



The Effects of Applied Behavioural Analysis in the Management of Conduct Disorder among Secondary Schools in Lagos State

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Abstract

Background: Conduct disorder (CD) is a growing challenge among adolescents in Lagos State, often leading to academic, social, and behavioural difficulties. Applied Behaviour Analysis (ABA) has shown promise globally as an evidence-based intervention for modifying disruptive behaviours, yet empirical work remains limited in the Nigerian school context. This study examined the effectiveness of an ABA intervention in reducing conduct-disordered behaviours among secondary school students in Lagos State. An experimental design (Randomised Controlled Trial) was used for the study; 64 adolescents screened for conduct disorder were randomly assigned to an experimental group ($n = 32$) and a control group ($n = 32$). The experimental group received weekly ABA-based sessions for 8 weeks, while the control group received no intervention. Conduct disorder was assessed at pretest, posttest, and at a 4-week follow-up using Conduct Disorder Scale. Independent t -test results showed a significant reduction in conduct disorder among the experimental group compared to the control group. Paired t -test results further indicated a significant decrease from pretest to posttest among treated adolescents. Findings demonstrate that ABA significantly improves conduct related behaviours in Nigerian adolescents, highlighting its relevance for school-based behavioural interventions.

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Introduction

Conduct Disorder (CD) is a persistent and repetitive pattern of behavior that violates the basic rights of others or major age-appropriate societal norms or rules [1,2]. Adolescents with conduct disorder often display aggression toward people and animals, destruction of property, deceitfulness or theft, and serious violations of rules. The disorder is a significant public health concern as it not only affects the individual's academic and social development but also contributes to long-term behavioral and mental health problems if left untreated [3,4]. In Nigeria, particularly in Lagos State, the prevalence of disruptive behaviors such as truancy, violence, vandalism, and defiance of authority figures is increasingly evident [5-7]. These behaviors, often symptomatic of conduct disorder, impede academic success, strain school resources, and contribute to a hostile learning environment. Traditional disciplinary methods, including suspension or corporal punishment, often fail to address the underlying causes of such behaviors and may exacerbate them [8].

Applied Behaviour Analysis (ABA) is an evidence-based therapeutic approach that uses behavioral principles to bring about meaningful and positive changes in behavior. Originating from the work of B.F. Skinner and behaviorist theory, ABA involves identifying antecedents and consequences of behavior and implementing strategies such as reinforcement, extinction, and punishment to alter maladaptive behavior [9]. ABA has been widely applied to a variety of behavioral issues, particularly among individuals with developmental and behavioral disorders, including autism spectrum disorders, intellectual disabilities, and conduct disorders [10]. B.F. Skinner's theory of operant conditioning forms the backbone of Applied Behaviour Analysis. According to Skinner, behavior is influenced by its consequences. Behaviors followed by positive consequences are more likely to be repeated, while those followed by negative consequences are less likely to occur. ABA builds on this by using tools such as reinforcement (positive or negative), punishment, extinction, and stimulus control to shape desired behaviors. In managing conduct disorder, strategies such as token economies, differential reinforcement, and response cost are directly derived from Skinnerian principles. For instance, a student who refrains from aggression may earn a token that can be exchanged for a preferred item. Over time, such reinforcement increases the likelihood of compliant

and prosocial behavior. This theory is particularly relevant in structured environments like schools where behavior can be systematically monitored and modified.

Recent studies have shown that ABA-based interventions can significantly reduce disruptive behaviors when applied in educational settings. For instance, Kumuyi et al. demonstrated the effectiveness of cognitive-behavioral techniques and social skills training in reducing conduct-disordered behaviors among Nigerian adolescents [8]. Similarly, function-based interventions guided by ABA principles have been successfully implemented in school settings to reduce aggressive and noncompliant behaviors [3,10]. Internationally, research in countries such as the UK and Chile also supports the utility of ABA in promoting pro-social behavior and reducing defiance and aggression among students [11]. Despite the global body of evidence supporting ABA interventions, there is a paucity of research on the application of ABA in Nigerian secondary schools. Given the complexity of adolescent behavior and the increasing prevalence of conduct-disordered behaviors in Lagos State, there is a pressing need to investigate and validate contextually relevant behavioral interventions. This study, therefore, seeks to explore the effects of Applied Behaviour Analysis in the management of conduct disorder among secondary school students in Lagos State.

