



Original Article

Assessing the impact of oppositional defiant disorder on academic performance in junior secondary students Ilorin, Nigeria

Arinde A.V¹, Arinde O. W², Ayodele Ojuawo¹, Adeboye M.A.N¹, Tunde-Ayinmode M.F³

Departments of ¹Paediatrics, ²Internal Medicine, ³Psychiatry, University of Ilorin Teaching Hospital, Ilorin, Oke-oye, Kwara, Ilorin, Nigeria.

***Corresponding author:**

Arinde A.V,
Department of Paediatrics,
University of Ilorin Teaching
Hospital, Ilorin, Oke-oye,
Kwara, Ilorin, Nigeria

ocheab1@gmail.com

Received: 19 December 2023

Accepted: 27 February 2024

Epub Ahead of Print:

27 May 2024

Published: 08 July 2024

DOI

10.25259/SAJHS_26_2023

Quick Response Code:



ABSTRACT

Objectives: Oppositional Defiant Disorder (ODD) is a behavioural disorder that can significantly impact the academic performance and social dynamics of school-aged children. Understanding the extent of these effects, particularly in diverse socio-economic and educational settings, is crucial for developing effective intervention strategies.

This study aimed to assess the impact of ODD on the academic performance of junior secondary school students in Ilorin, examining the role of comorbidities, social class, and school type in shaping educational outcomes.

Material and Methods: A cross-sectional study was conducted on 1078 junior secondary school students in Ilorin, including 41 students diagnosed with ODD. Data on academic performance across subjects (Reading, Mathematics, and Written Expression) were collected alongside information on comorbid conditions using the standardised Vanderbilt Attention-Deficit/Hyperactivity Disorder (ADHD) rating scale for ODD, conduct disorder, anxiety, and depression. At the same time, the social class was assessed using the Oyedeki classification and school type from the study proforma. Statistical analyses were performed to determine correlations and differences in academic performance between students with and without ODD.

Results: The study revealed a high prevalence of comorbidities such as ADHD and Conduct Disorder among students with ODD. A negative correlation was observed between ODD and academic performance across all subjects. Students with ODD from upper social classes and private schools performed relatively better, suggesting the influence of socioeconomic factors and educational environment.

Conclusion: Oppositional defiant disorder significantly affects academic performance in junior secondary school students. Comorbidities, socio-economic disparities, and differences in school types further compound these challenges. These findings underscore the need for tailored educational strategies and support systems, highlighting the importance of a multifaceted approach in addressing the academic needs of students with ODD.

Keywords: Oppositional defiant disorder, Academic performance, School, Social class, ADHD

INTRODUCTION

Oppositional Defiant Disorder (ODD) is increasingly being recognised as a significant behavioural challenge in educational settings, impacting not only the social dynamics but also the academic performance of school-aged children.^[1-3] It is characterised by a persistent pattern of disobedience, hostility, and defiant behaviour. Oppositional defiant disorder presents unique challenges within the classroom, influencing learning processes and outcomes.^[4] The prevalence of ODD and its implications on educational attainment have become focal points in understanding how behavioural disorders affect academic development, particularly during the critical years of junior secondary education.^[5]

This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

©2024 Published by Scientific Scholar on behalf of South Asian Journal of Health Sciences

In Ilorin, as in many other regions, there is a growing concern about the impact of behavioural disorders like ODD on students' academic achievements. Junior secondary school, a phase marked by crucial cognitive and social development, is susceptible to the disruptions caused by such disorders.^[6-8] The educational implications of ODD in this context are multifaceted, potentially affecting not only the individual student's learning but also the classroom environment and overall academic outcomes.^[9]

Furthermore, the interplay of ODD with various socio-economic factors, including family background and school resources, adds complexity to understanding its impact.^[10] Differences in academic performance between students from diverse socio-economic backgrounds and school types further highlight the need for an in-depth examination of these factors concerning ODD.^[11-12] Additionally, the presence of comorbid conditions such as Attention-Deficit/Hyperactivity Disorder (ADHD), Anxiety, Depression, substance use disorder, and Conduct Disorder among students with ODD in Ilorin brings out a broader perspective on the challenges faced by these students and the support required to address their needs effectively.

