Research Article / Araştırma Makalesi

Does the Effectiveness of Cognitive Behavioural Therapy in Social Anxiety Disorder Differ According to Symptoms?

Sosyal Anksiyete Bozukluğunda Bilişsel Davranışçı Terapinin Etkinliği Semptomlara Göre Farklılık Gösteriyor Mu?

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Abstract

Background: Social anxiety disorder (SAD) presents with different symptoms and clinical appearances due to individual differences. The explanations provided by categorical models for these differences may be limited. Some individuals diagnosed with SAD may exhibit higher anxiety in performance situations, while others may exhibit higher anxiety in social situations. Our aim in this study is to evaluate the difference in symptom size in terms of clinical features and cognitive behavioural therapy (CBT) treatment effectiveness.
Materials and Methods: The records of 23 adolescents aged 12-18 who received CBT in addition to SSRI treatment for SAD between March 2022 and June 2023 were retrospectively reviewed and included in the study. Based on the information obtained from the participants' records, they were divided into two groups as generalized type (GT) and restrictive type (RT) according to their Liebowitz Social Anxiety Scale (LSAS) scores. The Children's Depression Inventory (CDI), Children's Anxiety Disorders Screening Scale (CADSS), Capa Child and Adolescent Social Phobia Scale (CASPS), and LSAS subscale scores were compared before and after CBT.
Results: When the RT (n=10) and GT (n=13) pre-treatment scale scores were compared, the CDI, CADSS, CAPSS and LSAS scores of the adolescents in the GT group were statistically significantly higher. When the LSAS subscales and CADSS scores of both groups were compared after CBT treatment, the scale scores were found to be higher in the GT group.
Conclusions: This study suggests that the effectiveness of CBT may be reduced when categorical diagnosis is made according to symptoms in SAD, especially in cases accompanied by depressive symptoms and other anxiety disorders.

Keywords: Social anxiety disorder, Adolescent, Cognitive behavioural therapy

Öz

Amaç: Sosyal anksiyete bozukluğu (SAB), bireysel farklılıklar nedeniyle farklı semptomlar ve klinik görünümlerle ortaya çıkabilir. Bu farklılıkları açıklamada kategorik modellerin sunduğu açıklamalar sınırlı kalabilir. SAB tanısı alan bireylerden bazıları performans durumlarında, bazıları ise sosyal durumlarda daha yüksek anksiyete gösterebilir. Bu çalışmadaki amacımız, klinik özellikler ve bilişsel davranışçı terapi (BDT) tedavi etkinliği açısından semptom büyüklüğündeki farklılıkları değerlendirmektir.
Materyal ve Metod: Mart 2022 ve Haziran 2023 tarihleri arasında SAB tanısıyla SSRI tedavisine ek olarak BDT alan 12-18 yaş arasındaki 23 ergenin dosyası retrospektif olarak taranarak çalışmaya dahil edilmiştir. Katılımcıların dosyalarından elde edilen bilgiler ile Liebowitz Sosyal Anksiyete Ölçeği (LSAS) puanlarına göre genelleşmiş tip (GT) ve kısıtlı tip (KT) olarak iki gruba ayrılmış ve Çocuklar için Depresyon Ölçeği (CDI), Çocuklar için Anksiyete Bozuklukları Tarama Ölçeği (CADSS), Çapa Çocuk ve Ergen Sosyal Fobi Ölçeği (CASPS) ile LSAS alt ölçek puanları BDT öncesi ve sonrası karşılaştırılmıştır.
Bulgular: BDT öncesinde GT (n=13) ve KT (n=10) gruplarının ölçek puanları karşılaştırıldığında, GT grubundaki ergenlerin CDI, CADSS, CASPS ve LSAS puanları istatistiksel olarak anlamlı derecede daha yüksek bulunmuştur. BDT sonrası LSAS alt ölçekleri ve CADSS puanları karşılaştırıldığında ise her iki grupta da ölçek puanlarının GT grubunda daha yüksek olduğu görülmüştür.
Sonuç: Bu çalışma, SAB semptomlarına göre kategorik tanı yapıldığında, özellikle depresif semptomlar ve diğer anksiyete bozuklukları eşlik eden vakalarda BDT etkinliğinin azalabileceğini düşündürmektedir.

