

Effects of Cognitive Behavioural Therapy on Social Skills, Emotional Regulation, and Academic Achievement among Primary School Pupils with ADHD in Jos Metropolis, Nigeria

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ABSTRACT: Attention Deficit Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder characterized by inattention, hyperactivity, and impulsivity, which adversely affect children's social, emotional, and academic functioning. This study investigated the effects of Cognitive Behavioural Therapy (CBT) on social skills, emotional regulation, and academic achievement among Primary Four pupils with ADHD in Jos Metropolis, Nigeria. A quasi-experimental pre-test, post-test non-equivalent control group design was adopted. The sample comprised 46 pupils with ADHD symptoms, consisting of 24 pupils in the experimental group and 22 pupils in the control group. The experimental group received an eight-week CBT intervention, while the control group participated in placebo career-counselling sessions. Data were collected using the ADHD Rating Scale, the Social Skills of Attention Deficit Hyperactive Disorder Pupils Questionnaire (SSADHDPQ), and the English and Arithmetic Achievement Test (EAAT). Mean and standard deviation were used to answer the research questions, while Analysis of Covariance (ANCOVA) was used to test the hypotheses at the 0.05 level of significance. The findings revealed that CBT significantly reduced social skills problems and improved emotional regulation among pupils in the experimental group compared to the control group. CBT also significantly enhanced academic achievement in both Mathematics and English Language. ANCOVA results showed significant effects of CBT on social skills (Adjusted $R^2 = .906$, $p < .05$), emotional regulation (Adjusted $R^2 = .935$, $p < .05$), Mathematics achievement (Adjusted $R^2 = .856$, $p < .05$), and English achievement (Adjusted $R^2 = .864$, $p < .05$). Consequently, all null hypotheses were rejected. The study concluded that Cognitive Behavioural Therapy is an effective intervention for improving social skills, emotional regulation, and academic achievement among primary school pupils with ADHD. It was recommended that CBT be integrated into school counselling programmes, alongside early identification and intervention strategies for pupils with ADHD.

KEYWORDS: Attention Deficit Hyperactivity Disorder, Cognitive Behavioural Therapy, Social Skills, Emotional Regulation, Academic Achievement, Primary School Pupils

BACKGROUND

Attention Deficit Hyperactivity Disorder (ADHD) is one of the most prevalent neurodevelopmental disorders of childhood and is characterized by persistent patterns of inattention, hyperactivity, and impulsivity that interfere with daily functioning and development (American Psychiatric Association [APA], 2022). Children with ADHD frequently experience difficulties in sustaining attention, following instructions, organizing tasks, and regulating behaviour, which can adversely affect their academic performance and social interactions (Barkley, 2015; APA, 2022). Beyond the core symptoms, children with ADHD often demonstrate impairments in social competence and emotional regulation. Research has shown that these children experience challenges in maintaining peer relationships, cooperating with others, controlling emotions, and adapting to social demands (Barkley, 2015; Hoza, 2007). Such difficulties frequently result in peer rejection, social isolation, low self-esteem, and poor psychosocial adjustment, thereby affecting their overall well-being and school participation (Hoza, 2007; DuPaul & Stoner, 2014).

ADHD also has significant implications for educational attainment. Deficits in attention, executive functioning, self-regulation, and task persistence often contribute to lower academic achievement, particularly in foundational subjects such as English Language and Mathematics (DuPaul & Stoner, 2014; Loe & Feldman, 2007). Studies have consistently demonstrated that pupils with ADHD are at increased risk of poor school performance, grade repetition, and academic underachievement when appropriate interventions are not implemented (Loe & Feldman, 2007). Given the multidimensional challenges associated with ADHD, there is growing emphasis on interventions that address behavioural, social, emotional, and academic outcomes simultaneously. CBT has emerged as an effective psychosocial intervention because it focuses on identifying and modifying maladaptive thoughts and behaviours

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while promoting adaptive coping strategies (Beck, 2011). Through techniques such as self-monitoring, cognitive restructuring, problem-solving, goal setting, and behavioural reinforcement, CBT equips children with skills for improved self-control, emotional regulation, social functioning, and academic engagement (Sprich et al., 2016; Antshel & Barkley, 2020). Consequently, CBT has gained recognition as a valuable intervention for improving psychosocial adjustment and educational outcomes among children with ADHD.

