



Research Paper: The Effectiveness of Transactional Analysis Therapy on Anxiety and Quality of Life in Students with Attention-Deficit/Hyperactivity Disorder



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Abstract

Objective: This study aimed to investigate the effectiveness of Transactional Analysis Therapy on the quality of life and anxiety in children diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD).

Methods: A quasi-experimental design, utilizing a pre-test, post-test, and follow-up with a control group, was employed. The statistical population comprised students with ADHD in exceptional schools in Rasht during the 2023-2024 academic year. A total of 30 participants were selected using purposive sampling and randomly assigned to either the experimental or control group. Research instruments included Short Form-36 Health Survey (SF-36) and the Beck Anxiety Inventory (BAI). The experimental group received 8 one-hour sessions of Transactional Analysis Therapy, while the control group received no intervention. Data were analyzed using multivariate analysis of covariance (MANCOVA), univariate analysis of covariance (ANCOVA), and Tukey's post-hoc test via SPSS software, with a significance level set at $p < .01$.

Results: The findings indicated that Transactional Analysis Therapy had a significant positive effect on improving both anxiety and quality of life in the experimental group ($p < .01$). These positive effects were maintained during the two-month follow-up phase.

Conclusion: It can be concluded that Transactional Analysis Therapy is effective in enhancing the quality of life and reducing anxiety in children with Attention-Deficit/Hyperactivity Disorder.

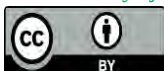
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1. Introduction

Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most prevalent psychiatric disorders in children and adolescents, with a global prevalence rate of 5% (Prakash et al., 2021). Individuals with ADHD experience heterogeneous difficulties, including problems with attention, behavioral hyperactivity, and impulsivity (Abdelnour et al., 2022). ADHD is characterized by heterogeneity, which may manifest in opposing forms and is marked by frequent and variable comorbidities and overlaps with other disorders, as well as context-dependent symptoms that may or may not be apparent during clinical examination (Renner et al., 2008). Individuals with ADHD exhibit difficulties across four domains of attention: selective attention, divided attention, attention shifting, and sustained attention (Lycett et al., 2014). Deficits in these four dimensions lead to problems in daily activities (Tsai et al., 2019). They struggle to focus on completing tasks, lack the ability to pay close attention to details, or make careless mistakes in schoolwork or other activities. They are unable to sustain attention and commonly lose their train of thought (Villemonteix et al., 2015). Deficits in attentional control lead them to daydream while performing tasks and assignments (Forssman et al., 2012).

Attention-Deficit/Hyperactivity Disorder (ADHD) negatively impacts a patient's health-related quality of life. This impact can be further exacerbated by or increase the risk of comorbid psychological conditions such as anxiety and depression (Navarro-Soria et al., 2021). Management recommendations for

ADHD vary, typically involving a combination of medication, psychotherapy, and lifestyle modifications. Notably, anxiety can emerge in children as young as two years old. Early intervention is crucial to prevent the progression of these issues into more significant problems. Before initiating treatment, a specialist must provide a diagnosis based on DSM-5 criteria. Moreover, understanding and measuring quality of life is a priority for clinicians who treat patients with ADHD, as their primary goal is to improve patient well-being (Wehmeier et al., 2020). While numerous studies address the social and emotional behaviors and academic performance of children and adolescents with ADHD, there is limited research, to our knowledge, on how individuals with ADHD self-assess their own quality of life (Zambrano et al., 2020).

In the treatment of anxiety disorders and Attention-Deficit/Hyperactivity Disorder (ADHD), particularly given the observed resistance of some patients to pharmacological interventions, non-invasive Transactional Analysis Therapy has garnered significant attention as a viable treatment method in recent years (Lefaucheur et al., 2017). This approach is particularly relevant when considering the complex and multifaceted nature of parent-child interaction. Parent-child interaction is profoundly shaped by numerous key factors. These include parental attitudes and acceptance levels, along with effective behavioral management and control strategies. A child's sense of social competence and self-restraint also plays a crucial role. Furthermore, the parents'

knowledge and skills in child-rearing are significant, as are their self-confidence and foresight in guiding their child. The establishment of a low-conflict home environment, broader parent-child relationship dynamics, and the quality of maternal emotional care for the child (Esmailpour et al., 2018) also influences the interaction.

