

Effect of Cognitive Behavioural Therapy on Behavioural Challenges Among Basic Four Pupils with Down Syndrome in Jos Metropolis, Plateau State, Nigeria

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Abstract

This study examined the effect of Cognitive Behavioural Therapy (CBT) on behavioural challenges among Basic Four pupils with Down syndrome in Jos Metropolis, Plateau State, Nigeria. Down syndrome is associated with cognitive, motor, and behavioral difficulties that impact learning and social interactions. This study employed a true experimental design with a pre-test, post-test control group to investigate the effectiveness of CBT in reducing oppositional behaviour disorder, attention behaviour disorder, thought disorder and social withdrawal disorder. A sample of 12 pupils was selected, with six assigned to the experimental group receiving CBT and six in the control group receiving regular instruction. Data was collected using the Behavior Disorder Checklist (BDC) and analyzed using statistical methods, mean and standard deviation and t-test for independent sample. Results indicated a significant reduction in behavioral challenges among the experimental group compared to the control group. The study concluded that CBT is an effective intervention for improving behavior among children with Down syndrome and recommends its integration into special education programmes and therapeutic interventions.

Keywords: Cognitive Behavioral Therapy (CBT), Down Syndrome, Behavioral Challenges, Special Education, Intervention Strategies

Introduction

Down syndrome is a chromosomal condition that results from an error in cell division, leading to the presence of an extra copy of chromosome 21. This genetic anomaly known as trisomy 21 causes a range of physical, cognitive, and developmental challenges that vary in severity among affected individuals. Children with Down syndrome often require specialized educational support and therapeutic interventions to address behavioural difficulties and developmental delays associated with the condition. The syndrome, first described by John Langdon Down in the 19th century, is recognized as one of the most common chromosomal disorders globally. The presence of an extra chromosome results in individuals having 47 chromosomes instead of the typical 46, which impacts motor development, language acquisition, and cognitive functioning (Pujol, 2015; Bull, 2020). Individuals with Down syndrome are typically identifiable due to distinct physical characteristics such as hypotonia, epicanthal folds, and short stature. Beyond physical features, the condition also affects cognitive processing, learning pace, and adaptive behaviour, which may increase vulnerability to behavioural problems, mental health challenges, and various medical complications (Shepperd et al., 2021; McGuire & Chicoine, 2021). Advances in medical screening have enabled earlier detection of Down syndrome through prenatal screenings such as non-invasive prenatal testing (NIPT) and postnatal diagnostic methods (de Graaf et al., 2022). The global

prevalence remains approximately 1 in every 700 live births, although prevalence varies slightly by region and maternal age (Mai et al., 2019; Loveday et al., 2023).

According to the World Health Organization (WHO) and the World Bank's World Report on Disability (2021), about 15% of the world's population lives with some form of disability. Children in low- and middle-income countries are disproportionately affected, often experiencing limited access to education, healthcare, and social services. The report highlights that those children with disabilities are significantly less likely to begin, remain in, or complete school compared to their non-disabled peers, a gap that perpetuates unemployment, poverty, and reduced quality of life.

Several international and regional frameworks reinforce the right of learners with disabilities to access equitable, inclusive, and quality education. These include the United Nations Convention on the Rights of the Child (UNCRC, 2018), the African Charter on the Rights and Welfare of the Child (1990), and Nigeria's Learner's Act (2021), all of which emphasize non-discrimination and equal educational opportunities. However, despite these legal provisions, the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2022) reports that learners with disabilities—particularly those with intellectual or developmental conditions such as Down syndrome—continue to face substantial barriers in accessing inclusive and quality education. Recent global education monitoring data show persistent challenges, including inadequate teacher preparedness, insufficient assistive resources, stigma, and limited policy implementation (UNESCO, 2023; Anderson & Boyle, 2020).

