to maladaptive behaviors, emotional dysregulation, aggression, and risky behaviors such as substance use. Researchers have consistently emphasized that the quality of emotional regulation skills and interpersonal competencies acquired during adolescence plays a decisive role in psychological well-being, social adjustment, and resilience against environmental stressors (Southwick & Charney, 2023). Female adolescents, in particular, may experience heightened emotional sensitivity and interpersonal pressures due to developmental transitions, social expectations, academic stress, and peer influences. Consequently, identifying effective psychological interventions that strengthen adaptive coping mechanisms and reduce high-risk behaviors among adolescent girls has become an important priority in contemporary psychological and educational research.

Interpersonal relationships constitute one of the central dimensions of adolescent psychosocial development. Healthy interpersonal relationships contribute significantly to emotional security, social competence, identity formation, academic adjustment, and psychological well-being. Adolescents who possess effective communication skills and constructive interpersonal behaviors generally demonstrate higher self-esteem, better emotional adjustment, and greater social integration (Gaines et al., 2022). Conversely, weak interpersonal relationships are associated with loneliness, emotional instability, peer rejection, anxiety, depression, aggression, and behavioral problems. The growing influence of digital communication and social media platforms has also altered the nature of interpersonal interactions among adolescents, creating both opportunities and risks for social connectedness and emotional functioning. Studies have shown that excessive engagement with modern communication technologies may negatively influence face-to-face interpersonal relationships and emotional intimacy among adolescents (Ghiyasi, 2021). Therefore, strengthening interpersonal competencies remains a major concern for mental health professionals, educators, and families.

One of the major psychological factors influencing interpersonal functioning in adolescents is anger and the inability to regulate emotional responses effectively. Anger is a natural human emotion; however, when poorly managed, it may lead to aggression, impulsive behaviors, interpersonal conflicts, academic problems, and emotional distress. Adolescents often experience difficulty regulating intense emotions because of ongoing cognitive and neurological development, making them particularly vulnerable to maladaptive anger expression. According to cognitive-behavioral perspectives, dysfunctional beliefs, irrational thoughts, and cognitive distortions play a significant role in the emergence and maintenance of anger-related problems (Deffenbacher et al., 2021). Persistent anger and aggressive reactions may impair communication patterns, reduce social acceptance, and increase vulnerability to high-risk behaviors. In educational environments, students with poor anger management skills frequently experience conflicts with peers, teachers, and family members, leading to reduced social adjustment and emotional instability.

Anger management training has therefore emerged as an effective psychological intervention for promoting emotional regulation and reducing maladaptive behaviors among adolescents. Cognitive-behavioral anger management interventions aim to help individuals recognize anger triggers, identify irrational thoughts, develop emotional awareness, improve coping strategies, and replace maladaptive responses with constructive behaviors. Empirical findings have demonstrated the effectiveness of anger management training in reducing aggression, improving resilience, enhancing cognitive flexibility, and promoting social adjustment among adolescents (Adinehvand & Davoodi Shamsi, 2021; Araban & Salehi, 2021). Similarly, life skills interventions that incorporate anger management techniques have been associated with improvements in emotional control, resilience, and adaptive coping among adolescents (Poursalman & Asgharnejad Farid, 2020). These findings suggest that structured anger management interventions can improve adolescents' ability to navigate interpersonal challenges more effectively while decreasing emotional and behavioral dysregulation.

Another important psychological skill closely associated with interpersonal adjustment and emotional well-being is assertive behavior. Assertiveness refers to the ability to express thoughts, feelings, needs, and boundaries in a direct, respectful, and socially appropriate manner without violating the rights of others. Assertive individuals are generally capable of maintaining balanced interpersonal

relationships, resisting social pressures, and communicating effectively in emotionally challenging situations. Adolescents who lack assertiveness may demonstrate passive, avoidant, or aggressive communication styles, which can increase interpersonal conflicts, emotional distress, and susceptibility to peer influence. In contrast, assertiveness training equips adolescents with communication skills that foster self-confidence, emotional expression, social competence, and conflict resolution abilities (Speed et al., 2022).

Research findings have shown that assertiveness skills training can significantly improve the quality of interpersonal relationships among adolescent girls (Rezaei & Karimi, 2023). Assertive behavior training has also been linked to enhanced self-esteem, emotional regulation, social adjustment, and reduced vulnerability to psychological problems. From a cognitive-behavioral perspective, assertiveness training helps individuals challenge maladaptive beliefs related to fear of rejection, guilt, dependency, and social anxiety while promoting healthier communication patterns. The development of assertive communication skills may therefore protect adolescents from engaging in maladaptive coping strategies and risky behaviors in response to social pressures or emotional difficulties.

