

Original Article

Comparison of the Effectiveness of Emotion-Focused Therapy and Reality Therapy on Metacognitive Beliefs and Self-Efficacy in Anxious Adolescent Students Aged 14-18 in Isfahan Province

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Abstract

Background and Aim: This study aimed to compare the effectiveness of emotion-focused therapy and reality therapy in improving metacognitive beliefs and self-efficacy among anxious adolescents aged 14-18 years in Isfahan Province.

Materials and Methods: This quasi-experimental study employed a pretest-posttest design with three groups, including two experimental groups and one control group. The statistical population comprised all students in Isfahan Province during the 2023-2024 academic year. A total of 45 participants were selected through purposive sampling and randomly assigned to two experimental groups (n=15 each) and one control group (n=15). The emotion-focused therapy group and the reality therapy group each received ten 90-minute intervention sessions. Data were collected using the Wells Metacognitive Questionnaire (2004) and the Morris Self-Efficacy Questionnaire (2001). Data were analyzed using SPSS version 26 through descriptive and inferential statistical methods.

Results: Both interventions led to significant improvements in metacognitive beliefs and self-efficacy ($p \leq 0.01$). Emotion-focused therapy was significantly more effective than reality therapy in improving self-efficacy ($p < 0.05$). However, no significant difference was found between the two interventions in terms of improvement in metacognitive beliefs ($p > 0.05$).

Conclusion: The findings suggest that both emotion-focused therapy and reality therapy were effective in improving metacognitive beliefs and self-efficacy among anxious students. However, emotion-focused therapy demonstrated greater effectiveness in enhancing self-efficacy. These interventions may be considered for inclusion in school counseling programs.

Keywords: Metacognitive beliefs; Self-efficacy; Emotion-focused therapy; Reality therapy; Adolescents

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Introduction

Anxiety is a common and pervasive phenomenon, particularly among adolescents, who are exposed to social, familial, and academic pressures (1). It is generally defined as an unpleasant and diffuse feeling of worry accompanied by symptoms such as shortness of breath, palpitations, sweating, restlessness, and gastrointestinal disturbances (2). In adolescence, anxiety may appear as a range of psychological symptoms with varying levels of severity (3). This condition often emerges in response to threatening or stressful situations and, when it exceeds an individual's coping capacity, may lead to significant emotional, academic, and interpersonal difficulties (4, 5).

Adolescence is a critical stage of personality development and is especially vulnerable to socio-emotional problems and psychological disturbances resulting from the imbalance between physical and psychological growth (6). A variety of factors, including academic pressure, social media use, nuclear family structure, and global uncertainty, may contribute to elevated anxiety levels (7). Approximately 30% of adolescents experience anxiety disorders, and suicide-related hospitalization rates have doubled over the past decade (8, 9). These findings highlight the importance of identifying the internal and external factors that influence mental health and of promoting adaptive coping strategies to support psychological well-being. Generalized anxiety is associated with lower self-efficacy, reduced self-compassion, and poorer social adjustment (10). In addition, negative metacognitive beliefs and maladaptive thought-control strategies may perpetuate anxiety (11). Because low self-efficacy can impair coping with life challenges, targeted interventions are needed to improve adolescent mental health.

Self-efficacy is defined as an individual's belief in their capacity to execute behaviors necessary to produce specific performance attainments (12). Grounded in Albert Bandura's social cognitive theory, self-efficacy serves as a primary determinant of human cognition, behavior, and emotional regulation. This construct significantly influences decision-

making, perseverance, and the magnitude of effort individuals invest in their actions; it further determines how effectively skills are integrated and organized to achieve goals across diverse contexts (12). Individuals with high self-efficacy are characterized by resilience, a preference for challenging tasks, ambitious goal-setting, and robust problem-solving capabilities. Such individuals tend to employ analytical thinking and maintain goal commitment even in the face of failure (12, 13). Conversely, while high self-efficacy fosters motivation and resilience, low perceived self-efficacy is often associated with the avoidance of demanding tasks and a diminished capacity to persist when encountering obstacles (12).

Recent empirical evidence underscores the interplay between metacognition and self-efficacy. For instance, Afshari *et al.* demonstrated that metacognitive processes are positively linked to enhanced self-efficacy and intrinsic valuation, while concurrently reducing test anxiety (14). These findings suggest that strengthening self-efficacy through metacognitive interventions—such as thought management and strategic goal-setting—can optimize performance and mitigate psychological distress. Furthermore, the efficacy of therapeutic modalities has been documented; Hosseini *et al.* reported that group reality therapy significantly enhances academic, social, and emotional self-efficacy among female students (15).

In recent years, metacognition has been recognized as an important predictor of performance in complex tasks. The concept was first introduced by Flavell, who defined it as “thinking about thinking” and as knowledge of what one knows and does not know (16). Although initially studied in developmental psychology, metacognition later attracted attention in memory research, aging, and neuropsychology (17, 18). This multifaceted construct includes knowledge, monitoring, and control processes that evaluate, regulate, or direct cognition (19). According to Flavell and other researchers, metacognition comprises three main components: 1. metacognitive knowledge, referring to beliefs and understanding about cognitive processes and learning strategies; 2. monitoring, referring to the supervision of cognitive processes and assessment of progress; and 3. control, referring to the regulation and modification of cognitive activity based on evaluation. Together, these components enable

individuals to assess, monitor, and, when necessary, adjust their mental processes (18).

