

Educational Qualification and Awareness of ADHD: Knowledge Gap among Teachers and Parents/Guardians in Lagos Private Schools

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ABSTRACT

Attention deficit hyperactivity disorder (ADHD) is a common neurodevelopmental disorder that adversely affects children's academic performance, classroom behaviour, social interactions, and daily life. Despite its prevalence, symptoms of ADHD often go unnoticed by parents/guardians and teachers. This study examines the knowledge of ADHD among parents and teachers and the role of educational qualifications in shaping awareness. A cross-sectional design was employed, with 150 participants conveniently selected from six private schools in Lagos, Nigeria. Standardized questionnaires with open- and closed-ended questions were used to collect data. Results showed limited ADHD knowledge among participants, with 75.4% reporting no prior awareness of the disorder, while 24.6% claimed some awareness. Half of the respondents could accurately distinguish ADHD traits in children, and 32.2% recognized that adults could also be diagnosed with ADHD. Educational qualification significantly influenced knowledge of ADHD [$F(3,114) = 6.210, p < .05$]. These findings highlight the need for private schools in Lagos to organize educational seminars during Parents and Teachers' Forums (PTFs). Such initiatives should address ADHD's prevalence, presentation, and management, particularly targeting knowledge gaps linked to varying educational backgrounds. By doing so, schools can better equip parents and teachers to identify and support children with ADHD, fostering improved academic and social outcomes.

Keywords: ADHD, educational qualification, knowledge gap, parents and teachers

INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is a prevalent neurodevelopmental disorder that affects approximately 5-10% of children globally (American Psychiatric Association, 2013). As in its predecessor, The Diagnostic and Statistical Manual of Mental Disorders [DSM-5-TR] places ADHD within the "neurodevelopmental disorders." alongside Intellectual Developmental Disorders, Communication Disorders, Autism Spectrum Disorder, Specific Learn-

ing Disorder, and Motor Coordination Disorder (American Psychiatric Association, 2022). ADHD is mainly characterized by symptoms of hyperactivity, impulsivity, and inattention, which manifest early in a child's development before formal education begins (American Psychiatric Association, 2013; Auxter, 2010; Roth et al., 2017). There are three major subtypes of the disorder: predominantly inattentive [ADHD-PI or ADHD-I], predominantly hyperactive-impulsive [ADHD-HI or ADHD-H], or a combination of these two subtypes [ADHD-C] (American Psychiatric Association, 2013). To ensure the diagnosis, it must last for at least 6 months, develop in two environments (e.g., school and home), and cause problem in the child's academic performance (Epstein & Loren, 2013). Using the DSM-5, a child up to the age of 16 must show a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development (American Psychiatric Association, 2013).

ADHD is heritable, its etiology involves a variety of genetic and environmental factors (García-Marín et al., 2021), and it is more common in boys than in girls particularly in childhood (Mohammadi et al., 2019). In primary healthcare settings, it is the most frequently encountered childhood-onset neurodevelopmental disorder (American Academy of Pediatrics, 2000). Although, most ADHD research has continued to focus on children, empirical research has established ADHD as a chronic condition that begins in early childhood, and acknowledged its chronicity throughout life (Dupaul & Weyandt, 2006). The global consensus data on the prevalence of ADHD shows that ADHD occurs in 5.9% of children and 2.5% of adults, and it is more prevalent in males (Faraone et al., 2021). However, it is also widely acknowledged that symptoms are on a continuum, meaning that many more children are affected at subclinical levels (Balázs & Keresztény, 2014).

Despite the detrimental effect of ADHD, little research has been conducted on its prevalence, and risk factors among children in Nigeria. The few studies that have been published report a prevalence of ADHD that ranged between 7.4% and 8.9% (Ibadin et al., 2011; Umar et al., 2015; Ayano et al., 2020). Unlike other physical health conditions, cardiovascular diseases, HIV, cancer and mental health conditions, ADHD has not gained the awareness and attention it deserves. Although, according to Oluwole et al., (2017), only few empirical research in Nigeria has extensively examined the cognitive and behavioural links to ADHD in clinical populations. Notwithstanding, if a child has been diagnosed with ADHD clinically or has ADHD at a sub clinical level, it can have harmful effects on their academic performance, classroom behaviour, social interactions, and everyday life.

