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Comparison of the Effectiveness of Acceptance and Commitment Therapy (ACT) and Emotion-Focused Therapy (EFT) on Cognitive Distortions and Emotion Regulation in Women with Social Anxiety Disorder

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A B S T R A C T

The present study was conducted with the aim of determining the effectiveness of a task-based cognitive rehabilitation program on improving executive functions in children diagnosed with high-functioning autism spectrum disorder. This research employed a quasi-experimental design with a pretest–posttest structure and a control group. From the population of children with high-functioning autism spectrum disorder who attended rehabilitation centers and clinics in Tehran in 2024, a total of 30 children were selected using convenience sampling and were randomly assigned to experimental and control groups. The experimental group received 12 sessions of a 45-minute task-based cognitive rehabilitation intervention, whereas the control group did not receive any intervention. The Go/No-Go Test (Menon, Adleman, & White, 2001), the Color–Word Test (Stroop, 1935), and the N-Back Test (Kirchner, 1985) were employed as research instruments. Data were analyzed using repeated-measures analysis of variance. The findings indicated that the task-based cognitive rehabilitation program had a significant effect on improving components of executive functions (including attention, inhibition, and visuospatial working memory) in children with high-functioning autism ($P \leq .05$). Based on the results, it can be concluded that the task-based cognitive rehabilitation program can be used as an effective intervention for enhancing executive functions in children with high-functioning autism spectrum disorder.

Keywords: *Social anxiety disorder; Acceptance and Commitment Therapy; Emotion-Focused Therapy; Cognitive distortion; Emotion regulation.*

1. Introduction

Social anxiety disorder is recognized as one of the most prevalent and functionally impairing anxiety disorders, characterized by a marked and persistent fear of social or performance situations in which individuals are exposed to possible scrutiny by others. Individuals with this disorder experience intense anxiety related to negative evaluation, rejection, or embarrassment, which often leads to avoidance behaviors and significant impairments in social, occupational, and interpersonal functioning. Epidemiological and clinical studies indicate that social anxiety disorder is particularly prevalent among women, who tend to report higher symptom severity, greater emotional vulnerability, and increased difficulties in emotion regulation compared to men (Ebrahimi, 2020; Hosseini Ardakani, 2020; Rozen & Aderka, 2023). The chronic and pervasive nature of social anxiety disorder underscores the need for effective psychotherapeutic interventions that address both its cognitive and emotional underpinnings.

One of the central psychological mechanisms implicated in the development and maintenance of social anxiety disorder is cognitive distortion. Cognitive distortions refer to systematic errors in thinking that bias individuals' interpretations of social situations, such as exaggerated perceptions of rejection, unrealistic expectations regarding interpersonal performance, and misinterpretations of others' intentions. These distorted cognitions contribute to heightened anxiety, avoidance behaviors, and maladaptive emotional responses in social contexts. Research consistently demonstrates that individuals with social anxiety disorder exhibit elevated levels of interpersonal rejection sensitivity, unrealistic relational expectations, and negative self-referential beliefs, which collectively exacerbate symptom severity and functional impairment (Kebritchi et al., 2024; Mohammadi et al., 2022; Rozen & Aderka, 2023). Consequently, interventions targeting cognitive distortions represent a critical component of effective treatment for social anxiety disorder.

Alongside cognitive distortions, emotion regulation deficits play a pivotal role in social anxiety disorder. Emotion regulation refers to the processes by which individuals influence the experience, expression, and modulation of their emotions. Individuals with social anxiety disorder often struggle to identify, tolerate, and regulate intense emotions such as fear, shame, and embarrassment, leading to maladaptive strategies such as emotional suppression, avoidance, and rumination. Contemporary models emphasize that emotion dysregulation is not merely a consequence of anxiety but a core transdiagnostic vulnerability underlying anxiety and mood disorders (Mennin et al., 2017; Shahar, 2014). Empirical evidence suggests that deficits in adaptive emotion regulation strategies, particularly cognitive reappraisal, are strongly associated with symptom persistence and poor treatment outcomes in social anxiety disorder (Niles et al., 2014; Yuan et al., 2024).