One of the most concerning high-risk behaviors during adolescence is the tendency toward substance use. Substance use among adolescents has become a major public health issue globally due to its negative psychological, social, educational, and health-related consequences. Adolescents who engage in substance use are at increased risk for academic failure, mental health disorders, family conflicts, delinquent behavior, and long-term addiction problems. Epidemiological reports indicate that experimentation with drugs and addictive substances often begins during adolescence, emphasizing the importance of preventive interventions during this developmental period (Johnston et al., 2023). Psychological vulnerability, emotional dysregulation, peer pressure, low self-esteem, poor coping strategies, and weak interpersonal relationships are among the major factors associated with increased risk of substance use in adolescents.

Researchers have increasingly emphasized the importance of preventive psychological interventions aimed at strengthening emotional resilience and reducing addiction readiness among adolescents. Preventive approaches that focus on emotional regulation, coping skills, resilience, and interpersonal competence have shown promising outcomes

in decreasing vulnerability to substance use behaviors (Fallahzadeh, 2021). Recent studies have indicated that emotion control and anger control skills training can effectively reduce addiction readiness among students by enhancing emotional self-regulation and adaptive coping abilities (Ghasemi, 2024). Similarly, school-based mental health promotion programs have demonstrated effectiveness in improving resilience, emotional awareness, and psychological adjustment among secondary school students (Tamang et al., 2024). These findings support the importance of educational and psychological interventions in reducing risk factors associated with adolescent substance use.

The relationship between emotional dysregulation, poor interpersonal functioning, and substance use tendency is particularly important in adolescent girls. Female adolescents often encounter complex social expectations and interpersonal stressors that may increase vulnerability to emotional difficulties and maladaptive coping behaviors. Difficulties in expressing emotions, inability to establish healthy interpersonal boundaries, low assertiveness, and ineffective anger regulation may increase emotional distress and contribute to greater susceptibility to peer pressure and substance experimentation. Conversely, interventions that enhance emotional competence and communication skills may strengthen adolescents' psychological resilience and reduce the likelihood of engaging in risky behaviors. The concept of "mental immunity," which refers to psychological resilience and the ability to resist harmful influences, has recently gained attention as a protective factor against substance abuse among adolescents (Ninkron & Khuntiterakul, 2025). Developing emotional and interpersonal competencies may therefore function as a protective psychological mechanism against substance use tendencies.

Despite the growing body of research supporting anger management training and assertiveness training separately, relatively limited studies have directly compared the effectiveness of these interventions on interpersonal relationships and tendency toward substance use among female high school students. Existing evidence suggests that both emotional regulation interventions and communication skills training can positively influence adolescent mental health and social adjustment; however, the comparative efficacy of these approaches remains insufficiently explored. Furthermore, cultural, educational, and social contexts may influence the effectiveness of psychological interventions, highlighting the need for localized research within specific

adolescent populations. Considering the increasing prevalence of emotional difficulties, interpersonal conflicts, and substance use risk among adolescents, identifying effective school-based psychological interventions is essential for promoting adolescent mental health and preventing behavioral problems.

Accordingly, the present study aimed to investigate the effectiveness of anger management skills training and assertive behavior training on interpersonal relationships and tendency toward drug use among female high school students in Qaem Shahr.

## 2. Methods and Materials

### 2.1. Study Design and Participants

The present study was applied in terms of purpose and descriptive in terms of data collection method, and in terms of research nature, it was a quasi-experimental study with a pretest–posttest design accompanied by a control group. The statistical population consisted of all female high school students in Qaem Shahr during the 2024–2025 academic year who were studying in public and non-public schools, totaling 15,435 students. The sampling method was convenience and voluntary sampling. Initially, among schools with counseling services, one female high school in Qaem Shahr that had the possibility of cooperation and implementation of training sessions was selected. Subsequently, among volunteer students who met the inclusion criteria, 45 participants were selected and randomly assigned into two experimental groups (30 participants), including 15 participants receiving anger management skills training and 15 participants receiving assertive behavior training, and one control group (15 participants). Inclusion criteria included absence of severe psychological disorders, no use of psychiatric medication, and parental consent for participation in the training sessions. This sample size was statistically adequate based on similar studies and according to Cohen’s formula for quasi-experimental studies with a medium effect size (0.5), statistical power of 80%, and significance level of 0.05. The present study was conducted as a quasi-experimental study with a pretest–posttest design and a control group. First, the statistical population consisting of all female high school students in Qaem Shahr during the 2024–2025 academic year (15,435 students) was identified. Then, using convenience and voluntary sampling, one female high school with counseling services and the capacity to hold educational sessions was selected. In the next stage, among