Anahtar Kelimeler: Sosyal anksiyete bozukluğu, Ergen, Bilişsel davranışçı terapi

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Introduction

Social anxiety disorder (SAD) involves experiencing significant fear or anxiety in one or more social situations where the individual may be subject to evaluation by others. This marked fear or anxiety can arise during social interactions, being observed, or performing actions in front of others, and the person is afraid of behaving in a way that might be negatively evaluated or showing signs of anxiety (1). Researchers report that the disorder typically emerges in childhood and early adolescence and tends to become chronic and persist throughout life (2). Social anxiety is most encountered during adolescence. SSRIs and SNRIs are generally considered first-line pharmacological treatments for anxiety disorders; however, pharmacotherapy is thought to have limited efficacy in social anxiety disorder (3).

Cognitive-behavioural therapy (CBT) is seen as a highly effective therapy method for anxiety disorders in adolescents (4). In a study involving adolescents aged 15–17, including 15 girls and 11 boys, ten sessions of CBT were conducted. It was found that symptoms of SAD significantly decreased (5). Similarly, a 2020 study evaluated 12 university students with SAD using the Liebowitz Social Anxiety Scale (LSAS) after eight sessions of CBT. The results showed a significant reduction in their symptoms (6). Furthermore, several randomized controlled trials have confirmed CBT's effectiveness across various anxiety disorders (7).

However, most treatment studies exclude patients with comorbid disorders, leaving limited evidence regarding the treatment of comorbid SAD and anxiety disorders. For instance, one study found no significant differences in outcomes between SAD patients with and without comorbid Generalized Anxiety Disorder (GAD) following group CBT (8). Comorbid conditions require careful evaluation, as untreated comorbidities may result in insufficient or inappropriate treatment. CBT is generally recommended for patients with both SAD and Major Depression (MD) (9). However, research on the influence of depressive symptoms on CBT outcomes in SAD is inconsistent. Some studies suggest that higher levels of depression may reduce CBT's short-term effectiveness (11,12), while others report no significant impact of MD on CBT outcomes (13,14). Notably, one study observed worsening SAD symptoms in the long term (15). Both CBT and antidepressants are effective treatment options for SAD and comorbid conditions. However, the evidence remains insufficient, with studies often yielding inconsistent results.

It is known that individuals experiencing symptoms of social anxiety exhibit significant clinical differences. These clinical differences may manifest as variations in the environments where individuals experience anxiety or differences in the number of environments where they experience anxiety. Although it is commonly stated that people with SAD are most anxious in performance situations, it has been observed that they can experience intense anxiety in situations such as being watched while eating or encountering strangers (16,17).

Although SAD as a general concept provides an idea, psychopathology presents with different symptoms and clinical appearances due to individual differences. The explanations provided by categorical models for these differences can be limited. For this reason, the structure of the DSM, which has a categorical classification, is criticized. Efforts are being made to develop new classifications to understand and diagnose psychopathologies (18). SAD is among the psychopathologies that are difficult to explain with categorical diagnostic systems, where differences in clinical appearance cannot be distinguished by the severity of symptoms or the type and number of environments where anxiety/fear/avoidance is experienced (19).

This study aims to evaluate the clinical characteristics and treatment effectiveness of adolescents diagnosed with SAD who are treated with CBT, by classifying their treatment effectiveness according to their symptoms.

Materials and Methods

Sample

The study included 23 adolescents aged 12-18 diagnosed with SAD, whose records were retrospectively reviewed from the Recep Tayyip Erdogan Education and Research Hospital Child and Adolescent Psychiatry Clinic. These adolescents received 8-12 sessions of CBT in addition to selective serotonin reuptake inhibitors (SSRIs) as part of routine treatment. To confirm the diagnosis of SAD and rule out comorbid psychiatric disorders (e.g., psychotic disorders, bipolar disorder, tics, conduct disorders), the Schedule for Affective Disorders and Schizophrenia for School-Age Children - Present and Lifetime Version (K-SADS-PL) was administered. According to the clinical evaluation based on DSM-5, adolescents with autism spectrum disorder, language development delays, intellectual disabilities, learning disorders, or those not attending formal education were excluded from the study.

