

Conduct Disorder among Primary Schoolchildren in Southern Nigeria

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Abstract

Background: Conduct disorder is a mental disorder characterized by hostile and sometimes physically violent behavior. It is a source of concern not only to the parents but also to the children's teachers and the community. Its prevalence rate in our environment is unknown. **Aim:** The aim of the study is to determine the prevalence rate of conduct disorder among primary school pupils in Ikot-Ekpene, Southern Nigeria. **Materials and Methods:** Vanderbilt attention-deficit hyperactivity disorder (ADHD) diagnostic teacher rating scale for oppositional defiant disorder/conduct disorder was administered on 1174 pupils aged 6–12 years drawn from 12 primary schools in Ikot-Ekpene, Akwa-Ibom State, Nigeria. Parents of the pupils with conduct disorder completed a pro forma on their sociodemographic characteristics. **Results:** One hundred and fifteen of the studied 1174 pupils had conduct disorder with a prevalence rate of 9.8%. A greater number of males had conduct disorder with a male-to-female ratio of 4.75:1. Children from upper social class comprised the highest number with conduct disorder. Younger children (6–9 years) were more affected (76.5%) than the older ones. The predominant symptom exhibited by the children was difficult temperament. Comorbidities associated with conduct disorder were ADHD, anxiety disorder, and depression. **Conclusion:** The prevalence rate of conduct disorder is within the global range in our environment and tends to affect the younger children. Policy should be put in place to screen these children at school entrance so as to render appropriate health intervention.

Keywords: Children, conduct disorder, Ikot-Ekpene, Southern Nigeria

INTRODUCTION

Conduct disorder is a mental disorder common in children and adolescents <18 years of age.¹ It is characterized by hostile and sometimes physically violent behavior and disregard for others which can be exhibited at home, school, or social gatherings.¹ Conduct disorder therefore serves as a source of concern not only to the parents but also to the teachers and the entire community. Symptoms of conduct disorder include aggression to people and animals bullying, intimidation, and physical fight; deliberate destruction of property; deceitfulness; lying or stealing; and serious violation of rules such as staying out at night despite parental objections.²

Worldwide, the prevalence of conduct disorder does vary greatly across countries.³ An epidemiological meta-analysis estimated the prevalence of conduct disorder among children and adolescents aged 6–18 years as 3.2%.³ Sarkhel *et al.*, in their study among schoolchildren in Kanke, reported a prevalence rate of 4.5%.⁴ Similarly, Mishra *et al.* reported a prevalence rate of 5.4%.⁵ However, Frank-Briggs and Alikor

in their study among secondary school adolescents in Nigeria reported a prevalence rate as high as 15.82%.⁶ Some studies have reported prevalence rates as high as 25.3% in Egypt⁷ and 32.9% in Iran.⁸

Conduct disorder has been noted to coexist with other psychiatric conditions such as attention-deficit hyperactivity disorder (ADHD), mood disorder, and anxiety.⁹ These children may also indulge in substance abuse with attendant poor academic performance and school dropout.² Treatment of conduct disorder depends on many factors such as the age of the child, the severity of symptoms, and the ability of the child to participate in and tolerate specific therapies.¹⁰ Treatment

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of conduct disorder may include cognitive-behavior therapy in which a child learns how to better solve his/her problems, communicate, and handle stress better,¹⁰ but this form of therapy is rarely used for the primary school-aged children. The most effective treatment for conduct disorder is the parent training programs with associated group training for the children. Stimulants are also effective in treating children with coexisting ADHD.¹⁰ Studies have shown that conduct disorder may persist into adult life, and as such, without treatment, many of these children are unable to adapt to demands of adulthood and may end up having problems with relationships and keeping a job.² Few studies on conduct disorder in Nigeria were among secondary schools adolescents in Port Harcourt and inmates of Borstal institution, under Nigerian Prisons Authority, Abeokuta.^{6,11} Data on the prevalence of conduct disorder among primary schoolchildren are lacking in our environment. It is believed that the findings in this study would be useful to the government in formulating treatment policy for children with conduct disorder in our environment.