Cognitive Behavioral Therapy (CBT) has increasingly been adapted to address the behavioural challenges in children with intellectual and developmental disabilities, including those with Down syndrome. Dagnan, Taylor, and Burke (2023) emphasize that therapist flexibility in communication style, pacing, and session structure is critical to therapy effectiveness. Adaptations may include simplifying concepts, using visual and multimodal supports, breaking sessions into smaller components, repeating content, and involving caregivers to support learning and retention. CBT helps children develop positive coping mechanisms by modifying negative thought patterns and modelling alternative ways of interpreting situations. Through structured goal-setting that is specific, measurable, achievable, realistic, and time-bound, and by maintaining a pragmatic, problem-focused approach, CBT guides client behaviour toward meaningful, goal-directed outcomes within their experiential reality (Dagnan, Taylor, & Burke, 2023; Pineda, Nowinski, et al., 2024). Recent programmes designed for children and adolescents with mild to moderate intellectual disabilities, incorporating cognitive restructuring, behavioural activation, and relaxation techniques, demonstrate that children with intellectual disabilities can meaningfully engage in CBT when adaptations are applied. These adaptations include simplified language, memory aids, shorter and more frequent sessions, multimodal presentation (visual plus verbal), and caregiver involvement (Discover Psychology, 2022).

Furthermore, Kulnazarova, Namazbaeva, Butabayeva, and Tulepova (2023) found that CBT-based interventions improve social adaptation skills, interpersonal relationships, and adaptive functioning in children with intellectual disabilities. Given that children with Down syndrome often experience delays in cognitive, adaptive, and executive functioning, these findings support the feasibility and potential effectiveness of adapted CBT for this population (Shepperd, Woodford, & Tonge, 2021). Thus, when properly adapted, CBT can help children with Down syndrome overcome challenges in communication, behaviour regulation, cognitive functioning, and social engagement. Tailoring therapy to the neuropsychological and developmental profiles of the children ensures that goals are realistic, achievable, and meaningful, resulting in improved behavioural and social outcomes (Dagnan, Taylor, & Burke, 2023; Pineda, Nowinski, et al., 2024; Kulnazarova et al., 2023).

On a molecular level, Down syndrome is linked to various abnormalities, including gene overexpression, which affects brain development and function. These molecular changes are associated with cognitive deficits, early-onset dementia similar to Alzheimer's disease, and neurological complications. Research indicates that Down syndrome is characterized by a distinct pattern of brain connectivity that correlates with poor adaptive behavior, particularly in communication (Pujol, 2016). Adaptive behaviors, such as conceptual, social, and practical skills, are essential for functioning in daily life, and studies have shown that individuals with Down syndrome often struggle with adaptive functioning, which affects their ability to live independently.

Behavioral challenges such as oppositional behavior disorder, social withdrawal, and thought disorders are common in individuals with Down syndrome. Oppositional behavior disorder, for example, is characterized by non-compliance and may stem from frustration or lack of understanding, while social withdrawal involves isolating oneself due to anxiety, fear, or other underlying mental health issues. Thought disorders can lead to disorganized thinking and abnormal language expression. In view of the complex cognitive, behavioural, and adaptive challenges faced by children with Down syndrome, interventions that address these difficulties are critical for improving learning outcomes, social interaction, and overall quality of life. Cognitive Behavioral Therapy (CBT), when appropriately adapted, has shown promise in helping children with intellectual and developmental disabilities to modify maladaptive behaviours, enhance emotional regulation, and develop coping strategies. Despite the documented benefits of CBT in other populations, there remains limited empirical evidence on its effectiveness for school-aged children with Down syndrome in Nigeria, particularly at the basic education level. This study, therefore, seeks to examine the effects of CBT on behaviour disorders among Basic Four pupils with Down syndrome in Jos Metropolis, Plateau State.

Aim and Objectives of The Study

The study examined the effects of cognitive Behavioural Therapy on behaviour disorder of basic four pupils with Down syndrome in Jos Metropolis, Plateau State, Nigeria.

Specifically, the objectives of the study are to:

1. findout the pretest and posttest oppositional behaviour disorder mean scores of learners with Down syndrome in the experimental and control groups in Jos metropolis?
2. ascertain the pretest and posttest thought disorder mean scores of pupilss with Down syndrome in the experimental and control groups in Jos Metropolis.
3. identify the pretest and posttest social withdrawal behaviour disorder mean scores of pupils with Down syndrome in the experimental and control groups in Jos Metropolis.

Research Questions

The following research questions guided the study: -

1. What are the pretest and posttest oppositional behaviour disorder mean scores of learners with Down syndrome in the experimental and control groups in Jos metropolis?
2. What are the pretest and posttest thoughts disorder mean scores of learners with Down syndrome in the experimental and control groups in Jos metropolis?
3. What are the pretest and posttest social withdrawal behaviour disorder mean scores of learners with Down syndrome in the experimental and control groups in Jos metropolis?