LITERATURE REVIEW

Social Skills Problems among Pupils with ADHD

Social skills are essential for successful interaction with peers, teachers, and family members. Children with ADHD often exhibit deficits in social competence due to symptoms of inattention, impulsivity, and hyperactivity, which interfere with their ability to follow social rules, maintain friendships, and participate appropriately in group activities (Barkley, 2015; DuPaul & Stoner, 2014). Studies have shown that pupils with ADHD frequently experience peer rejection, difficulties in turn-taking, poor communication skills, and challenges in interpreting social cues. These social difficulties may result in isolation, reduced self-esteem, and poor school adjustment (Hoza, 2007). Researchers have argued that social skills deficits in children with ADHD are not solely a consequence of academic difficulties but are directly related to behavioural challenges associated with the disorder (Barkley, 2015). Consequently, interventions that focus on modifying maladaptive thoughts and behaviours, such as Cognitive Behavioural Therapy (CBT), have been recommended. CBT assists pupils in developing self-awareness, self-control, and problem-solving skills, thereby enhancing their ability to interact effectively with others (Young & Bramham, 2012). Evidence from existing studies indicates that structured CBT programmes contribute significantly to improvements in cooperation, interpersonal relationships, and social competence among children with ADHD (Antshel & Barkley, 2020).

Emotional Regulation Problems among Pupils with ADHD

Emotional regulation refers to the ability to recognise, manage, and appropriately express emotions in different situations. Emotional dysregulation is a common characteristic among children with ADHD, who often experience rapid mood changes, frustration, anger outbursts, and difficulty controlling emotional responses (Shaw et al., 2014). Such difficulties can negatively affect classroom behaviour, peer relationships, academic engagement, and overall psychological well-being (Barkley, 2015). According to the cognitive-behavioural perspective, emotional responses are influenced by an individual's thoughts and interpretations of events (Beck, 2011). Children with ADHD may develop negative thinking patterns that contribute to emotional instability and behavioural difficulties. CBT has therefore been widely applied to help children identify irrational thoughts, regulate emotions, and adopt more adaptive coping strategies. Previous studies have reported that CBT techniques such as self-monitoring, cognitive restructuring, relaxation training, and problem-solving exercises significantly improve emotional control and reduce emotional disturbances among children with ADHD (Young & Bramham, 2012; Antshel & Barkley, 2020). These findings suggest that emotional regulation can be strengthened through deliberate therapeutic intervention, leading to better social and academic functioning.

Academic Achievement of Pupils with ADHD

Academic achievement is one of the most affected domains in children with ADHD. The symptoms of inattention, impulsivity, and hyperactivity impair concentration, task completion, organisation, and classroom participation. As a result, pupils with ADHD often perform below their academic potential and may experience persistent learning difficulties (DuPaul & Stoner, 2014; Loe & Feldman, 2007). They commonly encounter problems with reading comprehension, mathematics, assignment completion, and examination performance. These challenges can contribute to poor educational outcomes and an increased risk of school failure (Frazier et al., 2007). Several scholars have indicated that the cognitive and behavioural difficulties associated with ADHD interfere with effective learning processes (Loe & Feldman, 2007). In response, educational and psychological interventions have been developed to support academic success. CBT is among the most widely investigated non-pharmacological interventions because it teaches self-regulation, attention management, goal setting, study skills, and problem-solving strategies (Safren et al., 2005). Research findings have consistently demonstrated that pupils who receive CBT exhibit improvements in classroom behaviour, concentration, task persistence, and academic performance (Evans et al., 2014). Through the development of adaptive thinking patterns and behavioural control, CBT enables learners with ADHD to participate more effectively in academic activities and achieve better educational outcomes (Beck, 2011).