School-aged children spend the majority of their time at school and in the classroom. Given the prevalence of ADHD globally, it is not unusual for a general education teacher to have a child with ADHD in their classroom. The role of teachers and educators in relation to ADHD is multifaceted and crucial to the early identification of ADHD. This can be challenging for teachers and educators when managing the condition's impact on the attention and impulsivity of learners, while ensuring that it does not impede the learning experience of those without the disorder. Teachers

are in direct contact with students and they play a key role in identifying, referring and treating hyperactive students (Menikdiwela & Vojtova, 2017).

Research studies have found that teachers have limited and inaccurate knowledge about ADHD and often provide inappropriate information about the condition to parents (Kos, et al., 2004). Furthermore, previous studies in Nigeria, although limited, and other developing countries (Adeosun et al., 2013; Guerra & Brown, 2012; Dilaimi, 2013) indicate that, teachers have limited knowledge, or misperception of ADHD. For example, Adeosun et al, (2013) reported a high level of misperception about ADHD and negative attitudes towards children with the disorder. The lack of knowledge could have stemmed from limited awareness of ADHD especially in rural areas, and may cause teachers to overlook behaviors signifying a child in need of assistance (Ohan et al., 2008). Also, the negative attitude is as a result of fear of what teachers do not understand. In the same view, findings by Jimoh (2014), revealed a deficiency in primary school teachers' knowledge, as well as negative attitudes to pupils with ADHD. It was also found that teachers' level of education, length of service and exposure to training on ADHD all have significant influence on the perceived knowledge of and attitudes to pupils with ADHD (Jimoh, 2014)

On the other hand, there seems to be a dearth of research on the knowledge of parents and guardians regarding attention deficit hyperactivity disorder (ADHD) among children in Nigeria. Parents and guardians, alongside teachers, play a crucial role in the early identification and behavioral management of ADHD. As the first observers of ADHD-related behaviors (Tannock & Martiussen, 2001), their level of awareness and understanding is instrumental in ensuring timely and effective intervention. Also, school-aged children diagnosed with ADHD display varied levels of inattention, (Langberg et al., 2013) poor impulse control, and decreased self-inhibitory capacity (Overtoom et al., 2002) which poses significant problems for themselves and their families. Numerous studies (Dekkers et al., 2022; Chen et al., 2017; Yao et al., 2022) have found parental education as one of the most effective methods in the treatment and control of ADHD.

As earlier mentioned, the core characteristics of ADHD have implications for how children behave at home and in school setting. For example, a child who speaks out of turn or without permission is likely considered impulsive. Hyperactive children might have problems staying seated, constantly tap feet or hands, and often run into other people or objects in class. Also, Peer relationships, considered vital to development and children's well-being, are often impaired as children with ADHD have difficulty forming and maintaining reciprocated friendships which are important components in peer relationships. (Kellner et al., 2003; Kos et al., 2006). Parents and teachers' knowledge and understanding will determine how they engage with and manage students experiencing ADHD, increase the awareness of the disorder and increase the likelihood that they would refer a learner for assessment.

This research aims to identify academic qualification amongst other factors that contribute to the awareness of ADHD among parents/guardians and teachers, and why they often overlook this disorder in school-aged children. Despite the crucial role of parents' and teachers' knowledge

in promoting awareness of ADHD, limited research has explored how their understanding fosters or hinders ADHD awareness. Several factors may contribute to the insufficient attention given to ADHD. This study examines the role of parents' and teachers' knowledge of ADHD, as well as their educational qualifications, on the prevailing lack of awareness surrounding the condition.

The following research questions were raised:

- To what extent are parents/guardians and teachers knowledgeable about ADHD?
- Does educational qualification influence parents and teachers' knowledge of ADHD?

Based on previous research, the following hypotheses were formulated to test stated research questions of this current study.

- H_1 : Parents/guardians and teachers are more likely to report limited knowledge about ADHD.
- H_2 : Educational qualification will influence parents/guardians and teachers' knowledge about ADHD

METHOD

This study adopted a cross-sectional survey design, and collected data using a standardized self-report questionnaire. The design also allowed the researcher to collect information from different individuals at a single point in time, without influencing them. This study was conducted in six (6) purposively selected private schools in Lagos, Nigeria, including Seatos Private School (Ikorodu), Homat Group of Schools (Ikorodu), LATLAM (Ikorodu), Bridge Academy (Ikorodu), and LASU International School (Ojo). The target population comprised parents, teachers, and immediate guardians of students aged 6-12 years attending these schools. Eligible participants were required to have direct involvement with children within the specified age range in the selected private school.

