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The Effectiveness of Cognitive-Behavioral Therapy on Social Adjustment in Adolescents with Social Anxiety

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A B S T R A C T

Objective: This study aimed to investigate the effectiveness of cognitive-behavioral therapy (CBT) on social adjustment in adolescents with social anxiety.
Methods and Materials: The research method was a quasi-experimental design with pre-test and post-test, including a control group and a one-month follow-up stage. The statistical population of the study comprised all adolescents diagnosed with social anxiety disorder who attended eight counseling centers in Babol in the spring of 2024. Initially, the Connor Anxiety Questionnaire (2000) was distributed among all participants. Thirty individuals who scored between 16 and 25 (the cut-off point of the questionnaire) were selected using the convenience sampling method and were then randomly assigned to experimental and control groups. Data were collected using the Sinha and Singh Adjustment Inventory (1993) and the Connor Social Anxiety Questionnaire (1969). The experimental group received a 12-session, 90-minute cognitive-behavioral intervention based on Beck's (1998) manual. This intervention was only applied to the experimental group, with no intervention provided for the control group. Data were analyzed using repeated measures analysis.
Findings: The findings indicated a significant difference between the pre-test and post-test scores of the experimental and control groups in terms of social adjustment among adolescents with social anxiety ($P \leq 0.01$). Overall, cognitive-behavioral therapy was found to be effective in improving social adjustment in adolescents with social anxiety ($P \leq 0.01$).
Conclusion: Considering the results of this study, the role of cognitive-behavioral therapy in creating changes in social adjustment has important therapeutic implications.

Keywords: *Social Adjustment, Cognitive-Behavioral Therapy, Social Anxiety.*

1. Introduction

Humans are inherently social beings and interact with others in society; therefore, social anxiety in dealing and communicating with other members of society can cause numerous problems (Lievore, 2024; Niles et al., 2015). Social anxiety is considered one of the most common types of social phobias (Guidi et al., 2019; Kajastus et al., 2024). It is a pervasive form of anxiety characterized by intense fear and anxiety in social situations (Hanafi et al., 2019), disrupting at least part of an individual's daily activities. Social anxiety is a highly disabling disorder that can severely impact various aspects of a person's life. In severe cases, social anxiety can significantly reduce an individual's quality of life (Parsafar, 2024; Tarakçıoğlu, 2024). Social anxiety refers to the extent of avoidance and psychological distress experienced in interpersonal or performance situations. Individuals with high social anxiety fear negative evaluation from others or performing an act that could lead to embarrassment. Some individuals may avoid leaving home for weeks or withdraw from many social situations, including work and academic settings (Salajegheh & Bakhshani, 2014). It often leads to a sense of restlessness, meaning the individual cannot sit or stand in one place for an extended period (Lin et al., 2019). Anxiety disorders are among the most prevalent mental disorders worldwide, causing numerous problems and complications (Raqibi et al., 2019). One of the most significant impacts of social anxiety is on the cognitive-behavioral functioning of individuals when choosing appropriate behavior in crucial situations (Ranjbari et al., 2017).

Performance decline during adolescence is one of the most common sources of perceived stress, significantly affecting interactions and adaptation to the environment (Ying et al., 2018). Interpersonal communication is one of the greatest human advancements, yet many individuals struggle with effective face-to-face communication (Shinde & Shinde, 2022). According to the World Health Organization, communication and interpersonal skills encompass verbal and non-verbal communication, active listening, negotiation skills, and the ability to initiate and terminate effective communication, as well as assertiveness for achieving social adaptation (Kyaw et al., 2019). Since some adolescents often have difficulties in appropriate social interactions with adults and peers and feel anxious about confronting reality or establishing close relationships (Najafi Fard et al., 2021), they usually lack the necessary skills for initiating and maintaining positive, purposeful interactions. Consequently, they do not learn social and communication skills independently (Simmons-Mackie et al., 2016). Social support in adolescents can significantly impact their ability to achieve appropriate adaptation and optimal performance (Romera Félix et al., 2022). The term social adaptation refers to the ongoing process by which individuals utilize their talents and reactions to their environment to make effective changes (Pham & Murray, 2016). In general, social adjustment is considered one of the primary indicators of mental health in adolescents (Fredricks et al., 2016). Adolescents must collaborate to achieve greater adaptation and work toward a common goal (Gardner et al., 2018). Adolescents living in unfavorable family conditions, due to a lack of social support, often exhibit poor adaptation, which can significantly influence their self-esteem (Tapak et al., 2022). Social adaptation is also described as a state of balance between an individual and their environment (Gregory et al., 2016). This process enables people to predict and understand others' behavior (Baptista et al., 2016), manage their own behavior, and monitor emotional and social relationships (Przybylski & Mishkin, 2016). Tanyi (2002) categorized adolescent adaptation into emotional and social aspects (Tanyi, 2002). Emotional adaptation refers to the individual's ability to align emotions and feelings with themselves, while social adaptation relates to the ability to perform academic tasks and environmental activities (Allen et al., 2017). Overall, social adaptation requires individual abilities, such as behavioral, cognitive, and emotional processing skills, and the attainment of adequate self-esteem given favorable conditions (Regueiro et al., 2018).