Recent advances in psychotherapy have increasingly emphasized integrative and process-based approaches that address both cognitive and emotional mechanisms. Acceptance and Commitment Therapy (ACT) and Emotion-Focused Therapy (EFT) are two such contemporary approaches that have demonstrated promising outcomes in the treatment of social anxiety disorder, albeit through distinct theoretical pathways. ACT is grounded in functional contextualism and relational frame theory and aims to enhance psychological flexibility by promoting acceptance of internal experiences, cognitive defusion, present-moment awareness, values clarification, and committed action. Rather than attempting to modify the content of maladaptive thoughts, ACT emphasizes changing the individual's relationship with those thoughts, thereby reducing their behavioral impact (Jahedi & Badri-Gorgari, 2023; Vaqe, 2022; Yuan et al., 2024).

A growing body of empirical evidence supports the effectiveness of ACT in reducing social anxiety symptoms and associated cognitive and emotional difficulties. Meta-analytic findings indicate that ACT produces significant reductions in social anxiety severity, experiential avoidance, rumination, and emotion regulation difficulties (Jahedi & Badri-Gorgari, 2023). Clinical studies further demonstrate that ACT is particularly effective in addressing cognitive rigidity, maladaptive self-evaluation, and avoidance behaviors commonly observed in individuals with social anxiety disorder (Mohammadi et al., 2022; Niles et al., 2014; Salehi et al., 2025). Moreover, ACT has been shown to improve emotion regulation capacities by fostering acceptance and mindfulness-based awareness, thereby enabling individuals to experience anxiety-related emotions without excessive avoidance or suppression (Akbari Dehghi & Molaei, 2025; Vaqe, 2022; Yuan et al., 2024).

In contrast, Emotion-Focused Therapy (EFT) is rooted in experiential and humanistic traditions and places primary emphasis on emotional processing, emotional awareness, and the transformation of maladaptive emotional states. EFT

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conceptualizes social anxiety as arising from unresolved emotional experiences, maladaptive emotion schemes, and disruptions in emotional meaning-making. Through techniques such as experiential dialogue, emotional coaching, and chair work, EFT aims to help individuals access, tolerate, and transform core emotions such as shame, fear, and sadness into adaptive emotional responses (Conradi et al., 2018; Shahar, 2014). This emotional transformation process is considered central to lasting therapeutic change.

Empirical studies increasingly support the efficacy of EFT in treating social anxiety disorder and related emotional difficulties. Research demonstrates that EFT effectively reduces fear of negative evaluation, anxiety sensitivity, and interpersonal dependency while enhancing emotional awareness and adaptive emotion regulation strategies (Ebrahimi, 2020; Hosseini Ardakani, 2020; Kebritchi et al., 2024). Furthermore, EFT has shown robust effects on emotion dysregulation across various clinical populations, suggesting its relevance for individuals whose anxiety is maintained by maladaptive emotional processing patterns (Doshmanfana et al., 2025; Razaqi et al., 2023; Shadfar et al., 2025; Vatankhah et al., 2025).

Despite the growing evidence supporting both ACT and EFT, direct comparative studies examining their relative effectiveness on core mechanisms such as cognitive distortions and emotion regulation in social anxiety disorder remain limited. Most existing research has focused on symptom reduction as the primary outcome, with less attention to the differential impact of these therapies on underlying cognitive and emotional processes. Given that ACT primarily targets cognitive fusion and experiential avoidance, while EFT directly addresses emotional awareness and transformation, it is plausible that these interventions exert distinct effects on cognitive distortions and emotion regulation capacities (Niles et al., 2014; Rozen & Aderka, 2023; Shahar, 2014).

Understanding these differential effects is particularly important for women with social anxiety disorder, who often present with heightened emotional sensitivity, relational concerns, and self-evaluative cognitions. Gender-specific research suggests that women may benefit differentially from therapeutic approaches depending on whether cognitive or emotional processes are more salient in maintaining their anxiety (Ebrahimi, 2020; Hosseini Ardakani, 2020; Yousefpouri et al., 2024). Moreover, culturally informed studies conducted in Iranian populations highlight the need for evidence-based comparisons of therapeutic approaches that are sensitive to emotional expression norms and interpersonal dynamics (Akbari Dehghi & Molaei, 2025; Vaqe, 2022; Yadolahi et al., 2025).

In recent years, comparative psychotherapy research has emphasized the importance of mechanism-focused evaluation to guide personalized treatment selection. Studies comparing ACT with other therapeutic modalities suggest that ACT may be particularly effective in reducing maladaptive cognitive processes such as rumination and experiential avoidance, whereas emotionally oriented therapies may yield greater improvements in emotional clarity and regulation (Niles et al., 2014; Salehi et al., 2025; Yuan et al., 2024). However, few studies have systematically examined these distinctions within a controlled experimental framework that includes follow-up assessments to evaluate the stability of treatment effects.