Conduct disorder among adolescents in Lagos State poses a significant challenge to teachers, parents, educational authorities, and the society at large. Behavioural issues such as truancy, bullying, aggression, and disobedience are increasingly prevalent in secondary schools, leading to academic failure, school dropouts, and, in some cases, juvenile delinquency. Despite the widespread implementation of punitive disciplinary strategies, these behaviours persist, suggesting that current management approaches may be inadequate. While ABA has shown promise in international studies as an effective strategy for managing conduct-related behaviours, there is limited empirical data on its effectiveness within Nigerian schools. Additionally, most school personnel are not adequately trained in behavioural techniques, resulting in inconsistent implementation of these intervention strategies. Without a structured, evidence-based framework, managing students with conduct disorder remains reactive rather than proactive.

Objective of the Study

The main objective of this study is to examine the effect of ABA on conduct disorder among secondary school students in Lagos State.

Hypotheses

1. There will be a significant difference between the experimental group and control group on conduct disorder, such that conduct disorder will significantly decrease among adolescents who received ABA treatment compared to adolescents who did not receive ABA treatment
2. There will be a significant difference between pretest (baseline) and posttest (endline) scores among adolescents in Lagos State.

Methods

Design

This study employed a randomised controlled Trial Design. The design was adopted to examine the effectiveness of applied behaviour analysis in the treatment of conduct disorder among adolescents in Lagos State.

Sample and Participants

A G* Power statistical analysis was used to determine a sample size of 64 adolescents who met the inclusion criteria for conduct disorder. A large effect size of .80, an α of .05 and a power of $(1 - \beta)$ of 0.95. The 64 participants were randomly assigned using a ballot system into an experimental group (32 participants) and a control group (32 participants). The diagnosis of conduct disorder was based on the earlier screening tools and teachers' reports of students who were elevated in the measures of conduct disorders. Of the 64 participants, 48.4% were male and 51.6% female within the age range of 13-18years ($M = 15.64$; $Std = 1.49$)

Measures

The researchers designed a brief socio-demographic questionnaire that was used to gather personal information about the participants. Thereafter, the Conduct Disorder Scale developed Raine, et al [12]. was used to screen and assess the conduct disorder among the participants. The scale is a 16-item scale rated on a three-point Likert scale from 0-2 and was modelled on the DSM-5 diagnostic criteria. The higher the score, the tendency for the participant to exhibit conduct disorder. Raine, et al [12]. reported an internal

reliability coefficient of .82 for caregiver report and .84 for child self-report

Procedure

The researchers obtained ethical clearance from Redeemers' University Ethical Review Committee (RUN/REC/2024/244). Thereafter, an introductory letter was also collected from the same institution and submitted with the ethical approval letter to the Lagos State Ministry of Education for approval. After approval was obtained from the ministry, the researchers went to the school to carry out the research. The participants were given an information sheet explaining the purpose of the research, seeking their parental consent and assured them of their privacy in taking part in the study. The eligible candidates, based on the screening tools and teachers' reports, were randomly assigned to either the intervention or control group. Both groups were assessed using the conduct disorder screening tool (pretest), and their baseline data were collected. The experimental group received an ABA-based reinforcement principle once a week, and each session lasted for 45–60 minutes for 8 weeks. The control group continued with their normal classroom activities with no added intervention. The participants were reassessed using the Conduct Disorder Scale for the posttest. Thereafter, a 4-week post-treatment assessment was conducted to examine the sustainability of the behavioural improvement. The experiment spanned 12 weeks.

Data analysis

The data were analysed using statistical programming for social sciences (SPSS version 25). The first and the second hypotheses were tested using an independent t-test and a paired sample t-test, respectively.

Test of Hypotheses

Hypothesis One: There will be a significant difference between the experimental group and control group on conduct disorder, such that conduct disorder will significantly decrease among adolescents who received ABA treatment compared to adolescents who did not receive ABA treatment.

Table 1: Summary Table for the Independent T-Test Showing the Post-Test Conduct Disorder Scores of the Experimental and Control Groups

Group	N	Mean	SD	t	Df	Sig
Control	32	9.13	6.99	5.85	62	0
Experimental	32	1.72	1.51			

From Table 1, it could be revealed that there was a significant effect of applied behaviour analysis on conduct disorder among adolescents in Lagos State ($t(62) = 5.85, p < .01$). The result further revealed that participants who received the ABA treatment significantly scored lower on conduct disorder compared to participants who did not receive any treatment. This, in essence, means that there was a significant reduction in conduct disorder after the ABA treatment was applied. The stated hypothesis is thereby confirmed.

Hypothesis Two: There will be a significant difference between pretest and posttest scores among adolescents in Lagos State.