In contrast, emotional responses to anxiety and depression may involve rumination or distraction. Rumination is defined as repetitive and persistent thinking about a particular topic or problem and plays a significant role in maintaining symptoms of anxiety and depression (20). It can interfere with adaptive problem-solving and contribute to an increase in negative thoughts. Rumination typically arises from ingrained, automatic cognitive habits, with individuals relying on such patterns as an ineffective coping strategy in response to depression or stressful situations (21).

In addition, irrational beliefs and cognitive distortions such as all-or-nothing thinking, overgeneralization, and mental filtering may be influenced by metacognitive beliefs (22). Research has shown a positive relationship between metacognition and self-efficacy, and self-efficacy can be conceptualized as a metacognitive judgment regarding one's ability to organize and execute the actions required for desired performance (12, 23).

Metacognitive beliefs refer to individuals' beliefs and perceptions about their own cognitive processes and their ability to manage thinking and perform tasks effectively. These beliefs are considered a component of metacognitive knowledge and reflect relatively stable knowledge about the functioning of one's cognitive system (24).

According to Wells, metacognitive beliefs are relatively enduring beliefs that individuals hold about their own thoughts and cognitive processes (25). Within Bandura's social cognitive theory, such beliefs can be understood in relation to the triadic reciprocal model involving behavior, environmental influences, and personal factors, including cognitive, emotional, and biological dimensions (12).

In contrast to traditional behaviorist perspectives, which emphasized the unidirectional influence of the environment on behavior, Bandura highlighted the active role of the individual in regulating thoughts, emotions, and actions. From this perspective, through self-regulation and self-control, individuals gradually replace external sources of control with internal ones (26).

Although metacognitive skills are essential for

learning and adaptation, their effective use also depends on motivation (12, 27). For this reason, some metacognitive models incorporate both cognitive and motivational processes and emphasize the role of self-efficacy and the perceived value of learning in the use of effective learning strategies (28, 29). At the same time, negative metacognitive beliefs have been found to be directly associated with anxiety, and weaknesses in these beliefs may contribute to anxiety in adolescents (11, 30). Consistent with Bandura's theory, individuals are viewed as active agents who regulate their behavior through cognitive processes such as anticipation, planning, and self-evaluation (12). Accordingly, behavior is shaped through the reciprocal interaction of personal, environmental, and behavioral factors (31). Within this framework, metacognitive beliefs and self-efficacy may be regarded as two central cognitive-emotional constructs in the explanation of adolescent anxiety and, therefore, as important targets for psychological intervention. Given the developmental significance of adolescence, interventions such as emotion-focused therapy and reality therapy may be particularly relevant during this period. Accordingly, the present study focuses on these two therapeutic approaches, as both are theoretically related to changes in metacognitive beliefs and self-efficacy.

Emotion-Focused Therapy (EFT) represents a therapeutic approach that prioritizes emotional processing as a primary mechanism for psychological change (32).

EFT has demonstrated significant effectiveness in helping individuals modify maladaptive interactional patterns and alleviate psychological distress (33). Emotions are intrinsically linked to cognition, providing a rapid, preverbal system for threat assessment, memory salience, and interpersonal signaling. From an evolutionary perspective, emotions are adaptive; they provide critical information that guides individuals toward their core needs and motivates them to interact with their environment effectively (34).

A fundamental assumption of EFT is that the ongoing emotional cycles between individuals—or within the self—are primary drivers of psychological experience (35). Dysregulation in these emotional processes can lead to significant psychological harm (36). The objective of this approach is to facilitate emotional

integration by fostering awareness of core emotions and underlying needs, thereby restructuring self-protective responses and promoting new cycles of relational and intrapersonal experience (37, 38).

Because EFT explicitly targets emotional awareness, expression, and regulation, it may mitigate maladaptive cognitive processes such as rumination and the perceived uncontrollability of emotions. By addressing these processes, EFT can potentially modify negative metacognitive beliefs and enhance adolescents' self-efficacy in managing their emotional experiences.

The clinical efficacy of EFT has been widely documented, including its role in improving symptoms of obsessive-compulsive disorder (39), enhancing emotional processing and reducing cognitive distortions in women with somatic symptoms (40), and improving emotional self-regulation and self-efficacy in depressed populations (41, 42). Furthermore, EFT has shown promise in addressing social anxiety and interpersonal dependency (43). Consistent with these findings, recent research indicates that interventions focusing on metacognitive beliefs and self-regulation—such as emotion-focused and reality-based approaches—can meaningfully reduce adolescent anxiety and improve overall psychological functioning (44–46).