MATERIALS AND METHODS

Study location, design, and population

This descriptive, cross-sectional study was conducted among the primary school pupils in Ikot-Ekpepe, one of the local government areas (LGAs) in Akwa-Ibom State, Nigeria. Akwa-Ibom State was stratified into three senatorial districts, and Ikot-Ekpepe was randomly selected using the ballot method. The chosen senatorial district has 10 LGAs and Ikot-Ekpepe local government was selected using the ballot method. The names of the 10 LGAs were written each on a separate piece of paper. The ten pieces of papers were folded and mixed together. One of the investigators then picked one of the pieces of paper, and the name of the LGA on the piece of paper therefore became the chosen LGA for the study. Ikot-Ekpepe LGA is a regional center of commerce and is notable for exportation of palm products such as palm oil, kernels, and raffia among others.¹² The population is made up of the Annang people with small numbers of the Ibibios, Igbo traders, and Hausas also residing there.¹² Most school-aged children go to school in this area because of the free primary school education being implemented by the Akwa-Ibom State Government. Ikot-Ekpepe has a population of 254,806 inhabitants.¹³

Selection of schools and participants

The study was carried out over 4 months from April 2018 to July 2018. Participants were drawn from 12 primary schools using a multistage sampling method. Ikot-Ekpepe has 60 primary schools consisting of 33 public schools and 27 private schools, with a total pupils' population of 50,482. First, the schools were categorized into private and public schools. Then, seven public and five private schools were randomly selected using the table of random numbers method. The two groups of schools were alphabetically numbered separately. A page was randomly picked on the table of random numbers, and this served as the starting page.¹⁴ The starting point on the selected

page was determined by dropping a finger on the page with the eyes closed with selection of a column with a corresponding row. With the finger moving in an up-to-down direction (i.e., column), the school with the coded number corresponding to the last two digits of the random number selected was therefore picked for the study. This was repeated until all the 12 schools were selected. Any number previously picked was ignored when encountered again. The 12 schools had a total population of 10,760 pupils of which 8185 were eligible for inclusion in the study. Third, the number of pupils sampled from each of the 12 schools was proportionately determined based on the total number of pupils from that particular school who were eligible for inclusion in the study. After determining the number of pupils to sample from a particular school, this number was then used to proportionately determine the number of pupils to sample from each class arm. Systematic sampling method was finally used to select the pupils from each class arm for the study. Pupils between the ages of 3 and 12 years who had been in the present class from the beginning of the 2017/2018 academic session were recruited into the study.

Consent

Approval to conduct the study was obtained from the Health Research Ethical Committee of the University of Uyo Teaching Hospital, Uyo. Written consent and assent were obtained from the parents of the participants and the older children who were 7 years old and above, respectively. Verbal consent was obtained from the head teachers and class teachers before embarking on the study.

Sample size

Sample size for the present study was calculated using the formula: $n = Z^2 (P)(1 - P)/d^2$, where n was the minimum sample size, Z was the normal deviate set at 1.96, P was the prevalence of conduct problem assumed to be 50% due to lack of study on conduct problem in the study location,¹⁴ and d was the total width of the expected interval which was set at 0.03. Attrition rate of 10% was added to the minimum sample size which was 1067. A total of 1174 pupils were recruited into the study from the 12 selected schools.

Administration of questionnaire

The selected pupils were identified by the class teachers, and a structured questionnaire, the Vanderbilt ADHD diagnostic teacher scale for oppositional defiant and conduct disorders was administered.¹⁵ The class teachers with the assistance of the researchers filled the questionnaire. The questionnaire comprised 43 items which evaluated the different behavior symptoms exhibited by a particular child over 1 year. The symptoms assessed were those for ADHD, conduct disorder, and anxiety/depression. Each item on numbers 1–35 was scored 0–3. A child was scored “0” if the answer to the question describing a particular behavior symptom was “never,” 1 if the answer was “occasionally,” 2 if it was “often,” and 3 if “very often.” Items 36–43 bordered on academic performance as well as classroom behavioral performance of the participants and the scores ranged from 1 to 5. A child was scored 1 if the performance was

