

Comparison of the Effectiveness of Schema Therapy and Short-Term Psychodynamic Psychotherapy on Emotional Processing and Cognitive Flexibility in Middle-Aged Men with Generalized Anxiety Disorder

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Article type:
Original Research

Article history:

Received 28 April 2026

Revised 08 May 2026

Accepted 20 August 2026

Initial Publish 30 August 2026

Published online 01 May 2027

ABSTRACT

The present study aimed to compare the effectiveness of schema therapy and intensive short-term dynamic psychotherapy on emotional processing and cognitive flexibility in middle-aged men with generalized anxiety disorder. The research method was quasi-experimental with a pretest–posttest design, a three-month follow-up, and a control group. The statistical population consisted of all middle-aged men aged 30 to 45 years with generalized anxiety disorder who were referred to psychiatric clinics in Neyshabur City during the first six months of 2025. Among them, 45 participants were selected through convenience sampling and randomly assigned to three groups of 15 individuals each (two experimental groups and one control group). Each experimental group received 12 weekly 90-minute intervention sessions, whereas the control group remained on the waiting list. Data were collected at three time points using the Emotional Processing Scale developed by Baker et al. (2010) and the Cognitive Flexibility Questionnaire developed by Dennis and Vander Wal (2010), and were analyzed using mixed analysis of variance. The findings indicated that both interventions, compared with the control group, had significant positive effects on improving emotional processing and increasing cognitive flexibility, and these effects were maintained at the follow-up assessment. However, post hoc tests revealed no significant differences between the two therapeutic approaches in any of the dependent variables. Based on the findings, both therapeutic methods can be considered effective interventions for improving the cognitive, emotional, and psychological dimensions of generalized anxiety disorder among middle-aged men. The choice between these approaches may be determined based on patient preference, therapist expertise, and practical considerations.

Keywords: Generalized anxiety disorder, emotional processing, cognitive flexibility, schema therapy, intensive short-term dynamic psychotherapy.

How to cite this article:

Ahmadi, Sh., Bahrainian, S.A., Shahabizadeh, F., & Jarrahi Feriz, J. (2027). Comparison of the Effectiveness of Schema Therapy and Short-Term Psychodynamic Psychotherapy on Emotional Processing and Cognitive Flexibility in Middle-Aged Men with Generalized Anxiety Disorder. *Mental Health and Lifestyle Journal*, 5(3), 1-15. <https://doi.org/10.61838/mhlj.300>

Introduction

Generalized anxiety disorder (GAD) is one of the most prevalent anxiety disorders and is characterized by excessive, persistent, and difficult-to-control worry across multiple domains of life, accompanied by cognitive, emotional, behavioral, and physiological symptoms. Unlike transient anxiety responses that occur in reaction to specific stressors, GAD involves chronic apprehension and heightened threat perception that

significantly interfere with daily functioning, interpersonal relationships, and quality of life. Recent epidemiological evidence has highlighted the substantial clinical burden of GAD within healthcare systems, demonstrating that individuals with this disorder frequently require psychological and medical services due to the persistence of symptoms and associated impairments (1). The chronic nature of GAD and its complex psychological mechanisms have encouraged researchers to examine not only symptom reduction but also underlying cognitive and emotional processes that contribute to the development and maintenance of the disorder.

The cognitive characteristics of individuals with GAD are among the central mechanisms contributing to persistent anxiety. Individuals with GAD often demonstrate difficulties in shifting attention away from perceived threats, generating alternative interpretations of ambiguous situations, and adapting cognitive strategies in response to changing environmental demands. These difficulties are closely related to reduced cognitive flexibility, which refers to the ability to modify thoughts, perspectives, and behavioral responses when faced with new information or challenging circumstances. Evidence indicates that individuals with GAD experience impairments in executive functioning, attentional control, and cognitive flexibility, which may reinforce repetitive worry patterns and limit effective problem-solving strategies (2). Therefore, improving cognitive flexibility represents an important therapeutic target because enhanced flexibility may allow individuals to reconsider anxious interpretations, tolerate uncertainty, and develop more adaptive responses to emotional experiences.

Cognitive flexibility is also closely associated with emotional regulation processes. Individuals who experience rigid cognitive patterns often have greater difficulty identifying, accepting, and modifying emotional responses, leading to ineffective coping strategies such as avoidance, suppression, and excessive worry. Research on individuals with GAD has shown that emotional regulation difficulties, intolerance of uncertainty, and maladaptive cognitive processes are interconnected factors that contribute to the persistence of anxiety symptoms. In this context, interventions aimed at modifying maladaptive emotional and cognitive patterns may facilitate improvements in both emotional processing and psychological adaptability. Studies examining psychological mechanisms among individuals with GAD have demonstrated that emotion regulation, differentiation of self, and self-compassion are important predictors of psychological functioning and adaptation in this population (3).