Parent-child interaction plays a crucial role in the treatment of Attention-Deficit/Hyperactivity Disorder (ADHD) (Ammann et al., 2017). Classified by the DSM-5, ADHD has a high prevalence in society, leading to a reduced quality of life and increased treatment costs. Parent-child interaction in ADHD treatment serves two primary objectives. Parents are recognized as vital members of the treatment team and actively participate in the therapeutic process. By educating parents on effective parenting strategies, they can provide optimal support for their children throughout treatment. Furthermore, parents actively engage with their children's behaviors and contribute to improving ADHD symptoms by implementing appropriate lifestyle changes (Bastani & Jaberzadeh, 2013). For instance, parents can establish routines for their children, providing structure and order. Limiting screen time (mobile phones and television), avoiding sugary foods, and designating specific times for play and exercise also play an effective role in mitigating ADHD symptoms (Agboada et al., 2019). Finally, effective parent-child communication is essential for alleviating anxiety and boosting children's self-confidence. By creating a stable and

supportive environment, parents can significantly contribute to the improvement of their children's ADHD symptoms (Batsikadze et al., 2013).

Beyond educating parents on effective parenting strategies, parent-child interaction holds significant importance in various aspects of treating Attention-Deficit/Hyperactivity Disorder (ADHD). Here are some of these key aspects: Modifying Undesirable Behaviors: Through effective communication with their children, parents can help identify undesirable behaviors and, by modifying these behaviors, positively impact the improvement of their children's ADHD symptoms (Chew et al., 2015). Additionally, by encouraging children to engage in physical exercise and activities, parents can contribute to the amelioration of ADHD symptoms (Ho et al., year not provided in original text). Overall, parent-child interaction in the treatment of ADHD serves as a coordinated and reciprocal process that plays a crucial role in improving the disorder's symptoms. By fostering collaboration between parents and their children, it's possible to enhance both ADHD symptom management and the children's overall quality of life (Jamil et al., 2017). The present study was designed to address a gap in the literature, as no previous research has investigated the effectiveness of Transactional Analysis Therapy on the quality of life and anxiety in children with ADHD. It is hypothesized that Transactional Analysis Therapy will be effective in improving both quality of life and anxiety in this population.

2. Methods

2.1. Research Design, Participants, and Sampling

The research employed a quasi-experimental design with an experimental group and a control group. The statistical population for this study comprised all students diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD) in exceptional schools in Rasht during the 2023-2024 academic year. Following the principle that experimental research typically requires a minimum sample size of fifteen participants (Delavar, 2024), 30 individuals were selected and divided into two groups. The sampling method for the current study was purposive sampling, with participants subsequently randomly assigned to either the experimental or control group.

Initially, from students diagnosed with ADHD in exceptional schools in Rasht (diagnoses previously confirmed by a psychiatrist and documented in their medical records), and considering the inclusion criteria, 60 individuals who expressed willingness to participate in the study were approached. From these, 30 participants were selected and randomly assigned to either the experimental or control group after obtaining written informed consent. The inclusion criteria for the current study were: an age range of 12 to 15 years, and documented high anxiety levels and low quality of life in the participants.

The control group received no intervention during the study period, from February 2024 to March 2024. They completed only the demographic questionnaire, the ADHD symptom

questionnaire, the Quality of Life Questionnaire, and the Anxiety Questionnaire both before and after the intervention, concurrently with the experimental group. The experimental group received the intervention program individually. Ethically, there was no communication between the control and experimental groups during the study. Participants were assured that their information would remain confidential, and their full consent was obtained for participation, with informed consent also secured from parents. At the conclusion of the study, all educational materials provided to the experimental group were given to the control group in the form of an educational package.

