

Acceptability of Orthodox Treatment of Attention Deficit Hyperactivity Disorder and its Associated Factors among Primary School Teacher in Botswana

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Abstract

Background: Many African children with Attention Deficit Hyperactivity Disorder (ADHD) do not receive adequate treatment services despite the availability of effective treatments. Studies have majorly concentrated on assessing the contribution of knowledge deficit among parents while neglecting teachers who play a significant role in their upbringing. The present study hoped to address this by exploring the beliefs and misconceptions about ADHD and their effect on treatment acceptability in primary school teachers in Botswana.

Methods: This was a cross-sectional study conducted among 264 primary school teachers, using a modified ADHD Beliefs Scale. Data was obtained using a two-stage random sampling technique.

Results: The mean age of the participant was 39 (9.3) years and they were mostly females (72.7%). One hundred and ten (41.7%) of the schoolteachers do not believe in orthodox treatments. Those with professional development (OR=0.56, 95%CI: 0.32-0.97) and interest in teaching children with ADHD (OR=0.31, 95%CI: 0.19-0.54) were less likely to refuse orthodox treatment, while those with high myth score were more likely to refuse orthodox treatment (OR=1.08, 95%CI: 1.01-1.16).

Conclusion: The existence of erroneous conceptions about ADHD and the rejection of orthodox treatment among a sample of teachers in Botswana is notable. Whilst misconception was shown to discourage orthodox treatment acceptability, personal interest in knowledge, and appropriate training were shown to increase its acceptability. It is; therefore, possible that with adequate informative training to correct the myth surrounding ADHD, there would be an improved acceptance of orthodox treatment.

Keywords: ADHD; Botswana; Myth; Orthodox treatment; Primary school teacher

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1. Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is a common neurodevelopmental condition, which affects 5-7% of all children worldwide (1) and can lead to both academic and social impairments. ADHD is often characterized by frustration, violence, and destructive behavior in children who are misunderstood as being disobedient rather than having a manageable condition. Nonetheless, with appropriate and timely orthodox treatment or intervention, which are mainly psychosocial and medical intervention, affected children and their parents to live very “normal” lives (2).

It has been suggested that there is at least one child with ADHD in every typical classroom Barkley (3-5). Most children with ADHD exhibit significant academic difficulties and tend to lag academically, thus requiring extra time and energy from their teachers (6). Teachers are often the first point of contact for pupil with ADHD

and need to be aware of what to look out for, where to find help and how to support children with ADHD. The role of the teacher is crucial in the development of a child with ADHD and their perceptions can negatively/positively impact the child depending on the support given to them (2). Good knowledge of ADHD and skill in handling the affected children is; therefore, necessary for teachers and can increase their confidence in handling children with ADHD, they should come across them (7, 8). Teachers’ knowledge of ADHD, especially of the causes, nature, and the treatment is limited (9). For example, some teachers attribute the occurrence of ADHD to lack of discipline and poor parenting style, while some teachers who are also parents attribute it to demon possession (10).

Factors that have been identified to influence teacher’s perception of ADHD includes lack of exposure to specialized training, interest, previous experience, source of information, and gender (11, 12). There

is a relationship between the source of knowledge/conception and acceptability of treatment. Higher levels of ADHD misconception is associated with lower acceptance of orthodox treatment (13). Hence, those with false beliefs about ADHD are more likely to find alternative interventions such as diet, traditional, and religious treatment (13). For example, an individual who believes the use of stimulant medication in children with ADHD may lead to later substance dependence or abuse is less likely to accept stimulant treatment. Also, those who believe it is a spiritual problem will possibly discourage any form of orthodox treatment in favor of traditional or religious intervention. Consequently, misconception delay referral and increase distress in children with ADHD (13).