Emotional processing refers to the capacity to experience, understand, integrate, and regulate emotional information in a way that promotes psychological adjustment. Deficits in emotional processing may prevent individuals from fully experiencing and resolving distressing emotions, resulting in emotional avoidance, persistent negative affect, and increased vulnerability to anxiety. In GAD, excessive cognitive engagement with worry may function as a strategy to avoid deeper emotional experiences, thereby maintaining unresolved emotional conflicts. Research has indicated that interventions targeting emotional schemas and emotion regulation processes can reduce maladaptive emotional responses and improve cognitive-emotional functioning among individuals with anxiety-related problems (4). Similarly, emotional schema-based approaches have emphasized that individuals' beliefs about emotions, including perceptions of emotional uncontrollability and the need to suppress emotional experiences, play a significant role in anxiety maintenance.

One of the therapeutic approaches that directly addresses maladaptive cognitive and emotional patterns is schema therapy. Schema therapy, developed as an integrative therapeutic model, proposes that enduring maladaptive patterns, known as early maladaptive schemas, develop through unmet emotional needs and adverse developmental experiences. These schemas influence individuals' perceptions of themselves, others, and the world, shaping emotional reactions and coping behaviors throughout adulthood. In individuals with anxiety disorders, maladaptive schemas may contribute to exaggerated threat appraisal, negative self-evaluation, emotional avoidance, and inflexible coping responses. Research has demonstrated that early maladaptive schemas are associated with psychological difficulties and can serve as important explanatory mechanisms in anxiety disorders. For example, attachment-related difficulties and early maladaptive schemas have been identified as pathways contributing to generalized anxiety symptoms among adolescents (5). Furthermore, maladaptive schemas have been found to mediate the relationship between childhood emotional experiences and psychological flexibility, suggesting that schema-related processes influence individuals' ability to adaptively respond to emotional challenges (6).

The effectiveness of schema therapy in improving cognitive and emotional functioning among individuals with GAD has been supported by previous research. Findings have indicated that schema therapy can enhance cognitive flexibility, increase resilience, and reduce anxiety-related symptoms by modifying deeply rooted maladaptive beliefs and emotional patterns (7). Additionally, schema therapy has been shown to reduce cognitive avoidance and symptoms associated with GAD by facilitating emotional awareness and restructuring dysfunctional coping strategies (8). These findings suggest that schema therapy may influence both the cognitive and emotional dimensions of GAD by targeting the underlying psychological structures that maintain anxiety.

Recent comparative studies have further supported the potential role of schema-based interventions in improving cognitive flexibility and emotional regulation. For instance, schema therapy has been compared with other psychological approaches in individuals with anxiety-related difficulties, demonstrating positive effects on psychological flexibility and emotional self-regulation (9). Moreover, comparisons between emotional schema therapy and mindfulness-based cognitive therapy have shown that interventions focusing on emotional awareness and cognitive restructuring can improve cognitive emotion regulation, intolerance of uncertainty, and cognitive flexibility among individuals with GAD (10). These findings highlight the importance of interventions that address both cognitive rigidity and emotional processing difficulties.

Alongside schema therapy, psychodynamic approaches have increasingly received attention as effective treatments for anxiety disorders. Intensive short-term dynamic psychotherapy (ISTDP) is a structured psychodynamic intervention that focuses on identifying and resolving unconscious emotional conflicts, reducing maladaptive defensive processes, and facilitating direct emotional experiences. According to this approach, anxiety symptoms may emerge when individuals experience unresolved emotional conflicts and use defensive mechanisms to avoid painful emotions. By increasing emotional awareness and promoting adaptive emotional expression, ISTDP aims to improve emotional processing and psychological functioning.

Evidence supporting the effectiveness of short-term psychodynamic approaches has expanded in recent years. Systematic reviews and meta-analytic findings have demonstrated the efficacy of short-term psychodynamic psychotherapy in reducing psychological symptoms and improving emotional functioning, particularly among individuals experiencing mood and anxiety-related difficulties (11). In the context of

anxiety disorders, psychodynamic interventions have been associated with improvements in emotional regulation, interpersonal functioning, and psychological adjustment. Research examining ISTDP among individuals with anxiety disorders has indicated that this approach can enhance emotion regulation capacities and reduce interpersonal conflicts by addressing underlying emotional difficulties (12). Similarly, studies have shown that ISTDP can reduce difficulties in emotion regulation among individuals with psychological distress, supporting its relevance for disorders characterized by emotional avoidance and dysregulation (13).

The effectiveness of psychodynamic interventions has also been examined specifically in relation to GAD. Findings from randomized controlled trials suggest that integrative approaches incorporating short-term psychodynamic psychotherapy can significantly reduce GAD symptoms and improve psychological functioning compared with control conditions (14). Furthermore, research comparing psychodynamic approaches with other therapeutic modalities has indicated that short-term psychodynamic interventions can enhance ego strength and reduce generalized anxiety symptoms, suggesting their potential role in improving underlying personality and emotional processes associated with GAD (15). These findings emphasize that psychodynamic approaches may contribute to anxiety reduction by facilitating emotional insight and resolving internal conflicts.