This study, therefore, aims to provide a comprehensive assessment of the impact of ODD on the academic performance of junior secondary school students in Ilorin. By examining academic outcomes concerning ODD and its associated factors, the research seeks to contribute valuable insights into developing effective educational strategies and interventions tailored to meet the needs of students affected by this disorder.

MATERIAL AND METHODS

The study employed a descriptive cross-sectional school-based design, conducted in selected private and public junior secondary schools in Ilorin, the capital city of Kwara state, Nigeria. Ilorin has a diverse population with a mix of urban settlers, mainly civil servants and subsistence farmers. Three local government areas (LGAs) in Ilorin were included: Ilorin East, Ilorin West, and Ilorin South. A total of 1,078 junior secondary students aged 9-18 years participated in the study over four months.

A multi-staged probability random sampling technique was used for subject selection. The sample size was determined using the formula for a single proportion, estimating a prevalence of Oppositional defiant disorder (ODD) at 60.4%. The calculated minimum sample size was 1,078, considering a 10% non-response rate. The sample was distributed proportionally across the three LGAs and selected private and public schools.

The study's inclusion criteria involved students aged 9-18 in selected junior secondary schools, with parental consent

and student assent. Exclusion criteria included students with diagnosed behavioural/neuropsychiatric disorders (excluding behavioural disorders such as ODD, ADHD, Conduct Disorder (CD), etc.), evidence of neurological sequelae of a previous illness, uncorrected sensory deficits, and chronic medical conditions affecting regular school attendance.

DATA ANALYSIS

The data were cleaned and entered into a Statistical Package for the Social Sciences (SPSS) version 21.0. After that, frequency tables and charts were generated. The mean, standard deviation, median, and interquartile ranges were used to summarise relevant variables. Cross-tabulations of relevant variables were used to determine the statistical inferences between the variables. Chi-square analysis was used to test proportions as appropriate. The strength of the association between significant variables was assessed using Chi-square. Spearman's correlation analysis was used to check the relationship between variables. In all relevant statistical cases, the confidence interval (CI) was set at 95%, and the level of significance was set at $p < 0.05$

RESULTS

Comorbidities Among Cases of Oppositional Defiant Disorder

Table 1 assesses comorbid conditions among 41 students diagnosed with Oppositional Defiant Disorder (ODD). Attention-Deficit/Hyperactivity Disorder (ADHD) was identified in 14.6% of the cases ($n = 6$), indicating a notable occurrence of this comorbidity. A significant majority of 85.4% ($n = 35$), however, did not exhibit symptoms of ADHD. Similarly, Anxiety/Depression was present in 12.2% ($n = 5$) of the students with ODD, while a more significant proportion, 87.8% ($n = 36$), did not show these symptoms. Conduct Disorder was more prevalent, identified in 39.0% ($n = 16$) of the students with ODD, leaving 61.0% ($n = 25$) without this

Table 1: Proportion of comorbidities among the cases of Oppositional Defiant Disorder

Variables	Frequency (N = 41)	Percentage (%)
ADHD		
Present	6	14.6
Anxiety/Depression		
Present	5	12.2
Conduct Disorder		
Present	16	39.0
Substance abuse (Alcohol)		
Present	1	2.4

ADHD: Attention-Deficit/Hyperactivity Disorder

condition. Substance abuse, specifically alcohol, was relatively rare, with only 2.4% (n = 1) found, while the majority, 97.5% (n = 40), had no history of substance abuse.

Academic Performance of Respondents

Table 2 provides an overview of the 1078 students' academic performance. In Reading, a significant portion of students, 61.0% (n = 658), achieved an 'Excellent' rating. Only a few, 0.2% (n = 2), were rated 'Above Average.' Those rated as 'Average,' 'Poor,' and 'Very Poor' comprised 20.8% (n = 224), 9.7% (n = 105), and 8.3% (n = 89) respectively. In Mathematics, the largest group was 'Above Average' at 28.5% (n = 307), followed by 'Excellent' (23.7%, n = 256), 'Average' (25.0%, n = 269), 'Poor' (13.8%, n = 149), and 'Very Poor' (9.0%, n = 89). The data suggests a relatively high performance in Reading compared to Mathematics, with a noticeable portion of students struggling in the latter subject.

