The Effectiveness of Resilience and Self-Compassion Training on Emotion Regulation and Frustration Tolerance in Students with Clinical Symptoms of Aggression

Abstract

Aims: Aggression is a growing global concern among adolescents, particularly female students, and is associated with deficiencies in emotion regulation and frustration tolerance. This study aimed to compare the effectiveness of resilience and self-compassion training on emotion regulation and frustration tolerance in female students with clinical symptoms of aggression.

Materials & Methods: This clinical trial, conducted in 2024, employed a pre-test, post-test, and one-month follow-up design. The study sample included 45 female middle school students with symptoms of aggression, randomly assigned to two experimental groups (resilience training, n=15; self-compassion training, n=15) and a control group (n=15) that received no intervention. Resilience training was conducted in 10 weekly sessions of 75 minutes each, while compassion-focused therapy was implemented in 8 weekly sessions of 90 minutes. Data were collected using the Affective Control Scale (ACS) and the Frustration Discomfort Scale (FDS). Data analysis was performed using repeated measures analysis of variance with SPSS 27 software.

Findings: The findings indicated that both resilience training and self-compassion training significantly improved emotion regulation and frustration tolerance compared to the control group ($P<0.001$). The effects of these interventions were sustained at the one-month follow-up, demonstrating their long-term effectiveness. However, the study found no significant difference in effectiveness between the two experimental groups.

Conclusion: Both resilience and self-compassion training are effective strategies for improving emotion regulation and frustration tolerance in female students with aggressive tendencies. These findings suggest that either approach can be used to achieve similar, lasting improvements in these skills.

Keywords: Resilience, Self-Compassion, Emotion Regulation, Aggression, Students

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Introduction

Aggression among adolescents, especially female students, has emerged as a significant global concern, exhibiting a complex interplay with psychological and social health. This behavior, which can manifest as physical, verbal, or relational hostility, is often indicative of underlying emotional dysregulation and coping deficits (1). Studies have consistently linked aggressive behavior in youth to a range of adverse outcomes, including academic difficulties, strained peer relationships, and increased risk of future mental health disorders such as depression and anxiety (2, 3). In the context of the school environment, aggression disrupts the learning process, compromises school safety, and places a heavy burden on both the students involved and the educational system as a whole (4). Addressing these behaviors is not merely a matter of discipline but a critical component of promoting well-being and fostering a supportive atmosphere for all students (5). Therefore, understanding the psychological underpinnings of aggression and developing effective, targeted interventions is a priority for researchers and practitioners alike.

Emotion regulation is a crucial skill involving the ability to influence which emotions one has, when one has them, and how one experiences and expresses them (6). It is a complex process that includes both conscious and unconscious strategies to manage emotional states. Deficits in emotion regulation are a core component of many psychological disorders, and their link to aggressive behavior is well-documented (7). Individuals who struggle to regulate their emotions are more likely to react impulsively and with hostility when confronted with challenging situations, as they lack the cognitive and behavioral tools to process their feelings in a constructive manner (8). Research has shown that teaching adolescents effective emotion regulation strategies can reduce their aggressive tendencies and improve their overall psychological well-being (9).

Frustration tolerance, a closely related construct, refers to an individual's capacity to cope with situations where goals are blocked or desires are unfulfilled without an extreme emotional or behavioral outburst (10). A low frustration tolerance is a hallmark of many aggressive behaviors. When faced with obstacles, individuals with poor frustration tolerance may resort to anger, hostility, and destructive actions rather than employing adaptive problem-solving skills (11). This can lead to a vicious cycle where a person's inability to cope with setbacks leads to more frequent and intense negative outcomes, further reinforcing their aggressive patterns (12). Interventions aimed at improving frustration tolerance equip individuals with the resilience and self-control necessary to navigate the inevitable challenges of life without resorting to aggression (13).

