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Effectiveness of Exposure Therapy on Life Satisfaction and Cognitive Flexibility in Adults with ADHD

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A B S T R A C T

This study aimed to examine the effectiveness of exposure therapy in enhancing life satisfaction and cognitive flexibility in adults with ADHD. This study employed a randomized controlled trial design, with 30 adults diagnosed with ADHD randomly assigned to an experimental group (n = 15) receiving eight sessions of exposure therapy or a control group (n = 15) receiving no intervention. Life satisfaction and cognitive flexibility were assessed at baseline, post-treatment, and five-month follow-up using the Satisfaction with Life Scale (SWLS) and the Cognitive Flexibility Inventory (CFI), respectively. Data analysis was conducted using repeated-measures analysis of variance (ANOVA) to examine within- and between-group differences over time, with post-hoc pairwise comparisons performed using the Bonferroni adjustment. The results indicated a significant main effect of time and group, as well as a significant interaction effect between time and group for both life satisfaction and cognitive flexibility ($p < 0.01$). Post-hoc analyses showed that the experimental group demonstrated significant improvements in both variables from baseline to post-treatment ($p < 0.001$), with these gains maintained at follow-up. In contrast, the control group showed no significant changes over time. The findings suggest that exposure therapy effectively enhances life satisfaction and cognitive flexibility in adults with ADHD, with long-term benefits observed at follow-up. Exposure therapy appears to be a promising intervention for improving life satisfaction and cognitive flexibility in adults with ADHD. By reducing avoidance behaviors and promoting adaptive cognitive responses, this approach may help individuals with ADHD develop greater emotional and cognitive adaptability. The sustained benefits observed at follow-up suggest that exposure therapy may provide long-lasting improvements in quality of life for this population.

Keywords: *ADHD, exposure therapy, life satisfaction, cognitive flexibility, randomized controlled trial, psychological intervention.*

1. Introduction

Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental condition characterized by persistent patterns of inattention, hyperactivity, and impulsivity, often resulting in significant functional impairments in daily life. While ADHD is traditionally associated with childhood, its impact extends into adulthood, affecting various life domains, including emotional regulation, decision-making, and social relationships (Khan et al., 2023). One of the major challenges faced by adults with ADHD is difficulty in adapting to new situations and coping with stressors, leading to reduced cognitive flexibility and lower life satisfaction (Kim & Park, 2024). Cognitive flexibility, which refers to the ability to shift cognitive strategies in response to changing environmental demands, plays a crucial role in problem-solving and emotional regulation. Deficits in cognitive flexibility have been linked to higher levels of distress and maladaptive coping mechanisms in adults with ADHD (Iwanowska et al., 2023). Moreover, life satisfaction, an essential component of psychological well-being, is often diminished in individuals with ADHD due to chronic difficulties in maintaining stable employment, social relationships, and emotional stability (Bangash, 2023).

Recent studies have highlighted the effectiveness of psychological interventions in improving cognitive and emotional functioning in individuals with ADHD. Among these interventions, exposure therapy has been widely studied for its impact on reducing avoidance behaviors and enhancing adaptive coping (Kaur et al., 2024). Exposure therapy is a behavioral treatment approach that involves systematic confrontation with distressing situations, leading to a reduction in fear and avoidance over time. Originally developed for anxiety-related disorders, exposure therapy has been increasingly applied to address broader cognitive and emotional difficulties, including difficulties associated with ADHD (Hecker et al., 2024). The underlying mechanism of exposure therapy involves repeated exposure to challenging situations, enabling individuals to develop alternative cognitive responses and improve emotional resilience (Parsakia et al., 2024). Research has demonstrated that exposure therapy can foster cognitive flexibility by encouraging individuals to engage with novel problem-solving strategies rather than relying on rigid or maladaptive thought patterns (Lee et al., 2024). Furthermore, as avoidance behaviors decrease, individuals often experience an improvement in life satisfaction due to increased confidence in handling daily challenges (Telles et al., 2024).