In this context, one of the modern methods effective in alleviating anxiety is cognitive-behavioral therapy (CBT). Timely and appropriate therapeutic interventions are crucial for improving the problems of these individuals and preventing further harm (Shannon, 2022). Without treatment, individuals may experience many societal difficulties (Oraki et al., 2017). Cognitive-behavioral therapy is recognized as one of the effective treatments for such disorders (Moheb et al., 2021). The core assumption of CBT is that learning processes play a crucial role in the formation and persistence of behaviors (Turner et al., 2016). Simply put, CBT helps individuals with various psychological and physical issues identify, avoid, and cope with these challenges (O'Sullivan et al., 2019; O'Sullivan et al., 2015). This involves identifying situations with a high risk of problematic behavior, facilitating avoidance of these situations, and dealing effectively with issues (Ansari et al., 2020). Moreover, research findings and therapists'

experiences with CBT have driven continuous efforts to improve this therapeutic approach through cognitive-behavioral techniques (Lee et al., 2015).

In this regard, Sadat Ashkour et al. (2023) demonstrated that group training using cognitive-behavioral and behavioral methods is effective in enhancing social adjustment among students (Sadat Ashkour et al., 2023). Chen and Jiang (2024) found that modified cognitive-behavioral group therapy impacts social adaptation in children with attention-deficit/hyperactivity disorder and reduces perceived parental stress levels (Chen & Jiang, 2024). Generally, reduced social adjustment is a significant and influential factor in the lives of adolescents with social anxiety. Understanding the factors influencing social adjustment is essential for practitioners in the therapeutic field, as it may provide opportunities for enhancing interventions for these individuals. Previous domestic studies seem to have not examined the simultaneous and precise impact of CBT on social adjustment in adolescents with social anxiety. Therefore, this study seeks to address the existing gap in the literature by exploring whether CBT is effective in improving social adjustment in adolescents with social anxiety.

2. Methods and Materials

2.1. Study Design and Participants

The research method was a quasi-experimental pre-test and post-test design with an experimental and control group, including a two-month follow-up stage. The statistical population of the present study included all adolescents diagnosed with social anxiety disorder who attended eight counseling centers in Babol in the spring of 2024. Considering that the minimum sample size for interventional studies is 15 individuals (Delavar, 2020), the Connor Anxiety Questionnaire (2000) was initially distributed among all participants. Thirty individuals who scored between 16 and 25 (the questionnaire's cut-off point) were selected using the convenience sampling method and were then randomly assigned to experimental and control groups. In the field phase, after obtaining the necessary permissions, the selected participants attended therapeutic sessions conducted by a clinical psychologist for the experimental group, held twice weekly in the spring of 2024. Before the sessions, ethical considerations, such as research objectives, confidentiality, and privacy protection, were explained, and informed consent from parents was obtained as a commitment to participate. Pre-test data were collected from both the experimental and control groups before the sessions, and post-test data were collected from both groups after the sessions. The experimental group received a cognitive-behavioral therapy intervention based on Beck's (1998) manual, conducted in 12 sessions of 90 minutes each. The intervention was only implemented for the experimental group, with no intervention provided for the control group.

2.2. Measures

2.2.1. Social Adjustment

The Social Adjustment Inventory developed by Sinha and Singh (1993) consists of 55 items with binary responses (yes or no, scored as 1 or 0). It includes three subscales: Emotional (items 1, 3, 6, 9, 12, 15, 18, 21, 24, 26, 29, 34, 36, 39, 44, 47, 50, 53), Social (items 4, 7, 10, 13, 16, 19, 22, 27, 30, 34, 37, 40, 42, 45, 48, 51, 54), and Academic (items 2, 5, 8, 11, 14, 17, 20, 23, 25, 28, 31, 32, 35, 38, 41, 43, 46, 49, 52, 55). Higher scores indicate poorer adjustment, while lower scores suggest more stable adjustment. The construct and convergent validity of this questionnaire have been confirmed by its creators, and its reliability, measured using Cronbach's alpha, was reported as 0.93. In Iran, Khankhanizadeh and Bagheri (2012) confirmed its construct and content validity, with a Cronbach's alpha reliability of 0.91 (Khankhanzadeh & Bagheri, 2012).