Resilience training is a psycho-educational intervention designed to enhance an individual's capacity to "bounce back" from adversity and stress (14). It focuses on building internal resources such as problem-solving skills, positive self-concept, and social support networks. Studies on resilience training have shown its effectiveness in various populations, including college students and workers, leading to reduced stress, improved coping mechanisms, and decreased symptomatology of depression and anxiety (15, 16). When applied to aggressive adolescents, resilience training can provide a framework for developing adaptive coping strategies, enabling them to respond to challenging situations with greater emotional stability and less impulsivity (17). By fostering a more resilient mindset, students can learn to view setbacks not as insurmountable obstacles but as opportunities for growth.

Self-compassion training, rooted in compassion-focused therapy, is a distinct yet complementary approach that involves treating oneself with kindness, understanding, and non-judgment, especially during times of failure or inadequacy (18). It consists of three main components: self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification (19). Research has demonstrated that self-compassion is a powerful antidote to self-criticism, shame, and other negative self-evaluative emotions that often underlie externalizing behaviors like aggression (20). A compassionate self-view can help individuals accept their flaws and failures, reducing the need to externalize their frustration through aggressive acts (21). By cultivating self-compassion, individuals can develop a more gentle and accepting relationship with themselves, which in turn reduces their emotional reactivity and enhances their ability to cope with difficult feelings.

Despite the established links between aggression and deficits in emotion regulation and frustration tolerance, and the potential of resilience and self-compassion as therapeutic interventions, there remains a need for comparative research in this area. While previous studies have examined these variables in isolation (14, 20), there is a gap in the literature regarding a direct comparison of the effectiveness of resilience training versus self-compassion training, specifically in the context of addressing aggression in female adolescents. The unique psychological and social pressures faced by

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this population necessitate targeted interventions that are empirically validated. This study aims to fill this gap by providing a direct comparison of the two interventions. The primary objective of this research is to evaluate and compare the effectiveness of resilience training and self-compassion training on emotion regulation and frustration tolerance in female middle school students with clinical symptoms of aggression.

Materials and Methods

Design

This study, conducted in 2024, employed a clinical trial design with a pre-test, post-test, and a one-month follow-up.

Participants

The statistical population included all female middle school students, aged 13 to 15, with clinical symptoms of aggression in the city of Ahvaz. Using a random cluster sampling method, two educational districts were first selected at random from the city's districts. From each of these two districts, two schools were randomly chosen, and from each school, two classes were randomly selected. After initial screening, a total of 45 students with clinical symptoms of aggression were identified. These participants were then randomly assigned to one of three groups: a resilience training group (n=15), a self-compassion training group (n=15), and a control group (n=15) that received no intervention. Inclusion criteria were: being a female student aged 13-15, exhibiting clinical symptoms of aggression based on the screening tool, and providing informed written consent from both the student and their parents. Exclusion criteria were: missing more than two intervention sessions, or having a history of receiving psychological treatment for aggression or related issues. All ethical considerations were carefully observed, including ensuring the confidentiality of all data and providing access to psychological support for all participants after the study was concluded.

Procedure

Following the random assignment of participants, a pre-test was administered to all three groups. The experimental groups then participated in their respective interventions. Resilience training was conducted in 10 weekly sessions of 75 minutes each, while compassion-focused therapy was implemented in 8 weekly sessions of 90 minutes. The control group received no treatment during this period. After the interventions were completed, a post-test was administered to all three groups, followed by a one-month follow-up assessment to evaluate the long-term effectiveness of the interventions. A summary of the session content for each intervention is provided in Tables 1 and 2.

Table 1. Summary of the resilience training sessions

Session	Title	Content
1	Introduction to Resilience	Understanding the concept of resilience; identifying personal strengths.
2	Identifying Stressors	Recognizing personal and environmental sources of stress.
3	Emotional Awareness	Learning to identify and label emotions; exploring the link between thoughts, feelings, and actions.
4	Cognitive Restructuring	Challenging negative thought patterns and replacing them with positive ones.
5	Problem-Solving Skills	Developing effective strategies to solve interpersonal and academic problems.
6	Enhancing Social Support	Building and leveraging supportive relationships with peers, family, and teachers.
7	Communication Skills	Practicing assertive communication and conflict resolution techniques.
8	Self-Care and Mindfulness	Integrating physical and mental self-care practices into daily routines.
9	Goal Setting	Setting realistic and achievable goals for personal and academic growth.
10	Integrating Resilience	Reviewing and practicing all learned skills; planning for future challenges.