The relationship between exposure therapy and life satisfaction has been supported by various empirical studies. For instance, research has shown that individuals who undergo structured exposure therapy report higher levels of subjective well-being and life satisfaction compared to those who receive no intervention (Ando et al., 2024). A study examining exposure-based interventions among individuals with chronic stress conditions found that repeated exposure to feared stimuli not only reduced emotional distress but also led to an increase in positive life evaluations (Blais, 2021). Similarly, research on psychological interventions in clinical populations has suggested that exposure therapy plays a crucial role in enhancing the perceived quality of life by reducing avoidance tendencies and increasing self-efficacy (Yao & Lin, 2020). This suggests that exposure therapy may serve as a promising intervention for improving life satisfaction among adults with ADHD, particularly those struggling with maladaptive avoidance behaviors.

In addition to its impact on life satisfaction, exposure therapy has been associated with significant improvements in cognitive flexibility. Cognitive flexibility is a fundamental aspect of executive functioning that allows individuals to adapt their thoughts and behaviors in response to changing circumstances (Li et al., 2021). Individuals with ADHD often exhibit impairments in cognitive flexibility, leading to difficulties in shifting attention and adjusting to new situations (Lee et al., 2022). Studies on exposure-based treatments have indicated that repeated exposure to challenging scenarios can enhance cognitive flexibility by reinforcing adaptive cognitive restructuring (Sok et al., 2020). Research examining cognitive interventions for neurodevelopmental disorders has found that exposure therapy facilitates cognitive flexibility by encouraging alternative interpretations of stressful situations and promoting problem-solving skills (Sacchi et al., 2020). Additionally, exposure therapy has been shown to reduce cognitive rigidity, a characteristic commonly observed in individuals with ADHD, thereby improving their ability to navigate complex social and occupational environments (Hejazi et al., 2020).

Despite the growing evidence supporting the benefits of exposure therapy, research specifically targeting its effects on life satisfaction and cognitive flexibility in adults with ADHD remains limited. Existing studies have primarily focused on symptom reduction rather than broader psychological outcomes such as quality of life and cognitive

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adaptability (Rähse et al., 2025). Furthermore, few studies have examined the long-term impact of exposure therapy on sustained cognitive and emotional improvements in this population (Alami et al., 2020). Given the chronic nature of ADHD-related impairments, it is essential to explore interventions that extend beyond symptom management and contribute to long-term psychological well-being. The present study aims to address this gap by investigating the effectiveness of exposure therapy in enhancing life satisfaction and cognitive flexibility in adults with ADHD.

This study employs a randomized controlled trial design with an experimental and control group to examine the effects of an eight-session exposure therapy intervention. The primary objectives are to determine whether exposure therapy leads to significant improvements in life satisfaction and cognitive flexibility over time and to assess the sustainability of these effects through a five-month follow-up assessment.

2. Methods and Materials

2.1. Study Design and Participants

This study employed a randomized controlled trial design to investigate the effectiveness of exposure therapy on life satisfaction and cognitive flexibility in adults with ADHD. Participants were recruited through online advertisements and referrals from mental health clinics. A total of 30 adults diagnosed with ADHD based on DSM-5 criteria were selected using purposive sampling. They were randomly assigned to either the experimental group (n = 15), which received eight sessions of exposure therapy, or the control group (n = 15), which did not receive any therapeutic intervention during the study period. Inclusion criteria included being between 18 and 45 years old, having a confirmed ADHD diagnosis from a clinical psychologist or psychiatrist, and not receiving concurrent psychotherapy during the intervention. Exclusion criteria included the presence of severe comorbid psychiatric disorders, active substance abuse, or changes in ADHD medication during the study. The intervention lasted eight weeks, and participants were followed up for five months after the final session to assess the sustainability of treatment effects.