Several studies have assessed the knowledge of parents about ADHD, but only a few studies have been conducted to examine teachers' knowledge and misperception of ADHD, and these are mostly from the developed world (6). Most of the available studies only examine the teachers' knowledge without exploring its effect on treatment acceptance. One study from South Africa, which compared teachers' knowledge about the manifestation and treatment of ADHD found that teachers are very knowledgeable about the symptoms of ADHD but have very little information on its treatment (Perold). Although there is currently no study addressing this issue in Botswana, a previous study in child and adolescent mental health reported a lower rate of referrals from schoolteachers (10). This thus suggests a gap in knowledge regarding the treatment of child psychiatric disorders among the schoolteachers in Botswana and makes it necessary to assess how much they know about ADHD and its treatment. Moreover, teachers have a significant role to play in the overall outcome of ADHD in children as they are frequently the one to make the initial observation and possibly the first referral (14).

2. Objective

The present study hoped to address this problem by examining the beliefs and misconceptions about ADHD, and their effect on treatment acceptability in primary school teachers in Botswana. It is also hoped to explore the associations between certain socio-demographic factors and treatment acceptability.

3. Methods

The study was a cross-sectional descriptive design; conducted among primary school teachers who were

randomly selected from 25 public schools in Gaborone, Botswana, from October 2017 to April 2018. Data for the present study was collected as part of a bigger study on the prevalence of ADHD among primary school students. A sample of 300 teachers were interviewed on whether they accept, recommend, and refer the students for orthodox treatment for ADHD. A two-stage random sampling technique was used to achieve this aim. The first stage was a random selection of 25 out of 29 public primary schools in Gaborone. The second stage of sampling involved a random selection of 12 teachers, at least one from each of the eight educational levels (reception to standard 7). Two were selected from levels with most arms to make 12 from each primary school.

After obtaining approval from the University of Botswana, Independent Review Board, permission from the relevant ministries, and the schools, written informed consent was obtained from all the participants before embarking on the study. The purpose of the study was explained to every willing participant. Self-Administered questionnaires were given to them to fill and return to the research assistants. They were also instructed not to discuss their responses with their colleagues. The questionnaires were distributed through the trained research assistants to consenting teachers, who have a minimum of 6 months of primary school teaching experience.

3.1 Measure

The questionnaire is divided into three parts, which include the socio-demographic part, contact with ADHD children or source of information about ADHD, and the belief/perception about ADHD. The socio-demographics include age, gender, the highest level of education, and years of experience. This part of the questionnaire and the relationship or contact with a person diagnosed with ADHD were researcher-made questionnaire based on the reviewed literature. The false belief items on the False and Reasonable Beliefs Factors of the ADHD Beliefs Scale was used for this study. It has a Cronbach's alpha of 0.635 and test retest reliability of 0.795. The belief questionnaire was derived from the original 24 item belief scale by Johnston and Freeman (15). In addition to the ten items on the false belief scale, two items, which are relevant to African belief were added to the scale. They include 'ADHD occurs because of prostitution or adultery,' 'ADHD is as a result of demonic possession and will require spiritual deliverance (prayers only).' The belief scale was rated on a five-point Likert scale, which ranged from one (strongly disagree) to five (strongly agree). The outcome, which

is acceptability of orthodox treatment was defined as agreeing with the orthodox treatment of ADHD and willingness to recommend, or referral pupils or anyone suspected or identified to be manifesting the features of ADHD for orthodox treatment. It was coined as; 'would you accept and recommend or refer someone with ADHD to see a doctor/healthcare provider (for orthodox treatment) if identified.' The responses were categorized into 'No I would not,' or 'Yes I would.' In the current study, orthodox treatment is operationally defined as any evidence-based psychosocial and pharmacological treatment.