volunteer students meeting the inclusion criteria (absence of severe psychiatric disorders, no use of psychiatric medication, parental consent, no participation in similar training during the previous 6 months, and ability to attend sessions), 45 participants were selected and randomly assigned into three groups, including two experimental groups (15 participants each) and one control group (15 participants). The first experimental group received anger management skills training during 12 weekly 90-minute sessions, and the second experimental group received assertive behavior training during 10 weekly 60-minute sessions, whereas the control group received no intervention. The educational content in both experimental groups was based on standardized protocols and included cognitive–behavioral techniques, role-playing, cognitive restructuring, relaxation exercises, communication skills training, and homework assignments. Before the interventions began, all three groups completed the interpersonal relationships and tendency toward substance use questionnaires as a pretest. After completion of the training programs, the same instruments were administered again as a posttest. Exclusion criteria included absence from more than two sessions, lack of cooperation in completing questionnaires, emergence of acute psychological problems during the study, or voluntary withdrawal from participation.

### 2.2. Measures

**Interpersonal Relationship Scale:** To assess interpersonal communication skills, the Interpersonal Skills Questionnaire developed by Fetro (2000) was used. The Fetro Interpersonal Communication Skills Questionnaire was designed based on a comprehensive review of the literature and surveys of researchers and planners. This instrument is a subscale of the Individual and Social Communication Skills Scale designed for individuals aged 10 to 20 years; however, it can also be used by researchers, planners, and evaluators of adolescent and youth development programs, social organizations, elementary and secondary schools, higher education institutions, and any group seeking to assess the individual and social communication skills of adolescents and young adults, as well as their interpersonal communication skills (Mahmoudi et al., 2016). This scale consists of 65 items and dimensions including empathy and intimacy, assertiveness, communication skills, conflict resolution, ability to maintain relationships, and listening skills, and is scored on a five-point Likert scale ranging from “never” to “always,” with each item scored from 1 to 5. In this questionnaire, items 10,

1, 39, 13, 5, 23, 62, 28, 47, 32, 20, 61, 29, 38, 51, 50, 37, 60, 53, 54, 42, 18, and 34 are reverse scored. The empathy and intimacy dimension includes items 56, 63, 55, 43, 48, 59, 44, 7, 21, 36, 16, 2, 41, 65, and 10. The assertiveness dimension includes items 1, 14, 39, 13, 11, 5, 40, 52, 23, and 62. The communication skills dimension includes items 9, 19, 26, 3, 6, 8, 33, 31, and 25. The conflict resolution dimension includes items 28, 47, 32, 20, 61, 45, and 29. The ability to maintain relationships dimension includes items 51, 50, 37, 60, 53, 54, 49, and 42. The listening skills dimension includes items 18, 24, 34, and 27. In the study by Mahmoudi et al. (2016), among 750 research participants, 423 were students from the University of Tabriz and 327 were students from Tabriz University of Medical Sciences. Exploratory factor analysis conducted on the 65 items extracted six factors, leaving 54 items in the final structure. The naming of the new factors was based on the original questionnaire and theoretical and empirical literature. These six factors (empathy and intimacy, assertiveness, communication skills, ability to maintain relationships, conflict resolution, and listening skills) explained 45.26% of the total variance. In the study by Mahmoudi et al. (2016), items 4, 12, 15, 22, 30, 35, 46, 57, 58, and 64 were removed during the analysis. Cronbach's alpha coefficients reported by Mahmoudi et al. (2016) for the questionnaire dimensions were 0.90 for empathy and intimacy, 0.79 for assertiveness, 0.88 for communication skills, 0.83 for conflict resolution, 0.83 for maintaining relationships, and 0.68 for listening skills.

**Tendency Toward Drug Use Scale:** This questionnaire consists of 16 items and its general purpose is to assess the level of tendency toward addiction across three dimensions: social, individual, and environmental factors. This researcher-made questionnaire was designed using several scientific resources, including the work of Farchad et al. (2006). The response format is based on a Likert scale ranging from "very low," "low," "occasionally," "high," to "very high." Questionnaire dimensions and item allocation include items 1 to 5 for environmental factors (family and relatives), items 6 to 9 for individual factors, and items 10 to 16 for social factors. Accordingly, to obtain the total questionnaire score, the scores of all items are summed together. Naturally, the total score ranges from 16 to 80, with higher scores indicating a greater tendency toward addiction and lower scores indicating a lower tendency. To evaluate the validity and reliability of the instrument, in Mirhashemi's thesis (2009), the questionnaire was distributed among a number of university students to assess face validity and the appropriateness of the items. After

confirming the obtained results, the questionnaire was distributed within the statistical sample. In addition, questionnaire reliability was calculated using Cronbach's alpha coefficient. Typically, Cronbach's alpha ranges from 0, indicating no stability, to +1, indicating complete reliability, and the closer the obtained value is to +1, the greater the reliability of the questionnaire. Cronbach's alpha coefficient for the Tendency Toward Addiction Questionnaire was reported as 0.79.