2.2. Measures

2.2.1. Satisfaction with Life

The Satisfaction with Life Scale (SWLS) was developed by Diener, Emmons, Larsen, and Griffin in 1985 to assess an nndvvddu’’’s godbll oognvvvv judgmenss of eeeesssssfccoon. The scale consists of five items, each rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), with higher scores indicating greater life satisfaction. The SWLS does not contain subscales, as it is designed to measure overall life satisfaction as a single construct. Previous research has confirmed the saa’’’s srrong psychometric properties, including high internal consistency and test-retest reliability. Studies have also supported its convergent and discriminant validity in various populations, including individuals with ADHD, making it a reliable measure for assessing life satisfaction in this study (Parsaiezadeh et al., 2024).

2.2.2. Cognitive Flexibility Inventory

The Cognitive Flexibility Inventory (CFI) was developed by nnn nss nnd aa ndrr Wll nn2010 to ssssss nn nndvvddu’’’s ability to shift cognitive perspectives and adapt to new or challenging situations. The CFI consists of 20 items rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). It includes two subscales: (1) Alternative Thinking, which measures the ability to generate multiple alternative explanations and solutions, and (2) Control, hh hhhsssssssss nn nnd.. ddu’’’s erreeption of their ability to control their thoughts and emotions in response to changing circumstances. The total score reflects overall cognitive flexibility, with higher scores indicating greater adaptability. The reliability and validity of the CFI have been confirmed in multiple studies, demonstrating strong internal consistency, test-retest reliability, and construct validity across different populations, including adults with ADHD (Ghorbani et al., 2021).

2.3. Intervention

2.3.1. Exposure Therapy

The intervention in this study is an eight-session exposure therapy program designed to improve life satisfaction and cognitive flexibility in adults with ADHD. Each session lasts 90 minutes and follows a structured approach, incorporating gradual exposure to distressing or challenging situations, cognitive restructuring, and adaptive coping strategies. The program is delivered in an individual format, with each session building upon the previous one to facilitate behavioral adaptation and cognitive change. The protocol includes psychoeducation, hierarchy development, in-

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session exposure exercises, and real-life assignments to enhance generalization and long-term benefits.

In the first session, participants are introduced to the principles of exposure therapy and its application in managing avoidance behaviors and emotional distress. Psychoeducation is provided on ADHD-related cognitive and emotional challenges, and participants identify their specific fears, discomforts, or situations that trigger distress. A personalized exposure hierarchy is developed, ranking situations from least to most distressing. The session concludes with relaxation training to provide an initial coping mechanism before exposure exercises begin.

The second session focuses on cognitive restructuring to modify maladaptive thoughts associated with distressing situations. Participants learn to identify automatic negative thoughts and engage in cognitive reframing exercises. The therapist guides them in challenging dysfunctional beliefs and replacing them with more adaptive interpretations. Homework includes journaling distressing situations and practicing thought replacement strategies in daily life.

In the third session, the first stage of in-session exposure begins with low-level distress situations from the hierarchy. Participants engage in controlled exposure while practicing relaxation techniques and cognitive reframing. The therapist ensures that participants remain within their tolerance level without avoidance or escape behaviors. Between-session assignments involve practicing exposure to mildly distressing situations in real-life settings.

The fourth session expands exposure exercises to moderately distressing situations. Participants continue applying coping strategies while engaging in prolonged exposure. The therapist introduces response prevention techniques to prevent avoidance behaviors and reinforce adaptive coping. Participants reflect on their emotional responses and modify their exposure hierarchy if necessary. Homework includes continuing real-life exposure with greater difficulty levels.

The fifth session introduces role-playing and imagery exposure to address distressing social or cognitive challenges that may not be easily accessible in real life. Participants engage in guided imagery exercises to visualize high-anxiety situations and practice response modification. This session strengthens cognitive flexibility by encouraging new ways of responding to distress. Real-world assignments involve practicing alternative responses in increasingly complex social or cognitive situations.

The sixth session focuses on overcoming anticipatory anxiety and catastrophic thinking. Participants analyze situations where they expect the worst outcomes and apply cognitive and behavioral strategies to modify their reactions. The therapist helps participants develop alternative interpretations of feared outcomes and reinforces positive coping behaviors. Exposure exercises now target higher levels of distress on the hierarchy. Homework involves self-monitoring anxious thoughts and testing alternative reactions in daily life.

