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Effectiveness of Paradoxical Therapy on Rumination in College Entrance Examination Students

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ABSTRACT

Objective: The present study was conducted to determine the effectiveness of paradoxical therapy on rumination in students preparing for the university entrance exam.

Methods: This research employed a quasi-experimental design with a pretest–posttest control group. The statistical population included all entrance-exam students residing in dormitories in Qom city during the 2023–2024 academic year. From this population, 30 students were selected through purposive random sampling and randomly assigned to an experimental group and a control group (15 students in each). Research instrument included the Ruminative Responses Scale (RRS; Nolen-Hoeksema & Morrow, 1991). The experimental group received paradoxical therapy in six sessions, each lasting up to 45 minutes and held biweekly, while the control group did not receive any intervention. Data were analyzed using SPSS version 25 with univariate analysis of covariance.

Results: Findings showed a significant difference between the mean scores of ruminations in the experimental group at the posttest stage compared to the pretest. Paradoxical therapy explained more than 16% of the variance in posttest rumination scores.

Conclusions: Paradoxical therapy improved rumination in students preparing for the university entrance exam.

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Introduction

Students are considered the cornerstone of the educational system and valuable assets of society. Therefore, conducting research on their problems is an undeniable necessity. In this regard, the nationwide university entrance examination (*Konkour*) in Iran and the significant importance it holds for many students often lead to psychological difficulties. Psychological factors play a crucial role in students' academic lives and significantly influence their academic achievement (Fatemi et al., 2023). Among these psychological characteristics, rumination stands out as a key factor affecting the performance and academic progress of students preparing for the entrance exam (Van Boekel & Martin, 2014).

Rumination involves repetitive, conscious thoughts that individuals focus on around a particular topic, even in the absence of external stimuli. Such persistent thoughts are considered risk factors for emotional disorders and often prevent individuals from engaging in adaptive problem-solving (Sasegbon et al., 2022). Rumination has been defined as intrusive, circular, and depressive thought patterns that typically arise in response to negative mood (Sun et al., 2023). It is characterized as an uncontrolled, self-referential thinking process often regarded as a marker of depression (Qiu et al., 2023).

Despite its importance, relatively few studies have examined the cognitive mechanisms underlying rumination. One major model views rumination as the product of maladaptive cognitive habits. However, the most prominent theory explaining rumination is Nolen-Hoeksema's Response Styles Theory (Doğan, 2024). According to this view, rumination centers on the fact of being depressed and focuses on the causes, meanings, and consequences of depressive symptoms. This process disrupts functioning, especially when the cognitive resources required for task performance are lacking or when the wandering mind becomes excessively uncontrolled, leading to more rumination (Chang et al., 2023). Individuals who ruminate often believe that turning inward will provide insights to solve their problems; paradoxically, this inward focus exacerbates rumination (Holdaway et al., 2018).

To prevent this negative interactive cycle and foster more adaptive communication and mental health, psychological interventions are essential. Designing effective interventions to address the needs of different groups, particularly students preparing for the entrance exam, is therefore of great importance. Various therapeutic approaches have been developed, each focusing on different

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intrapersonal and interpersonal factors underlying psychological problems (Pietrzak et al., 2016). Among these approaches, paradoxical therapy has recently gained attention as a novel method for treating anxiety disorders. This model, abbreviated as PTC, was designed by Besharat with consideration of the cultural characteristics of Iranian society. It is a non-invasive approach, empirically supported, and characterized by a very low relapse rate (Besharat, 2020).

Paradoxical therapy works by challenging clients' self-perceptions and encouraging them to develop new coping strategies to strengthen ego resilience. Rather than focusing on weaknesses, it emphasizes clients' strengths (Tahernejad Javazm et al., 2022). By encouraging individuals to confront their limiting beliefs, paradoxical therapy ultimately leads to greater ego resilience and a more stable sense of identity (Taghilo et al., 2023). Conceptually, paradoxical therapy is a systemic behavioral model consisting of two core components. The first component, paradox, refers to the prescription of a symptom or behavioral disturbance, requiring the client to reconstruct the very behaviors and symptoms they struggle with. The second component, scheduling, instructs the client to deliberately reproduce and experience these prescribed behaviors at specific times and for specific durations. Together, these two components constitute paradoxical therapy (Besharat, 2020).

Empirical studies have confirmed the effectiveness of paradoxical therapy in reducing rumination and related symptoms. For example, paradoxical therapy has been shown to reduce anger rumination in individuals with anxiety related to COVID-19 (Eatesamipour & Ramazanzade Moghadam, 2023) and to decrease worry and rumination in patients with obsessive–compulsive disorder (Mohammadi et al., 2020).