Table 2: Summary Table of Paired Sample T-Test for Pretest and Post-Test Conduct Disorder Scores for the Experimental Group

Experimental Group	Number	Mean	SD	t	df	Sig
Pre-test		2.5	2.05	2.19	31	0.036
Post-test	32	1.72	1.51			

From Table 2, it could be shown that there was a significant difference between the pretest and posttest groups on conduct disorder score of the experimental group ($t(31) = 2.19; p < .05$). It could be further revealed that there was a significant reduction in conduct disorder in the posttest score compared to the pretest scores. This means that the ABA treatment was effective in treating conduct disorder among the adolescents. The stated hypothesis is thereby rejected.

Discussion

The effectiveness of Applied Behaviour Analysis (ABA) was investigated in reducing conduct-disordered behaviours of secondary school students in Lagos State, Nigeria. The results supported both hypotheses, suggesting that the treatment group showed significantly reduction in conduct disorder symptoms than the control group, and that the pretest and post-test scores on the treatment group were significantly different. The findings are discussed with reference to available literature, theoretical explanations and implications to the practice of school based behavioural intervention in Nigeria.

The first hypothesis that adolescent experimental adolescents would have a significant decrease in conduct disorder as compared to the control group was supported. At both pretest and post-test, the adolescents receiving the ABA-based intervention had significantly lower scores on the Conduct Disorder Scale than those who did not receive the intervention. This is in line with a growing evidence base for the efficacy of behaviour interventions for conduct-disordered youth. In a randomised controlled trial, Kumuyi et al. compared the effectiveness of cognitive-behavioural therapy and social skills training for reducing conduct-disordered behaviour in adolescents in school in Ibadan, Nigeria after eight weeks of intervention [8]. The current results add to this evidence by directly showing the ability to reduce similar levels in a secondary school setting using ABA-based principles of reinforcement. Consistent with this, a systematic review and meta-analysis of 17 randomised controlled trials with 1,954 adolescents found that psychosocial interventions (PSI) were effective at reducing externalising symptoms across all studies [13]. This study adds to the contextually important contribution by showing the effects were repeatable in a secondary school context of Nigeria where empirical investigation of ABA has yet to be explored extensively.

Skinner's theory of operant conditioning, the theoretical basis for ABA, is a useful way to make sense of the effectiveness of the ABA intervention in this study. The principles of operant conditioning state that behaviour is influenced by its consequences – behaviours followed by reinforcement are increased; behaviours followed by avoidance or aversive consequences are decreased [9]. The current study used elements of positive reinforcement, differential reinforcement, and token economy systems as means of reinforcing pro-social and compliant behaviour among participants in the ABA sessions. Differential reinforcement (DR) procedures have been shown to be effective in school settings for many years by significantly reducing disruptive and aggressive behaviours when used consistently [14]. Another popular tool in ABA is the token economy system, which involves giving immediate tangible reinforcement for desired behaviour, which has also been proven to significantly decrease instances of disruptive behaviour, when used in the school setting with fidelity [15]. The large post test changes found in the present study are consistent with the theoretical framework: When these behavioral contingencies that had previously maintained the participants' disruptive behaviour were systematically changed, by reinforcing prosocial behaviour and withholding the reinforcement of conduct-disordered behaviour, the post test changes were observed.

The second hypothesis that predicted a significant difference between the pretest and post-test scores for adolescents in the experimental group was also supported. The intervention resulted in a statistically significant effect, but the absolute difference between pretest and post-test wasn't very large, indicating that the ABA intervention reliably caused change in the experimental group, but the amount of change in the experimental group was less than the amount of change between pretest and post-test in the control group. This pattern is in line with the interpretation that the intervention prevented the escalation of conduct-disordered behaviour that might have occurred without the intervention, as is common in behavioural intervention studies where the main effect is one of stabilisation and target reduction, but not elimination of the behaviour [3]. The follow-up period of the study was a 4-week period conducted beyond the active treatment period, although the focus of this follow-up period was not hypothesis testing, it provides preliminary evidence that the behavioural

improvements achieved through ABA were maintained beyond the active treatment period, which is an important indicator of the validity of the intervention in school-based contexts.