The inclusion criteria for the study were as follows: being aged 12-18, having clinically normal intelligence levels, attending formal education, being literate, and having received 8-12 sessions of CBT in addition to SSRIs as part of routine treatment for a diagnosis of SAD.

Instruments

Adolescents whose data included a sociodemographic information form completed by asking questions to parents during interviews, the semi-structured interview method K-SADS-PL, and routine assessments with the Children's Depression Inventory (CDI), Children's Anxiety Disorders Screening Scale (CADSS), Capa Child and Adolescent Social Phobia Scale (CASPS), and Liebowitz Social Anxiety Scale (LSAS) prior to SSRI and CBT treatment were included in the study. The sociodemographic information form, designed by us, is a semi-structured clinical interview form completed by the researcher before administering the K-SADS-PL. It was used to collect sociodemographic information about the child and the family by asking questions to the parents.

Children's Depression Inventory (CDI)

Developed by Kovacs in 1981 to assess the level of depression in children, the CDI is the most used self-assessment tool for childhood depression (20). It is applicable to children aged 6-17. The scale consists of a total of 27 items. For each question, the child is asked to choose the most appropriate option from three choices based on their condition over the past two weeks. The scoring ranges from 0 to 2. The highest possible score on the scale is 54, and the lowest is 0. A cut off score of 19 is recommended. In Turkey, the validity and reliability study were conducted by Öy in 1991 (21).

Children's Anxiety Disorders Screening Scale (CADSS)

Developed by Birmaher et al. in 1999 to screen for anxiety disorders in childhood, the Turkish validity and reliability of the scale were established by Çakmakçı in 2004 (22,23). The scale is filled out by the child reading it themselves or having it read to them. The child is asked to mark the option that best describes them for each sentence. Each item is scored from 0 to 2. The higher the score, the higher the general anxiety level. The CADSS consists of 41 items, and a score of 25 or above is considered indicative of anxiety disorders. The scale includes subscales for somatization, panic, generalized anxiety, separation anxiety, social phobia, and school phobia.

Capa Child and Adolescent Social Phobia Scale (CASPS)

Developed by Demir et al. in 1999, the CASPS is a 25-item Likert-type self-report tool used to determine the level of social phobia in children and adolescents aged 10 and above (24). Some items on the scale address situations related to the school and classroom environment that may lead to social phobia and the reactions to these situations. The scale can score from a minimum of 25 to a maximum of 125. There is no established cut off score for the scale. High scores indicate severe symptoms of social phobia. The reliability coefficient of the scale is reported as Cronbach's $\alpha = .82$.

Liebowitz Social Anxiety Scale (LSAS)

The LSAS is a measure developed to assess fear and avoidance related to social phobia. The scale consists of a total of 24 items, with 13 items related to performance anxiety (1, 2, 3, 4, 6, 8, 9, 13, 14, 16, 17, 20, 21) and 11 items related to social situations (5, 7, 10, 11, 12, 15, 18, 19, 22, 23, 24). It is considered valid and reliable for SAD and is one of the most frequently used scales in this area (25). In Turkey, validity and reliability studies have been conducted by Dilbaz et al in 2001 (26).

Procedure

A K-SADS-PL interview was conducted with all adolescents and their parents to make diagnoses and exclude accompanying psychiatric disorders. Before CBT sessions, a sociodemographic data form was filled out by asking questions to the parents. Before CBT, the adolescents were administered the CDI, CADSS, CASPS, and LSAS scales. For those who completed at least 8 and at most 12 sessions of CBT, the CADSS, CASPS, and LSAS scales were re-administered at the final therapy session.

The research sample was divided into two groups based on their symptoms according to the subscales of the LSAS. Adolescents with scores of at least half of the maximum score on the performance anxiety and/or avoidance subscales were classified as the restricted type (RT) (n=10). Adolescents with scores of at least half of the maximum score on the performance anxiety and/or avoidance subscales, as well as scores of at least half of the maximum score on the social situation anxiety and/or avoidance subscales, were classified as the generalized type (GT) (n=13).

The routine scores of the CADSS, LSAS, and CASPS were compared for both groups before and after CBT. Additionally, the post-treatment scale scores of the two symptom-based groups were compared to evaluate the effectiveness of the treatment based on symptoms.