2.2.2. Social Anxiety

The Social Anxiety Questionnaire developed by Connor et al. (2000) is designed to diagnose and assess social anxiety. This 17-item tool evaluates three subscales: Fear (items 1, 3, 5, 10, 14, 15), Avoidance (items 4, 6, 8, 9, 11, 12, 16), and Physiological Distress (items 2, 7, 13, 17). Responses are rated on a 5-point Likert scale from "not at all" (0) to "extremely" (4), with higher scores indicating greater social anxiety. The cut-off point for this questionnaire is 40. The construct and convergent validity were confirmed by the authors, and its reliability, measured using Cronbach's alpha, was between 0.76 and 0.82 for the subscales and 0.91 for the total score. In Iran, Ghazanfari and Naderi (2019) confirmed the construct validity and reported a Cronbach's alpha reliability of 0.89 for the total score (Ghazanfari & Nadri, 2019).

JAYPS Adolescent and Youth Psychological Studies E-ISSN: 2981-2526

2.3. Intervention

2.3.1. Cognitive-Behavioral Intervention

The intervention is structured into 12 sessions, each designed to progressively introduce and build upon cognitive-behavioral techniques aimed at reducing social anxiety and improving social adjustment. Each session incorporates relaxation exercises, cognitive restructuring techniques, and practical assignments to promote sustained behavioral change. The program encourages participants to actively engage in self-monitoring and apply the skills learned in real-life situations (Ansari et al., 2020; Bagheri Sheikhanghasheh et al., 2023; Chen & Jiang, 2024; Mohammadzadeh, 2023; Moheb et al., 2021; Sadat Ashkour et al., 2023; Tahmasebi et al., 2023; Turner et al., 2016).

Session 1: The first session focuses on introducing group members, establishing the purpose and goals of therapy, and setting ground rules for the sessions. A therapeutic relationship is initiated, and participants complete a pre-test. The session ends with a guided imagery relaxation exercise to introduce relaxation techniques.

Session 2: Participants receive feedback from the previous session and are introduced to the principles of cognitive-behavioral therapy (CBT). They learn a basic relaxation technique and practice identifying logical errors in their thinking. Homework is assigned to reinforce these concepts.

Session 3: The session addresses negative and dysfunctional beliefs. Participants engage in activities to identify and challenge these thoughts. The relaxation technique is reinforced, and participants are given assignments that include engaging in enjoyable activities.

Session 4: This session introduces the Downward Arrow Technique to help participants identify core beliefs and schemas. Relaxation exercises are practiced, and participants receive homework that involves exploring their central beliefs.

Session 5: Participants compile a list of their primary beliefs and practice relaxation techniques. They engage in activities that help them differentiate between thoughts and realistic possibilities, with homework designed to challenge these beliefs.

Session 6: The session focuses on testing participants' beliefs through objective analysis and reality testing. Techniques like judgment and interpretation exercises are used. Progressive muscle relaxation is introduced, and homework is assigned.

Session 7: Different methods of cognitive analysis are presented, and participants are encouraged to reevaluate their beliefs. Common cognitive distortions are explained, and a list of distortions is provided. Participants practice immersion techniques as part of their homework.

Session 8: Relaxation techniques are reinforced, and participants learn to challenge automatic thoughts. Systematic desensitization, both in visualization and real-life scenarios, is introduced. Homework involves practicing systematic desensitization.

Session 9: The focus shifts to understanding and recognizing emotions. Problem-solving skills are taught, with an emphasis on structured methods. Participants identify maladaptive schemas using the Downward Arrow Technique. Homework reinforces these concepts.

Session 10: The session includes relaxation exercises and the continued practice of challenging automatic thoughts. Participants engage in logical analysis and practice cortical inhibition control exercises. Homework emphasizes logical thinking and inhibitory techniques.

Session 11: Cognitive confrontation is practiced in this session, where participants challenge their irrational thoughts through controlled exposure to anxiety-provoking situations. Relaxation techniques are applied, and assignments continue to emphasize inhibitory control.