Given that the entrance exam (*Konkour*) is one of the most significant examinations students face in their lives, its high-stakes nature often imposes negative psychological effects. Therefore, identifying effective therapeutic approaches to alleviate such psychological challenges is both necessary and urgent. Accordingly, the present study was conducted to examine the effectiveness of paradoxical therapy on rumination in entrance-exam students, seeking to answer the research question: Does paradoxical therapy reduce rumination in students preparing for the university entrance exam?

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Material and Methods

This study employed a quasi-experimental design with a pretest–posttest control group. The statistical population consisted of all students preparing for the university entrance examination (*Konkour*) and residing in dormitories in Qom during the 2023–2024 academic year. Since a minimum of 15 participants per group has been recommended for experimental designs (Delavar, 2019), a total of 30 students were selected through purposive random sampling and were randomly assigned to an experimental group and a control group (15 participants in each).

Inclusion criteria were: (a) being a *Konkour* student, (b) providing informed consent to participate in the study, and (c) exhibiting exam anxiety, defined as scoring above the cut-off point on the Test Anxiety Scale. **Exclusion criteria** included: (a) absence from more than two intervention sessions, (b) lack of cooperation, and (c) incomplete completion of study instruments.

Instruments

Ruminative Responses Scale (RRS; Nolen-Hoeksema & Morrow, 1991): The RRS, a subscale of the Response Styles Questionnaire, consists of 22 items that assess ruminative responses to depressed mood. Items are rated on a 4-point Likert scale ranging from 1 (*almost never*) to 4 (*almost always*). The scale measures three subtypes of rumination: self-focused rumination, symptom-focused rumination, and cause–consequence rumination. A total rumination score is obtained by summing the items. Psychometric properties of the RRS have been confirmed in international studies (Nolen-Hoeksema, 2003; Treynor et al., 2003).

The Persian version of the RRS has been validated in multiple studies involving 1,003 participants across three groups: depressed patients (N = 177), the general population (N = 445), and university students (N = 381) (Besharat et al., 2013). Cronbach's alpha coefficients for the total score and subscales ranged from .85 to .94 across samples, indicating good internal consistency. Test–retest reliability coefficients ranged from .73 to .89 ($p < .001$). Content validity was confirmed through expert review, with Kendall's coefficients of concordance ranging from .74 to .88 (Besharat et al., 2013).

Procedure

To ensure ethical compliance, all participants were assured of the confidentiality of their data and anonymity in reporting. A briefing session was conducted, during which informed consent forms

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and demographic questionnaires were distributed. Each participant was assigned a unique code. Prior to the intervention, both groups completed pretest questionnaires.

The experimental group then received paradoxical therapy in six sessions, each lasting up to 45 minutes and delivered biweekly, while the control group received no intervention. Following the completion of the intervention, both groups completed the posttest measures. The therapeutic intervention was conducted based on Besharat (2020) paradoxical therapy protocol, which has been validated by faculty members at the University of Tehran.

Summary of the Paradoxical Therapy Protocol

Table 1. Summary of the paradoxical therapy sessions

Session	Description
1	Social interview (greetings, introductions, discussion of employment, family, or social issues as needed); problem interview (presenting problems and symptoms by the client, explanation of the treatment program, goal setting); assignment of initial homework, usually paradoxical scheduling.
2	Behavioral analysis: review of assigned tasks, difficulties encountered, consequences from the client's perspective, estimation of therapeutic changes, and continuation of tasks with modifications (e.g., reduced frequency) or addition of new tasks (e.g., paradoxical scheduling for other symptoms).
3	Behavioral analysis as in Session 2; introduction of the first complementary technique if necessary (according to the PTC model, the client is instructed not to attempt reducing symptoms from their current level).
4	Behavioral analysis as in previous sessions; introduction of the second complementary technique if necessary (client is instructed to maintain symptoms at their current level).
5	Behavioral analysis; evaluation of progress toward treatment goals; either termination if goals are met or continuation of sessions; introduction of a future self-therapy plan.
6	Review of the necessity of practicing acquired skills; assessment of progress; administration of evaluation test; final explanations and closure.

All ethical principles—including confidentiality, voluntary participation, and the right to withdraw at any time—were observed. Data were analyzed using SPSS version 25 through univariate analysis of covariance (ANCOVA).

Results

The present study was conducted on 30 female students preparing for the university entrance examination (*Konkour*), who were randomly assigned to two groups (experimental and control), each with 15 participants.