Social Class and Academic Performance of Respondents

Table 3 explores the relationship between social class and academic performance among the 1078 respondents. In the category of Reading, upper-class students excelled, with 56.1% (n = 369) rated as 'Excellent,' compared to 39.4% (n = 262) in the middle class and a lower percentage in the lower class. A similar trend was observed for Mathematics, with 59.4% (n = 152) of upper-class students performing excellently and middle and lower-class students following behind. This pattern suggests a potential correlation between social class

Table 2: Academic performance of the respondents

Variable	Frequency (N = 1078)	Percentage (%)
Reading		
Excellent	658	61.0
Above average	2	0.2
Average	224	20.8
Poor	105	9.7
Very Poor	89	8.3
Mathematics		
Excellent	256	23.7
Above average	307	28.5
Average	269	25.0
Poor	149	13.8
Very Poor	97	9.0
Written expression		
Excellent	298	27.7
Above average	314	29.1
Average	271	25.2
Poor	120	11.1
Very Poor	75	7.0

and academic achievement, with upper-class students tend to perform better across the subjects.

Academic Performance According to School Type

Table 4 compares academic performance concerning the type of school attended. In private schools, 17.2% (n = 113) of respondents exhibited excellent reading skills, contrasting with a much higher percentage, 82.8% (n = 545), in public

Table 3: Social class and the academic performance of the respondents.

Variables	Social class (N = 1078)			χ^2	p-value
	Upper n = 614	Middle n = 426	Lower n = 38		
Reading					
Excellent	369 (56.1)	262 (39.8)	27 (4.1)	13.380Y	0.099
Above average	1 (50.0)	1 (50.0)	0 (0.0)	2.383Y	0.304
Average	137 (61.2)	85 (37.9)	2 (0.9)	13.415Y	0.001
Poor	66 (62.9)	34 (32.4)	5 (4.8)	3.855Y	0.146
Very Poor	41 (46.1)	44 (49.4)	4 (4.5)	5.303Y	0.071
Mathematics					
Excellent	152 (59.4)	97 (37.9)	7 (2.7)	9.538	0.299
Above average	171 (55.7)	121 (39.4)	15 (4.9)	2.066	0.356
Average	155 (57.6)	107 (39.8)	7 (2.6)	2.056	0.358
Poor	91 (61.1)	52 (34.9)	6 (4.0)	1.420	0.492
Very Poor	45 (46.4)	49 (50.5)	3 (3.1)	5.921	0.052
Written expression					
Excellent	171 (57.4)	116 (38.9)	11 (3.7)	5.905	0.658
Above average	181 (57.6)	122 (38.9)	11 (3.5)	0.017	0.991
Average	154 (56.8)	111 (41.0)	6 (2.2)	1.011	0.603
Poor	68 (56.7)	44 (36.7)	8 (6.7)	4.992	0.082
Very Poor	40 (53.3)	33 (44.0)	2 (2.7)	2.161	0.339

Bold values: statistical significance (p < 0.05); Y: Yates corrected Chi-square

Table 4: Academic performance according to the type of school of the respondents.

Variables	Type of School (1078)		χ^2	p-value
	Private n = 154	Public n = 924		
Reading				
Excellent	113 (17.2)	545 (82.8)	12.302Y	0.015
Above average	0 (0.0)	2 (100.0)	0.088Y	0.767
Average	27 (12.1)	197 (87.9)	0.327Y	0.567
Poor	9 (8.6)	96 (91.4)	0.890	0.345
Very Poor	5 (5.6)	84 (94.4)	0.628	0.428
Mathematics				
Excellent	55 (21.5)	201 (78.5)	26.509	<0.001
Above average	44 (28.6)	263 (28.5)	4.297Y	0.026
Average	40 (14.9)	229 (85.1)	0.033Y	0.856
Poor	13 (8.7)	136 (91.3)	5.679	0.017
Very Poor	2 (2.1)	95 (97.9)	3.414	0.064
Written expression				
Excellent	51 (17.1)	247 (82.9)	10.801	0.029
Above average	48 (15.3)	266 (84.7)	0.377	0.539
Average	38 (14.0)	233 (86.0)	0.098	0.754
Poor	15 (12.5)	105 (87.5)	0.164	0.686
Very Poor	2 (2.7)	73 (97.3)	5.608	0.018

