

Cognitive Behavior Therapy on Anxiety in Children with High Functioning Autism

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ABSTRACT

Aim: To study the effect of Cognitive Behavior therapy on anxiety in children with High Functioning Autism. **Method:** 5 cases were selected through purposive sampling technique from a special school in Lucknow, Uttar Pradesh, India. Pre and post-research designs were used, followed by appropriate statistical analysis using SPSS-15. **Tools:** Cases with IQ above 70 and Mild to Moderate level of Autism were included in the study, and screening was done by using Colored Progressive Matrices and Indian Scale for the assessment of Autism, Severity measure for Generalized anxiety and social anxiety disorder was used as a primary tool for pre and post comparison. **Result:** Finding suggests positive change after intervention as reported by the parents of the cases/sample subjectively and in the mean of raw data of the pre and post-comparison, but no statistical differences have been found. **Implication:** Cognitive Behavior therapy techniques can be used as an intervention for children with High Functioning Autism. However, for effective results, several enhancements in the module are required, as suggested in the discussion part.

Keywords: High Functioning Autism, Cognitive Behavior Therapy, Generalized Anxiety, Social Anxiety.

According to Kanner (1943), individuals with Autism can be defined as high functioning if they have almost normal language ability and intelligence. Researchers from Yale University described high functioning autism as individuals with Autism whose full-scale IQ is greater than 70, without significant language and intellectual delays (Rubin & Lennon, 2004).

Many researchers believe that social skill deficits contribute to the development of emotional problems in individuals with Autism. According to Attwood (1998), anxiety is a common emotional problem in this population. Gillot et al. (2001) also reported that children with high functioning autism have significantly higher scores on anxiety measurement than typically developing peers or peers with other learning disorders. Researchers believe that individuals who have experienced, for example, negative peer interaction or poor rejection resulting from social skill deficits are more likely to develop

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social anxiety than their peers (Ginsburg, La Greca & Silverman 1998; La Greca & Lopez, 1998).

Tatam (2000) also found that social functioning deficits have a tremendous negative impact on the individual's social interaction with people around them. Anxiety among children with Autism may be related to their cognitive impairment as they lack the cognitive flexibility to generate strategies to adapt to varying circumstances and, as a result, may experience distress over trivial changes in the environment. Collectively, these complicated cognitive deficits may cause a variety of communication and social difficulties, causing children with Autism to experience severe problems in social relationships, which in turn, may lead to the development of anxiety.

Previous research findings have indicated that Autism children may not be suitable for CBT due to the earlier results that most Autism children have difficulties in reading the thoughts, intent, and emotions of others and so lack the ability to take another person's perspective. This difficulty has been termed lack of a "theory of mind" (Baron Cohen, 1980). However, there are also literature reviews that highlight the capability of High Functioning Autism children to identify and read the thoughts, intent, and emotions of others.

Storch, E et al. (2013), in their study done on 45 children (7–11 years of age) with high-functioning Autism and clinically significant Anxiety, were randomized to receive 16 sessions of weekly CBT or Treatment as usual for an equivalent duration found that relative to usual care, CBT adapted for anxious youth with high-functioning Autism demonstrates significant effects in reducing anxiety symptoms.

Lang, R, Regeister, A et al. (2009), in their study, concluded that CBT had been modified for individuals with Autism by adding intervention components typically associated with applied behavior analysis (e.g., systematic prompting and differential reinforcement). Future research involving a component analysis could potentially elucidate the mechanisms by which CBT reduces anxiety in individuals with ASD, ultimately leading to more efficient or effective interventions.

CBT in Autism is still a new concept, and more research needs to be conducted to examine the effectiveness of CBT for children with Autism. Moreover, to the best of my knowledge, no SCARCITY research in India has been done to assess the efficacy of CBT in reducing anxiety in high-functioning Autism.

METHOD

Purpose of the study

- To assess the effect of Cognitive Behavior therapy for Anxiety in Children with High Functioning autism.

Objectives of the study

- To assess the effect of Cognitive Behavior therapy for Generalized Anxiety in children with High functioning autism.
- To assess the effect of Cognitive Behavior therapy for Social Anxiety in children with High Functioning Autism.