Table 2. Summary of the self-compassion training sessions

Session	Title	Content

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1	Introduction to Self-Compassion	Understanding the three components: self-kindness, common humanity, and mindfulness.
2	Cultivating Self-Kindness	Practicing gentle self-talk and compassionate responses to personal suffering.
3	Understanding Common Humanity	Recognizing that suffering and imperfection are part of the shared human experience.
4	Mindfulness for Self-Compassion	Using mindfulness to observe feelings without judgment or over-identification.
5	Working with Difficult Emotions	Applying self-compassionate techniques to manage feelings of anger and frustration.
6	Compassionate Friend Exercise	Imagining how a compassionate friend would treat you in difficult situations.
7	Developing a Compassionate Self	Cultivating a compassionate inner voice and a sense of warmth towards oneself.
8	Compassion in Relationships	Extending compassion to others and practicing compassionate communication.

Measures

Affective Control Scale (ACS): Emotion regulation was measured using the 42-item Emotion Control Questionnaire (***ACS***) developed by Williams et al. (22). This instrument consists of four components: anger, depressed mood, anxiety, and positive affect, and is rated on a 7-point Likert scale. Higher total scores indicate better emotional control. The questionnaire has demonstrated strong validity and reliability; in a previous Persian-language study, its Cronbach's alpha coefficient was reported as 0.76 (23), and in the present study, the value was found to be 0.79.

Frustration Discomfort Scale (FDS): Frustration tolerance was assessed using the FDS developed by Harrington in 2005. This instrument contains 35 items across four components, which are rated on a 5-point Likert scale. It measures an individual's ability to cope with obstacles and setbacks on the path to achieving their goals. Higher scores on this questionnaire indicate a greater capacity for frustration tolerance (24). The reliability of this questionnaire in a previous Persian study was reported with a Cronbach's alpha of 0.85 (25), and in the current study, it was 0.87.

Data Analysis

Statistical analyses were conducted using SPSS 27 software. The primary analytical method was repeated measures analysis of variance (ANOVA), which was used to compare the changes in emotion regulation and frustration tolerance scores across the pre-test, post-test, and follow-up phases for all three groups.

Findings

The study included 45 female middle school students aged 13 to 15 years, randomly assigned to three groups: resilience training (n=15), self-compassion training (n=15), and control (n=15). The mean age across groups was approximately 14 years (M=14.1, SD=0.7), with no significant differences in age distribution, ensuring comparability among groups.

Table 3 presents the mean scores and standard deviations for emotion regulation and frustration tolerance across pre-test, post-test, and follow-up phases. At pre-test, the groups showed comparable scores for emotion regulation and frustration tolerance. Post-intervention, both experimental groups demonstrated significant improvements in emotion regulation and frustration tolerance, which were sustained at follow-up, while the control group showed minimal change (Table 3).

Table 3. Descriptive statistics for emotion regulation and frustration tolerance across study phases

Groups	Stage	Resilience training	Self-compassion training	Control
		Mean ± SD	Mean ± SD	Mean ± SD
Emotion regulation	Pre-test	177.27 ± 15.34	174.33 ± 10.95	175.87 ± 11.13
	Post-test	156.93 ± 13.18	150.53 ± 9.63	176.27 ± 12.37
	Follow-up	156.67 ± 9.63	152.00 ± 9.89	175.20 ± 11.87
	Pre-test	137.47 ± 6.71	140.47 ± 6.82	138.60 ± 6.24

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Frustration tolerance	Post-test	124.33 ± 5.70	126.60 ± 6.57	139.73 ± 6.07
	Follow-up	124.93 ± 6.82	124.47 ± 6.82	140.67 ± 5.93