The study was approved by the Recep Tayyip Erdogan University Faculty of Medicine Ethics Committee (02.05.2024 decision no: 2024/89).

Statistical Analysis

The statistical analysis of the data was performed using SPSS 29 (IBM, Armonk, USA), The Shapiro-Wilk tests were used to assess the normality of data distribution. The sociodemographic data form, CDI, CADSS, LSAS subscales, and CASPS scores of the adolescents participating in the study were evaluated using descriptive statistics. The comparison of pre- and post-treatment scale scores within each group was assessed using the Wilcoxon test. Additionally, the Mann-Whitney U test was used to compare the pre-treatment and post-treatment scale scores between the two groups. The significance level was taken as $p < 0.05$.

Results

In the study, the average age of the GT group was 14.42±1.4, and the average age of the RT group was 16±0.8, with a statistically significant difference in age between the two groups. No difference was found in gender distribution between the two groups. Comparing the scale scores of the GT and RT groups, no statistically significant differences were found in the CASPS post-treatment score, the LSAS performance anxiety subscale pre-treatment, the LSAS performance anxiety subscale post-treatment, the LSAS performance-related avoidance subscale pre-treatment, or the LSAS performance-related avoidance subscale post-treatment. However, there was a statistically significant difference in pre-treatment scores on the CASPS between the two groups, with higher scores in the GT group.

The CDI score was significantly higher in the GT group. When evaluating pre- and post-treatment scores on the CADSS, a statistically significant increase was found in the GT group. Scores on the LSAS social situation anxiety subscale and the LSAS social situation avoidance subscale, both pre- and post-

treatment, were significantly higher in the GT group. The total fear score and total avoidance score on the LSAS were significantly higher in the GT group both pre- and post-treatment ($p<0.05$) (Table 1).

An evaluation of pre-and post-treatment scale scores for the GT group showed statistically significant decreases in all scale scores (Table 2). Similarly, an evaluation of pre- and post-treatment scale scores for the RT group also revealed statistically significant decreases in all scale scores (Table 2).

Table 1. Comparison of scale scores of GT and RT

	Generalized Type GT (GT) n=13 Mean±Sd.	Restricted Type RT (RT) n=10 Mean±Sd.	p
Age	14,42±1,4	16±0,8	0.05*
CASPS Before Treatment	64,67±21,2	44,82±14,1	0.019**
CASPS After Treatment	28,75±4,7	27,64±3,7	*0.379***
CDI	25,33±6,2	17,82±5,5	0.004**
CADSS Before Treatment	42,42±10,8	30±4,4	0.002**
CADSS After Treatment	22,17±5,7	16,64±3	0.016**
LSAS Anxiety About Social Situations Subscale Before Treatment	32,33±5	18,27±2,9	0.001**
LSAS Anxiety About Social Situations Subscale After Treatment	16,83±4,2	13,64±2	0.044**
LSAS Performance Anxiety Subscale Before Treatment	34,67±4,8	36±6,3	*0.833***
LSAS Performance Anxiety Subscale After Treatment	21,75±2,9	21±3,7	*0.740***
LSAS Avoidance About Social Situations Subscale Before Treatment	32,67±4,3	16,36±2,9	0.000**
LSAS Avoidance About Social Situations Subscale After Treatment	20,33±2,7	13,18±1,8	0.000**
LSAS Avoidance of Performance Status Subscale Before Treatment	31,83±4	37±6	*0.444***
LSAS Avoidance of Performance Status Subscale After Treatment	19,25±3,5	21,36±3,4	*0.151***
LSAS Total Fear Before Treatment	67±6,1	54,27±7	0.001**
LSAS Total Avoidance Before Treatment	64,5±3,7	53,45±7,7	0.001**
LSAS Total Fear After Treatment	38,58±3,8	34,73±3,6	0.023**
LSAS Total Avoidance After Treatment	39,58±3,6	34,55±4,7	0.011**

*Notes:*Independent T test; **Mann-Whitney U Test*

Abbreviations: *GT: Generalized Type, RT: Restricted Type, Std: Standard Deviation, CDI: Children's Depression Inventory, CASPS: Capa Child and Adolescent Social Phobia Scale , CADSS: Children's Anxiety Disorders Screening Scale, LSAS: Liebowitz Social Anxiety Scale*