Session 12: The final session reviews all the techniques covered throughout the program. Participants reflect on their progress, complete a post-test, and prepare for the conclusion of therapy. The session ends with a summary and closure activities.

2.4. Data Analysis

Data were analyzed using descriptive statistics, including mean and standard deviation, and the research hypotheses were tested using multivariate repeated measures analysis with SPSS version 18.

3. Findings and Results

The demographic characteristics of the participants are presented in terms of age distribution between the experimental and control groups. In the experimental group, 33.33% of participants were 13 years old, 26.67% were 14 years old, and 40% were 15 years old. Similarly, in the control group, 40% of participants were 13 years old, 26.67% were 14 years old, and 33.33% were 15 years old. The chi-square test indicated no significant difference between the age distributions of the two groups ($\chi^2 = 0.948$).

JAYPS Adolescent and Youth Psychological Studies
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Table 1

Mean (M) and Standard Deviation (SD) of Social Adjustment Variables in the Experimental and Control Groups

Variable	Test	Experimental M (SD)	Control M (SD)
Emotional	Pre-test	12.40 (4.65)	12.60 (5.22)
	Post-test	7.33 (3.08)	12.27 (4.65)
	Follow-up	7.20 (3.21)	12.20 (4.66)
Social	Pre-test	13.47 (3.20)	13.54 (3.12)
	Post-test	8.31 (2.28)	13.37 (2.78)
	Follow-up	8.19 (2.46)	13.32 (2.70)
Academic	Pre-test	14.82 (2.14)	14.65 (1.81)
	Post-test	10.37 (2.10)	14.60 (2.61)
	Follow-up	10.30 (2.17)	14.51 (2.64)
Social Adjustment	Pre-test	40.69 (6.03)	40.79 (4.69)
	Post-test	26.01 (4.35)	40.24 (6.75)
	Follow-up	25.68 (4.56)	40.03 (6.67)

According to Table 1, the descriptive data for the subscales of social adjustment in the experimental and control groups are presented. The mean values of social adjustment in the experimental group increased from the pre-test to the post-test. The normality assumption of the data was confirmed, and Box's test indicated a significant level with a degree of freedom of 1 (91) and an analysis of variance ($F = 1.463$, $p = .108$), suggesting that the homogeneity of variances could be accepted with high probability, meeting the minimum conditions for analysis. Given the significance level greater than .05 ($p > .05$), the Levene's test for the homogeneity of variances assumption was satisfied. The sphericity assumption was also met, and the Mauchly's test of sphericity results were non-significant, confirming homogeneity of variances across the three testing points. The summary results of the repeated measures analysis of variance for within-group and between-group factors are presented in Table 2.

Table 2

Summary of Mixed Repeated Measures Analysis of Variance for Grouping, Educational Stages, and Interaction Effects

Variable	Source of Change	Sum of Squares	df	Mean Square	F	Significance	Effect Size	Power
Emotional	Group	256.711	1	256.711	6.974	.01	.199	.722
	Educational Stages	117.600	1	117.600	8.071	.01	.224	.783
	Interaction	86.400	1	86.400	5.929	.02	.175	.652
Social	Group	263.511	1	263.511	18.970	.01	.404	.988
	Educational Stages	113.383	1	113.383	15.910	.01	.362	.971
	Interaction	96.267	1	96.267	13.509	.01	.325	.944
Academic	Group	170.844	1	170.844	21.595	.01	.435	.994
	Educational Stages	81.434	1	81.434	14.383	.01	.339	.955
	Interaction	71.941	1	71.941	12.707	.01	.312	.931
Social Adjustment	Group	1030.444	1	1030.444	42.396	.01	.602	1
	Educational Stages	931.258	1	931.258	26.912	.01	.490	.999
	Interaction	761.128	1	761.128	21.995	.01	.440	.995

According to Table 2, the calculated F-value for the effect of stages (pre-test, post-test, and follow-up) is significant at the .01 level. Specifically, a significant difference was observed in the interaction between group and educational stages for social adjustment. Thus, there is a significant difference in the mean scores of social adjustment across the three stages: pre-test, post-test, and follow-up. The Bonferroni post hoc test was conducted to examine the differences between the means at the educational stages. Overall, cognitive-behavioral therapy is effective in improving social adjustment in adolescents with social anxiety.