Prior to analysis, data were evaluated for normality using the Shapiro-Wilk test, confirming that emotion regulation and frustration tolerance scores approximated a normal distribution. Homogeneity of variances was verified via Levene's test. These findings supported the use of repeated measures ANOVA for subsequent analyses. Table 4 displays the results of the repeated measures ANOVA for emotion regulation and frustration tolerance. Significant main effects of time were observed for both variables (P<0.001). Significant time × group interactions were also found (P<0.001), indicating differential changes across groups over time. Group main effects were significant (P<0.001), suggesting variations in intervention efficacy.

Table 4. Repeated measures ANOVA results for emotion regulation and frustration tolerance

Variable	Source	SS	df	MS	F	P	η^2
Emotion regulation	Time	6355.97	1.60	3978.76	775.11	0.001	0.75
	Time × group	3178.96	3.19	994.99	193.83	0.001	0.70
	Group	6787.83	2	3393.91	8.26	0.001	0.28
Frustration tolerance	Time	2283.21	1.53	1491.31	1261.03	0.001	0.76
	Time × group	1662.74	3.06	543.02	459.17	0.001	0.75
	Group	3030.99	2	1515.49	12.41	0.001	0.38

Tables 5 and 6 summarize the Bonferroni post-hoc comparisons. For emotion regulation, significant improvements from pre-test to post-test and follow-up were observed in both resilience (P<0.001) and self-compassion groups (P<0.001), with no significant change in the control group. Similarly, frustration tolerance improved significantly in both experimental groups (P<0.001), but not in the control group. No significant differences were found between resilience and self-compassion groups at any phase, indicating comparable efficacy.

Table 5. Bonferroni post-hoc comparisons of emotion regulation and frustration tolerance across study phases

Variables	Phases		Resilience training		Self-compassion training		Control	
			Mean difference	P	Mean difference	P	Mean difference	P
Emotion regulation	Post- test	Pre-test	20.33	0.001	23.80	0.001	0.40	0.999
	Follow-up	Pre-test	20.60	0.001	22.33	0.001	0.67	0.999
	Follow-up	Post-test	0.27	0.999	1.47	0.999	1.07	0.999
Frustration tolerance	Post- test	Pre-test	13.13	0.001	13.87	0.001	1.13	0.999
	Follow-up	Pre-test	12.53	0.001	16.00	0.001	2.07	0.999
	Follow-up	Post-test	0.60	0.999	2.13	0.999	0.93	0.999

Table 6. Bonferroni post-hoc comparisons of group differences in emotion regulation and frustration tolerance

Variables	Groups		Pre-test		Post-test		Follow-up	
			Mean difference	P	Mean difference	P	Mean difference	P
Emotion regulation	Resilience training	Self-compassion training	2.93	0.999	6.40	0.373	4.67	0.831
	Resilience training	Control	1.40	0.999	19.33	0.001	18.53	0.001

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	Self-compassion training	Control	1.53	0.999	25.73	0.001	23.20	0.001
Frustration tolerance	Resilience training	Self-compassion training	3.00	0.660	2.27	0.951	0.47	0.999
	Resilience training	Control	1.13	0.999	15.60	0.001	15.73	0.001
	Self-compassion training	Control	1.87	0.999	13.13	0.001	16.20	0.001

Discussion

This study investigated the comparative effectiveness of resilience and self-compassion training on emotion regulation and frustration tolerance among female middle school students with clinical symptoms of aggression. The results demonstrated that both interventions significantly enhanced emotion regulation and frustration tolerance compared to the control group, with effects sustained at the one-month follow-up. Notably, no significant differences were observed between the resilience and self-compassion groups, suggesting comparable efficacy. These findings align with and extend prior research, offering valuable insights into psychological interventions for adolescent aggression.