Table 2. Examination of GT group and RT group scale scores before and after treatment

	GT (p)	RT(p)
CADSS Before-After Treatment	0.002	0.003
CASPS Before-After Treatment	0.002	0.003
LSAS Anxiety About Social Situations Subscale Before-After Treatment	0.002	0.003
LSAS Performance Anxiety Subscale Before- After Treatment	0.002	0.003
LSAS Avoidance About Social Situations Subscale Before-After Treatment	0.002	0.007
LSAS Avoidance of Performance Status Subscale Before-After Treatment	0.002	0.003
LSAS Total Fear Before -After Treatment	0.002	0.003
LSAS Total Avoidance Before-After Treatment	0.002	0.003

Notes: Wilcoxon Test

Abbreviations: GT: Generalized Type, RT: Restricted Type, CASPS: Capa Child and Adolescent Social Phobia Scale , CADSS: Children's Anxiety Disorders Screening Scale, LSAS: Liebowitz Social Anxiety Scale

Discussion

In this study, the effectiveness of CBT in treating adolescents diagnosed with SAD was evaluated by categorizing based on the prevalence of symptoms. Additionally, the impact of sub-threshold anxiety and depression symptoms on the CBT process for SAD was investigated.

In this study, when comparing the average ages of the GT and RT groups, the GT group was found to have a lower average age. The literature reports that SAD is a disorder that begins in childhood and early adolescence (27-31). McEvoy et al. (2011) found that SAD is the anxiety disorder with the earliest onset (32). It has been reported that cases of SAD with early onset are more frequently seen as subtypes compared to cases with later onset (33,34). The statistically significant difference observed between the GT and RT groups in this study, while being a confounding factor in the comparison of data, is consistent with the literature regarding early onset of generalized SAD.

When comparing pre-treatment scores of the GT and RT groups, the GT group had statistically significantly higher CDI and CADSS scores before treatment. The literature indicates that generalized SAD is not only associated with early onset but also with comorbid psychiatric disorders. It has been reported that individuals with generalized SAD experience more symptoms, which are related to comorbid psychiatric conditions (35). In a study examining the clinical impact of the age of onset of SAD in adults, those with early onset of SAD were found to have more prevalent symptoms and higher Beck Depression Inventory scores (36). Follow-up studies have specifically found that early-onset SAD may be associated with major depression (37,38). Additionally, in groups with anxiety disorders, early onset of SAD is associated with more prevalent symptoms (39). Although the K-SADS semi-structured diagnostic interview was used in this study and no comorbid psychiatric disorders were detected, the statistically significant higher CADSS and CDI scores in the GT group, indicating sub-threshold anxiety and depression symptoms, may be related to the higher prevalence of symptoms and early onset in this group. This finding is consistent with the literature.

In this study, no significant difference was found in post-treatment CASPS, pre- and post-treatment LSAS performance anxiety subscale scores, or LSAS performance-related avoidance subscale scores. These results indicate that individuals with widespread symptoms in performance anxiety and performance-related avoidance in both the GT and RT groups show similar effects in terms of performance anxiety, and are consistent with the literature (40,41).

The statistically significant higher pre-treatment scores on the CASPS, LSAS Anxiety About Social Situations Subscale, LSAS Avoidance About Social Situations Subscale, LSAS Total Fear, and LSAS Total Avoidance in the GT group indicate that this group had more widespread symptoms at the outset. In a study conducted by Koyuncu et al. in 2012, it was reported that individuals with early-onset SAD had statistically significantly higher LSAS Total Fear and Total Avoidance scores compared to those with late-onset SAD, showing more prevalent symptoms (36). The lower average age in the GT group in our study suggests that the significant elevation in scale scores for this group may be related to the higher prevalence of symptoms.

When comparing post-treatment CASPS scores between the GT and RT groups, no statistically significant difference was found. This finding may be attributed to the positive effects of CBT on SAD symptoms (42).