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Hypothesis

- There will be a positive effect of Cognitive Behavior therapy for Generalized Anxiety in children with high functioning autism.
- There will be a positive effect of Cognitive Behavior therapy for Social Anxiety in children with High Functioning autism.

Sample

Five cases were selected using the Purposive Sampling technique from Paramahansa Yogananda Society for Special Unfolding and Molding (PYSSUM), Lucknow, Uttar Pradesh.

Inclusion Criterion

1. Individuals or their parents are willing to give informed consent.
2. Individuals who are cooperative for the study and can comprehend the test requirements.
3. Individuals with IQ falling between Grades 1-4 i:e at or above 25th percentile.
4. Individuals with Mild to Moderate levels of Autism.
5. Individuals who are not diagnosed with any other Psychiatric illness.
6. Individuals with age range 11-17 years

Exclusion Criterion

1. Individuals or their parents are not willing to give informed consent.
2. Individuals who are not cooperative for the study and cannot comprehend the test requirements.
3. Individuals with IQ falling in Grade 5 below the 25th percentile.
4. Individuals who are diagnosed with a Severe level of Autism.
5. Individuals who are diagnosed with other psychiatric illnesses.
6. Individuals with an age range below 11 or above 17.

Research Design

Pre and Post Experimental Design

Tools

- **Colored Progressive Matrices:** This will be used as a screening tool. It is a 60-item test used in measuring abstract reasoning and regarded as a non-verbal estimate of intelligence developed by John C Raven. It is the most common and popular test administered to groups ranging from 5-year-olds to the elderly. The reliability coefficient of the test is 0.89.
- **Indian Scale for the Assessment of Autism:** The National Institute for the Mentally Handicapped (NIMH), Hyderabad, has developed an Indian Scale for Assessment of Autism (ISAA) for assessing children with Autism to issue disability certificates. ISAA has 40 items in 6 domains. Each item is rated from 1 to 5, the higher score indicating greater severity of autistic features. A score of less than 70 indicates no autism, 70–106 implies mild Autism, 107–153 indicates a moderate level, and a score more than 153 denotes severe Autism. Inter-rater reliability and test-retest reliability is ($r > 0.83$) and (> 0.89) respectively.
- **Severity Measure for Generalized Anxiety Disorder:** The Severity Measure for Generalized Anxiety Disorder—Child Age 11–17 is developed by American Psychiatric Association is a 10-item measure that assesses the severity of generalized anxiety disorder in children and adolescents. The measure was designed to be

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completed by the child upon receiving a diagnosis of a generalized anxiety disorder (or clinically significant generalized anxiety disorder symptoms) and thereafter, prior to follow-up visits with the clinician. Each item asks the child to rate the severity of their generalized anxiety disorder during the past seven days.

- **Severity Measure for Social Anxiety Disorder:** The Severity Measure for Social Anxiety Disorder—Child Age 11–17 is developed by American Psychiatric Association is a 10-item measure that assesses the severity of social anxiety disorder in children and adolescents. The measure was designed to be completed by the child upon receiving a diagnosis of a social anxiety disorder (or clinically significant social anxiety disorder symptoms) and thereafter, prior to follow-up visits with the clinician. Each item asks the child to rate the severity of his or her social anxiety disorder during the past seven days.