A follow-up assessment and data collection were scheduled for three months after the intervention. It was required that participants not engage in other psychotherapy programs or alter their pharmacological treatments outside of the study's educational and therapeutic intervention. All participants were required to be under Ritalin medication. The experimental group underwent 8 one-hour intervention sessions, while the control group did not receive any treatment. Data were analyzed using multivariate analysis of covariance (MANCOVA), univariate analysis of covariance (ANCOVA), and Tukey's post-hoc test with SPSS software, at a significance level of $p < .01$.

2.2. Instruments

Short Form-36 Health Survey (SF-36)

The SF-36 Health Survey, developed by Ware and Sherbourne (1992), is one of the

most widely used instruments for assessing health-related quality of life. It consists of 36 items grouped into eight domains: physical functioning (items 3–12), role limitations due to physical health problems (items 13–16), role limitations due to emotional problems (items 17–19), energy/fatigue (items 23, 27, 29, 31), emotional well-being (items 24–26, 28, 30), social functioning (items 20, 32), bodily pain (items 21–22), and general health perceptions (items 1–2, 33–36). The SF-36 can be self-administered or conducted through interview and is appropriate for individuals aged 14 years and older. It has been validated across diverse populations and disease contexts. Each domain is scored separately, and responses are transformed into a 0–100 scale, with higher scores indicating better health status.

The Cronbach's alpha coefficient for reliability testing ranged from 77% to 95% for all dimensions of the questionnaire, with the exception of the vitality dimension, which had an alpha of 65% (Kidgell et al., 2013). In a study by Moliadze et al. (2015), internal consistency analysis revealed that, apart from the vitality scale (Cronbach's alpha = 65%), the other scales of the SF-36 demonstrated standard reliability coefficients ranging from 77% to 90%.

Beck Anxiety Inventory (BAI)

The Beck Anxiety Inventory was developed by Beck et al. (1988). This questionnaire specifically measures the severity of clinical anxiety symptoms in individuals. The BAI is a 21-item scale where respondents select one of four options for each item, indicating the intensity of their anxiety. The four-point

Likert scale for each question is scored from 0 to 3. Consequently, the total anxiety score ranges from 0 to 63 (Montazeri et al., 2006).

Scores are interpreted as follows: a score of 0-7 indicates minimal anxiety; 8-15, mild anxiety; 16-25, moderate anxiety; and 26-63, severe anxiety (Kaviani & Mousavi, 2008). Previous studies have demonstrated the high reliability of this questionnaire. Its internal consistency coefficient (Cronbach's alpha) is 0.92, and its test-retest reliability over a one-week interval is 0.75. Item correlations range from 0.30 to 0.60 (Salari-Moghaddam et al., 2018). More recently, its validity and test-retest reliability over a one-week interval were reported as 0.75, with item correlations varying from 0.30 to 0.76 (Nahavandi et al., 2024).

2.3. Treatment Sessions

In the current study, the experimental group received the effective parent-child interaction patterns intervention by Funderburk and Eyberg (2011) over two months (8 sixty-minute sessions). Table 1 provides a summary description of the sessions for Funderburk and Eyberg's (2011) parent-child interaction patterns training.

Table 1

Summary Description of Parent-Child Interaction Patterns Training Sessions (Funderburk & Eyberg, 2011)