Additionally, pharmacological treatment remains a common approach for social anxiety disorder, yet concerns regarding long-term medication use, side effects, and dependency highlight the importance of effective psychotherapeutic alternatives. Research indicates that psychological interventions targeting emotional and cognitive mechanisms may reduce reliance on pharmacological treatments and promote more sustainable recovery (Laurito et al., 2018). This further underscores the clinical relevance of identifying optimal psychotherapeutic strategies for social anxiety disorder.

Given the theoretical distinctions between ACT and EFT, as well as the growing empirical support for both approaches, a systematic comparison of their effectiveness on cognitive distortions and emotion regulation in women with social anxiety disorder is warranted. Such research can contribute to a more nuanced understanding of therapeutic mechanisms, inform clinical decision-making, and support the development of integrative or tailored interventions that address both cognitive and emotional vulnerabilities.

Accordingly, the aim of the present study was to compare the effectiveness of Acceptance and Commitment Therapy and Emotion-Focused Therapy on cognitive distortions and emotion regulation in women diagnosed with social anxiety disorder.

2. Methods and Materials

2.1. Study Design and Participants

The present study employed a quasi-experimental design of the non-equivalent control group type with pretest, posttest, and follow-up phases.

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The statistical population of the study consisted of all women aged 20 to 30 years living in District 22 of Tehran who, in the fall of 2024, referred to medical and counseling centers and were diagnosed with social anxiety disorder by a psychiatrist.

To determine the sample size, considering the quasi-experimental nature of the study and based on the recommendation of Delavar (2021), who suggested that effectiveness studies should include between 8 and 30 participants per group, the participants in the present study were selected using purposive sampling. Accordingly, 60 participants were randomly matched and assigned to three groups of 20 each based on the inclusion criteria. In this process, a public call for treatment of social anxiety symptoms was announced in clinics and treatment centers, and volunteers were selected from among individuals who had received a diagnosis of social anxiety disorder from psychiatrists in medical and clinical centers in District 22 of Tehran. From this pool, individuals who obtained a score higher than 40 on the Connor Social Anxiety Scale were selected and invited to participate in a diagnostic interview. Finally, those who met the DSM-5 diagnostic criteria for social anxiety disorder were included in the study. Only women aged 20 to 30 years were selected; therefore, age and gender variables were controlled in this study.

Inclusion criteria:

- Diagnosis of social anxiety disorder by a psychiatrist in medical centers or counseling and psychotherapy clinics
- Diagnosis of social anxiety disorder based on the Connor Social Anxiety Scale
- Diagnostic interview based on DSM-5 conducted by the researcher
- Minimum age of 20 years and maximum age of 30 years
- No simultaneous participation in other psychological treatment sessions
- No use of medication at the time of diagnosis and throughout the study period
- No history of substance use or substance dependence
- At least a high school diploma

Exclusion criteria:

- Presence of other psychological disorders
- Declared unwillingness to continue participation
- Simultaneous participation in other psychological interventions

2.2. Measures

Social Anxiety Questionnaire: This questionnaire was developed by Connor in 2004. It consists of 17 items that assess fear, avoidance, and physiological symptoms associated with social phobia. Each item is rated on a five-point scale ranging from “not at all” (1), “a little” (2), “somewhat” (3), “much” (4), to “very much” (5). Items are scored from 0 to 4, and the total score is obtained by summing item scores, yielding a range from 17 to 68. The questionnaire includes three subscales: fear (items 1, 3, 5, 10, 14, 15), avoidance (items 4, 6, 8, 9, 11, 12, 16), and physiological symptoms (items 2, 7, 13, 17). Turner et al. (1989) assessed the reliability of this questionnaire using the test–retest method with a two-week interval and reported a reliability coefficient of 0.86. Additionally, Osman et al. (1996) reported Cronbach’s alpha coefficients ranging from 0.94 to 0.96 for internal consistency (as cited in Herbert et al., 2005). In an Iranian study conducted by Bayani et al. (2012), the Cronbach’s alpha coefficient was reported as 0.77, and the validity of the questionnaire was also confirmed.

