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Comparison of the Effectiveness of Emotion Regulation and Logotherapy on Rumination in Adolescents with Anxiety Disorders

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ABSTRACT

Objective: The present study was conducted with the aim of comparing the effectiveness of emotion regulation and logotherapy on rumination in adolescents with anxiety disorders.

Methods: This research employed a quasi-experimental design with a pretest–posttest and control group. Data were collected using the Rumination Questionnaire (Nolen-Hoeksema & Morrow, 1991) and the Screen for Child Anxiety Related Emotional Disorders (Birmaher, 1999). For the interventions, the emotion regulation training package was based on the theoretical model of Garnefski and Kraaij (2007), and the logotherapy package was based on Frankl's theory (1959). Data analysis was performed using SPSS version 22, applying mixed analysis of covariance at a significance level of 0.05.

Results: The findings revealed that the rumination scores of the experimental groups significantly decreased from pretest to posttest. Although there was a slight increase at follow-up, the scores remained lower compared to the pretest. Moreover, post hoc analysis showed no significant differences in mean rumination scores between the emotion regulation and logotherapy groups. In other words, both interventions were equally effective in reducing rumination.

Conclusions: Both emotion regulation and logotherapy can reduce rumination in adolescents with anxiety disorders, with no significant difference in their effectiveness.

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Introduction

One of the major problems faced by adolescents with anxiety disorders is rumination (Hadadi & Tamanaeifar, 2022). Rumination has several negative consequences, including prolonging negative mood, intensifying pessimistic thoughts, reducing motivation to engage in effective behaviors, and impairing problem-solving ability. Rumination may stem from various causes such as the belief that it provides new insight into life or personal problems, a history of psychological or physical trauma, or exposure to chronic uncontrollable stressors (Yapan, Workapar, & Boysan, 2022).

A key concern regarding adolescents with anxiety disorders is the need for interventions aimed at reducing their psychological difficulties. One of the most essential skills in this context is the ability to regulate emotions. Training in emotion regulation skills can serve as a tool for empowering these adolescents to cope with physical and psychological challenges. Emotion regulation refers to processes through which emotional experiences are evaluated, monitored, maintained, or modified. Through such processes, adolescents learn when to experience emotions, which emotions to experience, and how to express them (Clayton et al., 2023). According to the theory of emotional dysregulation, maladaptive patterns of emotion regulation—or the lack thereof—can disrupt functioning and contribute to the development and maintenance of psychopathological symptoms. Emotional dysregulation occurs when an individual is unable to effectively manage the experience and expression of emotions (Ghazal et al., 2022). Indeed, emotions are rarely experienced without some degree of regulation; in other words, emotion regulation is an inherent aspect of emotional responding (Taghvaei Nia & Zarei, 2022). While acceptance and expression of negative emotions may be adaptive by signaling threats and providing feedback regarding illness progression, repetitive rumination on negative emotions without expression appears maladaptive and may lead to mood disorders such as depression and anxiety (Ramesh, Ghazian, Rafieipour, & Safari, 2018).

Another effective therapeutic approach for adolescents with anxiety disorders is logotherapy, developed by Viktor Frankl in 1959. The term “logotherapy” is derived from the Greek word *logos*, which can be translated as “meaning” or “spiritual purpose.” According to Frankl, logotherapy is a form of psychotherapy focused on meaning, aiming to heal through the discovery of meaning in life. The central goal of logotherapy is to help individuals discover their unique purpose in life and

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clarify the limits, responsibilities, and freedoms available to them (Haghdoost, Seraj Khorrami, & Makvandi, 2021).

Emotion regulation involves the use of cognitive and behavioral strategies to manage emotional responses by altering their duration or intensity when confronted with stressful events. Thus, emotion regulation encompasses a set of cognitive and behavioral skills that affect how emotions are perceived, experienced, and expressed. Failure to employ appropriate behaviors or reliance on distorted cognitions can result in ineffective emotion regulation, characterized by deficits such as lack of emotional clarity and poor awareness. Accordingly, interventions that target the correction of maladaptive cognitions and behaviors can improve emotion regulation.

Similarly, the concept of meaning in life is generally understood as a broad construct comprising cognitive (e.g., self-understanding), motivational (e.g., goal identification and pursuit), and affective (e.g., vitality) components. In logotherapy, maladaptive cognitions—including negative, limiting, or destructive thoughts and attitudes—are restructured toward more empowering, positive, and active orientations. This shift in perspective resembles cognitive restructuring and perceptual change techniques, which can contribute to reducing dysfunctional thoughts and improving quality of life (Didani, Tabrizi, Mardani Rad, & Karami, 2020). Thus, the focus on changing attitudes in logotherapy facilitates a reorientation from problems or symptoms toward meaning in life, enabling improvements in outlook and psychological well-being.