STATEMENT OF THE PROBLEM

Attention Deficit Hyperactivity Disorder (ADHD) is associated with significant challenges in children's social, emotional, and academic functioning. Pupils with ADHD frequently experience difficulties in maintaining appropriate social relationships, regulating emotions, and achieving expected academic outcomes. These challenges often lead to peer rejection, poor classroom adjustment, emotional instability, and low academic performance, thereby hindering their overall development and educational success. Although previous studies have identified Cognitive Behavioural Therapy (CBT) as an effective intervention for managing

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ADHD-related behavioural difficulties, social deficits, and learning problems, many pupils with ADHD continue to experience social skills problems, emotional regulation difficulties, and poor academic achievement. Furthermore, empirical evidence on the effectiveness of CBT among primary school pupils with ADHD in Jos Metropolis remains limited. The persistence of these problems suggests the need for an intervention capable of improving pupils' social interaction, emotional control, and academic performance. Therefore, the problem of this study was to determine whether Cognitive Behavioural Therapy could significantly improve the social skills, emotional regulation, and academic achievement of Primary Four pupils with ADHD in Jos Metropolis, Nigeria.

Aim of the Study

To investigate the Effects of Cognitive Behavioural Therapy on Social Skills, Emotional Regulation, and Academic Achievement among Primary School Pupils with ADHD in Jos Metropolis, Nigeria.

Objectives of the Study

1. To ascertain the social skills problem mean scores of Primary Four pupils with ADHD in the experimental and control groups.
2. To appraise the emotional regulation problem mean scores of Primary Four pupils with ADHD in the experimental and control groups.
3. To determine the academic achievement mean scores of Primary Four pupils with ADHD in the experimental and control groups.

Research Questions

1. To what degree do the pretest and post-test social skills problem mean scores differ between Primary Four pupils with ADHD in the experimental and control groups?
2. How significantly do the pretest and post-test emotional regulation problem mean scores change among Primary Four pupils with ADHD in the experimental and control groups?
3. What differences exist in the pretest and post-test academic achievement mean scores of Primary Four pupils with ADHD across the experimental and control groups?

Hypotheses

- H₀₁. There is no significant difference between the pretest and post-test social skills problem mean scores of Primary Four pupils with ADHD in the experimental and control groups.
- H₀₂. There is no significant difference between the pretest and post-test emotional regulation problem mean scores of Primary Four pupils with ADHD in the experimental and control groups.
- H₀₃. There is no significant difference between the pretest and post-test academic achievement mean scores of Primary Four pupils with ADHD in the experimental and control groups.

METHODOLOGY

The study employed a quasi-experimental pre-test, post-test non-equivalent control group design to examine the effect of CBT among Primary Four pupils with ADHD. A total of 46 pupils identified with ADHD symptoms participated in the study, comprising 24 pupils in the experimental group and 22 pupils in the control group. Participants in the experimental group received an eight-week structured CBT intervention, while those in the control group were exposed to placebo career-counselling sessions. Data were collected using an ADHD Rating Scale, the Social Skills of Attention Deficit Hyperactive Disorder Pupils Questionnaire (SSADHDPQ), and an English and Arithmetic Achievement Test (EAAT). The data obtained were analysed using descriptive statistics, including means and standard deviations, to answer the research questions, while Analysis of Covariance (ANCOVA) was employed to test the hypotheses at the 0.05 level of significance.

RESULTS

Research Question One: To what degree do the pretest and post-test social skills problem mean scores differ between Primary Four pupils with ADHD in the experimental and control groups?

