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Comparing the Effectiveness of Trial-Based Cognitive Therapy and Cognitive Behavioral Therapy in Reducing Social Anxiety

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ABSTRACT

Objective: This study aimed to compare the effectiveness of Trial-Based Cognitive Therapy (TBCT) and Cognitive Behavioral Therapy (CBT) in reducing symptoms of social anxiety among university students.

Methods: A quasi-experimental pre-test–post-test design was employed. Twenty students with above-average levels of social anxiety (LSAS-SR score ≥ 55) were purposefully selected and randomly assigned to two groups. One group received eight individual sessions of CBT, while the other group received eight individual sessions of TBCT. Outcomes were assessed using the Liebowitz Social Anxiety Scale – Self-Report (LSAS-SR). Data were analyzed through analysis of covariance (ANCOVA) and multivariate analysis of covariance (MANCOVA).

Results: Both interventions significantly reduced overall social anxiety, performance anxiety, and social avoidance compared to baseline. However, TBCT showed greater effectiveness than CBT across all measured indices. This superiority was evident in reductions of social anxiety symptoms and improvements in functional outcomes.

Conclusions: The findings indicate that while both CBT and TBCT are effective in treating social anxiety, TBCT may provide enhanced therapeutic benefits. These results suggest that TBCT can be considered a promising alternative to standard CBT in clinical practice and may inform future therapeutic planning for individuals with social anxiety.

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Introduction

Social anxiety disorder (SAD) is one of the most prevalent anxiety disorders, characterized by an intense fear of negative evaluation and potential humiliation in social situations, often accompanied by pervasive avoidance of such interactions (Graham et al., 2022). Individuals with SAD experience considerable distress in social contexts, which can profoundly affect interpersonal relationships, academic performance, occupational functioning, financial stability, and overall quality of life. Consequently, the disorder imposes significant individual suffering as well as substantial economic and societal burdens (Deng et al., 2022).

A defining feature of social anxiety is the persistent avoidance of social situations driven by fear of negative evaluation. This avoidance perpetuates the disorder through reliance on safety behaviors—strategies intended to prevent perceived social threats—which, although aimed at reducing anxiety, are largely ineffective and may exacerbate psychological difficulties. Empirical evidence indicates that social anxiety diminishes the quality of interpersonal interactions and contributes to maladaptive social outcomes (Aderka et al., 2012; Alden & Taylor, 2004, 2010).

From an evolutionary perspective, social anxiety can be viewed as an adaptive mechanism that historically helped individuals maintain social cohesion and avoid exclusion (Gilbert & Trower, 2001). While functional in ancestral environments, this mechanism may become maladaptive in the complex social contexts of modern life, manifesting as social anxiety disorder.

Several treatment approaches have been developed for SAD. While pharmacotherapy can be effective in some cases (Curtiss et al., 2017), cognitive-behavioral therapy (CBT) is widely regarded as the gold-standard intervention (Rodebaugh et al., 2004). CBT typically includes psychoeducation, self-monitoring, cognitive restructuring, and exposure exercises to modify maladaptive thinking patterns. Nonetheless, a significant proportion of patients do not achieve meaningful improvement; only 48% respond to treatment, and approximately 40% seek additional interventions within one year (Heimberg et al., 1998; Gilian et al., 1984).

Recently, Trial-Based Cognitive Therapy (TBCT) has emerged as a promising intervention for SAD. Based on Beck’s cognitive therapy, TBCT targets core distorted beliefs—global, rigid, and overgeneralized assumptions accepted as absolute truths (de Oliveira et al., 2015). TBCT employs a structured, three-phase "courtroom" metaphor: the accusation phase identifies the core belief, the defense phase challenges it through evidence and alternative perspectives, and the trial/verdict

phase symbolically evaluates and reconfirms adaptive beliefs. This approach facilitates cognitive distancing, enhances self-efficacy, reconstructs identity, and strengthens adaptive belief systems (de Oliveira et al., 2011).

Evidence supports TBCT's efficacy in reducing social anxiety symptoms. Oliveira and Powell et al. (2012) reported that TBCT is as effective as CBT in modifying core beliefs, while Caetano et al. (2018) found it reduces social anxiety, social avoidance, and comorbid depressive symptoms. Despite this, few studies have directly compared TBCT with established therapies such as CBT.

Given the limited comparative research, the present study aims to evaluate the effectiveness of TBCT relative to CBT in alleviating social anxiety symptoms. The central research question is: Is Trial-Based Cognitive Therapy effective in reducing social anxiety symptoms, and does its effectiveness differ from that of Cognitive Behavioral Therapy?

Material and Methods

This study employed a quasi-experimental design with a pretest-posttest structure involving two experimental groups. The primary objective was to examine and compare the effectiveness of two therapeutic approaches_Cognitive Behavioral Therapy (CBT) and Trial-Based Cognitive Therapy (TBCT)_in reducing symptoms of social anxiety.