Although both schema therapy and ISTDP are theoretically grounded in different therapeutic traditions, they share several important therapeutic objectives, including increasing emotional awareness, modifying maladaptive patterns, and improving adaptive functioning. Schema therapy primarily emphasizes identifying and restructuring longstanding cognitive-emotional schemas, whereas ISTDP focuses on accessing avoided emotions and resolving unconscious conflicts that contribute to psychological distress. Given that GAD involves complex interactions among cognitive rigidity, emotional avoidance, maladaptive beliefs, and difficulties in emotional processing, comparing these two approaches may provide valuable information regarding their relative effectiveness in addressing specific psychological mechanisms.

Previous research has provided evidence for the effectiveness of both approaches; however, direct comparisons between schema therapy and ISTDP, particularly regarding emotional processing and cognitive flexibility in individuals with GAD, remain limited. Existing findings suggest that both approaches may influence cognitive and emotional mechanisms relevant to anxiety disorders. For example, comparative research has indicated that ISTDP and schema therapy can both improve cognitive flexibility and reduce intolerance of uncertainty among individuals with GAD, although further investigation is required to clarify whether one approach provides superior outcomes in specific domains (16). Similarly, research comparing schema therapy and ISTDP in other clinical populations has demonstrated improvements in emotional regulation following both interventions, supporting the need for comparative investigations across different psychological disorders (17).

In addition to therapeutic mechanisms, individual differences and contextual factors may influence treatment outcomes. Factors such as developmental experiences, attachment patterns, emotional schemas, and personality characteristics can affect how individuals respond to psychological interventions. For example, parental rejection and emotional experiences during development have been associated with anxiety vulnerability through emotional processing mechanisms such as alexithymia (18). Likewise, research has demonstrated associations between maladaptive schemas and social-emotional difficulties in various

populations, emphasizing the importance of addressing underlying cognitive-affective structures during treatment (19). Furthermore, emerging evidence suggests that treatment outcomes in GAD may be influenced by neurobehavioral characteristics and individual differences in emotional responses, highlighting the importance of personalized therapeutic approaches (20).

Despite the growing evidence supporting psychological interventions for GAD, several questions remain regarding the comparative effectiveness of different therapeutic models in improving specific cognitive and emotional processes. Emotional processing and cognitive flexibility are particularly important outcomes because they represent core mechanisms involved in adaptation, emotional regulation, and long-term psychological resilience. Identifying interventions that effectively enhance these capacities may contribute to more targeted and evidence-based treatment planning for individuals with GAD. Therefore, examining whether schema therapy or ISTDP produces greater improvements in these domains may provide meaningful clinical implications for therapists working with individuals experiencing chronic anxiety.

Therefore, the present study aimed to compare the effectiveness of schema therapy and intensive short-term dynamic psychotherapy on emotional processing and cognitive flexibility in middle-aged men with generalized anxiety disorder.

Methods and Materials

Study Design and Participants

This applied study employed a quasi-experimental design with a pretest–posttest framework, a three-month follow-up assessment, and two experimental groups alongside a control group. The study population consisted of all middle-aged men aged 30 to 45 years with generalized anxiety disorder who had visited psychiatric clinics in Neyshabur City with the primary complaint of generalized anxiety disorder during the first six months of 2025. Considering the quasi-experimental nature of the study with two intervention groups and one control group, and based on the recommendations of Cook et al. (2006), a final sample size of 45 participants was determined, accounting for the possibility of participant attrition. Participants were recruited using convenience sampling. Accordingly, the researcher initially identified eligible individuals among the clients referred to psychiatric clinics in Neyshabur City during the specified period who presented with generalized anxiety symptoms. After providing a complete explanation of the study objectives and procedures and obtaining written informed consent, participants underwent initial screening. The final diagnosis of generalized anxiety disorder was established through two procedures: a structured clinical interview based on the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), conducted by a trained clinical psychologist (First et al., 2015), and obtaining a score of 10 or higher on the Generalized Anxiety Disorder Scale (GAD-7) developed by Spitzer et al. (2006). Following diagnosis, eligible participants were randomly assigned using simple random allocation to three groups of 15 individuals each, including two experimental groups and one control group. The experimental groups received schema therapy and short-term psychodynamic psychotherapy interventions, respectively, while the control group remained on the waiting list.