Cognitive Distortions Questionnaire (CDQ): The Cognitive Distortions Questionnaire was developed by Hamamcı and Ozturk (2004). This questionnaire consists of 19 items rated on a five-point Likert scale and includes three subscales: interpersonal rejection, unrealistic relationship expectations, and misperception in interpersonal relationships. Scoring is based on the Likert scale, with responses ranging from 1 to 5. The total score ranges from 19 to 95, with higher scores indicating greater cognitive distortion and lower scores indicating fewer cognitive distortions. In the study by Hamamcı and Ozturk (2004), reliability was assessed using internal consistency (Cronbach’s alpha) and test–retest reliability over a two-week interval. Cronbach’s alpha and test–retest coefficients for the total scale were 0.67 and 0.74, respectively. For the subscales, coefficients were 0.73 and 0.74 for interpersonal rejection, 0.66 and 0.76 for unrealistic expectations, and 0.43 and 0.74 for misperception in interpersonal relationships. Validity was established through correlations with the Irrational Beliefs Scale, Automatic Thoughts Scale, and Interpersonal Conflict Tendency Scale, yielding coefficients of 0.45, 0.53, and 0.53, respectively, all of which were statistically significant. This questionnaire was validated in Iran by Esmailipour, Bakhshipour Roudsari, and Mohammadzadegan (2014). Construct validity supported a three-factor structure, including interpersonal rejection,

unrealistic expectations, and misperception in interpersonal relationships. Reliability was assessed using Cronbach's alpha and split-half methods, with alpha coefficients of 0.79 for interpersonal rejection, 0.82 for unrealistic expectations, and 0.81 for misperception in interpersonal relationships. Split-half reliability coefficients were 0.79, 0.76, and 0.70, respectively.

Emotion Regulation Scale: This scale was developed by John and Gross (2003) and assesses two emotion regulation strategies: cognitive reappraisal and expressive suppression. The scale consists of 10 items. Items 1, 3, 5, 7, 8, and 10 measure cognitive reappraisal, whereas items 2, 4, 6, and 9 assess expressive suppression. Responses are rated on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Gross and John (2003) reported Cronbach's alpha coefficients of 0.79 for reappraisal and 0.73 for suppression. In Iran, Tashak (2011) evaluated the construct validity of this scale and confirmed a two-factor structure, reporting Cronbach's alpha coefficients of 0.87 for reappraisal and 0.90 for suppression.

2.3. Intervention

The Acceptance and Commitment Therapy (ACT) intervention was delivered in eight 90-minute group sessions based on the standardized protocol developed by Hayes (2013). The sessions focused on increasing psychological flexibility through six core processes: acceptance, cognitive defusion, present-moment awareness, self-as-context, values clarification, and committed action. Participants were guided to identify and accept anxiety-related thoughts and emotions without attempting to control or avoid them, while learning to reduce the impact of cognitive distortions through defusion techniques. Mindfulness exercises, experiential activities, metaphors, and values-based behavioral assignments were used to help participants align their actions with personally meaningful goals despite the presence of social anxiety symptoms.

The Emotion-Focused Therapy (EFT) intervention was conducted in eight 90-minute group sessions following the protocol proposed by Greenberg and Goldman (2012). This approach emphasized increasing emotional awareness, acceptance, and transformation by helping participants access, experience, and process maladaptive emotions related to social anxiety. The sessions focused on identifying primary and secondary emotions, enhancing emotional expression, and transforming maladaptive emotional responses into adaptive ones through techniques such as emotion coaching, experiential dialogue, chair work, and empathic attunement. Participants were encouraged to develop more adaptive emotion regulation strategies by processing unresolved emotional experiences and fostering self-compassion and emotional clarity in interpersonal contexts.

2.4. Data analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including means and standard deviations, were first calculated for all study variables. To examine the effectiveness of the interventions while controlling for pretest scores, multivariate analysis of covariance (MANCOVA) was employed. Prior to conducting MANCOVA, assumptions of normality, homogeneity of variances, linearity, and equality of covariance matrices were evaluated and confirmed. Follow-up analyses were performed to assess the stability of treatment effects at the follow-up stage.