Previous studies have reported positive effects of both emotion regulation training and logotherapy on a range of variables in adolescents with anxiety disorders. Given the high prevalence of psychological difficulties associated with anxiety disorders in this age group, it is necessary to examine the related variables more closely and compare different educational and therapeutic approaches to identify the most effective and appropriate methods based on the psychological characteristics of these individuals. Although some studies have separately examined the effectiveness of emotion regulation training (e.g., Yadollahi et al., 2022) and logotherapy (e.g., Afkaneh et al., 2022) in adolescents with psychological difficulties, no study to date has directly compared these two approaches in relation to rumination among adolescents with anxiety disorders. This gap highlights the need for further comparative studies. Therefore, the present research was conducted to compare the effectiveness of emotion regulation training and logotherapy on rumination in adolescents with anxiety disorders.

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Material and Methods

Given the aims and nature of the present study, a quasi-experimental design with a pretest–posttest control group and a three-month follow-up was employed. The statistical population consisted of all 12–14-year-old students (approximately 225 students) at *Rahe Danesh Middle School, Tehran* during the 2023–2024 academic year. Out of this population, 175 students were screened. After excluding incomplete or invalid questionnaires, 45 students diagnosed with anxiety disorders were selected as the final sample. Participants were initially screened through non-random sampling and then randomly assigned to two experimental groups and one control group (15 students per group). According to methodological experts, a minimum of 15 participants per group is acceptable for experimental research (Hooman, 2019). Sample size was calculated based on Cohen's table with power = 0.80, effect size = 0.80, and $\alpha = 0.05$.

Instruments

Rumination Questionnaire (Nolen-Hoeksema & Morrow, 1991): A 22-item scale assessing three components of rumination: reflection, brooding, and depression. Items are rated on a 4-point Likert scale (1 = never to 4 = always). Scores range from 22 to 88, with higher scores indicating higher rumination. The original version reported a Cronbach's alpha of 0.90 and test–retest reliability of 0.67. The Persian version demonstrated an alpha of 0.88 with acceptable content and face validity (Ansari et al., 2021).

Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher, 1999): A 41-item scale designed to assess DSM-IV anxiety disorders in children and adolescents aged 8–18. It includes five subscales: generalized anxiety, separation anxiety, social anxiety, school phobia, and panic/somatic symptoms. The Persian adaptation has shown good reliability and validity (Haji Hashemi & Afkari, 2021).

Interventions

Both interventions were delivered in the counseling center affiliated with the Tehran Department of Education by licensed psychologists trained in the respective approaches.

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Table 1. Summary of Emotion Regulation Training Sessions (Garnefski & Kraaij, 2007)

Session	Content	Description / Homework
1	Pretest, course overview, rules	Orientation and introduction
2	Understanding emotions, awareness of primary and secondary emotions	Homework: monitor emotions and record them
3	Definition of emotion regulation, identifying strategies	Homework: recognize own strategies and report
4	Overcoming barriers to healthy emotions, coping with self/other-blame	Homework: record instances of self/other-blame
5	Cognitive-social factors, catastrophizing	Homework: monitor catastrophizing behaviors
6	Reducing vulnerability, acceptance strategy	Homework: observe acceptance use and challenges
7	Enhancing positive emotions, addressing rumination	Homework: daily positive activity, coping with rumination
8	Nonjudgmental attention to emotions, positive refocusing	Homework: practice mindful observation of emotions
9	Facing emotions, opposite action, planning	Homework: practice opposite action, re-planning
10	Problem-solving, positive reappraisal	Homework: apply problem-solving and record outcomes
11	Correct methods of managing emotional problems, perspective-taking	Homework: practice perspective-taking
12	Final recommendations, posttest	Review and evaluation

Table 2. Summary of Logotherapy Sessions (Frankl, 1959)

Session	Goal	Content
1	Orientation	Introductions, group rules, purpose of logotherapy
2	Foundations of meaning	Discussion on life meaning, freedom of will, search for meaning
3	Defining logotherapy	Uniqueness of meaning, sources of meaning (creative, experiential, attitudinal values)
4	Freedom and responsibility	Discussion on responsibility and choice in the face of problems
5	Existential frustration	Exploration of existential vacuum and hopelessness
6	Love and relationships	The role of love in meaning and healthy coping with conflicts
7	Self-transcendence and self-actualization	Discussion of Frankl's views on self-actualization
8	Conclusion	Posttest, summary, and closure

Data were analyzed using SPSS v.22. Descriptive statistics (mean, standard deviation) and inferential statistics were applied. To examine group differences while controlling for pretest scores, ANCOVA and mixed ANOVA were conducted at a significance level of 0.05.