Bold values: statistical significance (p < 0.05); Y: Yates corrected Chi-square

schools. This disparity raises questions about the varying quality of education and resources available in different types of schools and how they impact students' academic performance.

Comparison of Academic Performance between Cases and Non-cases of ODD

Table 5 contrasts academic performance between students diagnosed with ODD and those without (non-cases). In subjects like Reading and Mathematics, the data reveals a marked difference in performance between the two groups. ODD cases tend to perform lower compared to their non-ODD counterparts. For instance, in Reading, only 2.2% (n = 14) of ODD cases were rated 'Excellent,' as opposed to 97.8% (n = 644) among non-cases. This pattern is consistent across other subjects, suggesting that ODD may negatively impact academic achievement.

Correlation between ODD and Academic Performance

Table 6 presents the correlation between ODD and academic performance across different subjects. A negative correlation was found between ODD and performance in Reading (r = -0.113), Mathematics (r = -0.096), and Written Expression (r = -0.080). These findings indicate that ODD in students is associated with lower academic performance in

Table 5: Academic performance of the respondents with ODD.

Variables	ODD		χ^2	p-value
	Cases	Non-cases		
Reading				
Excellent	14 (2.2)	644 (97.8)	13.286Y	0.007
Above average	0 (0.0)	2 (100.0)	5.501Y	0.019
Average	13 (5.8)	211 (94.2)	1.379Y	0.240
Poor	7 (6.7)	98 (93.3)	0.093	0.760
Very Poor	7 (7.9)	82 (92.1)	0.103	0.748
Mathematics				
Excellent	5 (2.0)	251 (98.1)	11.656	0.023
Above average	6 (2.0)	301 (98.0)	29.128Y	<0.001
Average	14 (5.2)	255 (94.8)	4.518	0.034
Poor	10 (6.7)	139 (93.3)	0.402	0.526
Very Poor	6 (6.2)	91 (93.8)	0.027	0.869
Written expression				
Excellent	8 (2.7)	290 (97.3)	10.474	0.033
Above average	8 (2.5)	306 (97.5)	0.011	0.916
Average	10 (3.7)	261 (96.3)	0.636	0.425
Poor	9 (7.5)	111 (92.5)	2.611	0.106
Very Poor	6 (8.0)	69 (92.0)	0.016	0.899

Bold values: statistical significance (p < 0.05); Y: Yates corrected Chi-square; ODD: Oppositional Defiant Disorder

Table 6: Correlation between ODD and the academic performance.

Variable	ODD	
	r	p-value
Reading	-0.113	<0.001
Mathematics	-0.096	0.002
Written expression	-0.080	0.009

r: Spearman correlation coefficient; Bold values: statistical significance (p < 0.05); ODD: Oppositional Defiant Disorder

these areas, underscoring the importance of addressing this disorder to improve educational outcomes.

DISCUSSION

Our findings highlight the prevalence of comorbidities among students with ODD. Notably, ADHD and Conduct Disorder are significantly present, aligning with previous research that suggests a high comorbidity rate between ODD and other behavioural disorders.^[13] The co-occurrence of ADHD, in particular, may exacerbate attentional and behavioural challenges, complicating the management and intervention strategies for these students. Similarly, the presence of Conduct Disorder suggests more pronounced behavioural issues, which may impact academic performance and social interactions in school settings. These results underscore the importance of comprehensive diagnostic assessments in students with ODD to identify and address co-occurring

conditions effectively. So also, the presence of comorbidities worsens the prognosis and outcome of children with ODD.