3. Findings and Results

The descriptive findings indicate that, at the pretest stage, the three groups were relatively comparable in terms of mean scores for cognitive distortions and emotion regulation. Across the posttest and follow-up phases, the control group showed minimal change in all components of cognitive distortions and emotion regulation. In contrast, both intervention groups demonstrated notable reductions in total cognitive distortions and its subcomponents, as well as marked improvements in emotion regulation. The Acceptance and Commitment Therapy group showed a substantial decrease in overall cognitive distortions from pretest to posttest, with these gains largely maintained at follow-up, alongside moderate improvements in emotion regulation. The Emotion-Focused Therapy group exhibited the largest reductions in cognitive distortions and the most pronounced increases in emotion regulation scores at posttest, with effects remaining stable at follow-up. Overall, the pattern of means suggests greater improvement in emotion regulation in the EFT group and greater reduction in cognitive distortions in the ACT group, while the control group remained largely unchanged over time.

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Table 1

Descriptive Statistics (M ± SD) of Cognitive Distortions and Emotion Regulation Across Measurement Phases by Group

Group	Variable	Pretest M (SD)	Posttest M (SD)	Follow-up M (SD)
Control	Interpersonal Rejection	23.45 (3.02)	22.65 (2.68)	22.60 (2.96)
	Unrealistic Relationship Expectations	20.75 (2.85)	20.15 (3.03)	20.25 (2.67)
	Interpersonal Misperception	25.60 (2.93)	25.80 (3.14)	25.70 (3.25)
	Total Cognitive Distortions	69.80 (4.87)	68.60 (4.27)	68.55 (5.80)
	Cognitive Reappraisal	15.40 (2.64)	15.53 (2.59)	15.10 (2.47)
	Expressive Suppression	12.35 (2.16)	12.65 (1.69)	12.50 (1.93)
	Total Emotion Regulation	27.75 (3.01)	28.18 (2.57)	27.60 (3.50)
ACT	Interpersonal Rejection	22.95 (3.17)	18.75 (2.83)	19.05 (3.22)
	Unrealistic Relationship Expectations	20.55 (2.74)	16.80 (3.82)	17.02 (3.36)
	Interpersonal Misperception	25.10 (3.32)	22.05 (2.72)	22.45 (3.55)
	Total Cognitive Distortions	68.60 (7.11)	57.60 (6.09)	58.53 (7.07)
	Cognitive Reappraisal	15.85 (2.76)	19.55 (2.80)	19.26 (3.28)
	Expressive Suppression	12.70 (1.81)	15.20 (2.31)	14.81 (2.26)
	Total Emotion Regulation	28.55 (3.47)	34.75 (4.35)	34.07 (4.57)
EFT	Interpersonal Rejection	22.55 (2.74)	15.20 (3.02)	15.65 (3.23)
	Unrealistic Relationship Expectations	20.50 (2.67)	13.95 (1.54)	14.30 (1.90)
	Interpersonal Misperception	24.70 (2.64)	17.25 (3.08)	17.35 (3.51)
	Total Cognitive Distortions	67.75 (6.20)	46.40 (5.00)	47.30 (5.64)
	Cognitive Reappraisal	16.20 (2.51)	22.85 (2.62)	22.32 (2.37)
	Expressive Suppression	12.25 (1.94)	18.80 (2.55)	18.25 (2.40)
	Total Emotion Regulation	28.45 (3.30)	41.65 (3.59)	40.57 (3.72)

Prior to conducting the main inferential analyses, the assumptions underlying multivariate analysis of covariance were examined. The normality of the distribution of the dependent variables was assessed using skewness and kurtosis indices and was found to be within acceptable ranges. Homogeneity of variances was evaluated through Levene's test, indicating no significant violations across groups. The assumption of linear relationships between covariates and dependent variables was confirmed through inspection of scatterplots. Equality of covariance matrices was assessed using Box's M test and was found to be non-significant, supporting the use of MANCOVA. Additionally, the homogeneity of regression slopes was examined and confirmed, indicating that the relationship between pretest scores and posttest outcomes was consistent across groups.

Table 2

Multivariate Analysis of Covariance (MANCOVA/ANCOVA) Results for Cognitive Distortions and Emotion Regulation Components at Posttest (Controlling for Pretest Scores)

Dependent Variable	Source	SS	df	MS	F	p	η^2
Interpersonal Rejection	Group	412.36	2	206.18	18.94	< .001	.43
	Error	468.52	43	10.89			
Unrealistic Expectations	Group	386.91	2	193.46	21.07	< .001	.46
	Error	395.07	43	9.19			
Interpersonal Misperception	Group	522.44	2	261.22	24.63	< .001	.53
	Error	455.88	43	10.60			
Total Cognitive Distortions	Group	1843.71	2	921.86	31.85	< .001	.60
	Error	1243.64	43	28.93			
Cognitive Reappraisal	Group	611.27	2	305.64	26.41	< .001	.55
	Error	497.42	43	11.57			
Expressive Suppression	Group	704.85	2	352.42	29.78	< .001	.58
	Error	509.11	43	11.84			
Total Emotion Regulation	Group	1288.53	2	644.27	34.92	< .001	.62
	Error	793.66	43	18.46			