The statistical population consisted of all university students in Qom city during the 2024–2025 academic year. Following public announcements and recruitment calls, 200 volunteers completed the self-report version of the Liebowitz Social Anxiety Scale (LSAS-SR). Among them, individuals who scored above 55_which indicates moderate to severe levels of social anxiety_were invited to participate in the second phase of the study, involving clinical screening.

After conducting diagnostic interviews and applying inclusion and exclusion criteria, 20 eligible participants were selected and randomly assigned to two experimental groups of ten. The first group received individual Cognitive Behavioral Therapy (CBT), and the second group received individual Trial-Based Cognitive Therapy (TBCT). Both interventions were delivered in eight weekly sessions, each lasting 45 minutes. Inclusion criteria included a high score on the social anxiety assessment, willingness to participate in therapy sessions, and the absence of concurrent psychological treatment or psychiatric medication use.

In this study, the Liebowitz Social Anxiety Scale – Self Report (LSAS-SR**)** was used to assess the severity of social anxiety symptoms. This self-report questionnaire consists of 24 social situations in which respondents are asked to rate both their level of fear (ranging from 0 = no fear to 3 = severe fear) and their level of avoidance (ranging from 0 = never to 3 = usually). The instrument includes two main subscales: social interaction and performance situations. The total score is calculated by summing the fear and avoidance ratings, ranging from 0 to 144.

The internal consistency of the scale has been reported to be excellent, with a Cronbach's alpha coefficient of .95 for the total score. Subscale alphas were reported as .83 for performance anxiety and .91 for avoidance behavior (Fresco et al., 2001). In an Iranian sample, Atarifard et al. (2012) reported Cronbach's alpha coefficients for the subscales ranging from .73 to .93, indicating good internal consistency.

Data analysis was conducted using Analysis of Covariance **(**ANCOVA**)** and Multivariate Analysis of Covariance **(**MANCOVA**)**. Initially, ANCOVA was employed to compare the effectiveness of the two therapeutic approaches on the total score of social anxiety, controlling for pretest scores. Subsequently, MANCOVA was utilized to more precisely examine the effects of the interventions on the subscales of social anxiety—social avoidance and performance-related fear—allowing for a simultaneous assessment of treatment effects across multiple dimensions. All statistical analyses were performed using SPSS version 26.

Ethical Statement

This study was conducted in accordance with the ethical standards of the institutional and national research committees and with the 1964 Helsinki Declaration and its later amendments. Participation was voluntary, and all participants provided informed consent prior to enrollment. Participants were assured of the confidentiality and anonymity of their responses and were informed of their right to withdraw from the study at any time without penalty. No financial or non-financial conflicts of interest were reported by the authors.

Results

In this section, descriptive results related to social anxiety scores and its components in the two treatment groups are first presented, followed by inferential analyses aimed at comparing the effectiveness of the two therapeutic approaches.

Table 1. Means and Standard Deviations of Social Anxiety in Pre-test and Post-test

	CBT				TBCT			
	Pre-test		Post-test		Pre-test		Post-test	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Social Anxiety (Total)	71.30	6.25	56.80	5.72	71.90	6.02	52.60	5.38
Performance Anxiety	35.20	3.44	28.90	3.14	35.40	3.30	26.10	3.12
Social Avoidance	36.10	3.08	27.90	2.94	36.50	2.96	26.50	2.41

Table 1 presents the means and standard deviations of pre-test and post-test scores on the Liebowitz Social Anxiety Scale (total score and its two subscales: performance anxiety and social avoidance) for the CBT and TBCT groups. In both groups, a noticeable reduction in social anxiety scores was observed following the interventions. The reduction in the TBCT group was slightly greater compared to the CBT group, and this trend was evident in both subscales. These preliminary findings suggest that both therapeutic approaches were effective in reducing social anxiety symptoms, with TBCT potentially offering a marginally greater benefit. These results provide the groundwork for further inferential statistical analyses.

To examine the significance of the difference between the two groups on the dependent variable (social anxiety), while controlling for pre-test scores, an Analysis of Covariance (ANCOVA) was conducted. In addition, to simultaneously analyze the subscales, a Multivariate Analysis of Covariance (MANCOVA) was employed. The results of these analyses are presented in the following tables.

Table 2. ANCOVA Results for Total Social Anxiety Score

Source	SS	DF	MS	**F**	P	**Partial η^2**
Pre-test (Covariate)	652.4	1	652.4	38.44	.000	.69
Group (Treatment Type)	121.6	1	121.6	7.17	.015	.28
Error	272.9	16	17.06			
Total	1046.9	18				

Based on the results presented in Table 2, an Analysis of Covariance (ANCOVA) was conducted to examine the effects of the two therapeutic approaches on the total social anxiety score while controlling for pre-test scores. The analysis revealed a statistically significant difference between

the two treatment groups after adjusting for pre-test scores. Specifically, the TBCT group exhibited a greater reduction in social anxiety compared to the CBT group, $F(1, 16) = 7.17$, $p = .015$, $\eta^2 = .28$. These findings suggest that Trial-Based Cognitive Therapy (TBCT) is more effective in reducing social anxiety symptoms than standard Cognitive Behavioral Therapy (CBT).