### 2.3. Interventions

The anger management skills training protocol was implemented as the experimental intervention in 12 weekly sessions, each lasting 90 minutes. The intervention was based on the cognitive approaches of Albert Ellis and other cognitive therapists, emphasizing awareness of the relationship between irrational thoughts and maladaptive behaviors in order to help participants adopt more rational approaches toward evaluating and regulating their behaviors (Sarason & Sarason, 2000). The first session focused on introducing group members, establishing rapport through ice-breaking activities and games, explaining group rules, clarifying members' responsibilities, and outlining the overall objectives of the program. The second session provided an introduction to anger management, identification of emotions, explanation of the importance of emotions for survival, and discussion of irrational thoughts and beliefs related to anger. In the third session, participants reviewed previous assignments, identified the physiological signs of anger, learned to recognize early warning signs of anger escalation, and discussed adaptive coping strategies such as leaving the situation, drinking water, or taking a shower when anger becomes overwhelming. The distinction between conscious withdrawal from a situation and emotional withdrawal or silent treatment was also explained. The fourth session focused on negative automatic thoughts (NATs), cognitive distortions, and training in the use of Dysfunctional Thought Records (DTRs) across various situations. In the fifth session, participants continued working on cognitive restructuring concepts and received training on the ABCD model and the thought-stopping technique. The sixth session reviewed assignments and summarized the core concepts presented in previous sessions, with an emphasis on identifying cognitive distortions. The seventh session introduced progressive muscle relaxation training and provided opportunities for in-session and home practice. The eighth and ninth sessions

focused on different behavioral styles and their effects on interpersonal relationships, effective communication skills, and the importance of nonverbal communication techniques such as active listening and empathy. The tenth session aimed to increase participants' insight into their own anger patterns and improve behavioral responses in anger-provoking situations. The eleventh and twelfth sessions were dedicated to reviewing previous concepts, assisting participants in developing individualized anger control plans, and practicing learned techniques through role-playing and behavioral exercises. Throughout the intervention, assignments were reviewed at the beginning of each session and participants received structured feedback regarding their progress and application of skills in daily life.

The assertive behavior training protocol consisted of 10 weekly sessions, each lasting 60 minutes. The training process was conducted using cognitive-behavioral techniques, including modeling, role-playing, feedback provision, rehearsal, repeated practice, and various cognitive and behavioral assignments (Fathi et al., 2006; World Health Organization, 2006). At the end of each session, participants received homework assignments related to the session content, and at the beginning of the following session, assignments were reviewed and feedback was provided. The first session focused on introducing group members, establishing a supportive and intimate atmosphere, explaining the purpose of the sessions, clarifying the goals of group participation, and discussing group responsibilities throughout the intervention. The second session introduced the principles of assertiveness, including self-care and effective communication styles, while also identifying internal barriers to assertive behavior. The third session reviewed assignments and challenged internal psychological barriers such as distorted perceptions of guilt and self-blame, while helping participants identify irrational and maladaptive thoughts related to selfishness and excessive need for others' approval. The fourth session emphasized the necessity and importance of assertiveness, discussed the negative consequences of lacking assertive behavior, and highlighted the positive outcomes associated with assertive communication. The fifth session introduced the goal-relationship matrix and explained different behavioral styles, including passive, aggressive, domineering, and assertive styles, with the aim of increasing self-awareness regarding personal communication patterns. The sixth session reviewed previous concepts and focused on the major components of assertiveness, such as the ability to say no, request needs appropriately, express positive and negative

emotions constructively, and initiate, maintain, and terminate interpersonal relationships effectively. The seventh session involved practical training in refusing requests without experiencing guilt or shame, expressing opinions even when different from others, rejecting unreasonable demands, and learning assertive body language skills such as eye contact, balanced tone of voice, and appropriate posture. The eighth session introduced assertiveness techniques including objective and precise description using the word "when," expressing feelings using "I" statements, stating requests clearly, explaining positive and negative consequences, and training in the sandwich technique. The ninth session focused on assertive refusal skills, including giving positive feedback, providing reasons, communicating final decisions, and learning the broken-record technique for persistent situations and disarming techniques for verbally aggressive interactions. The tenth session reviewed all previously learned concepts, provided progressive practice from simple to difficult interpersonal situations, encouraged continued application of assertiveness skills in daily life, and prepared participants for posttest assessment conducted two days later.

#### 2.4. Data Analysis

The collected data were initially summarized using descriptive indices including mean, standard deviation, and frequency. Subsequently, to test the hypotheses, multivariate analysis of covariance (MANCOVA) controlling for pretest scores was used. Final data analysis was conducted using SPSS software. In this study, two levels of analysis were employed. At the descriptive level, statistical indices such as mean, standard deviation, frequency, and percentage were used to describe demographic characteristics and variable scores. At the inferential level, to examine the research hypotheses, multivariate analysis of covariance (MANCOVA) was used to investigate the effects of anger management skills training and assertive behavior training on interpersonal relationships and tendency toward substance use in the experimental groups compared with the control group. Data analysis was conducted using SPSS statistical software.