Procedure

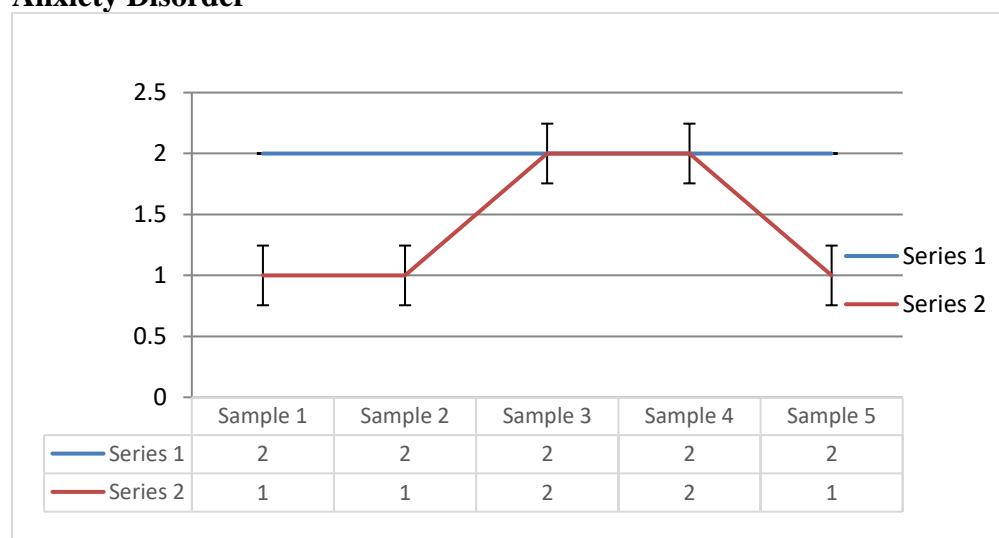
Each sample was screened through Colored Progressive Matrices (CPM) and the Indian Scale for the Assessment of Autism to know their IQ levels and severity of Autism. Samples with IQ falling between Grade 1-4 i:e at or above 25th percentile as per CPM and mild to moderate level of Autism were selected. Before starting the therapy session's detailed case history was taken from parents and teachers, and behavior observations were done. Parents and teachers were explained about the treatment plan, and its efficacy as their cooperation was necessary throughout the study. Severity Measure for Generalized Anxiety Disorder and Social Anxiety Disorder was administered before starting therapy sessions and after their completion.

Following treatment manual was referred in the present study which was developed in the below mentioned research and was later published as an independent manual for treatment and other research purposes.

Heavens, D., Langdon, P.E., & Murphy, G.H. (2012). *Individual and group cognitive behavioral therapy (CBT) for anxiety disorders amongst people with Autistic Spectrum Disorders/Conditions (ASD/ASC). Version 3.0*

RESULTS

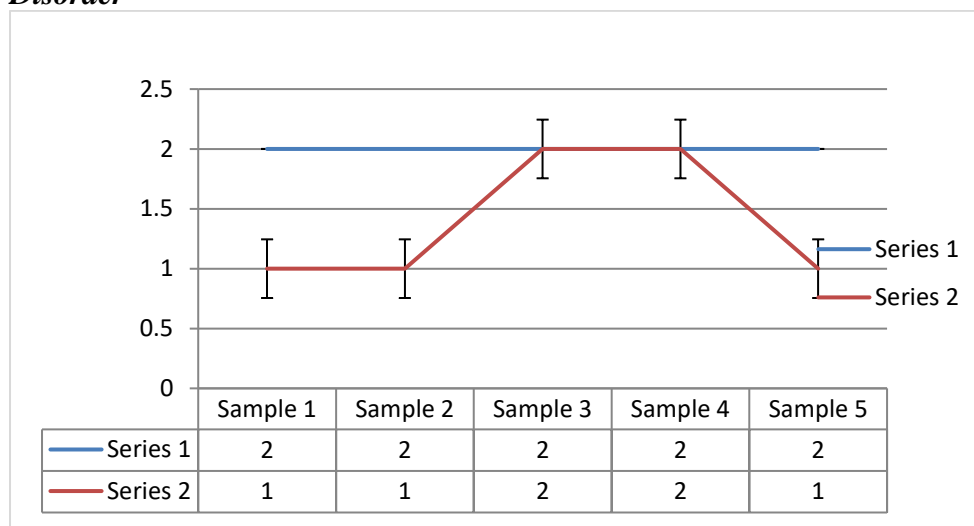
Comparison of Pre and Post Intervention Scores on Severity Measure for Generalized Anxiety Disorder



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All the samples have scored 2 in the Pre-Intervention test indicating a moderate level of generalized anxiety. Samples 1, 2 and 5 have scored 1 in the Post Intervention test, indicating that after giving therapy sessions, their anxiety level had reduced from moderate to mild.