The second therapeutic approach examined in this study is Reality Therapy. Reality Therapy, which is grounded in choice theory and the concept of internal control, is considered one of the contemporary approaches in counseling and psychotherapy (37, 47). This approach assumes that many psychological problems arise when individuals fail to meet their basic needs in effective and responsible ways. From this perspective, psychological distress is associated with ineffective choices, difficulties in accepting responsibility, and problems in establishing satisfying relationships with significant others. Accordingly, Reality Therapy seeks to help individuals become more aware of their needs, evaluate their current behavior, and make more effective choices to meet those needs. A central goal of this approach is to promote responsibility, strengthen a sense of personal control, and replace ineffective behavioral patterns with more adaptive ones. Because Reality Therapy is action-oriented, it emphasizes planning, commitment,

and behavior change in order to help individuals move toward need fulfillment and greater psychological adjustment. In this process, the therapist works collaboratively with the client to develop realistic and attainable plans for change (48). Regardless of diagnostic category, Reality Therapy encourages active participation in treatment by providing a supportive, accepting, and empathic environment while discouraging avoidance of responsibility and fostering more constructive ways of dealing with reality (49).

The effectiveness of Reality Therapy has been supported in a number of studies. Previous research has shown its usefulness in reducing aggression and negative emotions in adolescent girls (50), enhancing responsibility and emotional balance in adolescents (49), decreasing test anxiety and increasing responsibility in female students (48), reducing cognitive distress and relapse anxiety among individuals undergoing addiction treatment (51), improving goal orientation and academic self-efficacy (52), reducing social anxiety and test anxiety in female students (53), and enhancing irrational beliefs, psychological hardiness, and academic achievement in gifted students (54). In addition, Reality Therapy has been found to improve emotion regulation and academic self-efficacy in female students (55) and to influence metacognitive beliefs related to cognitive confidence in individuals with obsessive-compulsive disorder (56). From a theoretical perspective, the emphasis of Reality Therapy on internal control, responsible choice, and effective problem-solving may strengthen adolescents' sense of agency over their thoughts and behaviors, promote more adaptive metacognitive appraisals, and enhance self-efficacy in dealing with daily and academic challenges.

Despite these findings, no study to date has directly compared the effectiveness of Reality Therapy and Emotion-Focused Therapy in relation to metacognitive beliefs and self-efficacy among anxious students. Most previous studies have examined these approaches separately and across different samples and outcome variables, thereby limiting direct conclusions regarding their comparative effectiveness for anxious adolescents. Therefore, the present study sought to examine whether Reality Therapy and Emotion-Focused Therapy differ in their effectiveness in improving metacognitive beliefs and self-efficacy

among anxious adolescents aged 14–18 years in Isfahan Province.

Methods

The present study employed a quasi-experimental design with pre-test, post-test, and follow-up assessments, including two intervention groups and one control group. The study was conducted in Isfahan during the 2023–2024 academic year. Participants were recruited through purposive sampling from the target population based on their willingness to participate and their eligibility according to predefined inclusion and exclusion criteria. The inclusion criteria were: age between 14 and 18 years, elevated anxiety scores above the screening cut-off point, absence of current psychotic disorder or severe cognitive impairment, no concurrent participation in other psychological interventions, and provision of written informed consent by both the adolescents and their parents. The exclusion criteria were: absence from more than two intervention sessions, initiation of new psychotropic medication during the study, and unwillingness to continue participation.

Following screening, 45 eligible adolescents were enrolled in the study and randomly assigned to one of three groups: Emotion-Focused Therapy (EFT; $n = 15$), Reality Therapy (RT; $n = 15$), and a control group ($n = 15$). Random allocation was carried out using a pre-generated simple randomization list, and group assignments were implemented by a researcher who was not involved in the delivery of the interventions in order to enhance allocation impartiality. Both intervention groups participated in 10 weekly 90-minute group sessions conducted by trained therapists according to structured treatment protocols. Sessions were held in a quiet counseling room at the school. The control group did not receive any psychological intervention during the study period but was offered a brief counseling program after completion of data collection.

Data were collected at three time points: pre-test (before the first intervention session), post-test (after the tenth session), and follow-up (eight weeks after the post-test). At each assessment point, all participants completed the measures of metacognitive beliefs and self-efficacy. Descriptive statistics, including means

and standard deviations, were used to summarize the study variables, and inferential analyses were conducted using SPSS version 26. Ethical principles, including confidentiality, data protection, and respect for participants' privacy, were observed throughout the study.

Materials

Metacognitions Questionnaire-30 (MCQ-30)

Metacognitive beliefs were assessed using the 30-item version of the Metacognitions Questionnaire, developed by Wells and Cartwright-Hatton (2004) based on the original version by Wells (25). This short-form instrument comprises five subscales: 1. positive beliefs about worry, 2. negative beliefs about uncontrollability and danger, 3. cognitive confidence, 4. cognitive self-consciousness, and 5. beliefs about the need to control thoughts. Responses are rated on a four-point Likert scale ranging from 1 ("do not agree") to 4 ("agree very much"). Higher scores on this measure indicate greater levels of maladaptive metacognitive beliefs. Wells and Cartwright-Hatton (57) established the construct validity of the MCQ-30 through exploratory and confirmatory factor analyses, reporting internal consistency coefficients (Cronbach's alpha) ranging from 0.72 to 0.93. The psychometric properties of the Persian version have been validated in Iranian student populations. For instance, Rostamipour and Nemat Tavousi (58) reported an alpha of 0.92 for the total scale, with satisfactory reliability coefficients for all subscales and Sabet (59) reported a Cronbach's alpha of 0.896. In the present study, the internal consistency of the total scale was 0.898, indicating high reliability.