Data Collection Tools

The Structured Clinical Interview for DSM-5 (SCID-5) was used to establish the diagnosis of generalized anxiety disorder and determine participant eligibility. This structured clinical interview was developed by First et al. (2015) to assess various Axis I and Axis II disorders based on the diagnostic criteria of the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). For Axis I disorders, this instrument is used to diagnose mood disorders, psychotic disorders, substance-related disorders, anxiety disorders, obsessive-compulsive disorders, somatic symptom disorders, eating disorders, and adjustment disorders. The complete administration of the structured clinical interview typically requires 30 to 60 minutes in a single session. First et al. (2015) reported a kappa coefficient greater than 0.40 for lifetime diagnostic agreement obtained through this instrument (except for anxiety disorders). Moreover, test–retest reliability coefficients for diagnoses obtained through this instrument ranged from 0.45 to 0.69. In Iran, Shabani et al. (2021) reported kappa coefficients greater than 0.40 for most diagnoses assessed using this instrument and reported test–retest reliability coefficients ranging from 0.47 to 0.77.

The Generalized Anxiety Disorder Scale (GAD-7) developed by Spitzer et al. (2006) was used as a screening measure for generalized anxiety disorder symptoms. This self-report instrument consists of seven items assessing symptoms of generalized anxiety disorder experienced during the previous two weeks. Items are rated on a four-point Likert scale ranging from 0 (“not at all”) to 3 (“nearly every day”), with total scores ranging from 0 to 21. Higher scores indicate a greater likelihood and severity of generalized anxiety symptoms. Scores of 0–4 indicate minimal anxiety, 5–9 indicate mild anxiety, 10–14 indicate moderate anxiety, and 15–21 indicate severe anxiety. A cutoff score of 10 has been identified as an appropriate threshold for detecting probable cases of generalized anxiety disorder (Spitzer et al., 2006). Regarding psychometric properties, the original study reported a Cronbach’s alpha coefficient of 0.92, indicating excellent internal consistency (Spitzer et al., 2006). In Iran, Omid et al. (2018) reported a Cronbach’s alpha coefficient of 0.87 for the Persian version and demonstrated its convergent validity through significant positive correlations with the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983) and the Penn State Worry Questionnaire (Meyer et al., 1990), with correlation coefficients of $r = 0.52$ and $r = 0.60$, respectively.

The Emotional Processing Scale developed by Baker et al. (2010) was used to assess participants’ emotional processing abilities. The original version of this scale consisted of 48 items; however, Baker et al. (2010) developed a shortened 25-item version, which was used in the present study. Each item is rated on a five-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”), with total scores ranging from 25 to 125. The scale evaluates emotional processing across five dimensions, including emotional regulation difficulties, suppression, improvement of emotional experiences, signs of unprocessed emotion, and avoidance behaviors (Baker et al., 2010). The developers reported Cronbach’s alpha and test–retest reliability coefficients of 0.92 and 0.79, respectively. To examine internal validity, Pearson correlation coefficients between the subscales and the total score were calculated, and all correlations were statistically significant at the $p < .01$ level. In Iran, Gholami and Abolmaali Alhosseini (2020) examined the psychometric properties of the Persian version and reported a test–retest reliability coefficient of 0.93 and a Cronbach’s alpha coefficient of 0.91 for the total scale. Furthermore, the Pearson correlations between emotional

processing subscales and the total score were significant at the $p < .01$ level, supporting the internal validity of the instrument.

The Cognitive Flexibility Inventory developed by Dennis and Vander Wal (2010) was used to measure cognitive flexibility. The original version consists of 20 items and assesses two dimensions: perception of multiple alternatives and perception of controllability. During the validation process of the Persian version, item 20 was removed due to a factor loading below 0.30, resulting in a 19-item version comprising two factors: problem-solving processing and perception of controllability. Items are rated on a seven-point Likert scale ranging from 1 (“strongly disagree”) to 7 (“strongly agree”), and all items related to the perception of controllability factor are reverse-scored. Total scores range from 19 to 133, with higher scores indicating greater cognitive flexibility and lower scores reflecting reduced flexibility (Dennis & Vander Wal, 2010). In the original validation study, construct validity was confirmed through exploratory factor analysis, and the two-factor structure explained 43.19% of the total variance. The Cronbach’s alpha coefficient was 0.91 for the total scale, 0.91 for the perception of controllability factor, and 0.84 for the perception of alternatives factor. Test–retest reliability coefficients over a two-week interval were reported as 0.75, 0.77, and 0.71, respectively (Dennis & Vander Wal, 2010). In Iran, Kohandani and Abolmaali Alhosseini examined the validity and reliability of this questionnaire. Confirmatory factor analysis supported the two-factor structure in the Iranian sample, all factor loadings exceeded 0.30, and Cronbach’s alpha coefficients were 0.78 for problem-solving processing and 0.81 for perception of controllability, indicating satisfactory validity and reliability of the instrument in the Iranian population.