Hypotheses

The following hypotheses will be tested at 0.05 level of significance:

1. There is no significant difference between the posttest oppositional behaviour disorder mean scores of learners with Down syndrome in the experimental and control groups in Jos metropolis?
2. There is no significant difference between the posttest thought disorder mean scores on pupils with Down syndrome in the experimental and control groups in Jos metropolis, Plateau State.
3. There is no significant difference between the posttest social withdrawal behaviour disorder mean scores on pupils with Down syndrome in the experimental and control groups in Jos metropolis, Plateau State.

Methodology

The research adopted a true experimental design, specifically the pre-test, post-test control group design. This design was chosen to investigate the cause-and-effect relationship between the independent variable, which was the treatment given to the experimental group, and the dependent variable, which was the behavior of pupils with Down syndrome. The study involved two groups, the experimental group and the control group. The experimental group received cognitive behavioral therapy (CBT), while the control group received a placebo treatment in the form of regular classroom instruction. Both groups were assessed using pre-tests and post-tests to measure changes in their behavior.

The population for the study comprised 22 pupils with Down syndrome attending a special education school in Jos Metropolis, Plateau State. From this population, a sample of 12 pupils was selected, with 6 assigned to the experimental group and 6 to the control group. The purposive sampling technique was employed to ensure that the sample was relevant to the research. The pupils were selected based on their Down syndrome diagnosis and their ability to participate in the study's activities. This approach ensured that the sample was a representative of the population and suitable for the experimental design.

The instrument used for data collection was the *Behaviour Disorder Checklist (BDC)*, which was developed by the researcher. The checklist consisted of two sections: one for gathering biodata and the other for assessing specific behaviors related to Down syndrome, including oppositional behavior, attention disorder, social withdrawal, thought disorder, and overall behavior disorder. The responses were measured on a five-point scale ranging from "Excellent" to "Very Poor." The content validity of the instrument was ensured by consulting experts in Guidance and Counselling, Special Education, and Research Measurement and Evaluation. These experts provided feedback on the appropriateness and relevance of the items. To establish reliability, the inter-rater reliability method was used, and Cohen Kappa statistics were calculated, resulting in a reliability coefficient within the acceptable range of 0.72 to 0.99. Data collection began with the administration of a pre-test to both the experimental and control groups. The *Behaviour Disorder Checklist (BDC)* was used to score the behaviors of the pupils, with the researcher and a trained research assistant observing the participants. After the pre-test, the experimental group underwent cognitive behavioral therapy sessions for eight weeks. These sessions were conducted twice a week for 40 minutes each, focusing on improving the specific behaviors targeted in the checklist. Meanwhile, the control group continued with their regular classroom instruction, serving as the placebo condition. At the end of the eighth week, a post-test was administered to both groups, and the results were analyzed using mean, standard deviation and t-test of independent samples to assess the effect of the treatment on the experimental group's behavior in comparison to the control group.

Results

Research Question One

What are the pretest and posttest oppositional behaviour disorder mean scores of learners with Down syndrome in the experimental and control groups in Jos metropolis?

Table 1

Pre-test and Post-test Oppositional Behaviour of Students in Experimental and Control Groups

Group	Pre-test			Post-test		Mean	$\bar{x}$ - Difference
	N	Mean	SD	Mean	SD	Gain/Loss	
Experimental	4	21.50	2.38	10.75	2.22	-10.75	-7.2
Control	4	20.00	2.16	16.50	1.29	-3.5	

Table 1 presents the results on pre-test and posttest oppositional behaviour disorder score of pupils with Down syndrome in Jos Metropolis, Plateau State. The result for experimental group shows that the pre-test mean score is 21.50 with a standard deviation of 2.38, while the post-test mean score is 10.75 lower than the pre-test mean score with a mean loss of -10.75, indicating that there was improvement in the oppositional behaviour disorder of learners after treatment. Also, for the control group the mean score was 20.00 and a standard deviation of 2.16 for the pretest. However, in the post-test, the mean score was 16.50 and a standard deviation of 1.29 with a mean loss of -3.5. The findings show that pupils in the experimental group had a lower oppositional behaviour disorder mean score (10.75) after treatment using cognitive Behavioural Therapy as against those in the control group (16.50) who were not given treatment, with a mean difference of -7.2. This implies that cognitive Behavioural Therapy does reduce the oppositional behaviour disorder of learners with Down syndrome

Research Question Two: What are the pretest and posttest thought disorder mean scores of pupils with Down syndrome in the experimental and control groups in Jos metropolis?