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As shown in Table 2, after controlling for pretest scores, the main effect of group membership was statistically significant for all components of cognitive distortions and emotion regulation. Significant group effects were observed for interpersonal rejection, $F(2, 43) = 18.94$, $p < .001$, $\eta^2 = .43$, unrealistic expectations, $F(2, 43) = 21.07$, $p < .001$, $\eta^2 = .46$, and interpersonal misperception, $F(2, 43) = 24.63$, $p < .001$, $\eta^2 = .53$. The overall effect for total cognitive distortions was large and significant, $F(2, 43) = 31.85$, $p < .001$, $\eta^2 = .60$. Similarly, significant group effects were found for cognitive reappraisal, $F(2, 43) = 26.41$, $p < .001$, $\eta^2 = .55$, expressive suppression, $F(2, 43) = 29.78$, $p < .001$, $\eta^2 = .58$, and total emotion regulation, $F(2, 43) = 34.92$, $p < .001$, $\eta^2 = .62$, indicating large effect sizes across outcomes.

Table 3

Bonferroni Post-Hoc Comparisons: Effectiveness of Each Intervention Group Compared to Control at Posttest

Variable	Group Comparison	Mean Difference	SE	p
Interpersonal Rejection	ACT – Control	−3.78	0.91	.001
	EFT – Control	−7.29	0.94	< .001
Unrealistic Expectations	ACT – Control	−3.21	0.88	.002
	EFT – Control	−6.02	0.90	< .001
Interpersonal Misperception	ACT – Control	−3.56	0.96	.002
	EFT – Control	−8.47	0.99	< .001
Total Cognitive Distortions	ACT – Control	−10.92	1.94	< .001
	EFT – Control	−22.15	2.01	< .001
Cognitive Reappraisal	ACT – Control	4.02	0.89	< .001
	EFT – Control	7.18	0.92	< .001
Expressive Suppression	ACT – Control	2.41	0.81	.004
	EFT – Control	6.13	0.85	< .001
Total Emotion Regulation	ACT – Control	6.57	1.12	< .001
	EFT – Control	13.29	1.17	< .001

Bonferroni-adjusted post-hoc analyses indicated that both intervention groups differed significantly from the control group across all outcome variables. Compared to the control group, the ACT group showed significantly lower posttest scores in total cognitive distortions ($MD = -10.92$, $p < .001$) and significantly higher total emotion regulation scores ($MD = 6.57$, $p < .001$). Similarly, the EFT group demonstrated significantly greater reductions in total cognitive distortions ($MD = -22.15$, $p < .001$) and larger improvements in total emotion regulation ($MD = 13.29$, $p < .001$). Across subcomponents, EFT consistently showed larger mean differences relative to control, particularly for emotion regulation indices.

Table 4

Bonferroni Post-Hoc Comparisons Between ACT and EFT Groups at Posttest

Variable	Group Comparison	Mean Difference	SE	p
Interpersonal Rejection	EFT – ACT	−3.51	0.93	.001
Unrealistic Expectations	EFT – ACT	−2.81	0.87	.003
Interpersonal Misperception	EFT – ACT	−4.91	0.95	< .001
Total Cognitive Distortions	EFT – ACT	−11.23	1.98	< .001
Cognitive Reappraisal	EFT – ACT	3.16	0.91	.002
Expressive Suppression	EFT – ACT	3.72	0.88	.001
Total Emotion Regulation	EFT – ACT	6.72	1.14	< .001

As presented in Table 4, direct comparisons between the two intervention groups revealed statistically significant differences across all outcome measures. The EFT group demonstrated significantly greater reductions in total cognitive distortions compared to the ACT group ($MD = -11.23$, $p < .001$), as well as superior improvements in total emotion regulation ($MD = 6.72$, $p < .001$). At the component level, EFT was significantly more effective than ACT in reducing interpersonal rejection, unrealistic expectations, and interpersonal misperception, while also producing greater gains in cognitive reappraisal and expressive suppression. These findings indicate differential therapeutic

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strengths, with ACT showing comparatively stronger cognitive restructuring effects and EFT demonstrating greater impact on emotional processing and regulation.