Session	Content
First	Objective: Group member introductions, establishment of therapist-participant rapport, pre-test administration. Explanation of the concept of oppositional defiance. Homework: Observe the child in various situations and record defiant behaviors.
Second	Objective: Discuss key aspects of parent-child interaction and parental stress, along with management strategies. Homework: Gather information on the thoughts children might have during defiant-oppositional behavior (e.g., "Something bad might happen to my mom," or "Maybe I'll never see my parents again; they don't love me"). Discuss parents' feelings and concerns resulting from these thoughts (e.g., crying, anger, tantrums). Discuss the child's behavioral responses to defiant-oppositional behavior. Ask parents to identify and specify anxious thoughts, feelings, and behaviors in their child as homework and report them in the next session.
Third	Objective: Discuss parenting styles and their positive and negative consequences. Homework: Identify the child's emotional responses, such as crying or throwing tantrums. Provide extensive reassurance regarding the child's questions and concerns. Educate parents on how modifying these behaviors can impact the overall cycle of defiant-oppositional behavior.
Fourth	Objective: Explain factors influencing the child's psychosocial development and clarify the concept of birth order. Teach principles of behavior modification (emphasizing reinforcement and ignoring). Teach principles of reinforcement: Reinforcement can be tangible or intangible, should ideally be varied, and should be provided immediately after the desired behavior. It is preferable if the reinforcer is a preferred individual for the child, and if reinforcement is delivered by multiple people. Teach principles of ignoring: Ignoring is used for behaviors that do not harm the child. Persistence and consistency in applying ignoring initially lead to an increase in undesirable behavior, followed by a decrease. Ignoring must be implemented by all significant adults around the child whenever the undesirable behavior occurs. Homework: Reinforce appropriate behavior throughout the week.
Fifth	Objective: Familiarize parents with the misguided goals of children's behavior. Emphasize that ignoring should continue until the undesirable behavior decreases. It is best to reinforce independent behaviors simultaneously while anxious behaviors are ignored. Review and discuss with parents the application of behavior modification principles and their outcomes. Teach advanced behavior modification principles (emphasizing token economy, shaping, and differential reinforcement). Teach reinforcement via token economy to gradually reduce the child's dependence on direct reinforcement. Teach shaping: Reinforce behaviors that are similar to and approximate the desired behavior. Reinforce behaviors that are incompatible with anxious and fear-driven behaviors. Homework: Practice correct ways of listening to children's concerns without judgment throughout the week.
Sixth	Objective: Familiarize parents with their own negative behaviors and strategies for coping with them. Homework: Shape the child's behavior using reward and punishment techniques.
Seventh	Objective: Teach effective strategies for addressing the misguided goals of children's behavior. Teach self-encouragement and encouraging children. Teach effective communication skills with children. Homework: Practice expressing enthusiasm, avoiding critical remarks, and refraining from giving commands.
Eighth	Objective: Session wrap-up, clarification of ambiguities and questions. Post-test administered during this session.

2.4. Procedure

Upon obtaining university approval and coordinating with exceptional children's schools to access the target sample, participants were invited to the Jooya Clinic. After a consultation, parents and students received detailed explanations to ensure a secure and stress-free environment for the student participants. Initially, the Attention-Deficit/Hyperactivity Disorder (ADHD) questionnaire was administered. Students identified with ADHD through this questionnaire were then selected for the sample. Data analysis involved repeated measures analysis of covariance (ANCOVA) at a significance level of $p < .01$.

Table 2
Mean Scores of Anxiety and Quality of Life in Groups

Group	Variable	Phase	Mean	Standard Deviation	Kurtosis	Skewness
Control	Quality of Life	Pre-test	153.67	17.803	1.039	0.296
		Post-test	154.80	17.620	0.797	0.897
		Follow-up	154.73	17.503	0.875	0.955
	Anxiety	Pre-test	23.07	4.415	0.267	-0.224
		Post-test	22.93	4.464	1.234	-1.028
		Follow-up	20.93	4.464	1.234	-1.028
Experimental	Quality of Life	Pre-test	147.73	15.443	-0.088	0.306
		Post-test	161.33	11.537	-1.522	-0.403
		Follow-up	162.40	13.048	-1.118	-0.034
	Anxiety	Pre-test	31.47	2.200	-0.127	-0.506
		Post-test	23.53	3.543	-0.325	-0.611
		Follow-up	21.53	3.543	-0.325	-0.611

Table 3 presents the descriptive statistics for scores on the anxiety and quality of life variables. Observations indicate that the anxiety and quality of life scores for participants in the control group did not show significant differences across the three

3. Results

Descriptive statistics revealed the following demographic distributions within the study groups. In the experimental group, there were 7 female participants (53.33%) and 8 male participants (46.66%). The control group comprised 9 female participants (60%) and 6 male participants (40%).