It was observed that post-treatment scores on the LSAS Anxiety About Social Situations Subscale, LSAS Avoidance About Social Situations Subscale, LSAS Total Fear, and LSAS Total Avoidance were higher in the GT group. These findings suggest that, similar to the literature, the effect of CBT on reducing SAD symptoms, depression, and anxiety may be less in the GT group compared to the RT group (43). However, this situation is an important confounding factor to consider in evaluating the treatment effects of CBT, given that the GT group initially had more widespread symptoms and exhibited symptoms of anxiety and depression (44). Therefore, it is crucial to consider the prevalence of initial symptoms during the treatment process, assess the presence of sub-threshold depression-anxiety, and individualize treatment plans (45). Additionally, it should be considered that providing additional interventions and support in the GT group could enhance the effectiveness of cognitive therapy (46).

In the GT group, when comparing pre-treatment and post-treatment scores on the CADSS, CASPS, LSAS Performance Anxiety Subscale, LSAS Avoidance of Performance Status Subscale, LSAS Anxiety About Social Situations Subscale, LSAS Avoidance About Social Situations Subscale, LSAS Total Fear, and LSAS Total Avoidance, a statistically significant decrease was observed in all scale scores. Similarly, in the RT group, a statistically significant decrease was observed in all scale scores when comparing pre-treatment and post-treatment scores on the CADSS, CASPS, LSAS Performance Anxiety Subscale, LSAS Avoidance of Performance Status Subscale, LSAS Anxiety About Social Situations Subscale, LSAS Avoidance About Social Situations Subscale, LSAS Total Fear, and LSAS Total Avoidance. Significant decreases were observed in both groups' pre-treatment and post-treatment scale scores. This indicates that CBT is an effective treatment method for reducing SAD symptoms. Literature shows that positive outcomes obtained from treating SAD with CBT in adolescents suggest that this therapy is a suitable and effective intervention for young people (47). A meta-analysis conducted by Kerns and Prinstein demonstrates that CBT is significantly effective in reducing symptoms in adolescents with SAD (48). This study aligns with the literature in showing that CBT is an effective method for treating SAD in adolescents.

The importance of categorizing SAD based on symptoms is also supported by the findings of this study. SAD may require different treatment approaches for individuals with varying

symptom profiles. The ways in which individuals with performance anxiety versus those exhibiting social avoidance behaviours respond to treatment, and the presence of comorbid psychiatric disorders, can differ (49). Therefore, creating more specific categories based on symptoms in SAD and adapting individualized CBT treatment plans accordingly may lead to more effective outcomes (50).

Limitations of this study include the small sample size, reliance on data from a single centre, the absence of a group receiving only CBT without pharmacotherapy, and differences in age between groups. Additionally, strengths of the study include the use of a semi-structured interview to diagnose SAD, exclusion of individuals with medical and psychiatric comorbidities, intellectual disabilities, those who cannot read and write, and those not attending formal education. The comparison of similar gender groups is also a strength. Furthermore, the fact that CBT was administered by the same therapist and that all participants were using SSRIs helped minimize potential confounding factors.

To the best of our knowledge, this study is the first to evaluate the effectiveness of CBT by categorizing symptoms in adolescents diagnosed with SAD. This research is pioneering in investigating the heterogeneity of SAD as a diagnostic category in adolescents, and in demonstrating the effectiveness of CBT with respect to symptomatic categorization and the presence of sub-threshold depression and other anxiety disorders.

This study categorized symptoms in adolescents diagnosed with SAD, evaluating the heterogeneity of the disorder and the effectiveness of CBT based on symptom prevalence. We found that in SAD, the group with widespread symptoms related to social situations had a lower age of onset and exhibited sub-threshold depression and anxiety symptoms. Post-therapy, the scale scores for this group were higher compared to the group with limited symptoms. Research on the symptom heterogeneity in SAD is limited. Given these limitations, further studies are needed to evaluate the symptom heterogeneity across various age groups, include groups not on pharmacotherapy, and clarify the effectiveness of CBT through longitudinal studies.

Ethical Approval: *The study was approved by the Recep Tayyip Erdoğan University Faculty of Medicine Ethics Committee (02.05.2024 decision no: 2024/89).*

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Concept: Y.S.N.
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Data acquisition: Y.S.N.
Analysis and interpretation: Y.S.N.
Writing manuscript: Y.S.N.
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