The implications of this research are of great importance especially in the light of the reported prevalence of conduct disorder among the Nigerian adolescent and the lack of appropriate management strategies in the secondary schools of Nigeria. Conduct disorder among in-school adolescents in Nigeria has consistently been linked to in-school truancy, bullying, aggression, and defiant behaviour towards authority, all of which hinder school performance and have negative implications on school resources [5-8]. A study of conduct disorder in juvenile offenders in a Borstal Institution in Nigeria revealed high prevalence of conduct disorder among the juvenile offenders and underscored the need for comprehensive and early behavioural intervention to reduce recidivism [16]. Similarly, a study among secondary school adolescents in Southeast Nigeria reported the presence of various behavioural problems, which was further to be supported by structured, evidence-based interventions within the school environment [17]. Given that Nigeria's schools are characterised by the use of punitive and exclusionary disciplinary practices that are consistently found to be ineffective and potentially counterproductive in the literature [8], it is important to have an alternative and evidence-based approach to school discipline such as ABA that is relevant to school administrators, counsellors and policymakers. The feasibility and effectiveness of delivering ABA in this context are shown in the present study.

The importance of early and effective intervention for conduct disorder is not to be underestimated. Numerous studies have now found that untreated conduct disorder is a powerful developmental risk factor for a spectrum of negative adult outcomes such as antisocial personality disorder, substance abuse and post cognitive and relational difficulties, as well as criminal behaviours [18]. Long-term follow-up studies have demonstrated that one-third to two-third of those who were diagnosed with conduct disorder in childhood or adolescence eventually develop antisocial personality disorder in adulthood and gender-specific analyses indicate that disruptive behaviour primarily predicts antisocial personality disorder in males [18]. The present study intervenes at the secondary school level, before the maladaptive behavioural patterns have had

serious social, legal, or psychiatric consequences and changes are occurring at a critical moment. This places ABA within the context of a cost-effective school-based prevention program that can have long-term public health implications for the Nigerian adolescent population.

The study is also part of the growing body of literature on behavioural intervention in school settings in sub-Saharan Africa. Research on ABA and conduct-related behaviour has been limited to North America and Europe, and there is a lack of evidence from low- and middle-income countries where, for example, contextual factors like class size, resource constraints, and teacher training may influence the results of interventions. Given the success of the present study in the implementation of ABA in public secondary schools in Lagos State, it can be concluded that the implementation of the principles of ABA can be transferred to the similar setting of this study, and can be delivered under the limitations of the Nigerian education system. This is in line with the evidence of De Chaisemartin and Navarrete on the effectiveness of structured socio-emotional and behavioural interventions in schools in Chile, another middle-income country, and Ghafghazi et al.'s wider results of the applicability of ABA-led strategies in various settings and populations [10,11].

The present study has several limitations that should be taken into account. The study drew its sample from one geopolitical zone of Nigeria (Lagos State) which makes the findings restricted to the other geopolitical zone of Nigeria where cultural, socioeconomic and institutional factors may be different from Lagos State. The sample size of 64 participants was adequate for the statistical power of the hypotheses tested, but may not provide a precise estimate of effect sizes. Although the 4-week follow-up period was helpful in evaluating the initial sustainability of the behavioral changes, it did not allow for long-term evaluation of the behavioral changes maintained. In addition, the study lacked treatment fidelity measures and therapist adherence to the ABA protocol that are crucial for determining intervention effectiveness in the real world. Future studies are needed to overcome these limitations by including more Nigerian states for multi-site trials, by increasing follow-up periods, by conducting fidelity monitoring, and by researching the moderating effect of comorbid conditions (such as attention deficit

hyperactivity disorder) on adolescent outcomes in ABA.

The results of the present study show that treatment of conduct disorder in secondary school students in Lagos State, Nigeria by ABA is effective and feasible. Results of the experimental group's conduct disorder scores are consistent with theory predicted by operant conditioning and with the overall international evidence base for ABA, as these scores were significantly decreased from the control group score and from pre- to post-test scores. The implications for educational psychology practice in Nigeria are evident in the integration of ABA-based strategies into school counselling and behavioural support practices as a structured and evidence-based approach to discipline, with the traditional punitive approach to discipline being rejected.

Limitations

This study is not without limitations. First, although the 8-week ABA intervention demonstrated effectiveness, its relatively short duration limited the conclusions about long-term behavioural maintenance beyond the 4-week follow-up period. We suggest future research study the long-term behavioural maintenance. Additionally, some aspects of the behavioural assessment also relied on teacher reports, which may have introduced subjective bias into the data. Finally, variations in school environments, including differences in disciplinary climate, teacher behaviour, and class size, may have influenced the consistency and effectiveness of intervention delivery across participants. Some of the participants withdrew from the study, which affected the sample size.