Table 1: Pretest and Post-test Social Skills Mean Scores of Primary Four Pupils in the Experimental and Control Groups

Group	N	Pre-test		Post-test		Mean Gain/Loss	$\bar{x}$ Gain Difference
		Mean	SD	Mean	SD		
Experimental	24	12.13	1.04	7.67	0.87	-4.46	-4.68
Control	22	12.05	1.58	12.27	1.39	-0.22	

As shown in Table 1, the experimental group (N = 24) had a pre-test mean social skills problem score of 12.13 (SD = 1.04) and a post-test mean score of 7.67 (SD = 0.87), resulting in a mean reduction of 4.46 points. In contrast, the control group (N = 22) had a

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pre-test mean score of 12.05 (SD = 1.58) and a post-test mean score of 12.27 (SD = 1.39), indicating a slight increase of 0.22 points. The gain difference between the two groups was 4.68 points in favour of the experimental group. This finding suggested that pupils with ADHD in the experimental group experienced a greater reduction in social skills problems than those in the control group following the intervention.

Hypothesis 1: There is no significant difference in the pre-test and post-test social skills problems mean scores of primary four pupils with ADHD in the experimental and control groups.

Table 2: Pre-test and Post-test Mean Scores of Pupils with ADHD Social Skills Problems in the Experimental and Control Groups

Source	Type Sum of Df	Mean Square	F	P-value	Partial Eta squared
Corrected model	274.126 ^a 2	137.063	217.547	.000	.910
Intercept	2.972 1	2.972	4.717	.035	.099
Covariate	30.605 1	30.605	48.577	.000	.530
Group	248.599 1	248.599	394.578	.000	.902
Error	27.092 43	.630			
Total	4782.000 46				
Corrected total	301.217 45				

a. R squared = .910 (Adjusted R squared .906)

Table 2 presents the ANCOVA results for the pre-test and post-test social skills problem mean scores of pupils with ADHD in the experimental and control groups. The result showed a significant main effect of treatment group on pupils' social skills problem scores, $F(1, 43) = 394.578$, $p = .000$, with a partial eta squared of .902. Since the p-value (.000) was less than the 0.05 level of significance, the null hypothesis was rejected. This result indicated that there was a significant difference in the post-test social skills problem mean scores of Primary Four pupils with ADHD in the experimental and control groups after controlling for the pre-test scores. The large partial eta squared value (.902) further showed that the treatment had a very strong effect on reducing social skills problems among pupils in the experimental group. Therefore, the intervention was effective in improving the social skills outcomes of pupils with ADHD.

Research Question 2: How significantly do the pretest and post-test emotional regulation problem mean scores change among Primary Four pupils with ADHD in the experimental and control groups?

Table 3: Pre-test and Post-test Regulation of Emotion of Behaviour of Pupils in the Experimental and Control Groups.

Group	N	Pre-test Mean	Pre-test SD	Post-test Mean	Post-test SD	Mean Gain/Loss	$\bar{x}$ Gain Difference
Experimental	24	17.50	0.72	10.25	0.74	-7.25	-7.30
Control	22	16.27	1.83	16.32	1.81	-0.05	

As presented in Table 3, the experimental group (N = 24) had a pre-test mean emotional regulation problem score of 17.50 (SD = 0.72) and a post-test mean score of 10.25 (SD = 0.74), resulting in a mean reduction of 7.25 points. On the other hand, the control group (N = 22) had a pre-test mean score of 16.27 (SD = 1.83) and a post-test mean score of 16.32 (SD = 1.81), indicating a slight increase of 0.05 points. The gain difference between the two groups was 7.30 points in favour of the experimental group. This result suggested that pupils with ADHD in the experimental group showed a substantial improvement in emotional regulation compared with their counterparts in the control group following the intervention.

Hypothesis 2: There is no significant difference in the pre-test and post-test regulation of emotion problems mean scores of primary four pupils with ADHD in the experimental and control groups.