3.2 Data Analysis

The statistical analysis was performed using Statistical Package for Social Sciences (SPSS) for Windows version 21. Descriptive statistics were performed to determine the characteristics of the teachers who participated in the study. Teachers' age and years of teaching experience were dichotomized using their median scores as the cut-off point. Chi-square tests were performed to explore the association of the acceptability with variables such as gender, age, level of education. The association of acceptability with continuous variables such as belief score and frequency of contact with ADHD children was tested using independent t-tests. Significant variables on chi-square tests and t-tests were entered into a binary regression model with treatment acceptability as the outcome variable. Also, the variable, which fell short of being significant on chi-square tests such as 'having taught a child with ADHD', was entered into the regression model. All tests were 2-tailed and the level of statistical significance was set at $P < 0.05$.

4. Results

Out of the 300 questionnaires distributed, 264 returned, and adequately filled ones were analyzed. The mean age of the participant was 38 (9.3) years, more females (72.7%) participated in the study, and the mean duration of teaching experience was 13 (9.5) years. Almost all (95.5%) of the participants were citizens of Botswana. One hundred and ten (41.7%) of the schoolteachers do not believe in orthodox treatments (Table 1).

Knowing a child diagnosed with ADHD, having a professional development or training and interest in teaching children with ADHD, or further training about ADHD were significantly associated with acceptance of orthodox treatment (Table 2). The myth

Table 1: Socio-demographic characteristics of the teachers

Variables	Statistics
Mean age (SD) in years	39 (9.39)
Age range in years	21-60
Mean year of experience	13 years
N (%)	
Age group	259 (100)
Below 38 years *	133 (51.4)
39 years and above	126 (48.6)
Gender	264 (100)
Male	72 (27.3)
Female	192 (72.7)
Are you a citizen of Botswana*	262 (100)
No	10 (3.8)
Yes	252 (95.5)
Level of education	264 (100)
Below first degree	135 (51.1)
First degree	105 (39.8)
Postgraduate	24 (9.1)
Years of experience	264 (100)
Below 13 years	140 (53.0)
13 years and Above years	124 (47.0)
Acceptability of orthodox treatment	264 (100)
Do not accept	110 (41.7)
Accept	154 (58.3)

*Figure does not add up to 264 because of missing data

score (false belief) about ADHD was found to be significantly higher ($t = -2.95$; $P = 0.003$) in those who do not believe in orthodox treatment. Conversely, higher rate of contact with pupils diagnosed with ADHD ($t = -2.71$; $P = 0.007$), was associated with accepting orthodox treatment (Table 3).

Of all the variables, which were entered into the regression model, only three emerged as associated factors of orthodox treatment acceptability (Table 4). Those who learned about ADHD as a part of professional development or training ($OR = 0.56$, 95%CI: 0.32-0.97) and are interested in teaching them or receiving further training about handling ADHD students ($OR = 0.31$, 95%CI: 0.19-0.54) are less likely to refuse orthodox treatment. Conversely, those who had higher myth score (in false beliefs) were more likely to refuse orthodox treatment ($OR = 1.08$, 95%CI: 1.01-1.16).

5. Discussion

The study surveyed teachers' belief about attention deficit hyperactivity disorder (ADHD) and their acceptance of orthodox treatment. The result reveals that two out of every five teachers do not accept the orthodox treatment of the disorder. It also shows that certain misconception, previous exposure, and

Table 2: The Association of factors with the teachers' acceptability of orthodox treatment