Ethical Considerations

This study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Participants and their parents were informed about the study objectives, procedures, voluntary nature of participation, and their right to withdraw at any time without consequences. Written informed consent was obtained from parents/guardians, and verbal assent was obtained from students. Confidentiality and anonymity were strictly maintained. The study protocol was reviewed and approved by the Ethics Committee of Islamic Azad University.

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Results

The purpose of this study was to compare the effectiveness of emotion regulation training and logotherapy on rumination in adolescents with anxiety disorders. Table 3 presents the mean and standard deviation of rumination scores across the three measurement points (pretest, posttest, and follow-up) for the experimental and control groups.

Table 3. Descriptive Indices of Rumination Scores

Variable	Group	Phase	Mean	SD
Rumination	Emotion Regulation	Pretest	61.13	10.48
		Posttest	52.47	8.79
		Follow-up	55.40	6.85
	Logotherapy	Pretest	61.53	9.42
		Posttest	53.47	6.66
		Follow-up	57.33	4.95
	Control	Pretest	59.73	7.68
		Posttest	60.80	6.70
		Follow-up	63.07	5.04

As shown, both experimental groups (emotion regulation and logotherapy) displayed a reduction in rumination scores from pretest to posttest, while the control group exhibited a slight increase across the three stages. Table 4 presents the estimated means across time points, averaged across all groups.

Table 4. Estimated Means of Rumination Scores Across Time

Time	Mean	Std. Error	95% CI (Lower–Upper)
Pretest	60.80	1.38	58.01–63.59
Posttest	55.58	1.11	53.34–57.82
Follow-up	58.60	0.85	56.89–60.31

From pretest to posttest, the mean rumination score decreased by approximately **5 points**. However, between pretest and follow-up, the reduction was smaller (about **2 points**), suggesting that while the interventions had immediate effects, some attenuation occurred over time.

To examine differences between time points, Bonferroni post hoc tests were performed (Table 5).

Table 5. Pairwise Comparisons Across Time (Bonferroni Test)

Comparison	Mean Difference	Std. Error	Sig.	95% CI (Lower–Upper)
Pretest–Posttest	5.22	0.55	.000	3.84–6.60
Pretest–Follow-up	2.20	0.80	.026	0.21–4.19
Posttest–Follow-up	-3.02	0.42	.000	-4.07—1.98

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Results indicate that Rumination scores significantly decreased from pretest to posttest ($p < .01$). Also, rumination scores increased from posttest to follow-up ($p < .01$), suggesting a partial decline in treatment effects over time. However, scores at follow-up remained significantly lower than at pretest ($p < .05$). This pattern suggests that while both interventions reduced rumination immediately, the effects weakened slightly over the three-month follow-up. Table 6 presents estimated marginal means of rumination scores for each group, averaged across time.

Table 6. Estimated Marginal Means by Group

Group	Mean	Std. Error	95% CI (Lower–Upper)
Emotion Regulation	56.33	1.87	52.57–60.10
Logotherapy	57.44	1.87	53.68–61.21
Control	61.20	1.87	57.43–64.97

Both experimental groups had lower mean rumination scores compared to the control group (by approximately 3–5 points). However, the difference between the two intervention groups was minimal (about 1 point). Bonferroni post hoc tests were used to compare group means (Table 7).

Table 7. Pairwise Group Comparisons (Bonferroni Test)

Comparison	Mean Difference	Std. Error	Sig.	95% CI (Lower–Upper)
Emotion Regulation – Logotherapy	-1.11	2.64	1.000	-7.70–5.48
Emotion Regulation – Control	-4.87	2.64	.217	-11.45–1.72
Logotherapy – Control	-3.76	2.64	.487	-10.34–2.83

The results indicate that there were no statistically significant differences between emotion regulation and logotherapy ($p > .05$). Neither experimental group differed significantly from the control group at the adjusted significance level, although the means suggest a trend toward improvement in the intervention groups. Overall, the results demonstrate that both emotion regulation and logotherapy reduced rumination in adolescents with anxiety disorders, particularly from pretest to posttest. However, the effects slightly diminished during follow-up. Importantly, no significant differences were found between the two intervention methods, suggesting that both approaches are comparably effective in addressing rumination.