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Table 4: Pre-test and Post-test Regulation of Emotion Behaviour Mean Scores of Pupils with ADHD in the Experimental and Control Groups

Source	Type Sum of Square	Df	Mean Square	F	P-value	Partial Eta squared
Corrected model	472.534 ^a	2	236.267	323.544	.000	.938
Intercept	.006	1	.006	.008	.928	.000
Covariate	49.872	1	49.872	68.295	.000	.614
Group	467.942	1	467.942	640.799	.000	.937
Error	31.401	43	.730			
Total	8461.000	46				
Corrected total	503.935	45				

a. R squared =.938 (Adjusted R squared .935)

Table 4 presents the Analysis of Covariance (ANCOVA) results on the regulation of emotion problem mean scores of Primary Four pupils with ADHD in the experimental and control groups. The result showed a significant effect of treatment on pupils' regulation of emotion problem scores, $F(1, 43) = 640.799$, $p = .000$, which is less than the .05 level of significance. Therefore, the null hypothesis was rejected. The finding indicated that there was a significant difference between the post-test regulation of emotion problem mean scores of pupils with ADHD in the experimental and control groups after controlling for pre-test scores. Furthermore, the partial eta squared value of .937 revealed a very large effect size, indicating that approximately 93.7% of the variance in the post-test regulation of emotion problem scores was attributable to the treatment. This suggested that the intervention had a substantial positive effect on improving the emotional regulation of Primary Four pupils with ADHD in the experimental group when compared with those in the control group.

Research Question 3: What differences exist in the pretest and post-test academic achievement mean scores of Primary Four pupils with ADHD across the experimental and control groups?

Table 5: Pre-test and Post-test Academic Achievement of Pupils in the Experimental and Control Groups

Group	N	Pre-test Mean	SD	Post-test Mean	SD	Mean Gain/Loss	Mean Gain Difference
Mathematics							
Experimental	24	7.63	1.64	14.54	1.53	6.91	8.41
Control	22	8.09	2.16	6.59	1.76	-1.5	
English							
Experimental	24	6.83	1.49	14.29	1.83	7.46	8.05
Control	22	7.41	1.56	6.82	1.22	-0.59	

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Table 5 shows the pre-test and post-test academic achievement mean scores of pupils with ADHD in the experimental and control groups in Mathematics and English. In Mathematics, the experimental group (N = 24) had a pre-test mean score of 7.63 (SD = 1.64) and a post-test mean score of 14.54 (SD = 1.53), resulting in a mean gain of 6.91. The control group (N = 22) recorded a pre-test mean score of 8.09 (SD = 2.16) and a post-test mean score of 6.59 (SD = 1.76), indicating a mean loss of 1.50. The mean gain difference between the two groups was 8.41 in favour of the experimental group. In English, the experimental group (N = 24) obtained a pre-test mean score of 6.83 (SD = 1.49) and a post-test mean score of 14.29 (SD = 1.83), resulting in a mean gain of 7.46. The control group (N = 22) had a pre-test mean score of 7.41 (SD = 1.56) and a post-test mean score of 6.82 (SD = 1.22), indicating a mean loss of 0.59. The mean gain difference between the groups was 8.05 in favour of the experimental group. These findings suggested that pupils with ADHD in the experimental group achieved substantially higher academic performance in both Mathematics and English than those in the control group following the intervention.

Hypothesis 3: There is no significant difference in the pre-test and post-test academic achievement mean scores of primary four pupils with ADHD in the experimental and control groups.

Table 6: Pre-test and Post-test Achievement Mean Scores of Pupils with ADHD in Mathematics in the Experimental and Control Groups

Source	Type Sum of Df	Mean Square	F	P-value	Partial Eta squared
Corrected model	728.714 ^a 2	364.357	134.882	.000	.863
Intercept	332.692 1	332.692	123.160	.000	.741
Covariate	3.121 1	3.121	1.155	.288	.026
Group	702.763 1	702.763	260.158	.000	.858
Error	116.156 43	2.701			
Total	6150.000 46				
Corrected total	844.870 45				

a. R squared =.863 (Adjusted R squared .856)

Table 6 presents the ANCOVA results for the pre-test and post-test Mathematics achievement mean scores of pupils with ADHD in the experimental and control groups. The result revealed a significant main effect of treatment group on pupils' Mathematics achievement scores, $F(1, 43) = 260.158$, $p = .000$, with a partial eta squared of .858. Since the p-value (.000) was less than the 0.05 level of significance, the null hypothesis was rejected. The result indicated that there was a significant difference in the post-test Mathematics achievement mean scores of Primary Four pupils with ADHD in the experimental and control groups after controlling for the pre-test scores. The partial eta squared value of .858 showed that the treatment had a very large effect on pupils' Mathematics achievement. Therefore, the intervention significantly improved the Mathematics achievement of pupils with ADHD in the experimental group compared with those in the control group.