Self-Efficacy Questionnaire for Children (SEQ-C)

Perceived self-efficacy was evaluated using the Self-Efficacy Questionnaire for Children, developed by Morris (2001) to assess self-efficacy domains in children and adolescents (60). This 23-item instrument measures self-efficacy across three primary domains: 1. academic self-efficacy (8 items), 2. social self-efficacy (8 items), and 3. emotional self-efficacy (7 items). Items are rated on a 5-point Likert scale ranging from 1 ("not at all") to 5 ("very well"). Total scores range from 23 to 115, with higher scores reflecting greater levels of

perceived self-efficacy in both individual domains and overall. The psychometric properties of the Persian version of the SEQ-C have been established in Iranian adolescent populations.

For instance, Narani (61) demonstrated satisfactory construct validity and a Cronbach's alpha of 0.74, and Tahmassian (62) reported a Cronbach's alpha coefficient of 0.89 for the total scale. In the present study, the internal consistency (Cronbach's alpha) for the total score was 0.887, indicating good reliability.

Structure of Therapy Sessions

The independent variables include the therapy sessions, outlined as Table 1.

In both treatment arms, attendance was monitored, homework and in-session tasks were reviewed, and participants were encouraged to apply learned strategies between sessions, which ensured comparable treatment exposure across the two active conditions.

Results

In this study, participants in the Emotion-Focused Therapy group (mean age= 15.40, standard deviation= 1.24), Reality Therapy group (mean age = 15.73, standard deviation= 1.28), and control group (mean age= 15.67, standard deviation= 1.05) showed no statistically significant difference in age ($F= 0.327$, $P= 0.723$).

Therefore, the three groups were comparable in terms of age distribution at baseline. The mean, standard deviation, and standard error of the study groups are presented in Table 2. As shown in Table 2, the two intervention groups (Emotion-Focused Therapy and Reality Therapy) demonstrated a greater decrease in

the mean scores of maladaptive metacognitive beliefs and a greater increase in self-efficacy scores at post-test and follow-up, relative to pre-test, compared with the control group.

More specifically, the mean scores of all five metacognitive belief subscales, as well as the total metacognitive beliefs score, declined in both intervention groups, whereas they remained relatively stable in the control group. Similarly, the mean scores of social, academic, emotional, and total self-efficacy increased in the two treatment groups, while only minimal changes were observed in the control group.

The statistical significance of these between-group and across-time differences was examined using inferential analysis.

Statistical Assumptions

Prior to conducting repeated measures ANOVA, the data were screened for normality, homogeneity of variance, and sphericity. Univariate normality was confirmed through skewness (± 2) and kurtosis (± 3) values; furthermore, the Shapiro-Wilk test yielded non-significant results ($p > .05$) across all variables and assessment phases.

The assumption of homogeneity of variance (Levene's test) was met for most variables ($p > .05$), with isolated violations observed only for the post-test and follow-up phases of the "need to control thoughts" subscale and the pre-test phase of academic and total self-efficacy. Box's M test indicated that the assumption of equality of variance-covariance matrices was met ($p > .05$). Finally, Mauchly's test indicated that the assumption of sphericity was violated for all metacognitive belief components; consequently, the Greenhouse-Geisser epsilon correction was applied to adjust the degrees of freedom and ensure the validity of the F -tests.

Table 1. Structure of Therapy Sessions

Session	Emotion-Focused Therapy	Reality Therapy
Session 1	Introduction, overview of therapy, pre-test	Member preparation, establishing rapport
Session 2	Building empathy, assessing problems	Identifying needs and problems
Session 3	Fostering a safe environment, expressing fears	Introduction to the concept of the quality world
Session 4	Assessing attachment, emotional analysis	Exploring behavioral options
Session 5	Identifying underlying emotions	Evaluating current behaviors
Session 6	Intensifying emotional experiences	Designing a problem-solving plan
Session 7	Enhancing self-awareness, facilitating expression of needs	Presenting new solutions
Session 8	Building trust in new emotions	Prioritizing desires
Session 9	Processing core emotions fully	Self-assessment and feedback
Session 10	Reinforcing changes, post-test	Reviewing sessions, final evaluation

Table 2. Mean, Standard Deviation, and Standard Error of Metacognitive Beliefs and Self-Efficacy Components in the Study Groups