Participants for this study were selected using a convenience sampling technique. Principals or heads of schools facilitated access by disseminating information about the study to teachers, while parents and guardians were engaged during school open-day events. While the sample was heterogeneous, it is not a true representative of the broader population due to the lack of randomization.

The sample size was calculated using Cochran's formula for sample size estimation—

$$n_0 = \frac{Z^2 \cdot p \cdot (1-p)}{e^2}$$

Where: **N** is the sample size, **Z** is the critical value of the normal distribution at a

confidence level of 95% ($Z = 1.96$), p is the estimated proportion of the population (0.5), and e is the margin of error (10%).

For a large or unknown population size (assumed as $>100,000$), the sample size calculation yielded 96 participants. However, to account for inconsistencies in responses and incomplete data, a total of 150 participants were initially selected for the study.

The data was collected using a standardized questionnaire:

Section A: Socio-Demographic Profile: The questionnaire contained sociodemographic questions of the parents/guardians or teachers which includes: Age, Sex, Marital status, educational qualification. Other background questions include: If parents/guardians or teachers have heard of ADHD and how parents/guardians or teachers heard about ADHD.

Section B: Knowledge and misperceptions of ADHD: This was measured using the KADDS, a 36-item rating scale developed by Sciutto and colleagues (Sciutto et al., 2000) to assess teachers' and parents' knowledge and misperceptions of Attention-Deficit/Hyperactivity Disorder. The KADDS includes three types of response options: true (T), false (F), or don't know (DK). The items in the scale are divided into three subscales: symptoms/diagnosis of ADHD (9 items), the treatment of ADHD (12 items), and general knowledge about the nature, causes, and outcome of ADHD (15 items). For the purpose of this study, only the general knowledge section, consisting of 15 items, was used, Cronbach's alpha for the general knowledge section in this study was 0.77, indicating significant internal consistency for this specific dimension. While this level of reliability is often viewed as a strength, it should be interpreted with caution.

The data were analyzed via SPSS 21. Descriptive statistics were presented as means (standard deviations) and percentages. Findings were illustrated through tables and Pie charts. To answer the first research question, descriptive statistics from the KADDS questionnaire were utilized. The analysis included calculating the average percentages of true, false and I don't know responses. For the second research question, a one-way ANOVA was utilized to examine the main effect of educational qualification on knowledge about ADHD.

Following a written introduction letter granted by the department of psychology, LASU, the researcher physically discussed with the Heads of the selected school to explain the purpose of the research to them and to seek permission to access the teachers and parents' during the schools' open-day. After permission was sought from the heads of the schools, the researcher held brief meeting with the teachers and parents' separately at different times. In the first meeting, the roles of the teachers in the study were explained and their consent to participate was obtained. The researcher met with the parents during the schools' open-day which was scheduled on a different day. The questionnaires averagely took about 4 -7 minutes to fill per person. At the end of the exercise, the researcher and his assistants were able to retrieve from the participant 132 questionnaires representing 88%. Out of 132 questionnaires retrieved from the participants, only 118 were correctly completed and this represented 89% and 78.6% of the total questionnaire administered.

FINDINGS

Participants' demographic information.

Table 1: Sociodemographic characteristics of the respondents

Characteristics			
Age (years)	Mean (SD)	33.93 (7.93)	
Variables		Frequency	Percentage
	Parents	50	42.4
	Guardians	28	23.7
	Teachers	40	33.9
Sex	Male	38	32.2
	Female	80	67.8
Marital status	Single	25	21.2
	Married	92	78.0
	Divorced	01	.8
Educational qual.	ND/HND	22	18.6
	BSc	70	59.3
	MSc	24	20.3
	PhD.	2	1.7