### 3. Findings and Results

Before testing the hypotheses, the statistical assumptions were examined. Approximately 18% of the students were 15 years old or younger, 24% were 16 years old, 31% were 17 years old, and 27% were 18 years old or older. In terms of

educational grade, approximately 22% were in Grade 10, 40% were in Grade 11, and 38% were in Grade 12. Box's M test confirmed the homogeneity of covariance matrices for interpersonal relationships, Box's M = 10.43, F = 1.55, p = .108, and tendency toward drug use, Box's M = 13.10, F = 2.03, p = .058. Levene's test was also non-significant for interpersonal relationships at pretest, F(2, 42) = 0.89, p = .420, and posttest, F(2, 42) = 0.86, p = .429, as well as for

tendency toward drug use at pretest, F(2, 42) = 0.43, p = .653, and posttest, F(2, 42) = 0.38, p = .687; therefore, the assumption of homogeneity of variances was supported. However, Mauchly's test was significant for both variables, W = 1.00,  $\chi^2 = 1.00$ , p = .001, indicating that the sphericity assumption was not met; therefore, the Greenhouse-Geisser correction was considered in interpreting the repeated-measures results.

**Table 1**

*Descriptive Statistics of Interpersonal Relationships and Tendency Toward Drug Use by Group and Time*

Variable	Group	Pretest M	Pretest SD	Posttest M	Posttest SD
Interpersonal relationships	Control	174.66	24.80	176.20	25.73
Interpersonal relationships	Anger management training	179.53	32.45	218.40	24.47
Interpersonal relationships	Assertive behavior training	174.20	29.58	228.40	38.56
Tendency toward drug use	Control	34.53	7.74	35.20	9.70
Tendency toward drug use	Anger management training	35.46	10.55	23.13	3.87
Tendency toward drug use	Assertive behavior training	34.20	7.75	20.73	6.91

As shown in Table 1, the mean score of interpersonal relationships increased in both intervention groups from pretest to posttest, whereas only a slight increase was observed in the control group. In the anger management group, the mean score increased from 179.53 to 218.40, and in the assertive behavior training group, it increased from

174.20 to 228.40. For tendency toward drug use, the mean score decreased from 35.46 to 23.13 in the anger management group and from 34.20 to 20.73 in the assertive behavior training group, while the control group showed no meaningful reduction and slightly increased from 34.53 to 35.20.

**Table 2**

*Repeated-Measures ANOVA Results for the Effects of Anger Management and Assertive Behavior Training*

Variable	Source	SS	df	MS	F	p	$\eta^2$
Interpersonal relationships	Time	22372.90	1	22372.90	29.81	.001	.42
Interpersonal relationships	Time × Group	11006.66	2	5503.33	7.33	.002	.26
Interpersonal relationships	Error within groups	31524.93	42	750.59	—	—	—
Interpersonal relationships	Group	12283.46	2	6141.73	6.06	.005	.22
Interpersonal relationships	Error between groups	42536.13	42	1012.76	—	—	—
Tendency toward drug use	Time	1579.21	1	1579.21	33.21	.001	.44
Tendency toward drug use	Time × Group	925.08	2	462.54	9.73	.001	.32
Tendency toward drug use	Error within groups	1997.20	42	47.55	—	—	—
Tendency toward drug use	Group	891.08	2	445.54	5.44	.008	.21
Tendency toward drug use	Error between groups	3437.73	42	81.85	—	—	—

As presented in Table 2, the effect of time was significant for interpersonal relationships, F(1, 42) = 29.81, p = .001,  $\eta^2 = .42$ , and the time × group interaction was also significant, F(2, 42) = 7.33, p = .002,  $\eta^2 = .26$ . The between-group effect was significant as well, F(2, 42) = 6.06, p = .005,  $\eta^2 = .22$ . These results indicate that anger management skills training and assertive behavior training significantly improved interpersonal relationships compared with the control group.

For tendency toward drug use, the effect of time was significant, F(1, 42) = 33.21, p = .001,  $\eta^2 = .44$ , and the time × group interaction was significant, F(2, 42) = 9.73, p = .001,  $\eta^2 = .32$ . The between-group effect was also significant, F(2, 42) = 5.44, p = .008,  $\eta^2 = .21$ , indicating that both interventions significantly reduced tendency toward drug use compared with the control group.