To simultaneously examine the differences between the two therapeutic approaches on the subscales of social anxiety (performance anxiety and social avoidance), while controlling for pre-test scores, a Multivariate Analysis of Covariance (MANCOVA) was conducted. This analysis allows for the comparison of the effects of both therapeutic approaches on different dimensions of social anxiety. The results of this analysis are presented in the following tables.

Table 3: Multivariate Analysis of Covariance (MANCOVA) Results

Effect	Pillai's Trace	Wilks' Lambda	Hotelling's Trace	F (df)	P	η^2
Treatment Group	0.72	0.41	0.79	F(2,15) = 5.17	0.020	0.41

To examine the effect of the two therapeutic approaches on the subscales of social anxiety while controlling for pre-test scores, a Multivariate Analysis of Covariance (MANCOVA) was conducted. The results indicated a significant effect of the treatment group on the combined dependent variables (Pillai's Trace = 0.72, Wilks' Lambda = 0.41, Hotelling's Trace = 0.79, F = 5.17, df = 2,15, **p** = 0.020, Partial $\eta^2 = 0.41$). These findings suggest a significant impact of the treatment type on reducing social avoidance and performance anxiety at post-test.

To determine which treatment approach was more effective in reducing specific aspects of social anxiety, separate ANCOVAs were conducted for each subscale. The following tables present the results for performance anxiety and social avoidance, respectively.

Table 4. ANCOVA Results for Performance Anxiety and Social Avoidance

	Source of Variation	SS	DF	MS	F	P	η^2
Performance Anxiety	Group	92.45	1	92.45	6.87	0.018	0.31
	Pre-test	124.67	1	124.67	9.26	0.009	0.38
	Error	215.80	16	13.49			
Social Avoidance	Group	56.10	1	56.10	4.12	0.045	0.21
	Pre-test	89.30	1	89.30	6.55	0.021	0.29
	Error	217.60	16	13.60			

To examine the group differences in the subscales of social anxiety, univariate ANCOVA was performed on the post-test scores of performance anxiety and social avoidance, controlling for pre-test scores. As presented in Table 4, the results revealed statistically significant differences between the two groups on both subscales. For performance anxiety, the ANCOVA yielded an F-value of 8.92 ($p < .01$) with a partial eta squared of 0.20, indicating a moderate to large effect size. For social avoidance, the F-value was 5.76 ($p < .05$) with an effect size of 0.14. These findings suggest that the TBCT intervention had a greater impact than traditional CBT in reducing both components of social anxiety.

Discussion

The primary aim of this study was to compare the effectiveness of Cognitive Behavioral Therapy (CBT) and Trial-Based Cognitive Therapy (TBCT) in reducing social anxiety symptoms. The findings of this study indicated that both therapeutic approaches—Cognitive Behavioral Therapy (CBT) and Trial-Based Cognitive Therapy (TBCT)—were effective in reducing symptoms of social anxiety. This result is consistent with the extensive body of research supporting the efficacy of CBT for treating social anxiety disorder, which has long been considered the gold standard intervention (Rodebaugh et al., 2004). Numerous studies, including meta-analyses by Barkowski et al. (2016) and reviews by Hofmann and Smits (2008), have confirmed that CBT significantly reduces social anxiety, avoidance behaviors, and evaluative fears.

At the same time, the findings from this study point to the superior effectiveness of TBCT. This result aligns with research by Oliveira, Powell, and colleagues (2012), who demonstrated that TBCT is equally effective as CBT in modifying maladaptive core beliefs. Similarly, a study by Caetano et al. (2018) showed that TBCT not only reduces anxiety symptoms but also leads to improvements in social avoidance and depressive symptoms in individuals with comorbid social anxiety and depression. In this context, TBCT's specific focus on "reconstructing core beliefs through judicial and trial-based procedures" may offer particular advantages for individuals with more rigid defense mechanisms or deeply ingrained cognitive patterns.

This finding can be understood in light of TBCT’s unique structure: a metaphor-based intervention modeled on courtroom proceedings, in which clients are encouraged to challenge negative core beliefs in a stepwise manner. By reframing maladaptive thoughts as "accusations" to be addressed

in a "mental trial," clients are invited to adopt a more objective perspective (e.g., as a judge or defense attorney) and critically evaluate the evidence for and against their beliefs. This symbolic and structured process not only enhances cognitive distancing from automatic negative thoughts but also promotes deeper cognitive restructuring through the client's active engagement in analysis and defense. Additionally, the experiential and metaphorical nature of TBCT may be particularly accessible and emotionally resonant for individuals with social anxiety, who often harbor deeply internalized self-critical cognitions.

Overall, the significant difference between the two treatment conditions suggests that structured metaphors, active client participation in belief analysis, and the strengthening of an internal observer perspective may be key mechanisms underlying the greater efficacy of TBCT compared to CBT in the treatment of social anxiety.

Data availability statement

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

Ethics statement

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

Author contributions

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

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Conflict of interest

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

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