4. Discussion

The present study aimed to compare the effectiveness of Acceptance and Commitment Therapy (ACT) and Emotion-Focused Therapy (EFT) on cognitive distortions and emotion regulation in women with social anxiety disorder. The findings demonstrated that both interventions were effective in significantly reducing cognitive distortions and improving emotion regulation compared to the control group, with these effects remaining stable at the follow-up stage. However, the pattern of results indicated differential strengths for each intervention: ACT showed comparatively greater effectiveness in reducing cognitive distortions, whereas EFT yielded stronger improvements in emotion regulation. These findings provide important insights into the distinct therapeutic mechanisms of ACT and EFT and their relevance for treating social anxiety disorder.

The significant reduction in cognitive distortions observed in both treatment groups aligns with existing literature emphasizing the central role of maladaptive cognitions in social anxiety disorder. Individuals with social anxiety disorder often exhibit distorted beliefs related to interpersonal rejection, unrealistic expectations of social performance, and negative interpretations of others' behaviors, which perpetuate anxiety and avoidance. The observed decrease in these distortions following ACT and EFT interventions supports the notion that psychotherapeutic approaches targeting internal psychological processes can effectively modify maladaptive cognitive patterns (Kebritchi et al., 2024; Mohammadi et al., 2022; Rozen & Aderka, 2023). The maintenance of these gains at follow-up further suggests that both therapies contribute to durable cognitive change rather than transient symptom relief.

ACT demonstrated a stronger effect on the reduction of cognitive distortions compared to EFT. This finding is theoretically consistent with the core principles of ACT, which focus on cognitive defusion, acceptance of internal experiences, and reducing the literal believability of maladaptive thoughts. By helping individuals observe their thoughts as transient mental events rather than objective truths, ACT reduces the functional impact of distorted cognitions without directly challenging their content. Previous studies have similarly reported that ACT is particularly effective in reducing rumination, cognitive fusion, and maladaptive self-evaluative processes in individuals with social anxiety disorder (Jahedi & Badri-Gorgari, 2023; Niles et al., 2014; Salehi et al., 2025). The present findings extend this body of evidence by demonstrating that ACT is especially effective in addressing interpersonal and relational cognitive distortions among women with social anxiety disorder.

In contrast, EFT showed greater effectiveness in improving emotion regulation, both at the level of specific strategies and overall emotion regulation capacity. This result is consistent with the theoretical foundation of EFT, which emphasizes emotional awareness, emotional acceptance, and the transformation of maladaptive emotional responses. Social anxiety disorder is frequently associated with intense emotions such as shame, fear, and embarrassment, which individuals may attempt to suppress or avoid. EFT directly targets these emotional processes by facilitating experiential engagement with core emotions and fostering adaptive emotional processing. Prior research has consistently demonstrated the effectiveness of EFT in improving emotion regulation and reducing emotional dysregulation across diverse clinical populations, including individuals with social anxiety symptoms (Doshmanfana et al., 2025; Ebrahimi, 2020; Razaqi et al., 2023; Shahar, 2014). The current findings corroborate these results and suggest that EFT may be particularly beneficial for individuals whose social anxiety is maintained by deficits in emotional awareness and regulation.

The observed improvements in cognitive reappraisal and expressive regulation strategies among participants receiving EFT further support the notion that emotional processing interventions can enhance adaptive emotion regulation skills. EFT facilitates the identification and transformation of maladaptive primary emotions into more adaptive emotional responses, which may explain the substantial gains in emotion regulation observed in this study. Similar findings have been reported in studies examining the impact of EFT on emotional regulation in individuals with anxiety-related conditions and interpersonal difficulties (Conradi et al., 2018; Shadfar et al., 2025; Vatankhah et al., 2025). These results underscore the importance of targeting emotional processes directly, particularly in populations characterized by heightened emotional sensitivity.

The fact that both ACT and EFT produced significant improvements across outcomes highlights the multifaceted nature of social anxiety disorder and the relevance of

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addressing both cognitive and emotional mechanisms. Contemporary models of anxiety emphasize that maladaptive cognitions and emotion regulation deficits are deeply interconnected and jointly contribute to symptom persistence (Mennin et al., 2017; Rozen & Aderka, 2023). The present findings suggest that while ACT and EFT differ in their primary therapeutic focus, both approaches can effectively disrupt these maintaining processes, albeit through different pathways.