Interventions

The schema therapy intervention was conducted based on the principles and procedures of schema therapy developed by Young and colleagues. The intervention consisted of 12 weekly sessions, each lasting 90 minutes. The therapeutic process focused on identifying and modifying early maladaptive schemas, increasing awareness of dysfunctional cognitive and emotional patterns, recognizing schema-driven coping responses, and developing healthier cognitive, emotional, and behavioral strategies. During the initial sessions, participants were introduced to the concept of schemas, emotional needs, schema formation, and the relationship between early experiences and current psychological difficulties. Subsequent sessions focused on identifying dominant maladaptive schemas associated with generalized anxiety, cognitive restructuring of dysfunctional beliefs, experiential techniques such as imagery rescripting, dialogue with schema modes, emotional regulation training, and development of adaptive coping mechanisms. The final sessions emphasized strengthening the healthy adult mode, consolidating therapeutic gains, preventing relapse, and maintaining improvements after treatment.

The short-term psychodynamic psychotherapy intervention was conducted according to the intensive short-term dynamic psychotherapy framework. The intervention included 12 weekly sessions of 90 minutes each and aimed to address unconscious emotional conflicts, maladaptive interpersonal patterns, and defensive mechanisms underlying anxiety symptoms. Initial sessions focused on establishing the therapeutic alliance, identifying central emotional conflicts, exploring anxiety triggers, and increasing awareness of emotional experiences. Middle sessions emphasized emotional activation, identification of defensive patterns, processing avoided emotions, and facilitating corrective emotional experiences within the

therapeutic relationship. The final sessions focused on integrating emotional insights, strengthening adaptive coping strategies, consolidating psychological changes, and preparing participants for termination of therapy. This approach was designed to enhance emotional awareness, improve emotional processing, and promote psychological flexibility through deeper exploration of underlying affective experiences.

Data Analysis

Data were analyzed using mixed analysis of variance (ANOVA) with repeated measures. Descriptive statistics, including means and standard deviations, were calculated to summarize demographic characteristics and study variables. Prior to conducting inferential analyses, assumptions of parametric tests were examined, including the normality of data distribution using the Shapiro–Wilk test, homogeneity of variances using Levene’s test, and the assumption of sphericity using Mauchly’s test. When the sphericity assumption was violated, the Greenhouse–Geisser correction was applied. The mixed ANOVA was used to examine the effects of time, group membership, and the interaction between time and group on emotional processing and cognitive flexibility across the pretest, posttest, and three-month follow-up assessments. Post hoc comparisons were performed using appropriate adjustment procedures to identify differences between groups. All statistical analyses were conducted using SPSS software, and the significance level was set at $p < .05$.

Findings and Results

The descriptive and inferential findings of the study are presented in this section. First, descriptive statistics, including means and standard deviations of emotional processing and cognitive flexibility scores across the three measurement stages (pretest, posttest, and three-month follow-up), are reported. Subsequently, the assumptions required for repeated-measures analysis of variance are examined, followed by the results of the mixed analysis of variance and post hoc comparisons.

Table 1. Descriptive statistics of emotional processing scores across the study groups

Variable	Assessment Stage	Schema Therapy Mean (SD)	Short-Term Psychodynamic Psychotherapy Mean (SD)	Control Group Mean (SD)
Emotional Processing	Pretest	72.86 (2.69)	71.60 (2.31)	72.20 (3.03)
	Posttest	83.60 (2.26)	82.53 (2.29)	71.26 (3.76)
	Follow-up	85.46 (2.64)	83.80 (2.48)	72.93 (3.12)
Cognitive Flexibility	Pretest	47.60 (1.84)	47.06 (2.57)	47.80 (2.07)
	Posttest	54.86 (2.77)	52.93 (3.45)	46.53 (2.75)
	Follow-up	55.13 (2.29)	53.66 (3.17)	47.46 (2.55)

As shown in Table 1, the mean and standard deviation values of emotional processing scores were calculated for the schema therapy group, short-term psychodynamic psychotherapy group, and control group across the pretest, posttest, and follow-up stages. In the schema therapy group, the mean emotional processing score increased from 72.86 in the pretest stage to 83.60 in the posttest stage and 85.46 in the follow-up stage. Similarly, participants receiving short-term psychodynamic psychotherapy showed an increase in emotional processing scores from 71.60 at pretest to 82.53 at posttest and 83.80 at follow-up. In contrast, the control group demonstrated relatively stable emotional processing scores, with a slight decrease at posttest and a return toward baseline levels at follow-up. Regarding cognitive flexibility, the

schema therapy group showed an increase from a pretest mean of 47.60 to 54.86 at posttest and 55.13 at follow-up. The short-term psychodynamic psychotherapy group also demonstrated improvement, with scores increasing from 47.06 at pretest to 52.93 at posttest and 53.66 at follow-up. However, the control group showed no meaningful improvement, with scores remaining approximately unchanged across the three assessment stages.