The effectiveness of resilience training in improving emotion regulation and frustration tolerance is consistent with existing literature. Previous studies have shown that resilience training enhances coping strategies, reduces stress, and mitigates symptoms of anxiety and depression in various populations (15, 16, 26). For instance, Steinhardt and Dolbier (26) found that resilience interventions improved adaptive coping, which aligns with our observation of enhanced emotional control and frustration tolerance. This effect may be attributed to the intervention's focus on cognitive restructuring, problem-solving, and social support, which equip students to manage stressors without resorting to impulsive or aggressive behaviors (17). By fostering a mindset that views challenges as opportunities for growth, resilience training likely enhances adolescents' ability to regulate emotions and tolerate frustration, thereby reducing aggressive tendencies (14).

Similarly, self-compassion training yielded significant improvements in emotion regulation and frustration tolerance, corroborating prior research (20, 28). Self-compassion, encompassing self-kindness, common humanity, and mindfulness, provides a framework for adolescents to process negative emotions without self-criticism or over-identification (19). Abdollahi et al. (28) demonstrated that self-compassion moderates the relationship between stress and aggression, a finding supported by our results, where participants exhibited reduced emotional reactivity and improved coping with setbacks. This may stem from self-compassion's ability to create a non-judgmental internal space, allowing students to accept their emotional experiences and respond adaptively (21). Studies by Wang et al. (29) and Guan et al. (30) further suggest that self-compassion mitigates externalizing behaviors by reducing perceived stress and fostering self-acceptance, which is particularly relevant for adolescents navigating social and identity-related challenges.

The absence of significant differences between the two interventions is a critical finding, suggesting that resilience and self-compassion training may target overlapping psychological mechanisms. Both approaches emphasize emotional awareness and adaptive coping, albeit through different lenses: resilience training focuses on building internal and external resources, while self-compassion promotes self-kindness and mindfulness (18). For example, the mindfulness component of self-compassion training parallels the emotional awareness fostered in resilience training, potentially explaining their comparable outcomes (17, 19). This convergence suggests that the interventions share core processes, such as enhancing self-regulation and reducing emotional reactivity, which are pivotal in addressing aggression (7, 9). The flexibility to choose either intervention based on individual or contextual needs is a practical implication for clinicians and educators.

These findings have significant implications for school-based mental health programs. Given the detrimental impact of aggression on academic performance, peer relationships, and school climate (4, 5), implementing resilience or self-compassion training could proactively address these issues. Schools could integrate these interventions into counseling programs or curricula, tailoring delivery to suit diverse student populations. The sustained effects at follow-up underscore the potential for

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long-term benefits, supporting the adoption of such programs to foster psychological well-being and reduce aggressive behaviors.

This study underscores the efficacy of resilience and self-compassion training in enhancing emotion regulation and frustration tolerance among female students with aggressive tendencies. The comparable effectiveness of these interventions highlights their potential as interchangeable tools in clinical and educational settings. By addressing the psychological underpinnings of aggression, these interventions offer promising avenues for promoting mental health and fostering adaptive coping in adolescents.

Despite its contributions, this study has limitations. The sample was restricted to female students in Ahvaz, limiting generalizability to other genders or cultural contexts. Future research should include male students and diverse populations to enhance applicability. The small sample size (n=45) may have constrained statistical power, suggesting a need for larger-scale studies. Additionally, the study relied on self-report measures, which may introduce bias; incorporating observational or behavioral assessments could strengthen findings. Qualitative exploration of participants' experiences could further elucidate the mechanisms underlying the interventions' effectiveness. Finally, longer follow-up periods would clarify the durability of these effects beyond one month.

Conclusion

The findings of this study demonstrate that both resilience training and self-compassion training are significantly effective in improving emotion regulation and frustration tolerance in female students with aggressive tendencies. These results suggest that both approaches can serve as valuable and interchangeable psychological interventions for mitigating aggression and promoting mental well-being in the adolescent population. The similar outcomes indicate that their underlying mechanisms, which likely include enhancing emotional awareness and acceptance, are potent drivers of positive and lasting change in these key psychological skills.

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