Table 2: Respondents' Awareness of ADHD

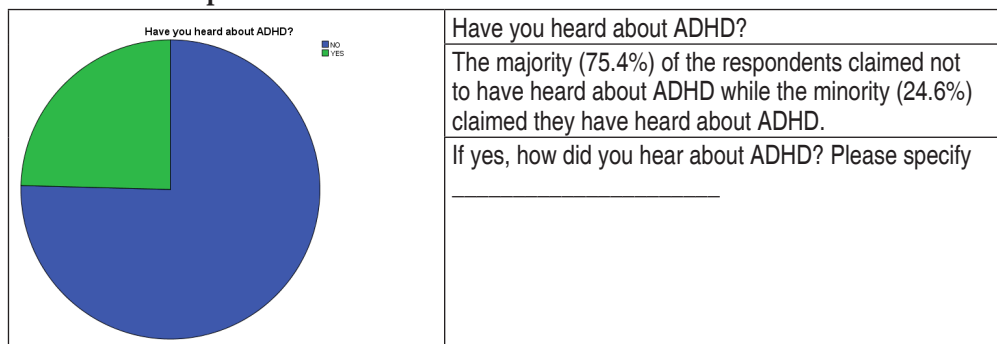
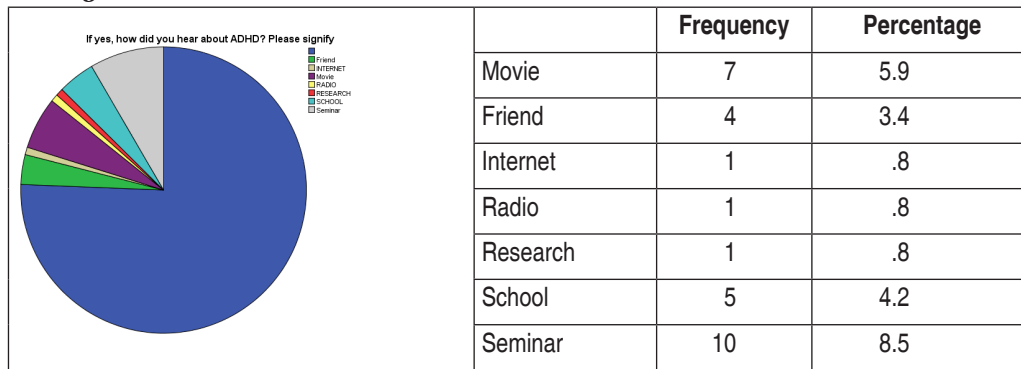


Table 3:



- **Hypothesis 1:** Parents/guardians and teachers are more likely report little/less knowledge about ADHD

Table 4: Percentages of responses to questions related to general knowledge about ADHD

	Questions	Correct response	Percentage answered		
			True	False	Don't know
1	Children with ADHD are more distinguishable from normal children in a classroom setting than in a free play situation	True	*55.9	6.8	37.7
2	Symptoms of ADHD are often seen in non-ADHD children who come from inadequate and chaotic home environments	True	*29.7	24.6	45.8
3	It is possible for an adult to be diagnosed with ADHD	True	*32.2	21.2	46.6
4	The majority of ADHD children evidence some degree of poor school performance in the elementary school years	True	*26.3	32.2	41.5
5	If an ADHD child is able to demonstrate sustained attention to video games or TV for over an hour, that child is also able to sustain attention for at least an hour of class or homework	False	33.9	*23.7	42.4
6	Most ADHD children "outgrow" their symptoms by the onset of puberty and subsequently function normally in adulthood	False	35.6	*1.7	62.7
7	In school-age children, the prevalence of ADHD in males and females is equivalent	False	11.0	*25.4	63.6
8	Symptoms of depression are found more frequently in ADHD children than in non-ADHD children	True	*34.7	9.3	55.9
9	There are specific physical features which can be identified by medical doctors (e.g. pediatrician) in making a definitive diagnosis of ADHD	False	36.4	*19.5	44.1

	Questions	Correct response	Percentage answered		
			True	False	Don't know
10	ADHD is more common in the 1 st degree biological relatives (i.e., mother, father) of children with ADHD than in the general population	True	*14.4	35.6	50.0
11	A diagnosis of ADHD by itself makes a child eligible for placement in special education	False	33.1	*27.1	39.8
12	In very young children (less than 4-year-old), the problem behaviors of ADHD children (e.g., hyperactivity, inattention) are distinctly different from age-appropriate behaviors of non-ADHD children	False	30.5	*22.9	46.6
13	ADHD children are typically more compliant with their fathers than with their mothers	True	*33.1	8.5	58.5
14	Most estimates suggest that ADHD occurs in approximately 15% of school-age children	False	36.4	*22.0	41.5
15	ADHD children generally experience more problems in novel situations than in familiar situations	False	28.0	*14.4	57.6

*= Indicates correct responses

Table 5: Participants' categorization of general knowledge about ADHD

	Knowledge Level	Number of participants	Percentage
1	Good knowledge (≥ 12 correct responses)	0	0
2	Average knowledge (7–11 correct responses).	33	28.0
3	Limited knowledge (<6 correct responses)	85	72.0
		118	100