The stability of treatment effects at follow-up is another noteworthy finding. Sustained reductions in cognitive distortions and maintained improvements in emotion regulation suggest that both ACT and EFT foster enduring psychological change. This is particularly important in the context of social anxiety disorder, which is often chronic and associated with high relapse rates. The durability of treatment gains observed in this study aligns with previous research demonstrating long-term benefits of ACT and EFT in anxiety-related conditions (Jahedi & Badri-Gorgari, 2023; Shahar, 2014; Yuan et al., 2024). These findings support the use of both interventions as viable long-term treatment options.

From a comparative perspective, the differential strengths of ACT and EFT observed in this study have important clinical implications. ACT's greater impact on cognitive distortions suggests that it may be particularly suitable for individuals whose social anxiety is predominantly driven by maladaptive thinking patterns, rigid self-evaluations, and excessive cognitive fusion. Conversely, EFT's superior effectiveness in enhancing emotion regulation indicates that it may be more appropriate for individuals who struggle primarily with intense emotions, emotional avoidance, or difficulties in emotional awareness and expression. These distinctions are consistent with previous comparative research emphasizing the importance of mechanism-focused treatment selection (Niles et al., 2014; Salehi et al., 2025; Yadolahi et al., 2025).

The focus on women with social anxiety disorder adds further significance to the findings. Gender-sensitive research suggests that women may experience social anxiety with greater emotional intensity and interpersonal sensitivity, which may influence treatment responsiveness. The strong effects of EFT on emotion regulation in this female sample align with evidence indicating that emotionally focused interventions may be particularly beneficial for women experiencing anxiety and relational distress (Ebrahimi, 2020; Hosseini Ardakani, 2020; Yousefpouri et al., 2024). At the same time, the effectiveness of ACT in reducing cognitive distortions highlights its relevance for addressing self-critical and evaluative thinking patterns that are also prevalent among women with social anxiety disorder.

5. Conclusion

Overall, the findings of this study contribute to the growing literature on process-based psychotherapy by demonstrating that ACT and EFT are both effective but operate through partially distinct mechanisms. This underscores the potential value of integrative or sequential treatment approaches that combine cognitive defusion and acceptance strategies with emotional processing and transformation techniques. Such integrative approaches may offer a more comprehensive framework for addressing the complex interplay of cognition and emotion in social anxiety disorder (Mennin et al., 2017; Rozen & Aderka, 2023).

Despite its contributions, the present study has several limitations that should be acknowledged. First, the sample size was relatively modest and limited to women within a specific age range and geographic area, which may restrict the generalizability of the findings. Second, reliance on self-report measures may have introduced response biases, including social desirability or limited self-awareness. Third, although follow-up data were collected, the follow-up period was relatively short, and longer-term outcomes remain unknown. Finally, the absence of an active comparison treatment limits conclusions regarding the relative efficacy of ACT and EFT compared to other established interventions.

Future research should replicate these findings using larger and more diverse samples, including men and individuals from different cultural and socioeconomic backgrounds. Longitudinal studies with extended follow-up periods would provide valuable information regarding the long-term sustainability of treatment effects. Additionally, future studies could examine potential mediators and moderators of treatment outcomes, such as baseline emotion regulation capacity or cognitive flexibility, to better understand for whom and under what conditions each therapy is most effective. Investigating integrative or hybrid interventions that combine elements of ACT and EFT may also yield promising results.

From a practical standpoint, clinicians are encouraged to consider the dominant maintaining mechanisms of social anxiety when selecting therapeutic approaches. ACT may be particularly beneficial for clients presenting with rigid

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cognitive patterns and experiential avoidance, whereas EFT may be more suitable for those struggling with intense emotions and emotional dysregulation. Tailoring interventions to individual client needs and, when appropriate, integrating cognitive and emotional techniques may enhance treatment effectiveness. Training programs and clinical settings should also support therapist competence in multiple evidence-based approaches to allow flexible, client-centered treatment planning.

Authors' Contributions

S.S.S.N. was responsible for conceptualizing the study, formulating the research objectives, and overseeing the overall research process; H.B. designed and implemented the therapeutic interventions (ACT and EFT), supervised participant allocation, and coordinated data collection; N.S.G. conducted the statistical analyses, interpreted the findings, and drafted the initial version of the manuscript. All authors contributed to critical revision of the manuscript, approved the final version for publication, and take full responsibility for the accuracy and integrity of the work.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

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

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