Table 7: Pre-test and Post-test Achievement Mean Scores of Pupils with ADHD in English in the Experimental and Control Groups

Source	Type Sum of Df	Mean Square	F	P-value	Partial Eta squared
Corrected model	652.226 ^a 2	326.113	144.417	.000	.870
Intercept	130.677 1	130.677	57.869	.000	.574
Covariate	11.131 1	11.131	4.929	.032	.103
Group	649.944 1	649.944	287.824	.000	.870
Error	97.100 43	2.258			
Total	6033.000 46				
Corrected total	749.326 45				

a. R squared =.870 (Adjusted R squared .864)

Table 7 presents the ANCOVA results for the pre-test and post-test English achievement mean scores of pupils with ADHD in the experimental and control groups. The result revealed a significant main effect of treatment group on pupils' English achievement scores, $F(1, 43) = 287.824$, $p = .000$, with a partial eta squared of .870. Since the p-value (.000) was less than the 0.05 level of

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significance, the null hypothesis was rejected. The result indicated that there was a significant difference in the post-test English achievement mean scores of Primary Four pupils with ADHD in the experimental and control groups after controlling for the pre-test scores. The partial eta squared value of .870 showed that the treatment had a very large effect on pupils' English achievement. Therefore, the intervention significantly improved the English achievement of pupils with ADHD in the experimental group compared with those in the control group.

DISCUSSION OF FINDINGS

The findings of this study revealed that Cognitive Behavioural Therapy (CBT) significantly reduced social skills problems among Primary Four pupils with ADHD. Pupils in the experimental group recorded a substantial reduction in social skills problem scores after the intervention, while little or no improvement was observed among pupils in the control group. The ANCOVA results further confirmed that the difference between the experimental and control groups was statistically significant, indicating that CBT was effective in improving the social functioning of pupils with ADHD. This finding is consistent with the views of Barkley (2015), who maintained that the social difficulties experienced by children with ADHD are largely associated with impulsivity, inattentiveness, and poor behavioural control. The finding also supports Hoza (2007), who reported that children with ADHD frequently experience peer rejection, difficulties in maintaining friendships, and poor social adjustment. Similarly, Young and Bramham (2012) observed that CBT improves self-awareness, self-control, and interpersonal skills, thereby promoting more positive social interactions. The finding further agrees with Antshel and Barkley (2020), who reported that structured CBT interventions contribute significantly to improvements in cooperation, communication, and peer relationships among children with ADHD. The improvement recorded in the present study may be attributed to the ability of CBT to teach pupils adaptive social behaviours, self-monitoring techniques, and problem-solving skills required for successful interactions with peers and teachers. Through repeated practice and cognitive restructuring, pupils were able to modify inappropriate behaviours and develop more socially acceptable responses.

The study found that CBT significantly improved emotional regulation among Primary Four pupils with ADHD. The experimental group demonstrated a substantial reduction in emotional regulation problem scores following the intervention, whereas pupils in the control group showed negligible improvement. The ANCOVA analysis confirmed a statistically significant difference between both groups. This finding is in agreement with Shaw, Stringaris, Nigg, and Leibenluft (2014), who identified emotional dysregulation as a major challenge among children with ADHD and emphasized the importance of interventions that enhance emotional control. The finding also supports Beck's (2011) cognitive-behavioural theory, which posits that emotions are influenced by an individual's thoughts and interpretations of experiences. By helping pupils identify and modify irrational thoughts, CBT facilitates healthier emotional responses.