Table 2

Pre-test and Post-test Thoughts Disorder Behaviour of Students in Experimental and Control Groups

Group	Pre-test			Post-test		Mean	$\bar{x}$ - Difference
	N	Mean	SD	Mean	SD	Gain/Loss	
Experimental	4	20.75	1.71	10.75	2.22	-10	-7.5
Control	4	20.75	1.71	18.50	1.71	-2.5	

Table 2 presents the results on the pre-test and posttest thoughts disorder behaviour score of pupils with Down syndrome in Jos Metropolis, Plateau State. The result for experimental group shows that the pre-test mean score is 20.75 with a standard deviation of 1.71 while the post-test mean score is 10.75 lower than the pre-test mean score with a mean loss of -10, indicating that there was improvement in the thoughts disorder behaviour of learners after treatment. Also, for the control group the mean score was 20.75 and a standard deviation of 1.71 for the pretest. At the post-test, the mean score was 18.25 and a standard deviation of 1.71 with a mean loss of -6.75. The findings show that pupils in the experimental group had a lower thoughts disorder

behaviour mean score (10.75) after treatment using cognitive Behavioural Therapy as against those in the control group (18.25) who were not given treatment, with a mean difference of -7.5. This implies that cognitive Behavioural Therapy does reduce the thoughts disorder behaviour of learners with Down syndrome.

Research Question Three: What are the pretest and posttest social withdrawal behaviour disorder mean scores of learners with Down syndrome in the experimental and control groups in Jos metropolis?

Table 3
Pre-test and Post-test Social Withdrawal Behaviour Disorder of Students in Experimental and Control Groups

Group	N	Mean	Pre-test SD	Post-test Mean	Post-test SD	Mean Gain/Loss	$\bar{x}$ -Difference
Experimental	4	20.00	2.16	11.75	2.06	-8.25	-6.75
Control	4	20.00	2.16	18.50	1.92	-1.5	

Table 3 presents the results on the pre-test and posttest social withdrawal behaviour disorder mean score of pupils with Down syndrome in Jos Metropolis, Plateau State. The result for experimental group shows that the pre-test mean score is 20.00 with a standard deviation of 2.16 while the post-test mean score is 11.75 lower than the pre-test mean score with a mean loss of -8.25, indicating that there was improvement in the social withdrawal behaviour disorder of learners after treatment. Also, for the control group the mean score was 20.00 and a standard deviation of 2.16 for the pretest. However, in the post-test, the mean score was 18.50 and a standard deviation of 1.92 with a mean loss of -6.75. The findings show that pupils in the experimental group had a lower social withdrawal behaviour disorder mean score (11.75) after treatment using cognitive Behavioural Therapy as against those in the control group (18.50) who were not given treatment, with a mean difference of -6.75. This implies that cognitive Behavioural Therapy does reduce the social withdrawal behaviour disorder of learners with Down syndrome.

Hypothesis One: There is no significant difference between the posttest oppositional behaviour disorder mean scores of learners with Down syndrome in the experimental and control groups in Jos metropolis, Plateau State.

Table 4: Posttest Oppositional Behaviour Disorder Mean Scores of Learners with Down syndrome in the Control and Experimental Groups

Group	N	Mean	SD	df	t	α	P	Decision
Experimental	4	10.75	2.22	6	-4.48	0.05	0.004	Significant
Control	4	16.50	1.29					

Table 4 presents the t-test result on difference between the posttest oppositional behaviour disorder mean scores of learners with Down syndrome in the experimental and control groups in Jos metropolis, Plateau State. In the experimental group, the pre-test mean score was 10.75 with a standard deviation of 2.22 and the control group had a mean score of 16.50 and a standard deviation of 1.29. The result also yielded $t(6) = -4.48$, $P < 0.05$. Since the P-value of

0.004 is less than the 0.05 level of significance, the null hypothesis was rejected. It was concluded that there is a significant difference between the posttest oppositional behaviour disorder mean scores of learners with Down syndrome in the experimental and control groups in Jos metropolis, Plateau State. This implies that cognitive Behavioural Therapy do lower the oppositional behaviour disorder of learners with down syndrome in Jos metropolis of Plateau State.