Pre-Test		Emotion-Focused Therapy (EFT)			Reality Therapy (RT)			Control group		
		Mean	standard error	standard deviation	Mean	standard error	standard deviation	Mean	standard error	standard deviation
Uncontrollability	pre-test	13.53	0.58	2.26	13.00	0.55	2.14	13.00	0.41	2.07
	post-test	5.73	0.44	1.71	6.07	0.40	1.53	12.73	0.38	2.12
	follow-up	5.60	0.41	1.59	6.13	0.40	1.46	13.20	0.37	1.74
Positive beliefs about worry	pre-test	13.53	0.65	2.50	13.47	0.49	1.89	13.40	0.39	1.89
	post-test	5.73	0.37	1.44	6.20	0.39	1.52	13.40	0.41	1.55
	follow-up	5.87	0.39	1.51	6.33	0.39	1.50	13.73	0.39	1.53
Cognitive confidence	pre-test	13.27	0.61	2.34	12.80	0.77	2.98	12.67	0.47	2.19
	post-test	6.20	0.44	1.70	5.80	0.49	1.90	12.80	0.44	2.62
	follow-up	6.13	0.42	1.64	5.81	0.49	1.89	12.93	0.43	2.66
Cognitive processes	pre-test	15.00	0.65	2.51	12.27	0.73	2.81	13.40	0.47	1.92
	post-test	6.00	0.40	1.56	6.00	0.46	1.77	13.00	0.41	2.00
	follow-up	5.93	0.38	1.49	6.07	0.45	1.75	13.01	0.42	1.89
Need to control thoughts	pre-test	15.33	0.73	2.85	13.07	0.45	1.74	14.67	0.52	2.97
	post-test	5.80	0.37	1.42	6.07	0.40	1.53	14.27	0.40	3.04
	follow-up	6.00	0.36	1.41	6.33	0.43	1.68	14.40	0.41	1.78
Total metacognitive beliefs	pre-test	70.67	1.50	5.80	64.60	1.69	6.56	67.13	1.39	4.09
	post-test	29.47	0.84	3.27	30.13	0.98	3.80	66.20	1.21	2.88
	follow-up	29.53	0.94	3.62	30.67	0.91	3.52	67.27	1.19	3.59
Social	pre-test	20.20	1.32	5.10	19.93	1.29	4.98	18.60	0.97	3.76
	post-test	33.93	0.90	3.47	27.20	0.93	3.61	18.80	1.02	3.93
	follow-up	33.40	0.90	3.44	27.00	0.93	3.59	18.87	1.05	4.05
Academic	pre-test	17.20	0.62	2.40	17.53	1.51	5.84	19.53	1.36	5.26
	post-test	34.53	0.83	3.23	27.73	0.80	3.08	19.73	1.31	5.08
	follow-up	34.40	0.86	3.33	27.67	0.78	3.02	19.80	1.35	5.21
Emotional	pre-test	19.87	1.27	4.91	18.27	1.61	6.24	17.27	1.49	5.75
	post-test	35.67	0.77	2.99	26.73	1.37	5.30	17.33	1.51	5.84
	follow-up	35.33	0.70	2.72	26.60	1.39	5.37	17.26	1.51	5.85
Total self-efficacy	pre-test	57.27	1.17	4.54	55.73	2.94	11.39	55.40	2.52	9.76
	post-test	104.13	1.51	5.83	81.67	1.82	7.07	55.87	2.61	10.12
	follow-up	103.13	1.39	5.37	81.27	1.86	7.20	55.93	2.64	10.21

As presented in Table 3, the repeated measures ANOVA yielded statistically significant main effects for both time and group across all study variables

($p < .01$). Most importantly, there were significant Time $\times$ Group interaction effects for all metacognitive belief subscales, total metacognitive scores, and all self-

efficacy components ($p < .01$). These results indicate that the trajectory of change across the assessment phases differed significantly between the treatment groups and the control group, with participants in the Emotion-Focused Therapy and Reality Therapy groups demonstrating greater improvements. The large partial eta squared values ($\eta^2=0.48-0.95$) indicate substantial effect sizes for both interventions.

Given the significant interaction effects, Bonferroni post-hoc tests were conducted to investigate pairwise differences between the groups at the pre-test, post-test, and follow-up phases; these results are summarized in Table 4. As presented in Table 4, Bonferroni post-hoc analyses revealed significant improvements in all metacognitive belief subscales and self-efficacy domains from pre-test to post-test,

and from pre-test to follow-up ($p < .01$). Furthermore, both intervention groups (EFT and Reality Therapy) significantly outperformed the control group across all measures ($p < .01$), confirming the efficacy of both treatments in reducing maladaptive metacognitive beliefs and enhancing self-efficacy. Crucially, non-significant differences between post-test and follow-up assessments indicated that therapeutic gains were well-maintained over the follow-up period. Regarding comparative effectiveness, no significant differences emerged between EFT and Reality Therapy in reducing maladaptive metacognitive beliefs ($p > .05$). However, EFT yielded significantly greater improvements in total self-efficacy and its subscales (social, academic, and emotional) compared to Reality Therapy, suggesting that EFT may be more potent in bolstering adolescents' perceived capabilities across these specific domains.

Table 3. Results of Repeated Measures ANOVA for Within-Group and Between-Group Effects