Comparison of Pre and Post Intervention Scores on Severity Measure for Social Anxiety Disorder



All the samples have scored 2 in the Pre-Intervention test, indicating a moderate level of social anxiety. Samples 1, 2, and 5 have scored 1 in the Post Intervention test, indicating that after giving therapy sessions, their anxiety level had reduced from moderate to mild.

Paired Sample Statistics and t Test Small Sample

		Mean	N	Std. Deviation	t	Df	Sig.(2 tailed)
PAIR 1	GADPRE	2.0000	5	.00000	2.449	4	.070
	GADPOS	1.4000	5	.54772			
PAIR 2	SAPRE	2.0000	5	.00000	2.449	4	.070
	SAPOS	1.4000	5	.54772			

[Note: * $p < 0.05$, ** $p < 0.01$]

There is a difference in the mean of Generalized Anxiety Pre-Intervention and Generalized Anxiety Post Intervention. Mean of GAD PRE, and the standard deviation is 2.0000 and .0000, whereas the mean of GAD POST and the standard deviation is 1.4000 and .54772. There is no statistical significant difference in the Generalized Anxiety pre and post-intervention tests similarly, there is a difference in the mean of Social Anxiety Pre Intervention and Social Anxiety Post Intervention. Mean of SAPRE, and the standard deviation is 2.0000 and .0000, whereas mean of SAPOS and the standard deviation is 1.4000 and .54772. There is no statistically significant difference in the Social Anxiety pre and post-intervention tests.

Community Involvement: There is no community involved in this study.

DISCUSSION

The purpose of the current study was to assess the effect of Cognitive Behavior therapy for Anxiety in Children with High Functioning Autism.

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Previous researchers have suggested that anxiety-associated problems are among the most frequently reported mental health difficulties in autism spectrum disorder. The severity of repetitive speech/behavior symptoms was a substantial predictor of separation anxiety, generalized anxiety, panic/agoraphobia, and obsessive-compulsive subscale symptoms (Magiati et al., 2016). Further, within Autism, more significant social anxiety was related to increased activation in the right amygdala and left middle temporal gyrus and decreased activation in the fusiform face area. These results indicate that level of social anxiety mediates the neural response to emotional face perception in ASD (Kleinhan et al., 2010). In the current research, the Severity measure for generalized anxiety disorder scale and Severity measure for social anxiety disorder scales were administered pre and post-therapy. Before applying the intervention, samples scored 2 indicating moderate levels of anxiety.

Several case studies and exploratory clinical trials have suggested that Cognitive Behavior Therapy (CBT) may help lessen anxiety symptoms in children with Autism (Chalfant, Rapee, & Carroll, 2006; Reaven & Hepburn, 2003; Sofronoff et al., 2005; Sze & Wood, 2007).

Cognitive-behavioral therapies (CBT) are often successful for children with anxiety symptoms. Modified CBT interventions for anxiety in kids with Autism have also yielded promising results.

Cognitive Behavior Therapy for Anxiety in Children with Autism is a new concept. Though there are numerous researches done to test the effectiveness of CBT still, there are limitations that are required to be spoken. Danial et al. (2013) reviewed CBT programs targeting anxiety, disruptive behavior, and core autism symptoms for children with Autism and concluded that though there is emerging evidence suggesting that CBT is possibly effective for anxiety and autism symptoms, methodological weaknesses must be addressed before clear conclusions can be made. Lang et al., (2010), in their study, concluded that CBT had been modified for individuals with ASD by adding intervention components typically associated with applied behavior analysis (e.g., systematic prompting and differential reinforcement).

From the limitations of previous researches mentioned it was clear that future research should use the more precise methodology and assess the effectiveness of specific cognitive strategies and autism-related adaptations.

In the current research, it was hypothesized that there would be a positive effect of Cognitive Behavior Therapy for Generalized Anxiety and Social Anxiety in Children with High Functioning Autism.

Five samples were selected through the Purposive sampling technique from a special school in Lucknow with IQ above 70 and Mild to Moderate level of Autism (Screened through Colored Progressive Matrices and Indian Scale for the Assessment of Autism, respectively). Severity Measure for Generalized Anxiety Disorder and Social Anxiety Disorder Scale was administered as a pre-intervention test followed by a standardized intervention program of cognitive behavior therapy of 24 sessions, out of which three sessions were taken individually, and 21 sessions were taken into group. Parents and teachers were also involved in the therapy program. After the completion of 24 sessions, a post-intervention test was administered, and parents' feedback was also taken.