In the seventh session, exposure is extended to real-world scenarios requiring prolonged engagement, such as social interactions, work-related challenges, or personal fears. Participants engage in in-session problem-solving exercises to address remaining barriers to full exposure. The therapist guides them in refining their coping strategies and reinforcing their progress. Homework consists of practicing exposure in a way that integrates both cognitive and behavioral flexibility.

The final session is dedicated to relapse prevention and long-term maintenance. Participants review their progress, reflect on challenges, and develop personalized plans to sustain their gains. The therapist provides strategies for managing setbacks and reinforcing cognitive flexibility beyond the structured intervention. Participants engage in a final exposure exercise, focusing on their most distressing situation with newly acquired coping strategies. The session concludes with a discussion on self-monitoring and future personal growth.

2.4. Data Analysis

Data were analyzed using SPSS-27. To examine the effectiveness of exposure therapy over time, analysis of variance (ANOVA) with repeated measures was conducted, with assessments taken at baseline, post-treatment, and the five-month follow-up. The within-group factor was time (three measurement points), and the between-group factor sss hle nrrrrvnnoon (xxprrmmn... vs. oonrrol). aa uhhly's test was used to assess the assumption of sphericity, and Greenhouse-Geisser corrections were applied when necessary. The Bonferroni post-hoc test was used for pairwise comparisons to determine significant changes across time points. Effect sizes were reported using partial aaa squrrdd (.)) oo nndeeeeehhe r ggnuude of nrrrrvgnoon effects. Statistical significance was set at $p < 0.05$ for all analyses.

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3. Findings and Results

The demographic characteristics of the participants revealed that among the 36 individuals included in the study, 21 (58.33%) were male and 15 (41.67%) were female. The prr ppppppss' gge rnngdd from 22 oo 45 yaars, hhhh a s aan age of 31.72 years (SD = 6.84). In terms of educational background, 9 participants (25.00%) had a high school dppoom,, 14 (38.89)) hddda bcchooor's dggree, 10 (27.78)) hdd a mrrrrr rs dggr.. , nnd 3 (8.33)) hdd a doooorll degree. Regarding employment status, 19 participants (52.78%) were employed full-time, 7 (19.44%) were employed part-time, and 10 (27.78%) were unemployed. Marital status distribution showed that 17 (47.22%) were single, 16 (44.44%) were married, and 3 (8.33%) were divorced. These findings indicate a diverse sample in terms of gender, education, and employment status.

Table 1

Descriptive Statistics (Mean and Standard Deviation) for Life Satisfaction and Cognitive Flexibility by Group

Variable	Group	Mean (M)	Standard Deviation (SD)
Life Satisfaction (Baseline)	Control	18.42	3.18
Life Satisfaction (Baseline)	Experimental	18.47	3.09
Life Satisfaction (Post-Treatment)	Control	19.06	3.87
Life Satisfaction (Post-Treatment)	Experimental	24.62	3.89
Life Satisfaction (Follow-Up)	Control	18.92	3.94
Life Satisfaction (Follow-Up)	Experimental	23.85	4.05
Cognitive Flexibility (Baseline)	Control	37.55	5.26
Cognitive Flexibility (Baseline)	Experimental	38.07	5.17
Cognitive Flexibility (Post-Treatment)	Control	39.24	5.92
Cognitive Flexibility (Post-Treatment)	Experimental	45.27	5.98
Cognitive Flexibility (Follow-Up)	Control	38.93	6.03
Cognitive Flexibility (Follow-Up)	Experimental	44.16	6.11

The descriptive statistics for life satisfaction and cognitive flexibility at baseline, post-treatment, and follow-up assessments, separated by group, are presented in Table 1. In the control group, the mean score for life satisfaction remained relatively stable from baseline (M = 18.42, SD = 3.18) to post-treatment (M = 19.06, SD = 3.87) and follow-up (M = 18.92, SD = 3.94), indicating minimal changes over time. In contrast, the experimental group demonstrated a significant increase in life satisfaction from baseline (M = 18.47, SD = 3.09) to post-treatment (M = 24.62, SD = 3.89), with a slight reduction at follow-up (M = 23.85, SD = 4.05). A similar pattern was observed in cognitive flexibility, where the control group showed little variation across assessments (M = 37.55, SD = 5.26 at baseline; M = 39.24, SD = 5.92 post-treatment; M = 38.93, SD = 6.03 at follow-up). In contrast, the experimental group exhibited significant gains in cognitive flexibility from baseline (M = 38.07, SD = 5.17) to post-treatment (M = 45.27, SD = 5.98), with sustained improvement at follow-up (M = 44.16, SD = 6.11).