Variables	Do not accept orthodox treatment	Accept orthodox treatment	χ^2	df	P
Age group					
Below 39 years *	60 (45.1)	73 (54.9)	1.03	1	0.311
39 years and above	49 (38.9)	77 (61.1)			
Gender					
Male	29 (40.3)	43 (59.7)	0.79	1	0.779
female	81 (42.2)	111 (57.8)			
Are you a citizen of Botswana?					
No	6 (60.0)	4 (40.0)	1.45	1	0.229
Yes	103 (40.9)	149 (59.1)			
Years of experience with ADHD Pupils					
Below 13 years	65 (46.4)	75 (53.6)	2.78	1	0.095
13 years and Above years	45 (36.3)	79 (63.7)			
Highest level of education					
Below first degree	59 (43.7)	76 (56.3)	0.34	2	0.626
First degree	43 (41.0)	62 (59.0)			
Postgraduate	8 (33.3)	16 (66.7)			
Do you know a child with ADHD?					
No	96 (44.9)	118 (55.1)	4.74	1	0.029
Yes	14 (28.0)	36 (72.0)			
What is your relationship with someone diagnosed with ADHD?					
Distant relation/friend	105 (42.3)	143 (57.7)	0.76	1	0.383
First degree relation	5 (31.3)	11 (68.8)			
Have you ever taught a child with ADHD					
No	101 (43.5)	131 (56.5)	2.75	1	0.097
Yes	9 (28.1)	23 (71.9)			
Did you learn about ADHD as a part of professional development or training?					
No	75 (58.4)	80 (51.6)	6.98	1	0.008
Yes	35 (32.1)	74 (67.9)			
Did you learn about ADHD by reading magazine or from people?					
No	73 (45.6)	87 (54.4)	2.62	1	0.106
Yes	37 (35.6)	67 (64.4)			
Are you interested in teaching them or receiving further training about handling ADHD?					
No	69 (58.0)	50 (42.0)	23.7	1	<0.01
Yes	41 (28.3)	104 (71.7)			

*Figure does not add up to 264 because of missing data

Table 3: The myth score and frequency of contact comparison between those who accepted and not accepted orthodox treatment

Variables	Accepted orthodox treatment	Mean	SD	t	P
Belief in the myth about ADHD	No	23.3	4.02	-2.95	0.003
	Yes	21.9	4.09		
Number of contacts with ADHD pupils as teachers	No	1.55	3.40	-2.71	0.007
	Yes	3.01	5.28		

personal interest play crucial roles in determining the acceptance of orthodox treatment for the disorder.

Previous studies carried out in high-income countries among parents of children with ADHD, which assessed the acceptance of medication treatment, have reported between 30-70% refusal of medication for ADHD (16-18). The 41.7% reported in this study appears to fall in

between the range; however, it must be noted that those studies considered refusal of medication treatment alone. Orthodox management of ADHD is not restricted to the use of psychotropic drugs. It also extends to other biomedical options such as psychosocial interventions, or a combination of both (19).

In a more related study by McLeod and colleagues (17),

Table 4: Regression of associated factors on teachers' acceptability of orthodox treatment

Variables	Wald	P*	AOR	95%CI	
				Lower	Upper
Do you know a child with ADHD?					
No (ref)	1.00				
Yes	1.99	0.159	0.57	0.26	1.24
Did you learn about ADHD as a part of professional development or training?*					
No (ref)	1.00				
Yes	4.32	0.038	0.56	0.32	0.97
Have you ever taught a child with ADHD?					
No (ref)	1.00				
Yes	0.04	0.85	1.10	0.41	2.97
Are you interested in teaching them or receiving further training about handling ADHD?*					
No (ref)	1.00				
Yes	18.2	<0.01	0.31	0.19	0.54
Belief in the myth about ADHD*					
High (ref)	1.00				
Low	5.34	0.021	1.08	1.01	1.16
Number of contacts with ADHD pupils as teachers					
High (ref)	1.00				
Low	1.47	0.23	1.05	0.97	1.13

*Variable with significant P value

which investigated treatment preferences for ADHD, they found that only 9% rejected all biomedical treatment composing medication and, or counseling. This is significantly lower than what is reported in this study although data for the study was obtained from the National Stigma Study-Children in the USA, and study participants included adults in the general population. Lower acceptance of biomedical treatment may be a reflection of a generally poor attitude towards orthodox treatment in low-income countries because of affordability and availability (20). Besides, higher disbelief in psychiatric treatment of ADHD by African American compared with other ethnic groups has been reported (21). All these factors, including the perceived cause of ADHD as being social (10, 22), may be responsible for the high unacceptability of orthodox treatment among the teachers.