Table 2. Demographic Findings by Experimental and Control Groups

Variable	Category	Experimental	Percentage	Control	Percentage
Age	Under 17 years	3	20	2	13.30
	18 years	5	33.30	5	33.30
	Above 18 years	7	46.70	8	53.30

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Table 1 presents the age characteristics of the participants in the two groups. As shown in Table 2, in the experimental group, 3 participants (20%) were under 17 years old, 5 participants (33.3%) were 18 years old, and 7 participants (46.7%) were above 18 years old. In the control group, 2 participants (13.3%) were under 17 years old, 5 participants (33.3%) were 18 years old, and 8 participants (53.3%) were above 18 years old.

Table 3 reports the descriptive findings of the study variable. Based on these results, the mean scores of rumination in the paradoxical therapy group decreased from pretest to posttest compared with the control group.

Table 3. Descriptive Statistics of rumination scores in the research groups

Group	Variable	Pretest		Posttest	
		Mean	SD	Mean	SD
Control	Rumination	56.60	5.70	54.70	9.20
Paradoxical therapy		61.80	11.40	48.60	10.50

To examine the effect of paradoxical therapy on rumination, univariate analysis of covariance (ANCOVA) was performed. Prior to conducting ANCOVA, its assumptions were tested. The normality of score distribution was confirmed using the Kolmogorov–Smirnov test ($p > .05$). The homogeneity of variances assumption was also supported through Levene's test for rumination ($F = 3.211$, $p = .145$). Box's M test indicated equality of covariance matrices (Box's $M = 21.52$, $F = 1.01$, $p = .201$). Another key assumption, the homogeneity of regression slopes, was tested and found to be non-significant ($F = 1.63$, $p = .133$), indicating that the assumption was satisfied. Therefore, the use of ANCOVA was deemed appropriate.

After controlling for the effect of pretest scores as the covariate, the results (Table 4) revealed a statistically significant group effect on posttest rumination scores ($F = 5.23$, $p = .030$). This indicates that paradoxical therapy accounted for more than 16% of the variance in posttest rumination scores.

Table 4. Results of Univariate ANCOVA

Variable	Source	SS	DF	MS	F	P	Effect size
Paradoxical therapy	Group	329.91	1	329.91	5.23	0.030	0.162

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Discussion

The present study aimed to investigate the effectiveness of paradoxical therapy on rumination in students preparing for the university entrance examination (*Konkour*). The findings showed a significant difference in rumination scores between the pretest and posttest phases, indicating that paradoxical therapy reduced rumination among the participants. These results are consistent with previous studies in this area (Eatesamipour & Ramazanzade Moghadam, 2023).

With respect to the mechanisms underlying the effect of paradoxical scheduling on rumination, four primary mechanisms can be identified. Initially, the artificial prescription of rumination-related symptoms reduces the patient's anxiety, thereby increasing the likelihood of restructuring these symptoms artificially. As therapy progresses, transforming real symptoms into artificial ones may reduce rumination by disrupting the link between symptoms and anxiety. In other words, once the behavior becomes normalized and loses its pathological meaning, it no longer generates negative emotions or thoughts in the individual's mind. This suggests that reductions in rumination occur due to changes in patients' cognitions as a result of breaking the symptom–anxiety association.

Besharat (2020) argues that once patients realize that their symptoms are not pathological in nature, the meaning and value of those symptoms change for them. Repeated experiences of this realization through scheduled sessions facilitate re-examination and re-experiencing of the symptoms, ultimately leading to modifications in patients' prior beliefs. Evidence indicates that the primary cause of rumination lies in patients' dysfunctional beliefs. Specifically, incorrect interpretations of symptoms and environmental cues prevent individuals from organizing their thoughts coherently, thereby triggering the ruminative process. Consequently, when the meaning of symptoms is altered, thoughts change as well, leading to reduced rumination. Besharat (2020) further emphasizes that this change in meaning extends beyond the individual to the broader system in which they live. Such systemic changes in meaning, both within the individual and in their surrounding context, can foster cognitive restructuring and ultimately reduce rumination.

Overall, paradoxical therapy appears to be an effective intervention for reducing rumination among entrance-exam students. Thus, applying this approach—either as a standalone method or in combination with other therapeutic and educational programs—can improve psychological functioning in this population.

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However, the present study had several limitations. First, the sample was limited to *Konkour* students in Qom, restricting the generalizability of the findings to other cities and populations. Second, the study relied on self-report questionnaires, which may be subject to bias, such as socially desirable responding, distortion of information, or misinterpretation of questions, potentially compromising the validity of results. Furthermore, because this study was conducted exclusively with *Konkour* students, its findings cannot be generalized to other groups.

Future research is recommended to employ complementary methods such as interviews and observational techniques for more accurate assessments. In addition, similar studies should be replicated in other regions and populations to allow for cross-validation of findings.

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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 the ethics committee of Islamic Azad University. The patients/participants provided their written informed consent to participate in this study.

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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