The assumptions underlying the mixed analysis of variance were examined before conducting the main analyses. The Shapiro–Wilk test was used to evaluate the normality of data distribution, and the results indicated that none of the emotional processing or cognitive flexibility scores at any assessment stage in any of the three groups significantly deviated from normal distribution ($p > .05$). Therefore, the assumption of normality was satisfied. Levene’s test also indicated that the assumption of homogeneity of variances was met across groups ($p > .05$). Furthermore, Mauchly’s test of sphericity was examined for the repeated-measures factor, and where necessary, the Greenhouse–Geisser correction was applied. These findings confirmed that the data met the necessary assumptions for conducting mixed analysis of variance.

Table 2. Results of mixed analysis of variance for emotional processing and cognitive flexibility

Dependent Variable	Source of Variation	Sum of Squares	df	Mean Square	F	p	Partial Eta Squared
Emotional Processing	Time	724.56	2	362.28	68.74	<.001	.62
	Group	956.84	2	478.42	52.31	<.001	.71
	Time × Group Interaction	842.17	4	210.54	39.96	<.001	.66
Cognitive Flexibility	Time	521.38	2	260.69	57.82	<.001	.58
	Group	734.92	2	367.46	44.63	<.001	.68
	Time × Group Interaction	615.74	4	153.94	34.27	<.001	.61

The results of the mixed analysis of variance presented in Table 2 demonstrated significant main effects of time, group, and the interaction between time and group for both emotional processing and cognitive flexibility. For emotional processing, the main effect of time was significant, indicating that participants’ scores changed significantly across the three assessment stages ($F = 68.74$, $p < .001$, $\eta^2 = .62$). The significant group effect ($F = 52.31$, $p < .001$, $\eta^2 = .71$) indicated differences among the schema therapy, short-term psychodynamic psychotherapy, and control groups. Furthermore, the significant time × group interaction ($F = 39.96$, $p < .001$, $\eta^2 = .66$) demonstrated that changes in emotional processing over time differed depending on group membership. Regarding cognitive flexibility, significant effects were also observed for time ($F = 57.82$, $p < .001$, $\eta^2 = .58$), group ($F = 44.63$, $p < .001$, $\eta^2 = .68$), and time × group interaction ($F = 34.27$, $p < .001$, $\eta^2 = .61$), indicating that both therapeutic interventions produced significant improvements compared with the control condition.

Table 3. Bonferroni post hoc comparisons for emotional processing and cognitive flexibility

Variable	Group	Comparison	Mean Difference	Standard Error	p
Emotional Processing	Schema Therapy	Pretest–Posttest	-10.74	1.44	<.001
		Pretest–Follow-up	-12.60	1.31	<.001
		Posttest–Follow-up	-1.86	0.82	.072
	Short-Term Psychodynamic Psychotherapy	Pretest–Posttest	-10.93	1.44	<.001
		Pretest–Follow-up	-12.20	1.34	<.001

		Posttest–Follow-up	-1.27	0.82	.114
Cognitive Flexibility	Schema Therapy	Pretest–Posttest	-7.26	0.93	<.001
		Pretest–Follow-up	-7.53	0.81	<.001
		Posttest–Follow-up	-0.26	1.01	1.000
	Short-Term Psychodynamic Psychotherapy	Pretest–Posttest	-5.86	0.93	<.001
		Pretest–Follow-up	-6.60	0.81	<.001
		Posttest–Follow-up	-0.26	1.01	1.000

The Bonferroni post hoc comparisons presented in Table 3 indicated significant differences between pretest and posttest as well as between pretest and follow-up scores for emotional processing in both intervention groups ($p < .001$). Specifically, participants receiving schema therapy and short-term psychodynamic psychotherapy demonstrated significant increases in emotional processing scores following treatment, and these improvements were maintained at the three-month follow-up assessment. However, the differences between posttest and follow-up scores were not statistically significant in either intervention group ($p > .05$), suggesting the stability of therapeutic effects over time. The post hoc results for cognitive flexibility also revealed significant differences between pretest and posttest and between pretest and follow-up in both intervention groups ($p < .001$). These findings indicate that both interventions significantly enhanced cognitive flexibility compared with baseline levels. Nevertheless, no significant differences were observed between posttest and follow-up scores ($p > .05$), demonstrating that the improvements achieved after treatment remained stable during the follow-up period. Overall, the findings suggest that schema therapy and short-term psychodynamic psychotherapy were both effective in improving emotional processing and cognitive flexibility; however, the comparisons did not reveal a statistically significant superiority of either therapeutic approach over the other.

Discussion and Conclusion

The present study was conducted with the aim of comparing the effectiveness of schema therapy and intensive short-term dynamic psychotherapy on emotional processing and cognitive flexibility in middle-aged men with generalized anxiety disorder. The findings demonstrated that both therapeutic approaches significantly improved emotional processing and cognitive flexibility compared with the control group. The results of the mixed analysis of variance indicated significant main effects of time, group, and time $\times$ group interaction for both dependent variables, suggesting that participation in either intervention resulted in meaningful psychological changes over the course of treatment. Furthermore, the follow-up findings indicated that the therapeutic effects remained stable three months after the completion of interventions. Although both schema therapy and intensive short-term dynamic psychotherapy produced significant improvements, post hoc comparisons revealed no statistically significant differences between the two approaches, indicating that neither intervention was superior to the other in enhancing emotional processing or cognitive flexibility.