The result is further consistent with the findings of Young and Bramham (2012), who reported that CBT techniques such as self-monitoring, cognitive restructuring, and problem-solving significantly improve emotional management among individuals with ADHD. Similarly, Antshel and Barkley (2020) observed that CBT interventions reduce emotional instability, frustration, and impulsive emotional reactions among children with ADHD. The significant improvement in emotional regulation observed in this study may have resulted from pupils' acquisition of skills for recognising emotional triggers, reframing negative thoughts, and adopting constructive coping strategies. These skills likely enabled them to manage emotions more effectively and respond appropriately to challenging situations.

The findings of the study revealed that CBT significantly improved academic achievement in both Mathematics and English Language among Primary Four pupils with ADHD. Pupils in the experimental group recorded substantial improvements in post-test achievement scores, while those in the control group experienced declines in performance. The ANCOVA results further showed statistically significant differences in academic achievement between the experimental and control groups. This finding is consistent with DuPaul and Stoner (2014), who noted that ADHD-related deficits in attention, self-regulation, and task completion negatively affect academic performance. The result also agrees with Loe and Feldman (2007), who reported that children with ADHD are more likely to experience academic underachievement due to difficulties in sustaining attention and organising learning activities. Furthermore, the finding supports Evans, Owens, and Bunford (2014), who found that psychosocial interventions, including CBT, improve classroom behaviour, concentration, task persistence, and overall academic outcomes among children with ADHD. The result is also in line with Safren et al. (2005), who reported that CBT enhances self-regulation, goal-setting, and study skills, which contribute positively to academic achievement.

The improvement observed in this study may be explained by the structured nature of CBT, which helps pupils develop better concentration, time-management skills, self-monitoring behaviours, and task-completion strategies. These skills are essential for effective learning and academic success, particularly for children experiencing attention-related difficulties.

The overall findings of this study demonstrate that Cognitive Behavioural Therapy is an effective intervention for improving social skills, emotional regulation, and academic achievement among primary school pupils with ADHD. The findings generally support existing literature, which suggests that CBT addresses the cognitive and behavioural deficits underlying many of the difficulties

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experienced by children with ADHD. The significant improvements recorded across all outcome variables indicate that CBT provides pupils with practical skills for managing emotions, improving relationships, and enhancing academic engagement. Consequently, the study lends further empirical support to the growing body of evidence advocating the integration of CBT into school-based counselling and mental health programmes for children with ADHD.

KEY FINDINGS

The study found that CBT significantly improved the psychosocial and academic outcomes of Primary Four pupils with ADHD in Jos Metropolis, Nigeria.

1. CBT significantly reduced social skills problems among pupils with ADHD. Pupils in the experimental group recorded a substantial reduction in social skills problem scores from a pre-test mean of 12.13 to a post-test mean of 7.67, while the control group showed no meaningful improvement. ANCOVA results further revealed a statistically significant effect of CBT on social skills problems, with CBT accounting for 90.6% of the observed variation in outcomes (Adjusted $R^2 = .906$, $p < .05$).
2. CBT significantly improved emotional regulation among pupils with ADHD. The experimental group showed a marked reduction in emotional regulation problem scores, with mean scores decreasing from 17.50 at pre-test to 10.25 at post-test. In contrast, the control group exhibited virtually no change. The ANCOVA analysis indicated that the treatment had a significant effect on emotional regulation problems, explaining 93.5% of the variation in outcomes (Adjusted $R^2 = .935$, $p < .05$).
3. CBT significantly improved academic achievement in Mathematics and English Language among pupils with ADHD, with the experimental group recording higher post-test scores than the control group. All null hypotheses were rejected, indicating significant improvements in social skills, emotional regulation, and academic achievement following the intervention ($p < .05$).