“excellent,” 2 if “above average,” 3 if “average,” 4 if “somewhat a problem,” and 5 if “problematic.” Any pupil who had a score of 2 or 3 for at least 3 behavior symptoms on items 19–28 and also scored 4 or 5 for any of the performance items on questions 36–43 and who met the criteria for DSM V conduct disorder diagnosis after ascertaining from the parents if similar symptoms are exhibited at home are regarded as having conduct disorder. The Vanderbilt ADHD teachers rating scale has a sensitivity of 69%, a specificity of 84%, a positive predictive value of 32%, and a negative predictive value of 96%.¹⁶

A pro forma stating the sociodemographic characteristics of the pupils was completed by the parents, and the social class of the participants was determined using the scheme proposed by Oyediji.¹⁷ Parental educational attainment and occupation were used to allot a social class to the participants with social class I as the highest and V as the lowest. The social classes were further merged as follows: social classes I and II as upper class, social class III as middle, and social classes IV and V as the lower class.

Data analysis

Data analysis was performed using Statistical Package for Social Sciences (SPSSR) software for windowR Version 20.0. IBM Corp., Armonk, NY, USA. Frequencies and percentages were calculated for categorical data and Chi-square test for comparison of proportions, with $P < 0.05$ being considered as statistically significant.

RESULTS

Of the 1174 participants, majority (51.0%) belonged to the 6–9 years of age group. There were more males than females with a male-to-female ratio of 1.17:1. More than half of the children were from upper and middle social classes combined, and almost all the children were from a monogamous home. Table 1 shows the sociodemographics of the study population. One hundred and fifteen children met the criteria for conduct disorder and this gave a prevalence rate of 9.8%. Among the pupils with conduct disorder, majority (82.6%) were males with a male-to-female ratio of 4.75:1. Almost half (48.6%) of the children with conduct disorder were from the upper social class, and majority (76.5%) belonged to the 6–9 years of age group. One hundred and ten pupils (95.7%) lived with their biological parents with four (3.5%) and one (0.9%) living with foster parents and grandparents, respectively. Almost all the pupils (98.3%) with conduct disorder were from monogamous families, and majority (69.6%) came from a family with a monthly income of 18,000.00 Naira and more. With regard to the birth order, the “first children” (47.8%) made up the highest number of children with conduct disorder. This was followed by the “last children” and 2nd and 4th children (23.5% each). The “only children” had the least symptoms of conduct disorder (4.3%).

Comparing the sociodemographics of children with conduct disorder with those of children without conduct disorder revealed that children in the age group of 6–9 years were significantly more affected than the older children. Further, a

Table 1: Sociodemographic characteristics of the study population

Variables	Frequency, n(%)
Age (years)	
6- 9	599 (51.0)
10- 12	575 (49.0)
Gender	
Male	639 (54.0)
Female	540 (46.0)
Socioeconomic status	
Upper	315 (26.8)
Middle	314 (26.8)
Lower	545 (46.4)
Birth order	
First child	496 (42.2)
2 nd - 4 th child	281 (23.9)
5 th - 8 th child	22 (1.9)
Last child	262 (22.3)
Only child	113 (9.6)
Gestational status	
Singleton	1057 (90.0)
Multiple	117 (10.0)
Relationship with caregiver	
Biological	980 (83.5)
Foster	184 (15.7)
Others*	10 (0.8)
Average income	
<18,000 Naira	531 (45.2)
>18,000 Naira	643 (54.8)
Monogamy	1124 (95.7)
Polygamy	50 (4.3)

*Grandparents, other relatives

greater number of males ($P < 0.001$), children from the upper social class ($P < 0.001$), children living with biological parents ($P = 0.001$), and children with family average monthly income of 18,000 Naira or more ($P = 0.001$) had conduct disorder. This is shown in Table 2.