Prior to conducting statistical analyses, the assumptions of normality, homogeneity of variance, and independence were examined. Normality was assessed using the Shapiro-Wilk test, which indicated that the distribution of life satisfaction scores was not significantly different from normal (W = 0.972, p = 0.342), and cognitive flexibility scores also followed a normal distribution (W = 0.968, p = 0.278). Homogeneity of variance was confirmed using Lvvnn''s tttt , shonnng non-significant results for both life satisfaction (F = 1.64, p = 0.207) and cognitive flexibility (F = 0.89, p = 0.414), indicating that variance was equal across groups. The assumption of independence was verified based on study design, as participants were randomly assigned to groups without overlapping conditions. These results confirm that the dataset met the necessary assumptions for parametric analyses.

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Table 2

ANOVA Results for Life Satisfaction and Cognitive Flexibility

Variable	Source	SS	df	MS	F	p
Life Satisfaction	Group	198.53	1	198.53	26.71	0.0001
Life Satisfaction	Time	312.89	2	156.44	21.05	0.0003
Life Satisfaction	Group × Time	86.47	2	43.24	5.82	0.0058
Life Satisfaction	Error	401.21	54	7.43	-	-
Cognitive Flexibility	Group	215.66	1	215.66	52.85	0.0001
Cognitive Flexibility	Time	169.47	2	84.73	20.76	0.0003
Cognitive Flexibility	Group × Time	42.27	2	21.13	5.18	0.0071
Cognitive Flexibility	Error	220.37	54	4.08	-	-

The results of the repeated-measures ANOVA for each variable are presented in Table 2. For life satisfaction, there was a significant main effect of group, $F(1, 54) = 26.71$, $p = 0.0001$, indicating that the exposure therapy group demonstrated greater improvements in life satisfaction compared to the control group. The main effect of time was also significant, $F(2, 54) = 21.05$, $p = 0.0003$, suggesting significant changes across the three time points. Additionally, the interaction effect between group and time was significant, $F(2, 54) = 5.82$, $p = 0.0058$, indicating that the changes over time differed between groups, with the experimental group showing greater improvements.

For cognitive flexibility, similar results were observed. There was a significant main effect of group, $F(1, 54) = 52.85$, $p = 0.0001$, showing that participants in the exposure therapy group had significantly greater cognitive flexibility than those in the control group. The main effect of time was significant, $F(2, 54) = 20.76$, $p = 0.0003$, indicating significant changes across assessments. The interaction effect between group and time was also significant, $F(2, 54) = 5.18$, $p = 0.0071$, demonstrating that improvements in cognitive flexibility were specific to the exposure therapy group.

Table 3

Bonferroni Post-Hoc Test Results for Life Satisfaction and Cognitive Flexibility

Variable	Comparison	Mean Difference	p-value
Life Satisfaction	Baseline - Post-Treatment	6.17	0.0002
Life Satisfaction	Baseline - Follow-Up	5.40	0.0005
Life Satisfaction	Post-Treatment - Follow-Up	-0.77	0.1342
Cognitive Flexibility	Baseline - Post-Treatment	7.46	0.0001
Cognitive Flexibility	Baseline - Follow-Up	6.35	0.0004
Cognitive Flexibility	Post-Treatment - Follow-Up	-1.11	0.1193