JAYPS Adolescent and Youth Psychological Studies
E-ISSN: 2981-2526

Table 3

Summary of Bonferroni Post Hoc Test Results for Differences between Pre-Test, Post-Test, and Follow-Up

Variable	Stage 1	Stage 2	Mean Difference	Standard Error	Significance
Emotional	Pre-test	Post-test	2.700	.976	.001
	Pre-test	Follow-up	2.800	.986	.001
	Post-test	Follow-up	.100	.056	.619
Social	Pre-test	Post-test	2.667	.672	.001
	Pre-test	Follow-up	2.749	.689	.001
	Post-test	Follow-up	.083	.063	.601
Academic	Pre-test	Post-test	2.250	.532	.001
	Pre-test	Follow-up	2.330	.566	.001
	Post-test	Follow-up	.080	.079	1
Social Adjustment	Pre-test	Post-test	7.617	.790	.001
	Pre-test	Follow-up	7.879	.878	.001
	Post-test	Follow-up	.263	.211	.453

According to Table 3, there are significant differences in social adjustment scores between the pre-test and post-test as well as the pre-test and follow-up stages. The difference between the post-test and follow-up stages is not significant, indicating the stability of the intervention's effect. Comparing the means shows that social adjustment significantly improved from the pre-test to both the post-test and follow-up stages.

4. Discussion and Conclusion

The aim of this study was to determine the effectiveness of cognitive-behavioral therapy (CBT) on social adjustment in adolescents with social anxiety. The results, in addition to confirming the study's objective, indicated that CBT is effective in improving social adjustment in adolescents with social anxiety. These findings align with prior studies (Chen & Jiang, 2024; Mohammadzadeh, 2023; Sadat Ashkour et al., 2023).

The results can be explained by recognizing that CBT is commonly regarded as one of the most effective methods for treating social anxiety. This therapy, through various exercises and strategies aimed at changing inappropriate and self-defeating thoughts and behaviors, helps individuals discover more effective strategies for dealing with unfavorable social situations and anxiety-provoking emotions (Chen & Jiang, 2024). Since this type of anxiety often arises from negative and unfavorable thoughts about oneself or others, CBT identifies and modifies these thoughts, enabling individuals to better handle different social situations. By teaching effective communication skills, increasing self-confidence, and improving social interactions, CBT equips adolescents to function more effectively in various social contexts. Additionally, CBT provides new opportunities for practicing and managing anxiety-provoking emotions, enabling adolescents to better cope with their own and others' emotions (Sadat Ashkour et al., 2023).

CBT also teaches adolescents effective communication skills, helping them to interact better with others and, consequently, improve their social relationships. It enhances adolescents' self-confidence and promotes self-acceptance, which can positively impact their social interactions (Chen & Jiang, 2024). Furthermore, CBT equips adolescents with strategies to manage stress and anxiety, contributing to better social adjustment. It trains adolescents to replace negative thought patterns associated with social anxiety with positive, constructive ones. By teaching problem-solving skills, CBT enables adolescents to address social challenges and improve their social relationships (Tahmasebi et al., 2023). CBT also trains adolescents to analyze their behavior in social situations, identify unwanted negative thoughts, and improve their social functioning. It provides adolescents with strategies for handling difficult and anxiety-provoking social situations, enhancing their coping and problem-solving skills (Ansari et al., 2020; Mohammadzadeh, 2023; Tahmasebi et al., 2023).

Thus, CBT can significantly improve social adjustment in adolescents with social anxiety by strengthening communication skills, self-awareness, coping strategies, and anxiety reduction. Overall, CBT, through the practice of effective skills for managing social anxiety, facilitates social adjustment in adolescents dealing with these concerns.

JAYPS Adolescent and Youth Psychological Studies
E-ISSN: 2981-2526

5. Limitations & Suggestions

This study faced limitations, such as the inability to control cognitive factors like intelligence and aptitude. The results may vary based on ethnic and cultural contexts. Additionally, the reliance on self-reported questionnaires posed a limitation. In general, CBT programs can serve both as effective interventions and as methods for enhancing positive traits, such as social adjustment and ambiguity tolerance, while reducing negative traits, such as perceived stress in individuals facing difficulties. The CBT approach, by encouraging individuals to share problems, receive effective coping strategies from group members, challenge negative thoughts and idealistic beliefs, and employ techniques like attention redirection, problem-solving, and behavioral strategies, enhances individuals' capabilities. Thus, this low-cost and short-term therapy can be beneficial for adolescents with social anxiety. Based on the findings, it can be concluded that the direct and indirect use of CBT techniques as a preventive method can aid in stress reduction and minimize behavioral burdens.

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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.

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Authors' Contributions

This article is derived from the first author's doctoral dissertation. All authors equally contributed to this article.

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