All the symptoms for conduct disorder were exhibited by all the children at varying frequencies. The symptoms included bullying and threatening or intimidating others, losing temper, actively defying or refusing to comply with adults’ request and rules, and interrupting and intruding on others [Table 3]. The highest comorbidity exhibited was ADHD. Thirty-two children had ADHD (27.8%) as a comorbidity out of which 18 had combined ADHD and anxiety as comorbidities. Of the 32 children with ADHD as comorbidity, 27 (84.4%) were males and 5 (15.6%) were females. The academic performance and classroom behaviors of the children are presented in Table 4.

DISCUSSION

This study examined the prevalence and correlates of conduct disorder among primary school-aged children in Southern Nigeria. Given the severity of conduct disorder and its consequences, it was important for one to understand its

Table 2: Comparison of sociodemographic characteristics of children with conduct disorder with those of children without conduct disorder

Variables	Conduct present	Conduct absent	χ^2	P
Age (years)				
6- 9	88	511	33.17	<0.001
10- 12	27	548		
Gender				
Male	90	539	41.99	<0.001
Female	20	520		
Socioeconomic status				
Upper	56	259		
Middle	39	284	35.08	<0.001
Lower	29	516		
Birth order				
1 st child	55	441		
2 nd - 4 th child	27	254		
5 th - 8 th child	01	21	5.40	0.24
Last child	27	235		
Only child	5	108		
Gestational status				
Singleton	105	952	0.23	0.63
Multiple	10	107		
Relationship with caregivers				
Biological	110	870		
Foster	4	180	14.36	0.001
Others*	1	09		
Average income				
<18,000 Naira	35	496	11.27	0.001
>18,000 Naira	80	563		
Monogamy	113	1011	1.99	0.12
Polygamy	2	48		

*Grandparents, other relatives

Table 3: Frequency of different behaviors exhibited by participants

Variables	Frequency, n (%)
Loses temper	82 (71.3)
Defies rules	69 (60.0)
Angry/resentful	63 (54.8)
Spiteful and vindictive	69 (60.0)
Bullies/intimidates others	59 (51.3)
Initiates physical fight	68 (59.1)
Steals	72 (62.6)
Lies	62 (53.9)
Physically cruel to others	34 (29.6)
Destroys others' property	59 (51.3)

epidemiology in this environment considering the fact that there is no known study of this condition among children of this age group in this environment. The results from this present study had filled the gaps in the literature on conduct disorder in the study population.

Table 4: Frequency distribution of psychiatric comorbidity, academic performance, and classroom behaviors

	Frequency, n(%)
Comorbidity	
Anxiety	20 (17.4)
Attention-deficit hyperactivity disorder	32 (27.8)
Depression	5 (4.3)
Poor academic performance	
Reading	65 (56.5)
Mathematics	57 (49.6)
Writing expression	64 (55.7)
Poor classroom behavioral performance	
Relationship with peer	62 (53.9)
Following directions	66 (57.4)
Disrupting class	58 (50.4)
Assignment completion	67 (58.3)
Organizational skills	64 (55.7)

This study showed the prevalence of conduct disorder among school-aged children as 9.8%. Among studies conducted in Nigeria, this prevalence rate of 9.8% was the lowest. Frank-Briggs and Alikor in Port Harcourt, using the same instrument to conduct their study, reported a prevalence rate of 15.8%.⁶ The study population was made up of secondary school adolescents, and this may have accounted for the high prevalence rate. Another study in the western part of Nigeria among adolescents in reformatory home reported a prevalence rate of 56.5%.¹¹ However, the prevalence rate in the present study was similar to that reported by Azadyekta (10.5%) in Iran¹⁸ but higher than (4.58%) reported by Sarkhel *et al.*⁴ in India and lower than 31.4% reported by Gitonga and Ongaro in Nairobi, Kenya.¹⁹ The difference in the prevalence rates could be attributed to the difference in the ages of the study population, instruments used in the conduct of the studies, and other sociodemographic variables.