The lack of acceptability of orthodox treatment was related to faulty mythical belief about ADHD. This agrees with the findings of other studies that lack of acceptability of orthodox treatment may be as a result of misconception; for example, one study reported that parents opted for non-pharmacological treatment because of fear of side effects and addiction risk (18). Also, Ghanizadeh and other colleagues, (22) found a correlation between teachers' knowledge of ADHD and their attitude to the condition. Since teachers play a substantial role in the identification and classroom management of the condition (23), it is essential to investigate and address misperceptions, which may hinder acceptance of any

form of biomedical treatment about ADHD among teachers. Correcting inaccurate ideas about ADHD can be done through training, which is known to be effective in bridging the knowledge gap (24).

The importance of training is also underscored in this study by the independent association between acceptance of orthodox treatment and having a professional development or training in ADHD. A study has similarly shown that teachers' level of knowledge of ADHD is positively related to their prior training and experience with ADHD (6). Furthermore, in this study, interest in teaching or further training about ADHD was found to be independently associated with orthodox treatment acceptability.

None of the socio-demographics was significantly associated with orthodox treatment acceptance except knowing a child with ADHD. However, this variable did not remain a predictor after others were controlled for. In terms of association of socio-demographics with treatment preference, this study did not differ much from others. While the study by Demidovich and other colleagues (16), revealed no association of medication refusal with demographics or school factors, a study carried out by Schnittker and co-workers (21) found that higher socioeconomic status, which was indicated by years of education and income, predicted greater awareness of ADHD and an endorsement of bio-medically oriented treatments (21).

6. Conclusion

The findings reveal the existence of erroneous conception about ADHD and the rejection of orthodox or biomedical treatments among a sizeable number of teachers. Non-acceptability of orthodox treatment was determined by beliefs about ADHD, previous exposure/training, and personal interest to learn more about the condition.

6.1 Recommendations

In order to improve the acceptance of biomedical or orthodox treatment, there will be a need to correct the myth about ADHD through training. Pre-service training as teachers are being recruited, and periodic in-service training will be needed for education and enlightenment. This will be necessary to fortify knowledge and update new approaches to management. According to one of the findings that teachers' interest affect treatment acceptance, it may be profitable to group teachers that will undergo training based on their quest to understand the disorder so that training can be tailored appropriately. Someone who already has an interest in having further training on ADHD is more likely to be teachable than those without interest; those without interest will require first a bolstering up of interest before subjecting them to training. Finally, research should be extended to teachers in secondary schools to determine their opinion, and studies should examine the reason for rejecting orthodox treatment. This finding may serve to guide the content of the training.

7. Limitations

Though several schools were surveyed to ensure a widespread view, the study was restricted to a region in the country; thus, limiting generalization of findings for the entire country. Moreover, the focus of the study was restricted to primary school teachers, thereby excluding teachers of secondary schools. The study was self-report in design and may affect honest responses. The cross-sectional design of the study makes it difficult to understand the nature of relationships between variables, which limits conclusions that can be drawn on causality. Lastly, an important question such as the reason for rejecting orthodox treatment was omitted and was left to speculations.

Ethical considerations

Ethical approval was obtained from the University

of Botswana, Independent Review Board, (UBR/RES/IRB/BIO/016) and the Ministry of Basic Education, Gaborone Botswana (DPRS 7/1/5 XXX (18) PAO-Research). The purpose of the study was explained to every eligible participant before obtaining written informed consent from them.

Authors' contributions

Anthony A Olashore and John A Ogunjumo conceived the idea. Anthony A Olashore analyzed the data. Anthony A Olashore, Oluyemi Oluwatosin Akanni, and Jammalamadugu B Swetha prepared the initial manuscript. Anthony A Olashore, Oluyemi Oluwatosin Akanni, John A Ogunjumo, and Jammalamadugu B Swetha were involved in writing and editing the final manuscript. All authors read and approved the final manuscript.

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Conflict of Interest

The authors declared no conflict of interest.

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