Discussion

The findings of this study demonstrated that rumination scores in both experimental groups decreased significantly from pretest to posttest. Although rumination increased slightly during

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follow-up, the scores remained lower than those at baseline, indicating sustained—albeit attenuated—effects of the interventions. Furthermore, post hoc analyses revealed no statistically significant differences between the two experimental groups; in other words, emotion regulation training and logotherapy were equally effective in reducing rumination among adolescents with anxiety disorders**.**

These findings are consistent with previous research in this area. For instance, Taghvaei Nia and Zarei (2022) found that emotion regulation training effectively enhanced mental health and reduced rumination in divorced women. Similarly, Omidmehr et al. (2020) reported that logotherapy reduced negative thoughts and depression in female university students. Jafarpoor et al. (2020) also observed that emotion regulation training decreased rumination in mothers of children with mild intellectual disabilities. In addition, Clayton et al. (2023), in a study of 100 young participants, showed that emotion regulation training had a significant effect on reducing rumination. Likewise, Sun et al. (2022) found that logotherapy reduced depression, hopelessness, suicidal ideation, and rumination in patients with depression.

The observed effectiveness of emotion regulation training in reducing rumination among adolescents with anxiety disorders can be explained by the role of emotional dysregulation as a predictor of persistent anxiety symptoms. Anxious individuals frequently rely on maladaptive regulation strategies such as rumination and catastrophizing when facing stressful situations. Through emotion regulation training, individuals learn to become more aware of their emotions and to respond appropriately to social and stressful contexts. Emotional responses serve important interpersonal and adaptive functions, and the training provides adolescents with strategies for expressing emotions in constructive ways.

More specifically, in anxiety disorders, individuals often engage in repetitive negative rumination focused on perceived inadequacies during performance situations, coupled with fears of ridicule or rejection. The training sessions raised participants' awareness of the roles of both positive and negative emotions in social functioning, while practical exercises demonstrated how rumination on negative outcomes exacerbates negative affect, intensifies anxiety, and leads to avoidance of social situations. By redirecting attention from negative to positive emotions and strengthening adaptive regulatory strategies, adolescents gained the ability to reduce maladaptive rumination and improve coping. These findings align with Gross's (2015) model of adaptive emotion regulation,

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which highlights the role of cognitive reappraisal and attentional redirection in promoting psychological resilience.

The effectiveness of logotherapy in reducing rumination can be understood through its emphasis on meaning-making as a strategy for coping with life's adversities. When adolescents are able to find existential meaning in difficult or discouraging experiences, they become more capable of tolerating life's hardships. This shift in perspective alters their relationship with unpleasant thoughts, including rumination. By encouraging clients to search for meaning and purpose, logotherapy helps them reinterpret distressing experiences in more constructive ways.

Moreover, the structure of logotherapy directly addresses another important factor: goal-directedness. Many individuals with psychological distress, particularly those prone to rumination, struggle with concentration, lack clear personal goals, and often engage in self-deprecating or self-critical thought patterns. Such cognitive styles hinder purposeful living and personal growth. Logotherapy disrupts this maladaptive cycle by fostering self-expression, strengthening personal agency, and encouraging clients to pursue meaningful life goals. In this way, logotherapy reduces rumination by replacing repetitive negative thinking with purposeful, constructive engagement in life (Zamani Foroushani et al., 2022).

Limitations and Recommendations

This study is not without limitations. A key limitation concerns the use of self-report questionnaires, which may be subject to response bias, particularly given the stressful circumstances of the adolescent participants. Future studies should therefore incorporate multi-method assessments, such as behavioral observations or clinician-rated measures, to provide a more comprehensive evaluation. Additionally, the study was limited to adolescents from a single city and within a clinical population. To enhance the generalizability of findings, future research should replicate the study in different cultural contexts, across non-clinical adolescent populations, and with larger samples.

In sum, both emotion regulation training and logotherapy significantly reduced rumination in adolescents with anxiety disorders, with no significant differences between the two approaches. These findings suggest that both interventions may serve as valuable strategies for addressing maladaptive rumination in adolescents, with potential applications in clinical and educational settings.

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Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by ethics committee of Islamic Azad University.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection and analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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