This study indicates a noticeable decline in academic performance in core subjects among students with ODD. This is particularly evident in Mathematics and Written Expression, where students with ODD are significantly below the average. Such findings are consistent with research by Staff *et al.* (2021),^[14] who noted the adverse effects of behavioural disorders on academic achievements. The cognitive demands of these subjects, combined with the behavioural challenges posed by ODD, may contribute to these difficulties. These insights call for the development of tailored educational strategies that accommodate the unique learning needs of these students, including individualised academic plans and behavioural interventions that foster a conducive learning environment.

The study demonstrates a correlation between social class and the academic performance of students with ODD. Students from the upper social class generally performed better than their middle and lower-class counterparts. This disparity may be attributed to the varying access levels to educational resources, extracurricular activities, and support systems, often more available to students from higher socio-economic backgrounds. Such findings resonate with the work of Liu *et al.* (2022),^[15] who emphasised the impact of socioeconomic status on educational achievement. This suggests a need for policies and interventions that address these socioeconomic disparities, ensuring that all students, regardless of their background, receive the support and resources needed to succeed academically.

Our analysis reveals significant differences in academic performance between students with ODD in private versus public schools, particularly in Reading. This suggests that the type of school may play a role in shaping the educational outcomes of students with ODD. Factors such as teacher-student ratios, curriculum differences, and resource availability, which often vary between private and public schools, could influence these outcomes. This aligns with the findings of Azzali *et al.* (2021)^[16], who reported varying educational outcomes between school types. It may also reflect the degree of individualised attention and support available in different school settings. These results highlight the need for equitable educational strategies and resources across various types of schools to ensure that students with ODD receive adequate support, regardless of their school.

The comparison between students diagnosed with ODD and their peers without the disorder shows a significant gap in academic performance. Students without ODD generally perform better than those with the disorder, a pattern consistent across subjects like Reading, Mathematics, and

Written Expression. This disparity can be attributed to the behavioural and cognitive challenges associated with ODD, as described in the DSM-5 criteria for its diagnosis^[17] which may hinder learning and academic achievement. The findings align with the research by Burke *et al.* (2023),^[18] which suggests that behavioural disorders can significantly impact a student's ability to engage and excel in academic settings. The data underscores the necessity for targeted educational interventions and support mechanisms for students with ODD to bridge this performance gap and provide an equitable educational experience.

Consequently, the negative correlation observed between ODD and academic performance in various subjects substantially impacts the disorder on educational outcomes. This correlation suggests that academic performance tends to decrease as the severity or presence of ODD increases. This relationship, as demonstrated by the Spearman correlation coefficients, points to the broader impact of behavioural disorders on educational achievement, aligning with findings by Barkley (2021).^[19] The results emphasise the importance of early identification and intervention for students with ODD, including cognitive and behavioural therapies, academic accommodations, and support systems at home and in school.

CONCLUSION

This study sheds light on the multifaceted challenges faced by students with ODD in junior secondary schools in Ilorin. It highlights the significant role of comorbidities, socio-economic factors, and school environments in influencing academic outcomes. The findings call for a holistic approach to education for students with ODD. This encompasses individualised educational plans, socio-emotional support, and collaboration between educators, healthcare providers, and families. Addressing these challenges through comprehensive strategies could improve students' academic and personal outcomes with ODD, ultimately leading to more inclusive and effective educational systems.

Ethical approval

The research/study was approved by the Institutional Review Board at the University of Ilorin Teaching Hospital, Ilorin, number NHREC/02/05/2010, dated 29/07/2020.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-Assisted Technology for assisting in the writing or editing of the manuscript, and no images were manipulated using AI.