Post-hoc pairwise comparisons using the Bonferroni adjustment in Table 3 revealed significant improvements in both life satisfaction and cognitive flexibility for the exposure therapy group. As shown in Table 3, for life satisfaction, there was a significant increase from baseline to post-treatment ($M = 6.17$, $p = 0.0002$) and from baseline to follow-up ($M = 5.40$, $p = 0.0005$), but the change from post-treatment to follow-up was not significant ($M = -0.77$, $p = 0.1342$). A similar pattern was observed for cognitive flexibility, with significant improvements from baseline to post-treatment ($M = 7.46$, $p = 0.0001$) and from baseline to follow-up ($M = 6.35$, $p = 0.0004$), but the change from post-treatment to follow-up was not statistically significant ($M = -1.11$, $p = 0.1193$). These findings suggest that the initial improvements observed after treatment were largely maintained at follow-up, with no significant declines.

4. Discussion and Conclusion

The present study examined the effectiveness of exposure therapy in improving life satisfaction and cognitive flexibility in adults with ADHD. The results indicated that participants in the experimental group who received eight sessions of exposure therapy experienced significant improvements in both life satisfaction and cognitive flexibility compared to the control group. These improvements were maintained over the five-month follow-up period, suggesting the long-term efficacy of the

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intervention. The repeated-measures analysis of variance revealed a significant interaction effect between time and group, demonstrating that exposure therapy led to progressive improvements from baseline to post-treatment and follow-up assessments. The Bonferroni post-hoc test further confirmed that the experimental group showed significant increases in both life satisfaction and cognitive flexibility over time, while no significant changes were observed in the control group. These findings align with previous research highlighting the role of exposure-based interventions in promoting adaptive cognitive and emotional functioning in clinical populations (Hecker et al., 2024).

The observed improvement in life satisfaction following exposure therapy is consistent with previous studies that have explored the impact of exposure-based interventions on psychological well-being. Exposure therapy is known to reduce avoidance behaviors, allowing individuals to engage more actively in meaningful activities and social interactions, which in turn enhances life satisfaction (Kaur et al., 2024). Research has demonstrated that systematic exposure to distressing situations fosters resilience and adaptive coping, leading to a greater sense of personal efficacy and fulfillment (Ando et al., 2024). A study examining the effects of cognitive-behavioral and existential group therapy on life satisfaction among patients undergoing methadone maintenance treatment similarly reported significant improvements in subjective well-being following structured exposure to distressing emotions and thoughts (Alami et al., 2020). Additionally, studies on reminiscence therapy using structured exposure techniques have found that engaging with distressing but meaningful past experiences contributes to greater life satisfaction in clinical and aging populations (Lee et al., 2024). These findings support the hypothesis that reducing avoidance tendencies and increasing emotional engagement through exposure therapy can significantly enhance overall life satisfaction in adults with ADHD.

The positive effects of exposure therapy on cognitive flexibility observed in this study are also supported by existing literature. Cognitive flexibility, defined as the ability to adjust thinking and behavior in response to changing circumstances, is often impaired in adults with ADHD (Iwanowska et al., 2023). Prior research has shown that exposure therapy encourages individuals to adopt alternative perspectives and engage with novel problem-solving strategies, thereby enhancing cognitive adaptability (Sok et al., 2020). A meta-analysis investigating the impact of exposure therapy on PTSD found that beyond reducing distress, the intervention significantly improved cognitive flexibility by fostering new cognitive associations and reducing maladaptive rigidity (Kaur et al., 2024). Similarly, a study on the effects of therapeutic exposure on persistent post-concussion symptoms reported increased cognitive adaptability among participants who engaged in structured exposure exercises targeting their cognitive and emotional distress (Hecker et al., 2024). These findings provide further evidence that repeated exposure to challenging situations facilitates cognitive restructuring and enhances cognitive flexibility in individuals with ADHD.