Variable	Source of Effect		Sum of Squares	Degrees of Freedom	Mean Square	F-Value	Significance	Partial Eta Squared	Test Power
Uncontrollability and Danger	Within-Group Effect	Time	730.533	1.185	616.736	150.469	0.000	0.782	1
		Time	366.222	2.369	154.587	37.716	0.000	0.642	1
		Error (Time)	203.911	49.750	4.099	-	-	-	-
Positive Beliefs about Worry	(Between-Group Effect	Group	644.311	2	322.156	59.776	0.000	0.740	1
		Error	226.356	42	5.389	-	-	-	-
		Within-Group Effect	727.748	1.146	634.981	156.336	0.000	0.788	1
Cognitive Confidence	Within-Group Effect	Time	390.074	2.292	170.175	41.898	0.000	0.666	1
		Error (Time)	195.511	48.136	4.062	-	-	-	-
		(Between-Group Effect	748.548	2	374.274	87.094	0.000	0.806	1
Cognitive Self-Consciousness	Within-Group Effect	Error	180.489	42	4.297	-	-	-	-
		Time	644.044	1.103	583.777	143.374	0.000	0.773	1
		Time	350.622	2.206	158.906	39.027	0.000	0.650	1
Need to Control Thoughts	Within-Group Effect	Error (Time)	188.667	46.336	4.072	-	-	-	-
		Group	602.133	2	301.067	27.473	0.000	0.567	1
		Error	460.267	42	10.959	-	-	-	-
Total Metacognitive Beliefs	Within-Group Effect	Time	860.459	1.176	731.416	212.196	0.000	0.835	1
		Time	397.230	2.353	168.828	48.980	0.000	0.700	1
		Error (Time)	170.311	49.410	3.447	-	-	-	-
	(Between-Group Effect	Group	535.215	2	267.607	40.417	0.000	0.658	1
		Error	278.89	42	6.621	-	-	-	-
		Within-Group Effect	923.126	1.210	762.949	225.589	0.000	0.843	1
	Within-Group Effect	Time	440.341	2.420	181.967	53.804	0.000	0.719	1
		Error (Time)	171.867	171.867	3.382	-	-	-	-
		(Between-Group Effect	974.059	2	487.030	40.035	0.000	0.656	1
	Within-Group Effect	Error	510.933	42	12.165	-	-	-	-
		Time	1934.815	1.152	1679.437	850.035	0.000	0.953	1
		Time	9586.030	2.304	4160.123	210.611	0.000	0.909	1
	(Between-Group Effect	Error (Time)	955.822	48.390	19.753	-	-	-	-
		Group	1727.681	2	8637.341	291.261	0.000	0.933	1
		Error	1245.511	42	29.655	-	-	-	-

Table 3. Continued.

Variable	Source of Effect		Sum of Squares	Degrees of Freedom	Mean Square	F-Value	Significance	Partial Eta Squared	Test Power
Social Self-Efficacy	Within-Group Effect	Time	1452.504	1.069	1358.370	177.409	0.000	0.809	1
		Time	877.630	2.139	410.376	53.597	0.000	0.718	1
		Error (Time)	343.867	44.911	7.657	-	-	-	-
Academic Self-Efficacy	(Between-Group Effect	Group	2460.637	2	1230.319	30.251	0.000	0.590	1
		Error	1708.133	42	40.670	-	-	-	-
	Within-Group Effect	Time	2551.526	1.011	2523.157	370.042	0.000	0.898	1
		Time	1464.207	2.022	723.964	106.175	0.000	0.835	1
		Error (Time)	289.600	42.472	6.819	-	-	-	-
Emotional Self-Efficacy	(Between-Group Effect	Group	1831.881	2	915.941	19.635	0.000	0.483	1
		Error	1959.200	42	46.648	-	-	-	-
	Within-Group Effect	Time	1931.393	1.041	1856.073	163.971	0.000	0.796	1
		Time	1219.230	2.081	585.841	51.755	0.000	0.711	1
		Error (Time)	494.711	43.704	11.319	-	-	-	-
Total Self-Efficacy	(Between-Group Effect	Group	3802.681	2	1901.341	28.194	0.000	0.573	1
		Error	2832.356	42	67.437	-	-	-	-
	Within-Group Effect	Time	1757.644	1.042	1686.974	863.559	0.000	0.954	1
		Time	1055.311	2.084	566.270	259.415	0.000	0.925	1
		Error (Time)	854.711	43.765	19.530	-	-	-	-
	(Between-Group Effect	Group	2371.578	2	11855.289	64.007	0.000	0.753	1
		Error	7779.156	42	185.218	-	-	-	-

Table 4. Bonferroni Post-Hoc Test for Pairwise Comparisons of Study Groups and Time Points on Metacognitive Beliefs and Self-Efficacy

Variable	Reference Group	Comparison Group	Comparison Group	Standard Error	Significance
Time	Pre-Test	post-test	5.000	0.404	0.000
	Pre-Test	follow-up	4.867	0.376	0.000
	post-test	follow-up	-0.133	0.139	1
Uncontrollability and Danger	EFT	RT	-0.111	0.489	1
	EFT	Control	-4.689	0.489	0.000
	RT	Control	-4.578	0.489	0.000
Time	Pre-Test	post-test	5.022	0.387	0.000
	Pre-Test	follow-up	4.822	0.382	0.000
	post-test	follow-up	-0.200	0.119	0.301
Positive Beliefs about Worry	EFT	RT	-0.289	0.437	1
	EFT	Control	-5.133	0.437	0.000
	RT	Control	-4.844	0.437	0.000
Time	Pre-Test	post-test	4.644	0.384	0.000
	Pre-Test	follow-up	4.622	0.377	0.000
	post-test	follow-up	-0.022	0.099	1
Cognitive Confidence	EFT	RT	0.400	0.698	1
	EFT	Control	-4.267	0.698	0.000
	RT	Control	-4.667	0.698	0.000
Time	Pre-Test	post-test	5.356	0.360	0.000
	Pre-Test	follow-up	5.356	0.355	0.000
	post-test	follow-up	0.000	0.121	1
Cognitive Self-Consciousness	EFT	RT	0.133	0.542	1
	EFT	Control	-4.156	0.542	0.000
	RT	Control	-4.289	0.542	0.000
Time	Pre-Test	post-test	5.644	0.360	0.000
	Pre-Test	follow-up	5.444	0.354	0.000
	post-test	follow-up	-0.200	0.132	0.414

Table 4. Continued.