REFERENCES

1. Figueiredo P, Ramião E, Barroso R, Barbosa F. Executive (dys) functions and ODD and CD: A systematic review and meta-analysis. *Neuropsychology* 2023;37:133.
2. Doepfner M, Goertz-Dorten A, Hanisch C, Steinhausen HC. Treatment and management of oppositional defiant disorders and conduct disorders in children and adolescents. In: *The Wiley International Handbook on Psychopathic Disorders and the Law* 2020;37:729–77.
3. Neumann CS, Salekin RT, Commerce E, Charles NE, Barry CT, Mendez B, Hare RD. Proposed specifiers for conduct disorder (PSCD) scale: A latent profile analysis with at-risk adolescents. *Res Child Adolesc Psychopathol* 2023;12:1–5.
4. Sarmiento C, Lau C. Diagnostic and statistical manual of mental disorders: DSM-5. In: *The wiley encyclopedia of personality and individual differences: Personality processes and individual differences* 2020;27:125–9.
5. Burke JD, Butler EJ, Perkins AG. Disruptive behavior disorders in children and adolescents. In: *Desk Reference in School Psychology* 2023;17:228.
6. Barkley RA. Global issues related to the impact of untreated attention-deficit/hyperactivity disorder from childhood to young adulthood. *Postgrad Med* 2008;120:48–59.
7. Squillaci M, Benoit V. Role of Callous and Unemotional (CU) Traits on the development of youth with behavioral disorders: A systematic review. *Int J Environ Res Public Health* 2021;18:4712.
8. Farrell BS, Garner AR, Romero GJ, Stuart GL. Antisocial personality traits link family of origin violence and emotional partner abuse in college students. *Partner Abuse* 2023;1:12.
9. González C, Varela J, Sánchez PA, Venegas F, De Tezanos-Pinto P. Students' participation in school and its relationship with antisocial behavior, academic performance and adolescent well-being. *Child Indic Res* 2021;14:269–82.
10. Mayes SD, Castagna PJ, DiGiovanni CD, Waschbusch DA. Relationship between ADHD, oppositional defiant, conduct, and disruptive mood dysregulation disorder symptoms and age in children with ADHD and autism. *Int J Clin Psychiatry Ment Health* 2020;8:47–57.
11. Barker C, de Lugt J. A review of evidence-based practices to support students with oppositional defiant disorder in classroom settings. *Int J Spec Educ* 2022;37:85–98.
12. Kuhne M, Schachar R, Tannock R. Impact of comorbid oppositional or conduct problems on attention-deficit hyperactivity disorder. *J Am Acad Child Adolesc Psychiatry* 1997;36:1715–25.
13. Gnanavel S, Sharma P, Kaushal P, Hussain S. Attention deficit hyperactivity disorder and comorbidity: A review of literature. *World J Clin Cases* 2019;7:2420.
14. Staff AI, van den Hoofdakker BJ, Van der Oord S, Hornstra R, Hoekstra PJ, Twisk JW, Oosterlaan J, Luman M. Effectiveness of specific techniques in behavioral teacher training for childhood ADHD: A randomized controlled microtrial. *J Clin Child Adolesc Psychol* 2021;50:763–79.
15. Liu J, Peng P, Zhao B, Luo L. Socioeconomic status and academic achievement in primary and secondary education: A meta-analytic review. *Educ Psychol Rev* 2022;34:2867–96.
16. Azzali S, Mazza T, Reichelt KJ, Wang D. Does mandatory IFRS adoption affect audit hours and the effectiveness to constrain earnings management? Evidence from Italy. *Auditing: A Journal of Practice & Theory* 2021;40:1–25.
17. Arias VB, Aguayo V, Navas P. Validity of DSM-5 oppositional defiant disorder symptoms in children with intellectual disability. *Int J Environ Res Public Health* 2021;18:1977.
18. Burke JD, Butler EJ, Perkins AG. Disruptive behavior disorders in children and adolescents. In: *Desk Reference in School Psychology* 2023;17:228.
19. Barkley RA. Implications of the executive function—self-regulation (EF-SR) theory of ADHD for estimates of persistence and prevalence. *The ADHD Report* 2021;29:8–11.

How to cite this article: Arinde AV, Arinde OW, Ojuawo A, Adeboye MAN, Tunde-Ayinmode ME. Assessing the impact of oppositional defiant disorder on academic performance in junior secondary students Ilorin, Nigeria. *South Asian J Health Sci.* 2024;1:89–94. doi: 10.25259/SAJHS_26_2023