Regarding age distribution in the experimental group, 5 participants (33.33%) were 8 years old, 4 participants (26.66%) were 9 years old, and 6 participants (40%) were 10 years old. In the control group, 6 participants (40%) were 8 years old, 4 participants (26.66%) were 9 years old, and 5 participants (33.33%) were 10 years old.

measurement phases: pre-test, post-test, and follow-up. Furthermore, at the pre-test phase, there was a minimal difference between the scores of the experimental and control groups. This score difference slightly

increased at the post-test phase but then decreased at the follow-up phase.

Table 3

Results of Multivariate Analysis of Variance (MANOVA) for Anxiety and Quality of Life Scores

	Multivariate Test	Value	F	df1	df2	Sig.	Partial Eta Squared	Observed Power
Post-test	Wilks' Lambda	0.142	169.245	1	28	0.001	0.725	0.858
Follow-up	Wilks' Lambda	0.284	70.718	1	28	0.001	0.642	0.716

Based on the findings presented in the table, the main effects of group were statistically significant in both the post-test and follow-up phases for multivariate analysis of covariance ($p < .001$). Therefore, the mean scores for anxiety and quality of life in the post-test and follow-up phases showed a significant difference between the

experimental and control groups ($p < .001$). The results indicate that 72.5% of the individual differences in the improvement of anxiety and quality of life at the post-test phase, and 64.2% at the follow-up phase, are attributable to the differences between the groups.

Table 4

ANCOVA Results for Post-test and Follow-up Anxiety and Quality of Life Scores (Controlling for Pre-test).

		SS	df	MS	F	Sig.	Partial Eta Squared
Post-test	Anxiety	566.689	1	283.344	131.739	0.001	0.534
	Quality of Life	458.52	1	566.689	131.739	0.001	0.652
Follow-up	Anxiety	304.2	1	152.1	70.718	0.001	0.616
	Quality of Life	442.362	1	304.2	70.718	0.001	0.514

The results presented in the table indicate that the mean scores for anxiety and quality of life in both the post-test and follow-up phases are statistically significant after controlling for pre-test scores ($p < .001$). In other words, Transactional Analysis (TA) therapy is effective in reducing anxiety and improving quality of life, and these positive effects were sustained at the follow-up stage.

the effect size of TA therapy on improving quality of life was 61.4% at the post-test and 51.4% at the follow-up.

Specifically, the effect size of TA therapy on anxiety reduction was 53.4% at the post-test and 65.2% at the follow-up. Meanwhile,

Table 5

Results of Bonferroni Post-Hoc Test for Pairwise Comparisons on Anxiety and Quality of Life

variable	Time Points		Mean Difference	Standard Error	p-value
Anxiety	Pre-test	Post-test	7.80	1.06	0.001
	Pre-test	Follow-up	7.58	1.08	0.001
	Pre-test	Follow-up	-0.22	0.99	1.00
variable	Group differences		Mean Difference	Standard Error	p-value
Quality of life	Pre-test	Post-test	-3.56	1.39	0.043
	Pre-test	Follow-up	-9.80	1.39	0.001
	Pre-test	Follow-up	-0.24	0.39	1.00

The results of the Bonferroni post-hoc test in Table 5, comparing the effect of time, indicate statistically significant mean differences for anxiety and quality of life between the pre-test and post-test phases, and between the pre-test and follow-up phases. However, the mean difference for these scores between the post-test and follow-up phases is not statistically significant.

4. Discussion

The aim of this study was to determine the effectiveness of Transactional Analysis (TA) Therapy on anxiety and quality of life in students with Attention-Deficit/Hyperactivity Disorder (ADHD). The findings indicated a significant effect of time on anxiety scores across the three phases: pre-test, post-test, and follow-up. This suggests a significant difference in anxiety scores between these three time points, with the trajectory of change exhibiting a quadratic trend. Specifically, the pre-test, post-test, and follow-up scores differed from each other. This finding aligns with the research by Hofmann et al. (2014), Olthuis et al. (2015), and Mayo-Wilson et al. (2013), all

of whom reported that behavioral analysis is effective in reducing anxiety. The findings of Bögels, Lehtonen et al. (2010) also support the results of the current study. Furthermore, Han (2020) demonstrated in a study that Transactional Analysis has an impact on reducing internalized problems, including anxiety, in children with ADHD.