Hypothesis Two: There is no significant difference between the posttest thought disorder mean scores on pupils with Down syndrome in the experimental and control groups in Jos metropolis, Plateau State.

Table 5: Posttest Thought Disorder Mean Scores of pupils with Down syndrome in the Control and Experimental Groups

Group	N	Mean	SD	df	t	α	p	Decision
Experimental	4	10.75	2.062	6	-6.37	0.05	0.001	Significant
Control	4	18.50	1.291					

Source: Field Work, 2023

Table 5 presents the t-test result on difference between the posttest thought disorder mean scores of pupils with Down syndrome in the experimental and control groups in Jos metropolis, Plateau State. In the experimental group, the pre-test mean score was 10.75 with a standard deviation of 2.06 and the control group had a mean score of 18.50 and a standard deviation of 1.29. The result also yielded $t(6) = -6.37$, $P < 0.05$. Since the P-value of 0.001 is less than the 0.05 level of significance, the null hypothesis was rejected. It was concluded that there is a significant difference between the posttest attention behaviour disorder mean scores of learners with Down syndrome in the experimental and control groups in Jos metropolis, Plateau State. This implies that cognitive Behavioural Therapy do lower the attention behaviour disorder of learners with down syndrome in Jos metropolis.

Hypothesis Two: There is no significant difference between the posttest social withdrawal behaviour disorder mean scores on pupils with Down syndrome in the experimental and control groups in Jos metropolis, Plateau State.

**Table 6
Posttest Social Withdrawal Behaviour Disorder Mean Scores of Learners with Down syndrome in the Control and Experimental Groups**

Group	N	Mean	SD	df	t	α	p	Decision
Experimental	4	11.75	2.06	6	-4.80	0.05	0.003	Significant
Control	4	18.50	1.91					

Table 6 presents the t-test result on difference between the posttest social withdrawal behaviour disorder mean scores of learners with Down syndrome in the experimental and control groups in Jos metropolis, Plateau State. In the experimental group, the pre-test mean score was 11.75 with a standard deviation of 2.06 and the control group had a mean score of 18.50 and a standard deviation of 1.91. The result also yielded $t(6) = -4.80$, $P < 0.05$. Since the P-value of 0.001 is less than the 0.05 level of significance, the null hypothesis was rejected. It was concluded that there is a significant difference between the posttest social withdrawal

behaviour disorder mean scores of learners with Down syndrome in the experimental and control groups in Jos metropolis, Plateau State. This implies that cognitive Behavioural Therapy do lower the social withdrawal behaviour disorder of learners with down syndrome in Jos metropolis.

Discussion

The findings of the study indicated that Cognitive Behavioural Therapy (CBT) is effective in reducing oppositional behaviour disorder in pupils with Down syndrome. This outcome is consistent with existing literature, which identifies CBT as one of the most effective psychological interventions for addressing behavioural challenges in children. According to Beck (2011), CBT helps individuals recognize maladaptive behaviour patterns and replace them with healthier responses, a principle that likely contributed to the observed behavioural improvements in the experimental group. Recent research has continued to affirm this. For instance, Smith and Wood (2021) found that CBT significantly reduces externalizing behaviours—including aggression and oppositional tendencies among children with developmental disabilities when delivered through adapted formats. Children with Down syndrome often present behavioural difficulties such as non-compliance, impulsivity, and oppositional tendencies (Dunn, Shields & Vellody, 2014). However, numerous studies have demonstrated that these behavioural issues can be mitigated through structured behavioural therapies. Matson and Williams (2015) reported that interventions grounded in cognitive and behavioural principles significantly reduce externalizing behaviours among children with intellectual and developmental disabilities.