The improvement observed in emotional processing following schema therapy can be explained by the theoretical foundations of this approach. Schema therapy conceptualizes psychological distress as being maintained by early maladaptive schemas that influence emotional interpretation, coping responses, and

interpersonal functioning. Individuals with GAD often experience persistent worry because maladaptive cognitive-emotional patterns prevent them from effectively identifying, processing, and integrating emotional experiences. Schema therapy directly targets these patterns by increasing awareness of maladaptive schemas, modifying dysfunctional beliefs, and promoting healthier emotional responses. The significant improvement in emotional processing among participants receiving schema therapy is consistent with previous findings showing that schema-based interventions can reduce emotional difficulties and enhance adaptive emotional regulation in individuals with anxiety-related problems. Previous research has demonstrated that schema therapy can improve emotional self-regulation and psychological flexibility by modifying rigid cognitive and emotional patterns (9). Similarly, studies have reported that schema therapy effectively reduces cognitive avoidance and symptoms of GAD, suggesting that addressing maladaptive emotional processing mechanisms can contribute to anxiety reduction (8).

The observed increase in cognitive flexibility among participants receiving schema therapy is also consistent with previous empirical evidence. Cognitive rigidity is considered one of the important maintaining factors in GAD because individuals with this disorder frequently demonstrate difficulty considering alternative interpretations of situations and modifying maladaptive thoughts. Schema therapy facilitates cognitive flexibility by challenging absolute beliefs, restructuring maladaptive schemas, and strengthening the healthy adult mode. The current finding that schema therapy significantly increased cognitive flexibility aligns with previous research demonstrating that schema therapy improves cognitive flexibility and resilience in individuals with GAD (7). In addition, evidence suggests that maladaptive schemas contribute to reduced psychological flexibility by limiting individuals' ability to adaptively respond to emotional and interpersonal experiences (6). Therefore, modifying these underlying schemas may enhance the capacity to evaluate situations from multiple perspectives and develop more adaptive coping strategies.

The effectiveness of intensive short-term dynamic psychotherapy in improving emotional processing can be explained through its emphasis on accessing avoided emotions and resolving unconscious emotional conflicts. Individuals with GAD frequently engage in excessive worry as a defensive strategy to avoid experiencing painful emotional states. From a psychodynamic perspective, anxiety symptoms may emerge when emotional experiences are inhibited or remain insufficiently processed. ISTDP attempts to reduce emotional avoidance by helping individuals recognize defensive patterns, experience previously avoided emotions, and develop more adaptive emotional integration. The findings of the present study are consistent with previous studies indicating that ISTDP improves emotion regulation and reduces emotional difficulties among individuals with psychological disorders. For example, research has shown that ISTDP is effective in reducing difficulties in emotion regulation among individuals experiencing psychological distress (13). Similarly, ISTDP has been found to improve emotion regulation and reduce interpersonal difficulties among individuals with anxiety disorders, supporting the role of this approach in enhancing emotional processing capacities (12).

The significant improvement in cognitive flexibility following ISTDP may also be understood through the mechanisms of increased emotional awareness and psychological insight. Although ISTDP is not primarily a cognitive restructuring approach, improving access to emotional experiences and reducing defensive avoidance can indirectly facilitate more flexible thinking patterns. When individuals become less

constrained by unresolved emotional conflicts and defensive responses, they may develop greater capacity to reconsider experiences, tolerate ambiguity, and respond adaptively to stressful situations. The findings of the present study are supported by previous evidence indicating that short-term psychodynamic approaches can improve psychological functioning through changes in emotional awareness and adaptive coping processes. A randomized controlled trial demonstrated that integrative interventions incorporating short-term psychodynamic psychotherapy significantly reduced GAD symptoms and improved psychological functioning (14). Furthermore, research comparing combined cognitive-behavioral and short-term psychodynamic approaches has shown that psychodynamic interventions contribute to increased ego strength and reduced generalized anxiety symptoms, highlighting their effectiveness in addressing deeper emotional processes associated with anxiety (15).

The finding that both schema therapy and ISTDP produced comparable improvements in emotional processing and cognitive flexibility is clinically meaningful. Although these approaches differ in theoretical assumptions and therapeutic techniques, they share several mechanisms of change. Both interventions encourage greater awareness of internal experiences, reduce maladaptive avoidance, and promote healthier emotional responses. Schema therapy achieves these goals primarily through identification and modification of maladaptive schemas, whereas ISTDP emphasizes emotional experiencing and resolution of underlying conflicts. Previous comparative research has similarly suggested that both schema therapy and ISTDP can improve important psychological outcomes among individuals with GAD. For instance, a comparative study found that both intensive short-term dynamic psychotherapy and schema therapy were effective in improving cognitive flexibility and reducing intolerance of uncertainty among individuals with GAD (16). These findings suggest that different therapeutic pathways may lead to similar improvements by influencing overlapping psychological mechanisms.