Out of 9.8% prevalence rate obtained in this study, 95 (8.1%) were males and 20 (1.7%) were females. The male preponderance observed in the present study among children with conduct disorder was in agreement with other studies.^{4-6,18-20} There had been consistent report of greater number of males with conduct disorder than females, with some of the studies reporting threefold to fourfold difference in the prevalence rate. In this study, the male-to-female ratio of children with conduct problem was 4.5:1. This ratio is similar to the findings reported by Sarkhel *et al.*,⁴ Rutter *et al.*,²⁰ Offord *et al.*,²¹ and Feehan *et al.*²² This high proportion of male affectation could be explained by the fact that the diagnostic criteria is somehow biased, focusing more on overt behaviors such as aggressiveness and fighting, which are exhibited more commonly by males than females. However, females with conduct disorder had been shown to more likely exhibit covert behaviors such as stealing and running away from home.¹

The present study demonstrated that conduct disorder was significantly more common among the younger age group

of 6–9 years than older age group of 10–12 years (76.5% versus 23.5%). This was in agreement with the findings in Uyo, a town in Southern Nigeria, a decade ago.²³ A similar observation was documented by Abiodun *et al.* in Northern Nigeria²⁴ and other studies in India.^{4,25} These studies showed a trend of increasing prevalence of conduct disorder among children of 5–10 years of age.

Children from the upper socioeconomic class had the highest prevalence rate of conduct disorder. This observation was at variance with consistently reported higher prevalence of conduct disorder and other psychiatric and behavioral morbidities among children of lower socioeconomic status than the upper class.^{11,23,26-28} The reason for this variance among children from the upper socioeconomic class was not obvious. It may have been due to other social and family characteristics such as family conflicts and parental alcoholism among others which were not explored in the present study.

The fact that most of the participants in the present study were from monogamous families was not surprising because majority of the residents of the study area are practicing Christians whose religion encourages monogamy. However, the observation that significantly higher prevalence of conduct disorder was seen among children from monogamous homes was striking. This observation was also reported among the inmates of a reformatory home in Nigeria.¹¹ One would expect children from polygamous homes to exhibit symptoms of conduct disorder more than those from monogamous families due to unhealthy rivalry among co-wives and among half siblings, which most often result from disproportionate display of attention and unequal distribution of resources.¹¹ These family conflicts may result in the child being pushed to the street, thereby succumb to peer pressure and exhibits some of the defiant behaviors. The reason for the observation in this current study could be attributed to other family characteristics. Conduct disorder was noted to be most common among children who lived with their biological parents, and this was also reported by Frank-Briggs and Alikor in Port Harcourt, Nigeria.⁶

The importance of a family to the molding of a child's behavior cannot be over-emphasized. Parental attitudes and backgrounds had been noted to have a major influence on children's behaviors, especially that of the first child. This is because parental behavior toward the first child is dependent on the parents' innate equipment on the way they (parents) were brought up. Their attitudes are further influenced by their experiences during adolescent period, adulthood, and their adjustments to marital situations;²⁹ these tend to affect the first child more. The parental behavior toward subsequent children are therefore modified by their experiences with previous children.³⁰ On the other hand, the last child is usually overindulged and "babied" by the parents and other siblings, especially if there was a long interval of years between his/her birth and that of the immediate elder sibling. He is often pampered and spoiled by the older siblings and the parents, leading to the development of abnormal behavior.³⁰ In the current study, the prevalence of conduct disorder was highest

among pupils who were first born followed by those who were last born though these findings were not statistically significant.

The finding that conduct disorder was associated with comorbidities such as ADHD, anxiety, and depression had been reported in other studies.^{4,6} A prevalence rate of ADHD of 27.8% among children with conduct problem in the present study compared well with 36.6% obtained by Sarkhel *et al.*⁴

Difficult temperament (losing temper) was the predominant behavior symptom exhibited by the children with conduct disorder. This is similar to the observation made by Sarkhel *et al.* among Indian children.⁴ This is not surprising as this behavioral symptom is an overt symptom which is commonly exhibited by males.

CONCLUSION

The prevalence of conduct disorder in the present study was 9.8%, which was within the global range for the condition. Conduct disorder was associated with other morbidities such as ADHD, anxiety, and depressive. Since conduct disorder was more common in children within the age range of 6–9 years, mandatory screening of school-aged children for conduct disorder is recommended for early identification and referral of affected children for expert management.

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Conflicts of interest

There are no conflicts of interest.

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