Variable	Reference Group	Comparison Group	Comparison Group	Standard Error	Significance
Need to Control	EFT	RT	0.556	0.735	1
Thoughts	EFT	Control	-5.400	0.735	0.000
	RT	Control	-5.956	0.735	0.000
Time	Pre-Test	post-test	25.667	0.864	0.000
	Pre-Test	follow-up	25.111	0.835	0.000
	post-test	follow-up	-0.556	0.270	0.137
Beliefs	EFT	RT	0.689	1.148	1
	EFT	Control	-23.644	1.148	0.000
	RT	Control	-24.333	1.148	0.000
Time	Pre-Test	post-test	-7.067	0.518	0.000
	Pre-Test	follow-up	-6.844	0.516	0.000
	post-test	follow-up	0.222	0.110	0.152
Social	EFT	RT	4.467	1.344	0.006
	EFT	Control	10.422	1.344	0.000
	RT	Control	5.956	1.344	0.000
Time	Pre-test	post-test	-9.244	0.471	0.000
	Pre-Test	follow-up	-9.200	0.485	0.000
	post-test	follow-up	0.044	0.044	0.943
Academic	EFT	RT	4.400	1.440	0.012
	EFT	Control	9.022	1.440	0.000
	RT	Control	4.622	1.440	0.000
Time	Pre-Test	post-test	-8.111	0.616	0.000
	Pre-Test	follow-up	-7.933	0.629	0.000
	post-test	follow-up	0.178	0.103	0.274
Emotional	EFT	RT	6.422	1.731	0.002
	EFT	Control	13.000	1.731	0.000
	RT	Control	6.578	1.731	0.001
Time	Pre-Test	post-test	-24.422	0.831	0.000
	Pre-Test	follow-up	-23.978	0.804	0.000
	post-test	follow-up	0.444	0.139	0.008
Self-Efficacy	EFT	RT	15.289	2.869	0.000
	EFT	Control	32.444	2.869	0.000
	RT	Control	17.156	2.869	0.000

Discussion

This study aimed to evaluate and compare the effectiveness of Emotion-Focused Therapy (EFT) and Reality Therapy (RT) on metacognitive beliefs and self-efficacy among anxious adolescents (aged 14–18) in Isfahan, Iran. As indicated in Tables 3 and 4, both interventions yielded significant improvements in maladaptive metacognitive beliefs and self-efficacy compared to the control group ($p < .01$), with these gains substantiated across both post-test and follow-up phases. The significant Time $\times$ Group interaction ($p < .01$, η^2 = [Value]) confirms that the trajectory of change in these variables differed significantly between the treatment groups and the

control group, underscoring the specific therapeutic impact of the interventions. Post-hoc Bonferroni analyses (Table 3) further revealed that participants in both experimental groups achieved statistically superior scores across all metacognitive belief subscales (Uncontrollability and Danger, Positive Beliefs about Worry, Cognitive Confidence, Cognitive Self-Consciousness, and Need to Control Thoughts) and all self-efficacy domains (Social, Academic, Emotional, and Total) compared to their control counterparts at both post-test and follow-up assessments ($p < .01$).

Overall, the findings suggest that both EFT and RT were effective in improving maladaptive metacognitive beliefs, with no significant difference between the two treatments on these variables. Because no previous

studies were found that directly compared EFT and RT in anxious adolescents with respect to metacognitive beliefs, the present findings are discussed separately for each treatment approach in light of related research.

With regard to EFT, metacognitive beliefs and their dimensions improved more from pre-test to post-test and follow-up in the EFT group than in the control group. These findings are consistent with studies reporting the effectiveness of metacognitive and emotion-focused interventions in modifying dysfunctional cognitions, including Pooyanesian *et al.*, who found that metacognitive therapy and EFT improved thought fusion and stop-signal beliefs in individuals with obsessive-compulsive disorder (39), and Artang and Izadi, who reported that EFT improved emotional information processing and interpersonal cognitive distortions among women with somatic symptoms (40). EFT may influence metacognitive beliefs indirectly by targeting maladaptive emotional processes that maintain worry and negative thinking patterns. By helping clients access, regulate, and transform maladaptive emotions such as fear, shame, and anxiety, and by facilitating corrective emotional experiences within a safe therapeutic relationship, EFT may reduce negative metacognitive beliefs, including perceived uncontrollability and danger of thoughts, while promoting more adaptive emotional processing.

From this perspective, EFT may improve metacognitive beliefs through several mechanisms, including enhancing emotional awareness, interrupting worry cycles associated with negative metacognitive appraisals, and reducing interpersonal cognitive distortions that sustain anxiety. As adolescents learn to recognize and regulate maladaptive emotions, they may begin to perceive their thoughts as more manageable, which can weaken beliefs about the uncontrollability and dangerousness of mental events and promote more flexible cognitive monitoring. In turn, this emotional reorganization may support more constructive judgments about one's capacity to cope with internal experiences and external demands, a process closely related to perceived self-efficacy.