CONCLUSION

The study concluded that Cognitive Behavioural Therapy is an effective intervention for addressing the social, emotional, and academic challenges experienced by primary school pupils with ADHD. The findings demonstrated that pupils who participated in the CBT programme showed significant improvements in social skills, emotional regulation, and academic achievement compared to those who did not receive the intervention. The results suggest that CBT equips pupils with practical cognitive and behavioural strategies that enhance interpersonal relationships, emotional self-control, and academic engagement. Overall, the study provides empirical evidence that CBT can serve as a valuable school-based intervention for supporting children with ADHD and promoting their psychosocial and educational development in Nigerian primary schools.

RECOMMENDATIONS

The following recommendations are proposed for counsellors, educators, parents, policymakers, and researchers:

1. Enhance social and emotional functioning: Schools should integrate CBT into counselling services and provide training for teachers, counsellors, and parents to support the social skills and emotional regulation of pupils with ADHD.
2. Promote early identification and intervention: Primary schools should establish screening and identification programmes to ensure timely support for pupils exhibiting symptoms of ADHD.
3. Strengthen academic outcomes and research: Educational authorities should support school-based CBT programmes to improve academic achievement, while further studies should investigate the long-term effectiveness of CBT and its impact on additional psychosocial outcomes among pupils with ADHD.

REFERENCES

- 1) American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.; DSM-5-TR). American Psychiatric Publishing.
- 2) Antshel, K. M., & Barkley, R. A. (2020). Psychosocial interventions in attention deficit hyperactivity disorder. In R. A. Barkley (Ed.), *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment* (5th ed., pp. 654-684). Guilford Press.
- 3) Antshel, K. M., & Barkley, R. A. (2020). *Attention-deficit/hyperactivity disorder*. Springer.
- 4) Barkley, R. A. (2015). *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment* (4th ed.). Guilford Press.
- 5) Beck, J. S. (2011). *Cognitive behavior therapy: Basics and beyond* (2nd ed.). Guilford Press.
- 6) DuPaul, G. J., & Stoner, G. (2014). *ADHD in the schools: Assessment and intervention strategies* (3rd ed.). Guilford Press.
- 7) Evans, S. W., Owens, J. S., & Bunford, N. (2014). Evidence-based psychosocial treatments for children and adolescents with attention-deficit/hyperactivity disorder. *Journal of Clinical Child & Adolescent Psychology*, 43(4), 527-551.
- 8) Frazier, T. W., Youngstrom, E. A., Glutting, J. J., & Watkins, M. W. (2007). ADHD and achievement: Meta-analysis of the child, adolescent, and adult literatures. *Journal of Learning Disabilities*, 40(1), 49-65.

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- 9) Hoza, B. (2007). Peer functioning in children with ADHD. *Journal of Pediatric Psychology*, 32(6), 655-663. <https://doi.org/10.1093/jpepsy/jsm024>
- 10) Loe, I. M., & Feldman, H. M. (2007). Academic and educational outcomes of children with ADHD. *Journal of Pediatric Psychology*, 32(6), 643-654. <https://doi.org/10.1093/jpepsy/jsl054>
- 11) Safren, S. A., Otto, M. W., Sprich, S., Winett, C. L., Wilens, T. E., & Biederman, J. (2005). Cognitive-behavioural therapy for ADHD in medication-treated adults with continued symptoms. *Behaviour Research and Therapy*, 43(7), 831-842.
- 12) Shaw, P., Stringaris, A., Nigg, J., & Leibenluft, E. (2014). Emotion dysregulation in attention deficit hyperactivity disorder. *American Journal of Psychiatry*, 171(3), 276-293.
- 13) Sprich, S. E., Safren, S. A., Finkelstein, D., Remmert, J. E., & Hammerness, P. (2016). A randomized controlled trial of cognitive behavioral therapy for ADHD in medication-treated adolescents. *Journal of Child Psychology and Psychiatry*, 57(11), 1218-1226. <https://doi.org/10.1111/jcpp.12549>
- 14) Young, S., & Bramham, J. (2012). *ADHD in adults: A psychological guide to practice*. Wiley-Blackwell.