**Table 3**

*Bonferroni Post-Hoc Comparisons Between Groups*

Variable	Group I	Group J	Mean Difference (I-J)	p
Interpersonal relationships	Control	Anger management training	-23.53	.020
Interpersonal relationships	Control	Assertive behavior training	-25.87	.009
Interpersonal relationships	Anger management training	Assertive behavior training	-2.33	1.000
Tendency toward drug use	Control	Anger management training	6.57	.014
Tendency toward drug use	Control	Assertive behavior training	7.40	.009
Tendency toward drug use	Anger management training	Assertive behavior training	1.83	1.000

As shown in Table 3, the control group differed significantly from both the anger management training group and the assertive behavior training group in interpersonal relationships and tendency toward drug use. However, there was no significant difference between the anger management training group and the assertive behavior training group in interpersonal relationships,  $p = 1.000$ , or tendency toward drug use,  $p = 1.000$ . Therefore, the findings support the effectiveness of both anger management skills training and assertive behavior training in improving interpersonal relationships and reducing tendency toward drug use among female high school students, while indicating no statistically significant superiority of either intervention over the other.

**4. Discussion**

The present study was conducted to investigate the effectiveness of anger management skills training and assertive behavior training on interpersonal relationships and tendency toward drug use among female high school students in Qaem Shahr. The findings demonstrated that both interventions significantly improved interpersonal relationships and significantly reduced the tendency toward drug use compared with the control group. Furthermore, the results indicated that no statistically significant difference existed between the effectiveness of anger management skills training and assertive behavior training on either interpersonal relationships or tendency toward drug use. These findings suggest that both emotional regulation training and assertiveness-based interventions can function as effective preventive and developmental psychological approaches for improving adolescent psychosocial functioning and reducing high-risk behavioral tendencies.

One of the major findings of the present study was that anger management skills training significantly improved interpersonal relationships among female high school students. This finding may be explained by the important

role of emotional regulation in social interactions and communication quality. Adolescents who experience difficulties managing anger often demonstrate impulsive reactions, verbal aggression, emotional withdrawal, and interpersonal conflicts, all of which negatively affect social relationships. Anger management training enables individuals to recognize emotional triggers, identify maladaptive cognitive patterns, regulate physiological arousal, and adopt more constructive coping strategies in emotionally challenging situations. As a result, students become more capable of responding calmly and adaptively in interpersonal interactions, thereby improving communication quality and relational stability. Cognitive-behavioral approaches to anger management emphasize the relationship between irrational beliefs and maladaptive emotional reactions, suggesting that modifying dysfunctional cognitions can lead to healthier behavioral outcomes (Deffenbacher et al., 2021). Therefore, by reducing cognitive distortions and enhancing emotional self-awareness, anger management training likely contributed to better interpersonal functioning among participants.

The findings regarding the positive effects of anger management training on interpersonal relationships are consistent with previous empirical studies. Research by (Araban & Salehi, 2021) demonstrated that anger management training based on the Internal Family Systems approach improved personal and social adjustment as well as relationships with parents among aggressive adolescents. Similarly, (Poursalman & Asgharnejad Farid, 2020) found that life skills training emphasizing anger management enhanced resilience and emotional adjustment among adolescents. Furthermore, (Adinehvand & Davoodi Shamsi, 2021) reported that anger control training significantly reduced aggression and improved psychological resilience in adolescents. These studies collectively support the notion that emotional regulation interventions can improve adolescents' social adaptation and interpersonal functioning

by enhancing self-control, emotional awareness, and coping capacity.

Another important finding of the present study was that assertive behavior training significantly improved interpersonal relationships among female adolescents. This finding can be interpreted based on the role of assertiveness in facilitating healthy communication and emotional expression. Assertiveness allows individuals to express thoughts, needs, emotions, and personal boundaries in a direct yet respectful manner. Adolescents who lack assertiveness may exhibit passive or aggressive communication styles, both of which are associated with interpersonal dissatisfaction and relational conflict. Through assertiveness training, participants likely learned adaptive communication skills such as expressing opinions confidently, saying no appropriately, using effective body language, and resolving conflicts constructively. These skills improve self-confidence and reduce communication anxiety, ultimately promoting healthier interpersonal interactions.

The findings related to assertiveness training are consistent with previous literature emphasizing the importance of communication skills for adolescent psychosocial functioning. (Rezaei & Karimi, 2023) reported that assertiveness skills training significantly improved the quality of interpersonal relationships among adolescent girls. Likewise, (Speed et al., 2022) described assertiveness training as an evidence-based intervention capable of enhancing social competence, emotional regulation, and interpersonal effectiveness. From a cognitive-behavioral perspective, assertiveness training challenges maladaptive beliefs related to rejection sensitivity, fear of criticism, and dependency, thereby fostering healthier social behaviors and communication patterns. The improvement observed in interpersonal relationships in the present study may therefore reflect increased self-efficacy, emotional confidence, and communication competence among participants receiving assertiveness training.