More recent evidence by Jordan and Lense (2022) showed that adapted CBT programmes improve behavioural regulation and reduce disruptive behaviours in children with Down syndrome by emphasizing repetition, visual supports, and direct skill-building. The substantial improvement recorded in the experimental group supports these findings, emphasizing that CBT equips pupils with strategies for emotional regulation and constructive behaviour. The slight improvement observed in the control group may be attributed to natural developmental progression, daily school routines, or informal classroom management strategies. However, the magnitude of improvement in the experimental group provides strong evidence that CBT produced additional benefits beyond those resulting from typical classroom experiences. This aligns with Sukhodolsky et al. (2016) and more recent studies like Andrews et al. (2023), who observed that children receiving CBT often show greater behavioural adjustment and reduced oppositional tendencies than those who do not receive formal psychological intervention. Importantly, the study reinforces the notion that children with Down syndrome can benefit from well-structured psychological interventions despite cognitive limitations. Earlier assumptions suggested that CBT may be less effective for individuals with intellectual disabilities, but more recent research contradicts this view. Cuskelly and Hauser-Cram (2011) and Sturmey (2020) argue that, when properly adapted, CBT can significantly enhance behaviour and emotional functioning in children with intellectual disabilities. Newer evidence by Nyarko and Osei (2021) further confirms that children with Down syndrome benefit from simplified CBT modules that incorporate modelling, visual schedules, and structured routines. Furthermore, the behavioural improvements observed in this study align with findings by Hodapp and Dykens (2018), who note that teaching emotional awareness, impulse control, and problem-solving skills can greatly benefit children with Down syndrome. More recently, Channell and Conners (2022) reported that cognitive-behavioural interventions improve emotional regulation, compliance, and pro-social behaviour in learners with intellectual disabilities. CBT, by focusing on these components, likely strengthened the pupils' ability to manage frustration, follow instructions, and reduce oppositional tendencies.

The findings also showed that Cognitive Behavioural Therapy is effective in reducing thought disorder behaviour among pupils with Down syndrome. This outcome aligns with extensive literature supporting the use of CBT to address maladaptive thinking patterns, emotional dysregulation, and behaviour problems in children, including those with developmental disabilities. According to Beck (2011), CBT helps individuals identify distorted thought patterns and replace them with realistic and functional thinking, which consequently leads to improved behavioural outcomes. Recently, a study by Morgan and Taylor (2021) demonstrated that CBT improves cognitive coherence and reduces disorganized thinking in children with neurodevelopmental challenges, confirming the relevance of these mechanisms.

Thought disorder behaviour characterized by disorganized thinking, irrational beliefs, and difficulty sustaining coherent ideas is known to affect some children with Down syndrome due to cognitive and developmental limitations (Dunn, Shields & Vellody, 2014). However, contemporary research shows that structured psychological interventions can modify such cognitive patterns. Matson and Williams (2015) observed that cognitive-behavioural strategies significantly improve thinking processes and behavioural responses in children with intellectual disabilities. More recent research by Xu, Lee, and Choi (2022) supports this, showing that CBT enhances cognitive clarity and reduces irrational thinking among children with intellectual and developmental conditions. Although the control group experienced a minor reduction in thought disorder behaviour, this may be associated with routine school activities, exposure to structured learning environments, or natural maturation. Nonetheless, the notably greater improvement in the experimental group underscores the unique impact of CBT. Sukhodolsky et al. (2016) and more current research by Taheri and Rezai (2023) similarly found that children who receive CBT demonstrate greater improvements in thought regulation, emotional control, and problem-solving abilities compared to those in non-intervention groups.

The study's findings also reinforced the argument that CBT is suitable for learners with intellectual and developmental disabilities when properly adapted. Earlier misconceptions suggested that children with Down syndrome may lack the cognitive capacity to engage meaningfully in cognitive-based therapies. However, research by Cuskelly and Hauser-Cram (2011) and Sturmey (2020) shows that simplified, structured CBT approaches incorporating visual aids, repetition, and concrete examples can effectively improve cognition and behaviour in children with developmental challenges. Updated studies such as Walters & Hughes (2021) confirm that children with Down syndrome can make significant gains in thought organization and communication when exposed to modified CBT. Improved thought patterns likely contributed to enhanced behavioural organization, better attention, and more coherent communication—skills that are essential for classroom participation and social interaction. Hodapp and Dykens (2018) emphasize that interventions targeting cognition also support emotional and behavioural stability in children with Down syndrome. Recent findings by Bennett and Rivera (2022) further demonstrate that CBT improves executive functioning, which in turn strengthens cognitive clarity and reduces behaviour problems.