The subscale which measures general knowledge about the nature, causes and outcome of ADHD with a total score of 15 items focuses on associated features and measures general knowledge about ADHD. The results revealed that 55.9% of teachers and parents/guardians could distinguish ADHD children from normal children in classroom versus play settings. However, only 32.2% recognized that adults could be diagnosed with ADHD. Alarming, 35.6% incorrectly believed that most ADHD children “outgrow” their symptoms by puberty, with only 1.7% correctly identifying this as false. Furthermore, 50% of participants were unaware that ADHD is more common among 1st-degree relatives of children with ADHD. While 22.9% of participants correctly noted that problem behaviours in very young ADHD children are not distinctly different from age-appropriate behaviours, a majority failed to differentiate child problems in novel versus familiar situations (only 14.4% answered correctly). Overall, only 25.53% of responses across all items were correct, highlighting significant gaps in general ADHD knowledge among the participants.

Additionally, the table 5. categorizes participants based on the number of correct responses to items assessing general knowledge about ADHD. No participants achieved “good knowl-

edge” (≥ 12 correct responses). Approximately 28% of participants demonstrated “average knowledge” (7–11 correct responses), while the majority (72%) exhibited “limited knowledge” (< 6 correct responses).

- **Hypothesis 2:** Educational qualification will influence parents/guardians and teachers knowledgeable about ADHD

A one-way ANOVA was performed to evaluate the relationship between educational qualification and knowledge about ADHD. The means and standard deviation are presented in table 6.

Table 6: Descriptive statistics

Educational qualification	N	Mean	S.D
ND/HND	22	3.41	3.05
B.Sc.	70	3.12	2.96
M.Sc.	24	5.91	2.55
PhD	2	.8.00	.000
Total	118	3.83	3.103

Table 7: One-way ANOVA showing main influence of educational qualification on knowledge about ADHD

	Sum of squares	df	Mean squares	F	p	η^2
Between groups	177.61	3	59.21	7.112	<.05	0.15
Within groups	948.99	114 8	33			
Total	1126.61	117				

Table 8: Multiple comparisons using LSD

(I) Educational qualification	(J) Educational qualification	Mean difference (I-J)	Std. error	Sig.	95% Confidence interval	
					Lower bound	Upper bound
ND/HND	B.Sc.	.28052	.70520	.692	-1.1165	1.6775
	M.Sc.	-2.50758*	.85161	.004	-4.1946	-.8205
	PhD	-4.59091*	2.13088	.033	-8.8122	-.3697
B.Sc.	ND/HND	-.28052	.70520	.692	-1.6775	1.1165
	M.Sc.	-2.78810*	.68248	.000	-4.1401	-1.4361
	PhD	-4.87143*	2.06910	.020	-8.9703	-.7726
M.Sc.	ND/HND	2.50758*	.85161	.004	.8205	4.1946
	B.Sc.	2.78810*	.68248	.000	1.4361	4.1401

(I) Educational qualification	(J) Educational qualification	Mean difference (I-J)	Std. error	Sig.	95% Confidence interval	
					Lower bound	Upper bound
	PhD	-2.08333	2.12347	.329	-6.2899	2.1232
PhD	ND/HND	4.59091*	2.13088	.033	.3697	8.8122
	B.Sc.	4.87143*	2.06910	.020	.7726	8.9703
	M.Sc.	2.08333	2.12347	.329	-2.1232	6.2899

Dependent variable: General knowledge of ADHD. *The mean difference is significant at the 0.05 level.

The results indicate that educational qualification had a statistically significant main effect on participants' knowledge about ADHD, [$F(3,114) = 7.112, p < .05, \eta^2 = 0.15$]. This suggests that the educational qualification of participants significantly influenced their general knowledge of ADHD. The effect size ($\eta^2 = 0.15$) indicates a medium effect, meaning that educational qualification explains 15% of the variance in knowledge scores.