The maintenance of therapeutic effects at the three-month follow-up stage further supports the durability of both interventions. The continued improvement observed after treatment completion indicates that participants may have internalized therapeutic skills and developed more adaptive emotional and cognitive patterns. Schema therapy may contribute to long-term change by modifying deeply established schemas and strengthening adaptive coping modes, while ISTDP may produce lasting benefits by facilitating emotional integration and reducing reliance on defensive mechanisms. Similar findings have been reported in previous research showing sustained improvements following psychological interventions targeting emotional regulation and cognitive processes. Studies examining schema-focused interventions have demonstrated improvements in cognitive flexibility and emotional regulation beyond immediate treatment periods, supporting the long-term effectiveness of schema-based approaches (10). Likewise, evidence from psychodynamic treatment research indicates that short-term psychodynamic psychotherapy can produce meaningful and lasting improvements in psychological symptoms and emotional functioning (11).

The current findings should also be interpreted within the broader context of factors contributing to GAD development and maintenance. Research indicates that anxiety disorders are influenced by complex interactions among developmental experiences, emotional processing difficulties, cognitive vulnerabilities, and maladaptive beliefs. Early emotional experiences and attachment-related factors may contribute to the development of maladaptive schemas, which subsequently increase vulnerability to anxiety symptoms (5). Additionally, emotional difficulties such as alexithymia may serve as important mechanisms linking adverse

interpersonal experiences with anxiety symptoms, highlighting the importance of interventions that enhance emotional awareness and processing (18). Therefore, the effectiveness of both therapeutic approaches in the present study may be attributed to their ability to target fundamental emotional and cognitive mechanisms involved in GAD.

Although no significant difference was found between schema therapy and ISTDP, this result does not imply that the approaches are identical. Rather, it suggests that both approaches may be similarly effective for improving the specific outcomes examined in this study. The absence of significant differences may be related to the fact that both interventions address core psychological processes underlying GAD, including emotional avoidance, maladaptive interpretations, and reduced adaptability. Previous research has also emphasized that treatment outcomes in GAD may depend on individual characteristics, symptom patterns, and underlying psychological mechanisms rather than solely on the therapeutic model applied. For example, neurobehavioral responses and individual differences have been identified as important factors influencing treatment outcomes among individuals with GAD (20). Therefore, future research should consider whether specific patient characteristics predict better responses to schema therapy or ISTDP.

Several limitations should be considered when interpreting the findings of this study. First, the sample consisted exclusively of middle-aged men with generalized anxiety disorder who were recruited from psychiatric clinics in one geographical area, which may limit the generalizability of the findings to women, other age groups, and individuals from different cultural or clinical contexts. Second, the sample size was relatively limited, and larger samples may provide more accurate estimates of treatment effects and facilitate subgroup analyses. Third, the study relied primarily on self-report measures, which may be influenced by participants' subjective perceptions and response biases. Fourth, although the three-month follow-up provided information regarding treatment stability, longer follow-up periods are necessary to determine whether the therapeutic effects remain stable over extended periods. Finally, factors such as therapist characteristics, therapeutic alliance, and individual differences in treatment engagement were not examined and may have influenced treatment outcomes.

Future studies should investigate the comparative effectiveness of schema therapy and intensive short-term dynamic psychotherapy using larger and more diverse samples, including women, different age groups, and individuals from various cultural backgrounds. Researchers are also encouraged to examine longer follow-up periods to evaluate the durability of therapeutic effects over time. Future investigations may benefit from incorporating behavioral and physiological measures alongside self-report instruments to provide a more comprehensive assessment of emotional processing and cognitive flexibility. Additionally, identifying individual characteristics that predict better responses to each therapeutic approach may contribute to the development of personalized treatment strategies for generalized anxiety disorder. Further research may also examine the mediating mechanisms through which schema therapy and ISTDP influence anxiety symptoms, emotional processing, and cognitive flexibility.

The findings of this study suggest that both schema therapy and intensive short-term dynamic psychotherapy can be considered valuable therapeutic options for improving emotional processing and cognitive flexibility in middle-aged men with generalized anxiety disorder. Clinicians may select either approach based on patients' needs, therapeutic preferences, available resources, and therapist expertise. Incorporating interventions that focus on both cognitive patterns and emotional experiences may enhance

treatment outcomes for individuals with persistent anxiety symptoms. Mental health professionals are encouraged to assess patients' cognitive rigidity, emotional avoidance, and maladaptive coping patterns when planning interventions, as addressing these factors may contribute to more comprehensive and sustainable improvements.

Acknowledgments

The authors express their deep gratitude to all participants who contributed to this study.

Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

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

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