The findings of this study revealed that Cognitive Behavioural Therapy significantly reduces social withdrawal behaviour disorder in pupils with Down syndrome. This aligns with substantial empirical evidence supporting CBT as an effective intervention for addressing emotional and social difficulties in children with developmental disabilities. Beck (2011) asserts that CBT helps individuals reshape maladaptive thoughts and behaviours, enabling them to interact more positively with their environment. Recent studies such as Harper & Gonzales (2021) show that CBT significantly improves social participation, self-confidence, and communication skills in children with intellectual disabilities. Social withdrawal is a common behavioural concern among children with Down syndrome, often presenting as avoidance of peers, reluctance to participate in group activities, and decreased social

communication (Dunn, Shields & Vellody, 2014). However, research has shown that targeted behavioural interventions can successfully reduce such tendencies. Matson and Williams (2015) found that cognitive and behavioural techniques improve social functioning among children with intellectual disabilities. More recent evidence by Lyons and Roberts (2023) demonstrates that children with Down syndrome display increased social engagement and reduced withdrawal behaviours after CBT-based social skills programmes.

The slight improvement observed in the control group may be attributed to natural classroom interactions, teacher guidance, or increased familiarity with the school environment. However, the more pronounced improvement in the experimental group indicates that CBT played a unique and significant role in altering social withdrawal behaviours. This is consistent with the report by Sukhodolsky et al. (2016), as well as more recent work by Marquez & Bello (2022), which found that structured CBT programs lead to greater social competence, increased peer interaction, and reduced isolation compared to non-intervention groups. Moreover, these findings contributed to the growing evidence that children with intellectual disabilities are capable of benefiting from psychotherapeutic interventions when properly adapted. Earlier misconceptions suggested that CBT might be too cognitively demanding for children with Down syndrome, but recent scholarship contradicts this. Cuskelly and Hauser-Cram (2011) explain that with simplified language, visual cues, and structured sessions, CBT can be effectively delivered to individuals with developmental delays. Sturmey (2020) also emphasizes that CBT can be adapted to suit the cognitive abilities of children with intellectual disabilities, leading to meaningful behavioural change. More recent findings by Carter, Yeo, and Green (2021) further support the feasibility and positive outcomes of adapted CBT in children with moderate cognitive impairments.

The improvement in social behaviour may also be linked to the development of communication and problem-solving skills, which are embedded in CBT techniques. According to Hodapp and Dykens (2018), interventions that enhance emotional understanding and coping abilities contribute significantly to reducing social withdrawal tendencies among children with Down syndrome. Updated literature such as Kim & Park (2023) confirms that CBT fosters social confidence, reduces avoidance behaviours, and enhances peer interaction in children with intellectual disabilities. By learning to challenge negative thoughts and engage more actively with others, the pupils in the experimental group likely developed greater social confidence and reduced fear or avoidance.

Conclusion

The results of the study showed that Cognitive Behavioural Therapy (CBT) is an effective intervention for reducing behavioural disorders among pupils with Down syndrome in Jos Metropolis, Plateau State. Across the three behavioural domains examined oppositional behaviour, thought disorder behaviour, and social withdrawal learners in the experimental group showed substantial improvements from pre-test to post-test, while those in the control group recorded only minimal changes. The consistently lower post-test scores of the experimental group compared to the control group indicate that CBT produced significant and positive behavioural outcomes. These findings therefore establish that CBT contributes meaningfully to improving emotional regulation, cognitive functioning, and social adjustment among children with Down syndrome. Overall, the study concluded that CBT is a beneficial and reliable therapeutic approach that can be incorporated into special education and behavioural intervention programmes to enhance the wellbeing and learning experiences of pupils with Down syndrome.

Recommendations

1. Schools in Jos Metropolis should incorporate CBT-based interventions into their special education programs for learners with Down syndrome. Teachers should be trained in the use of CBT techniques to address behavior issues and improve the learning environment for these students.
2. Mental health professionals working with children with Down syndrome should receive training on the use of CBT to manage behavioral disorders. This will help equip them with effective tools to assist their clients in overcoming behavioral challenges.

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