To further examine these differences, a post-hoc LSD test was conducted to compare the mean scores between the educational qualification group:

1. ND/HND vs B.Sc.: No significant difference observed between ND/HND. and B.Sc. groups. [Mean difference = 0.28, 95% CI [-1.12, 1.68], $p = .692$]
2. ND/HND vs M.Sc.: Participants with an M.Sc. scored significantly higher than those with ND/HND [mean difference = -2.51, 95% CI [-4.19, -0.82], $p = .004$]
3. ND/HND vs Ph.D.: Participants with a Ph.D. scored significantly higher than those with ND/HND [Mean difference = -4.59, 95% CI [-8.81, -0.37], $p = .033$]
4. B.Sc. vs M.Sc.: Participants with an M.Sc. scored significantly higher than those with a B.Sc. [Mean difference = -2.79, 95% CI [-4.14, -1.44], $p < .001$]
5. B.Sc. vs Ph.D.: Participants with a Ph.D. scored significantly higher than those with a B.Sc. [Mean difference = -4.87, 95% CI [-8.97, -0.77], $p = .020$]
6. M.Sc. vs Ph.D.: No significant difference observed between M.Sc. and Ph.D. groups. [Mean difference = 2.08, 95% CI [-2.12, 6.29], $p = .329$ (not significant).

The results reveal that participants with advanced educational qualifications (M.Sc. and Ph.D.) demonstrated significantly greater knowledge about ADHD compared to those with lower qualifications (ND/HND and B.Sc.). However, no significant differences were found between the M.Sc. and Ph.D. groups, or between the ND/HND and B.Sc. groups

DISCUSSION

The current study identified the current level of knowledge of parents/guardians and teachers and the impact of their educational qualification on their knowledgeability of ADHD. This was necessitated by the need to identify the factors that contributed to the limited awareness of ADHD among parents/guardians—who are considered as major stakeholders in the diagnosis and treatment of ADHD.

The descriptive statistics revealed that the majority (75.4%) of respondents claimed not to have heard about ADHD, while only 24.6% reported having heard about it. Parents and teachers' knowledge about ADHD was assessed using a subscale that measures general knowledge about the nature, causes and outcome of ADHD. This subscale consisted of 15 items focusing on associated features and measures general knowledge about the disorder. The results indicated that only 25.53% of parents and teachers answered the questions correctly, reflecting poor knowledge about ADHD. These findings align with those of Flanigan and Climie (2018), who suggested that poor knowledge may stem from a lack of understanding of the disorders' prevalence. Additionally, research examining parents'/guardians' and teachers' understanding of ADHD remains relatively scarce, making it challenging and further complicating efforts to accurately assess their knowledge levels (Akdag, 2023).

Regarding the relationship between the mean scores of parents'/guardians' and teachers' knowledge about ADHD and their level of education, the present finding revealed a significant main effect. Specifically, the highest mean scores of ADHD knowledge were found among participants with doctoral degrees, followed by those with master's degrees, while participants with National Diploma or Higher National Diploma (ND/HND) and bachelor's degrees had comparatively lower mean scores. This highlights the influence of advanced education on knowledge levels about ADHD. These findings align with Hasan & Tripathi, (2014), who reported a statistically significant positive relationship between teachers' overall knowledge of ADHD and their education level in their study on teachers' perception of children with ADHD. In contrast to our findings, studies conducted by Perold et al. (2010) in South Africa and Guerra and Brown (2012) in South Texas reported no significant relationship between teachers' educational level and their knowledge of ADHD. These differing results may be attributed to contextual variations, particularly the availability of more comprehensive educational training, professional development opportunities, and ADHD awareness programs in South Africa and South Texas. Such resources are comparatively limited in Nigeria, potentially contributing to the observed knowledge gap among teachers and parents in the Nigerian context. This disparity emphasizes the need for targeted interventions to enhance ADHD awareness and training programs in Nigeria to bridge this knowledge gap effectively.

CONCLUSION

Based on the results of this study, it was concluded that the majority of the respondents had

limited poor total knowledge about ADHD and there was statistically significant influence of parents'/guardians' and teachers' educational qualification on their knowledge of ADHD.

Based on the result of this study, it is recommended that schools should facilitate educational seminars—on the prevalence of ADHD, presentation and behavioural management— at Parent Teachers Forum (PTF) to reduce knowledge gap among teachers and parents/guardians and enhance their understanding of ADHD. Also, Flyers, posters and walkways signs should be placed at strategic areas within school premises to increase the awareness of ADHD. Parents/guardians and teachers should receive specialized education on how to detect prodromal symptoms of ADHD. Revision of current training curricula for new teachers and continuous professional development for experienced teachers.

One major limitation of this research is the insufficient information and limited studies on assessing parents' knowledge of ADHD. The generalizability of this study may also be constrained due to its limited sample size, selection bias and focus on only parents/guardians and teachers from rural areas in Ikorodu and Ojo. Furthermore, the study did not also probe the educational qualifications of the participants, making it difficult to generalize the findings.

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