Conclusion

The study provided strong empirical evidence that Applied Behaviour Analysis significantly reduced conduct disorder symptoms among adolescents in Lagos State. The ABA intervention produced meaningful improvements in behavioural outcomes when compared to a control group, and these gains were maintained beyond the intervention period. These findings highlight ABA as a viable, culturally adaptable, and effective behavioural intervention for Nigerian schools. Incorporating ABA-based strategies into school counselling practices and teacher training initiatives may support healthier behavioural development and enhance the overall school climate.

References

1. Sagar R, Patra BN, Patil V (2019) Clinical Practice Guidelines for the management of conduct disorder. *Indian journal of psychiatry*, 61: 270-276.
2. American Psychiatric Association, DSM-5 Task Force (2013) *Diagnostic and statistical manual of mental disorders: DSM-5™* (5th ed.). American Psychiatric Publishing, Inc. <https://psycnet.apa.org/buy/PI>.
3. Mashalaba E, Edwards D (2005) A successful cognitive-behavioural intervention that failed: a case study of adolescent conduct disorder at a school for the disadvantaged. *Journal of Child & Adolescent Mental Health* 17: 69-78.
4. Kivumbi A, Byansi W, Damulira C, Namatovu P, Mugisha J (2019) Prevalence of behavioral disorders and attention deficit/hyperactive disorder among school going children in Southwestern Uganda. *BMC Psychiatry* 19: 105.
5. Atilola O, Abiri G, Ola B (2022) The impact of behavioral disorders on the level of custodial school-engagement among detained adolescent boys in Lagos: an observational cohort study. *Journal of Global Health Neurology and Psychiatry* 5.
6. Bankole K.M., Ojo T.E., Lawal Q. A. & Animashaun P. O. (2025). Assessment of conduct disorder among in-school adolescents in Lagos State. *African Journal of Human Development and Lifespan*, 5, 219 - 235.
7. Animashaun P. O., Ojo T. E., Lawal Q. A., & Bankole K. M. (2025). Assessment of oppositional defiant disorder among in-school adolescents in Lagos State. *Lagos Journal of Psychology*, 3(2), 1-25
8. Kumuyi DO, Akinnawo EO, Akpunne BC, Akintola AA, Onisile DF (2022) Effectiveness of cognitive behavioural therapy and social skills training in management of conduct disorder. *The South African journal of psychiatry: SAJP: the journal of the Society of Psychiatrists of South Africa* 28: 17-37.
9. JO, Heron TE, Heward WL (2020) *Applied behavior analysis* (3rd ed.) https://api.pageplace.de/preview/DT0400.9781292341057_A39573391/1_preview-9781292341057_A39573391.pdf.
10. Ghafghazi S, Carnett A, Neely L, Das A, Rad P (2021) *AI-Augmented Behavior Analysis for Children with Developmental Disabilities: Building toward Precision Treatment*. *IEEE Systems Man and Cybernetics Magazine* 7: 4-12.
11. De Chaisemartin C, Navarrete J (2020) Effects of a nationwide socio-emotional learning program for disruptive students in Chile. *arXiv preprint arXiv 2004: 08-26*.
12. Raine A, Ling S, Streicher W, Liu J (2022) The conduct and oppositional defiant disorder scales (CODDS) for disruptive behaviour disorders. *Psychiatry Research* 316: 114-744.
13. Boldrini T, Ghiandoni V, Mancinelli E, Salcuni S, Solmi M (2022) Systematic Review and Meta-analysis: Psychosocial Treatments for Disruptive Behavior Symptoms and Disorders in Adolescence. *Journal of the American Academy of Child & Adolescent Psychiatry* 62.
14. Alberto P A, Troutman A C (2013) *Applied behavior analysis for teachers* (9th ed.). <https://www.sciepub.com/reference/48065>.
15. Matson JL, Boisjoli JA (2009) The token economy for children with intellectual disability and/or autism: A review. *Research in Developmental Disabilities* 30: 240-248.
16. Olashore AA, Ogunwale A, Adebawale O (2016) Correlates of conduct disorder among inmates of a Nigerian Borstal Institution. *Child and adolescent psychiatry and mental health*, 10: 13.
17. Chinawa JM, Manyike PC, Obu HA, Odetunde OI, Aniwada EC (2014) Behavioral Disorder amongst Adolescents Attending Secondary School in Southeast Nigeria. *Behavioural Neurology* 1-10.
18. Frick PJ, Viding E (2009) Antisocial behavior from a developmental psychopathology perspective. *Development and Psychopathology* 21: 1111-1131.