The findings also demonstrated that both anger management training and assertive behavior training significantly reduced the tendency toward drug use among participants. This result is particularly important because substance use tendency during adolescence is strongly associated with emotional dysregulation, peer pressure, psychological distress, and maladaptive coping strategies. Adolescents who are unable to regulate emotions effectively may use substances as a mechanism for emotional escape or stress reduction. Similarly, adolescents with poor

interpersonal skills or low assertiveness may be more vulnerable to peer influence and social pressure related to substance use. By improving emotional control and interpersonal competence, both interventions may have strengthened participants' psychological resilience and reduced vulnerability to risky behaviors.

The reduction in tendency toward drug use following anger management training may be explained by the role of emotional regulation in addiction prevention. Adolescents who learn adaptive methods for coping with anger and emotional distress are less likely to rely on maladaptive coping strategies such as substance use. Anger management training promotes cognitive restructuring, self-monitoring, impulse control, and stress management, all of which may reduce susceptibility to substance-related behaviors. This finding is supported by the results of (Ghasemi, 2024), who found that emotion control and anger control skills training significantly reduced addiction readiness among students. In addition, preventive approaches emphasizing emotional regulation and coping strategies have been widely recognized as effective mechanisms for reducing behavioral risk factors associated with substance use (Fallahzadeh, 2021). The present findings therefore reinforce the importance of emotional self-regulation training in substance use prevention programs for adolescents.

The effectiveness of assertive behavior training in reducing tendency toward drug use may similarly be interpreted through its impact on social competence and resistance to peer pressure. Assertive adolescents are generally more capable of refusing inappropriate requests, setting personal boundaries, and making autonomous decisions in social situations. These characteristics are especially important during adolescence, when peer influence plays a significant role in shaping behavioral choices. Through assertiveness training, participants likely developed greater confidence in expressing refusal behaviors and resisting social pressures associated with substance experimentation. Additionally, assertiveness training may reduce emotional insecurity and social anxiety, both of which are associated with increased vulnerability to substance use behaviors. The findings align with broader psychological evidence suggesting that communication skills and self-efficacy function as protective factors against risky adolescent behaviors (Speed et al., 2022).

An important aspect of the present findings is that no significant difference was observed between the effectiveness of anger management training and assertive behavior training on interpersonal relationships or tendency

toward drug use. This finding suggests that both interventions may influence similar underlying psychological mechanisms despite focusing on different skill domains. Both approaches emphasize emotional awareness, cognitive restructuring, behavioral self-regulation, communication improvement, and adaptive coping strategies. Consequently, both interventions may ultimately enhance psychosocial functioning through overlapping pathways. It is also possible that emotional regulation and assertiveness are closely interconnected constructs during adolescence. Adolescents who develop greater emotional control may naturally communicate more effectively and confidently, while adolescents who improve assertiveness may experience greater emotional stability and reduced interpersonal stress.

The absence of a significant difference between the two interventions is also theoretically meaningful because it highlights the multidimensional nature of adolescent mental health promotion. Effective prevention of high-risk behaviors such as substance use likely requires comprehensive psychological development involving both emotional and interpersonal competencies. Previous studies have emphasized that resilience, emotional competence, and social adjustment collectively contribute to adolescent psychological well-being and protection against harmful behaviors (Southwick & Charney, 2023). Similarly, school-based mental health promotion programs focusing on emotional resilience and psychosocial skills have demonstrated positive effects on adolescent adjustment and well-being (Tamang et al., 2024). The findings of the present study support these perspectives by showing that interventions targeting either emotional regulation or assertive communication can positively influence adolescent mental health outcomes.

The present findings may also be interpreted within the broader context of contemporary adolescent social challenges. Modern adolescents are increasingly exposed to social pressures, academic stress, technological influences, and changes in communication patterns that may negatively affect emotional health and interpersonal functioning. The increasing role of digital communication and social media may weaken direct interpersonal interactions and emotional intimacy among adolescents (Ghiyasi, 2021). Under such conditions, school-based psychological interventions become especially important for promoting emotional literacy, communication skills, and resilience. Programs aimed at strengthening psychological “mental immunity” may protect adolescents against emotional difficulties and

high-risk behaviors associated with substance use (Ninkron & Khuntiterakul, 2025). The present findings therefore underscore the value of implementing structured psychological skills training programs within educational settings.

## 5. Conclusion

Overall, the findings of the present study indicate that both anger management skills training and assertive behavior training can significantly improve interpersonal relationships and reduce tendency toward drug use among female high school students. These results support cognitive-behavioral and psychosocial theories emphasizing the role of emotional regulation, communication competence, and adaptive coping in adolescent adjustment and behavioral health. The findings also contribute to the growing body of evidence supporting preventive mental health interventions in school environments and highlight the importance of integrating emotional and interpersonal skills training into adolescent educational and counseling programs.