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The CBT treatment program combined both cognitive and behavioral techniques. Within the CBT sessions, role-plays, modeling, behavioral rehearsal, and group discussion were used to teach the various skills. Adaptations to the CBT program were made by incorporating strategies that have been found to be effective for children with Autism, such as visual cues and social stories.

In this manual total of 24 sessions were given wherein three sessions were of individual therapy and the rest 21 sessions were of group therapy. At the back of the manual various worksheets were given along with pictures to make the task more understanding and interesting. In every session, homework was assigned based on the worksheets and was reviewed in the next session.

Therapy sessions started with simple techniques like rapport building psycho-education of parents followed by social skills training, role plays and social stories. Parents were involved in between from time to time. Subjective Unit of Distress scale was introduced. Parents were also asked to maintain the mood diary with the involvement of participants.

The relaxation technique was demonstrated to reduce anxiety in children. Parents were given handouts of Autism, its symptoms and comorbid disorders, basics of cognitive behavior therapy, techniques to identify negative automatic thoughts, and instructions of relaxation techniques.

Several enhancements in the module of intervention was done as children were not able to understand the concepts of negative thoughts, cognitive error etc. so these were explained to parents so that they can easily identify why the behavior of their children changes automatically which was also helpful in reducing the stress and anxiety of parents as reported by the parents subjectively. Instead of explaining the core concept of Cognitive behavior therapy to participants, role plays, social stories, social skills training, and simple relaxation exercises were effective in calming children in stressful situations and managing it.

Feedback from the parents was taken individually. Parents informed that children are maintaining their mood diary and are also practicing relaxation exercises regularly though they have still not overcome their fear completely. Two of the parents reported that their children are not applying the skills that they have learned through social stories and role-plays, while the other three reported that their children are applying every skill that were taught during the sessions. Parents were asked to continue it in their home for a longer period of time so that the children get the better understanding of it.

Statistical Analysis was done through Parametric Test that, is Paired Sample t-test for a small sample to find out the differences in the mean and standard deviation and significant difference between the pre and post-intervention tests.

The results have indicated that there is a difference in the mean of Generalized Anxiety (GAD) Pre Intervention and Generalized Anxiety (GAD) Post Intervention. The mean of GAD Pre Intervention and the standard deviation is 2.0000 and .0000, whereas mean of GAD Post Intervention and the standard deviation is 1.4000 and .54772. There is no statistically significant difference in the Generalized Anxiety pre and post-intervention tests.

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There is a difference in the mean of Social Anxiety (SA) Pre Intervention and Social Anxiety (SA) Post Intervention. The mean of SA Pre Intervention and the standard deviation is 2.0000 and .0000, whereas the mean of SA Post Intervention and the standard deviation is 1.4000 and .54772. There is no statistical significant difference in the Social Anxiety pre and post-intervention tests.

From the results mentioned above, it can be said that the hypothesis that there will be a positive effect of Cognitive Behavior Therapy for Generalized Anxiety and Social Anxiety in children with High Functioning Hypothesis is rejected. Results are in coherence with some of the previous research findings.

Sukhodolsky et al., (2013) systematically reviewed the evidence of using CBT to treat anxiety in children and adolescents; they concluded that parent ratings and clinician ratings of anxiety are sensitive to detecting treatment change with CBT for Anxiety relative to waitlist and treatment-as-usual control conditions in children with high-functioning ASD.

Future researches can examine the effectiveness of Cognitive Behavior Therapy for Anxiety in Children with High Functioning Autism in a larger sample size for getting a better understanding of it. Also, the anxiety and stress levels of parents can also be assessed pre and post-therapy sessions as it was reported by the parents that their caregiver burden was reduced after the completion of therapy sessions. A comparative study can be done to find out the difference between the effectiveness of Cognitive Behavior Therapy and other Interventions which are commonly used in Autism, like Behavior Modification.

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Conflict of Interest

The author(s) declared no conflict of interest.

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