Similarly, the findings indicated that RT also produced greater improvements in metacognitive

beliefs and their dimensions in the RT group than in the control group. These findings are consistent with studies showing the effectiveness of RT in modifying irrational beliefs, enhancing resilience, and improving academic outcomes, including the work of Abdi Dehkordi *et al.* among gifted students (54) and Namjou *et al.* on cognitive disturbance and relapse anxiety in individuals undergoing addiction treatment (51). Although Herman *et al.*'s study on reality monitoring and metacognitive beliefs in obsessive-compulsive disorder (56) did not directly examine RT, it highlights the role of metacognitive processes in psychopathology and supports the plausibility of interventions that explicitly target cognitive evaluation and self-monitoring.

Reality Therapy (RT), grounded in Choice Theory, emphasizes personal responsibility, present-focused behavioral evaluation, and planning—all of which likely enhance adolescents' metacognitive awareness of their decision-making processes. Through continuous self-evaluation—often involving the assessment of whether current behaviors align with personal goals—students are encouraged to reflect upon their cognitive and behavioral patterns. This process strengthens both metacognitive knowledge (awareness of cognitive processes) and metacognitive regulation (planning, monitoring, and evaluating strategies). By linking behavior modification to internal control and realistic planning, RT assists adolescents in shifting from passive, external attributions to more active, self-regulated patterns, thereby supporting adaptive metacognitive beliefs regarding their ability to govern their own thoughts and actions.

Regarding self-efficacy, both EFT and RT produced significant improvements across social, academic, emotional, and total self-efficacy scores compared to the control group, with these gains maintained at follow-up. Although both treatments were effective, EFT demonstrated a comparatively greater impact on self-efficacy indicators. As no previous studies have directly compared the efficacy of EFT and RT regarding self-efficacy in anxious adolescents, these findings are interpreted through the lens of existing literature on each approach.

In the EFT condition, improvements in self-efficacy may be attributed to the therapy's emphasis on emotional processing, meaning-making, and

strengthening trust in internal emotional signals. EFT conceptualizes self-efficacy not merely as a repertoire of skills, but as the conviction in one's capacity to mobilize and integrate cognitive, emotional, and social resources to meet situational demands. By facilitating the transformation of maladaptive emotional responses—such as fear of failure or performance-related shame—EFT may reduce emotional barriers to action, thereby fostering confidence in navigating challenging social and academic contexts. This aligns with research indicating that emotion-focused interventions enhance regulatory capacities and self-efficacy in various vulnerable populations, including depressed women with suicidal ideation (41) and students (63).

In the RT condition, self-efficacy improvements may be attributed to structured behavioral planning, value-based self-evaluation, and gradual mastery experiences. RT assists adolescents in clarifying their needs, examining current behaviors, evaluating the efficacy of these actions, and formulating specific, realistic plans to achieve their goals. This structured process facilitates small, cumulative successes, which in turn bolster feelings of competence and agency—both core components of perceived self-efficacy. This is consistent with previous research demonstrating that RT-based group interventions can enhance academic, social, and emotional self-efficacy (15), improve goal orientation and academic self-efficacy (52), and foster adaptive emotion regulation alongside self-efficacy in student populations (55).

Taken together, the findings suggest that both EFT and RT are effective interventions for anxious adolescents, targeting maladaptive metacognitive beliefs and self-efficacy through partially overlapping yet theoretically distinct pathways. EFT may be particularly suited for adolescents whose anxiety is primarily driven by maladaptive emotional schemas and intense negative affect, as it directly addresses emotional experiences and their meanings. Conversely, RT may be especially beneficial for adolescents struggling with ineffective behavioral patterns and a perceived lack of control over their academic and social functioning, as it provides a structured framework for behavioral modification, self-evaluation, and goal-directed planning. Several limitations of the present study must be

acknowledged. First, the sample was restricted to students from Isfahan province, which limits the generalizability of the findings to other geographical regions and cultural contexts. Second, the reliance on self-report questionnaires may have introduced response biases, such as social desirability. Third, the use of purposive sampling instead of probability-based sampling limits external validity. Future research should replicate these findings in more diverse populations using random sampling methods and, where feasible, incorporate multi-informant or performance-based assessments of metacognition and self-efficacy to complement self-report data.

Conclusion

In conclusion, both Emotion-Focused Therapy (EFT) and Reality Therapy (RT) are effective group-based interventions for mitigating anxiety and enhancing metacognitive beliefs and self-efficacy in adolescents. While both approaches yielded significant improvements, EFT demonstrated a comparatively greater impact when the primary clinical objective is the enhancement of self-efficacy. These findings underscore the clinical utility of integrating emotion-focused and Choice Theory-based interventions into school-based and clinical counseling services, providing a robust framework for supporting the psychological resilience and functional self-beliefs of anxious youth.

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Ethics Approval

This study was approved by the ethics committee working group under the ethics code IR.SBU.REC.1404.257.

Conflict of Interest

The authors declare that they have no conflict of interest.

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