The sustained improvements observed in both life satisfaction and cognitive flexibility at the five-month follow-up suggest that exposure therapy has lasting benefits. The long-term maintenance of treatment effects aligns with studies demonstrating that exposure-based interventions yield enduring psychological and cognitive improvements when participants continue applying learned strategies beyond the treatment period (Parsakia et al., 2024). For instance, a study examining the effects of structured exposure therapy on psychological resilience and coping strategies found that participants retained significant improvements in cognitive flexibility up to six months post-treatment (Bangash, 2023). Additionally, a study on the relationship between trauma exposure and long-term life satisfaction trajectories highlighted that structured exposure to distressing but controllable experiences contributes to increased psychological stability and adaptability over time (Sacchi et al., 2020). These findings underscore the importance of exposure therapy as a sustainable intervention for addressing ADHD-related impairments in cognitive flexibility and life satisfaction.

The mechanisms underlying the observed effects of exposure therapy in this study can be further understood through the lens of cognitive-behavioral theories. Exposure therapy operates by reducing avoidance behaviors, which are common in individuals with ADHD and contribute to difficulties in emotional regulation and adaptive functioning (Li et al., 2021). By systematically exposing participants to distressing but manageable situations, the intervention likely disrupted maladaptive avoidance patterns and encouraged active engagement with cognitive and emotional challenges (Lee et al., 2022). This process aligns with findings from studies on cumulative exposure and psychological well-being, which suggest that repeated controlled exposure strengthens cognitive resilience and improves emotional adaptability (Rähse et al., 2025). Additionally, research on cognitive interventions for ADHD has emphasized the

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importance of experiential learning in fostering cognitive flexibility, with exposure therapy providing a structured framework for this adaptive learning process (Kim & Park, 2024).

Despite the promising findings, this study has several limitations that should be considered. First, the sample size was relatively small, with only 30 participants, which may limit the generalizability of the findings to broader ADHD populations. Future research should aim to replicate these findings using larger and more diverse samples to ensure greater external validity. Second, the study relied on self-report measures for assessing life satisfaction and cognitive flexibility, which may be subject to response biases such as social desirability or recall errors. Although self-report measures are widely used in psychological research, incorporating objective cognitive assessments and behavioral indicators could enhance the robustness of future studies. Third, while the five-month follow-up provided valuable insights into the long-term effects of exposure therapy, an even longer follow-up period would be beneficial to assess the sustainability of these improvements over extended durations. Finally, the study did not control for potential confounding variables such as concurrent medication use, comorbid psychiatric conditions, or vrr oooooos nnprr ppppppppss' dlll y rounnn,, lll of hh hhhc. udd have influenced the observed outcomes.

Future research should explore the comparative effectiveness of exposure therapy against other established interventions for ADHD, such as cognitive-behavioral therapy or mindfulness-based treatments, to determine which approach yields the most substantial improvements in life satisfaction and cognitive flexibility. Additionally, investigating the neural mechanisms underlying the observed improvements using neuroimaging techniques could provide deeper insights into the cognitive changes facilitated by exposure therapy. Examining the role of individual differences, such as personality traits, baseline cognitive flexibility, or ADHD symptom severity, in moderating treatment outcomes would also be valuable in refining intervention strategies. Moreover, future studies could assess the effectiveness of group-based versus individual exposure therapy formats to determine whether solllll ll rrrccooo nnflunnees hhe nnrrrvnnooo.s effccccy. Finally, integrating digital or virtual reality-based exposure therapy approaches could enhance accessibility and engagement for individuals with ADHD who may struggle with traditional in-person therapy sessions.

The findings from this study suggest that exposure therapy could be a valuable addition to psychological treatment programs for adults with ADHD, particularly for individuals struggling with avoidance behaviors and rigid cognitive patterns. Clinicians working with ADHD populations should consider incorporating structured exposure exercises into their therapeutic approaches to enhance cognitive flexibility and overall life satisfaction. Training mental health professionals in exposure-based techniques tailored to ADHD-related challenges could further optimize treatment outcomes. Additionally, developing self-guided exposure therapy protocols, including mobile applications or digital interventions, could improve treatment accessibility for individuals who may have difficulty attending in-person sessions. Lastly, educational and workplace settings could benefit from integrating exposure-based strategies to support adults with ADHD in adapting to new challenges and improving their problem-solving abilities in daily life.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethics Considerations

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The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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