Transactional Analysis, by modifying parents' cognitions and attitudes toward ADHD, teaches them not to assume that these children intentionally exhibit inappropriate behaviors. This leads parents to abandon authoritarian, aggressive, or neglectful approaches to their children (Tsai et al., 2019).

In explaining these findings, it appears that TA therapy fosters self-awareness in children regarding their daily activities and helps them develop appropriate behavior. It also enables them to gain awareness of their automatic mental functions related to past and future experiences. Through moment-by-moment awareness of thoughts, emotions, and physical states, they gain control over them, leading to a greater sense of calm. This

calmness, in turn, significantly influences the transmission of tranquility to their children and prevents the escalation of tensions that lead to anxiety. Transactional Analysis teaches children to focus on the present moment and ongoing interactions "here and now," rather than dwelling on past memories or future expectations. This reduces tension between the child and their environment, preventing the generation of further anxiety (Mayo-Wilson & Montgomery, 2013).

The research findings indicated that Transactional Analysis (TA) therapy is effective in improving the quality of life for children with Attention-Deficit/Hyperactivity Disorder (ADHD). Specifically, the quality of life and its components showed a significant difference between the two groups at the post-test stage ($p < .01$), thereby supporting the second sub-hypothesis of the study. There was a notable difference in mean scores for quality of life between the control and TA groups. At the post-test phase, the TA group achieved a higher score (161.33) compared to the control group. The symptoms of ADHD affect broad areas of children's functioning, especially during school age. They often lack age-appropriate interpersonal skills and have limited awareness of others' emotions, behaviors, and intentions. Consequently, their emotional functioning is impaired, and they have reduced capacity for enjoyment and engagement. The quality of life for these children is negatively impacted by the social, emotional, psychological, and physical challenges associated with the disorder. TA therapy also increases these children's chances of improving interpersonal

relationships with their parents (Hofmann et al., 2014). Moreover, while this therapy's time-limited nature presents both advantages and disadvantages for children with ADHD or, more generally, those with externalizing disorders, the intervention duration for these children tends to be longer. Nonetheless, the finite nature of this treatment is beneficial in terms of treatment costs and offering hope to children and parents who may have felt helpless until that point.

Several limitations should be considered when interpreting the present findings. Firstly, the study sample was exclusively drawn from students with Attention-Deficit/Hyperactivity Disorder (ADHD) in Rasht. Therefore, the generalizability of these results to other regions or to individuals with other disorders is limited. Future researchers are encouraged to conduct similar studies in different regions of the country and explore other psychological disorders, such as autism spectrum disorder or conduct disorder. Additionally, it is recommended that participants be selected using diagnostic symptom checklists administered by specialist physicians, in addition to self-report questionnaires, to enhance the reliability of the findings.

Given the demonstrated effectiveness of Transactional Analysis Therapy on anxiety and quality of life in junior high school students with ADHD, greater attention should be given to utilizing such therapeutic approaches. As many individuals with ADHD experience significant emotional and physiological symptoms, the current results suggest that incorporating Transactional Analysis Therapy could be effective in

further reducing these symptoms. Consequently, using this therapy as a complementary approach to other psychological treatments, such as cognitive-behavioral therapy, might lead to more effective and potentially faster therapeutic outcomes.

5. Conclusion

It can be concluded that Transactional Analysis Therapy is effective in improving the quality of life and reducing anxiety in children with Attention-Deficit/Hyperactivity Disorder (ADHD). We can anticipate that with the consistent application of Transactional Analysis Therapy, children with ADHD who experience high levels of anxiety and a low quality of life will achieve a better overall state of well-being.

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Conflict of interest

The authors declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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