## 6. Limitations & Suggestions

One limitation of the present study was the relatively small sample size, which may limit the generalizability of the findings to broader adolescent populations. In addition, the study focused exclusively on female high school students in one city, which restricts the applicability of the results to male students or adolescents from different cultural and educational backgrounds. Another limitation was the reliance on self-report questionnaires, which may be influenced by social desirability bias and subjective response patterns. Furthermore, the absence of a long-term follow-up assessment prevented evaluation of the durability and long-term stability of the intervention effects over time.

Future research is recommended to examine the effectiveness of anger management and assertiveness training using larger and more diverse samples across different geographical and cultural contexts. Researchers may also investigate the long-term effects of these interventions through longitudinal follow-up studies. Comparative studies involving male adolescents, younger age groups, or adolescents with clinical psychological conditions could provide additional insight into the generalizability of the findings. Moreover, future studies may explore the mediating roles of resilience, self-esteem, emotional intelligence, or family functioning in explaining

the relationship between psychological interventions and reductions in substance use tendency.

The findings of the present study suggest important practical implications for schools, counselors, psychologists, and educational policymakers. Educational institutions may benefit from integrating anger management and assertiveness training programs into school counseling services and mental health promotion curricula. School counselors and psychologists can use structured emotional regulation and communication skills interventions to improve students' interpersonal functioning and reduce vulnerability to high-risk behaviors. Parents and teachers may also be educated regarding the importance of emotional support, communication skills, and healthy coping strategies during adolescence. Finally, preventive mental health programs emphasizing emotional literacy, resilience, and interpersonal competence could play a significant role in promoting adolescent psychological well-being and reducing the likelihood of substance use behaviors.

### Acknowledgments

We would like to express our appreciation and gratitude to all those who cooperated in carrying out this study.

### 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.

### Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

### Authors' Contributions

All authors equally contributed to this article.

### References

- Adinehvand, H., & Davoodi Shamsi, M. (2021). The effectiveness of anger control training on resilience and reducing aggression in working adolescents. Second National Conference on Psychology and Educational Sciences, Tehran.
- Araban, K., & Salehi, A. (2021). *The effectiveness of anger management skills training using the Internal Family Systems approach on cognitive flexibility, personal and social adjustment, and relationships with parents in aggressive adolescents* Payame Noor University of Isfahan Province, Isfahan Payame Noor Center].
- Deffenbacher, J. L., Oetting, E. R., & DiGiuseppe, R. (2021). Principles of anger management: A cognitive-behavioral perspective. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 39(2), 112-125.
- Fallahzadeh, A. (2021). *Addiction Prevention*. Joint Publications of the Welfare Organization and Literacy Movement of Khuzestan Province.
- Gaines, S. O., Carter, D. B., & Benson, J. (2022). Interpersonal relationships and psychological well-being. *American Journal of Community Psychology*, 69(3-4), 289-304.
- Ghasemi, S. (2024). Investigating the effect of emotion control and anger control skills training on addiction readiness in students. *Quarterly Journal of New Ideas in Psychology*, 22(26).
- Ghiyasi, M. (2021). *Investigating the relationship between modern mobile phone technology (Instagram) and interpersonal relationships among adolescents* Islamic Azad University].
- Johnston, L. D., Miech, R. A., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2023). *Monitoring the Future national survey results on drug use, 1975-2022: Overview of key findings on adolescent drug use*.
- Ninkron, P., & Khuntitakul, P. (2025). Creating mental immunity to reduce the risk associated with substance abuse among junior high school students in Nakhon Pathom Province, Thailand. *Children and Youth Services Review*, 169, 108092.
- Poursalman, S., & Asgharnejad Farid, A. (2020). The effectiveness of life skills training on anger management and resilience in adolescents. *Applied Family Therapy Quarterly*, 1(2), 105-124.
- Rezaei, S., & Karimi, M. (2023). The effect of assertiveness skills training on the quality of interpersonal relationships in adolescent girls. *Modern Psychology Quarterly*, 15(3), 52-70.
- Southwick, S. M., & Charney, D. S. (2023). *Resilience: The Science of Mastering Life's Greatest Challenges* (3rd ed.). Cambridge University Press.
- Speed, B. C., Goldstein, B. L., & Goldfried, M. R. (2022). Assertiveness training: A forgotten evidence-based treatment. *Clinical Psychology: Science and Practice*, 29(1), 45-60.
- Tamang, R., Velayudhan, B., Bhandari, S. S., Jose, T. T., Lakshmi, V. L. R., & Valsaraj, B. P. (2024). Effectiveness of school-based Scaling up Teen Mental Health Program through peer synergy (SUTMP) on mental health promotion, mental health literacy, and resilience among senior secondary students of Sikkim, India: A cluster randomized controlled trial protocol. *Mental Health & Prevention*, 36, 200370.