

# Knowledge and Misperception of Attention Deficit Hyperactivity Disorder (ADHD) among the Primary School Teachers of Vadodara District, Gujarat, India

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## Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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## ABSTRACT

**Background and Aim:** Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most commonly diagnosed psychiatric disorders of childhood. Teachers can play a key role in identifying and supporting students with ADHD. In order to fulfill this important role, teachers must have explicit knowledge about ADHD. Teachers are seen as one of the most valuable sources of information concerning the referral and diagnosis of ADHD. They also have the responsibility for creating an environment conducive to academic, social, and emotional success for children with ADHD. This study was aimed at assessing the knowledge and misperceptions of ADHD of primary school teachers in the Vadodara district of Gujarat, India.

**Materials & Methods:** Total 491 school teachers participated in the study. The Knowledge of Attention Deficit Disorder Scale (KADDS) along with a demographic questionnaire was used as the survey instruments to collect data. Descriptive statistics and correlation tests were used to analyze the data.

**Result:** Results indicated that teachers' knowledge of ADHD was insufficient. A significant

difference in knowledge was found between Urban & Rural (0.00429); Gujarati & English medium school teachers ( $p=0.0013$ ); Government & private school teachers ( $p=0.001$ ).

**Conclusion:** Lack of knowledge & prevalence of misperception is obvious in primary school teachers who are the first responders of such patients (kids). Improving teachers' standards & understanding can help significantly in early diagnosis & improving the outcome.

**Keywords:** ADHD; KADDS (Knowledge of Attention Deficit Disorder); primary school teachers.

## ABBREVIATIONS

ADHD: Attention Deficit Hyperactivity Disorder

KADDS: Knowledge of Attention Deficit Disorder scale

N: Number, frequency

%: Percentage

SPSS: Statistical Package for the Social Sciences

## 1. INTRODUCTION

ADHD is the most common childhood psychiatric disorder with a prevalence of 4-12% amongst the age group of 6-12 years in the United States [1] and in India prevalence is from 5.2% in those aged 3-4 years, up to 29.2% in those aged 11-12 years [2].

ADHD is manifested by deficit attention span, hyperactivity, and impulsivity [3]. These symptoms also manifest in the school setting where children are required to behave in socially proper ways, participating in academic activities, and not interrupting the learning development or activities of others. Children with ADHD are known to experience persistent behavioral and social problems as well as significant academic difficulties that adversely affect their school performance [4].

Educators must be adequately prepared to teach adolescents and to meet the individual needs of all students. The work of the teacher becomes more demanding when some learners have Attention Deficit Hyperactivity Disorder (ADHD), as their troubles with attention span, managing their impulses, and activity level often obstruct classroom activities [5].

The teacher is most often the first person to make a referral for assessment for ADHD, because in the structured school environment, children with problems of inattention, hyperactivity, and impulsivity exhibit behaviors with which the other children and their teachers cannot cope. Teachers also play an important role in the assessment process, providing

information on academic history and performance, social relations, and general everyday functioning, thus playing a very important part in the screening for ADHD [6,7].

A study conducted in Australia including 120 primary-school teachers and 45 final-year education, undergraduates who were asked to complete a questionnaire to know the knowledge about ADHD. Overall, this study highlighted that deficits in teachers' knowledge about ADHD are common for both in-service and pre service teachers. [8]

A study conducted in South Africa in 2010 involving 552 teachers using KADDS, mean age of the participants was 41.19 years. Study showed that more than 50% scored low on knowledge & misperception about ADHD [14]

Research suggests that knowledge of teacher about ADHD have a significant role in understanding and identifying a student who required assistance. Higher knowledge is correlated with a higher identification rate, more helpful behavior for children with ADHD, and has a favorable attitude about interventions [9].

Thus, the primary school teacher's awareness helps early diagnosis and effective school management of children with Attention Deficit Hyperactivity Disorder (ADHD). On review, the literature on knowledge of primary school teachers there is a paucity of studies in developing countries like India. Hence, the present study is aimed at assessing the knowledge of primary school teachers about ADHD.

### 1.1 Aims and Objectives

The study was aimed to find the teachers' knowledge and misperception about ADHD & the differences in knowledge about different areas of ADHD.

## 2. MATERIALS AND METHODS

It was a cross-sectional study. Participants were approached through a visit to their respective

schools. Total 491 primary school teachers participated in the study. The knowledge of the Attention Deficit Disorder Scale (KADDS) along with a demographic questionnaire was used as the survey instrument to collect data. The demographic questionnaire includes age, gender, years of teaching experience, education, working in a government or private sector school; Gujarati or English medium school, training for ADHD, experience of teaching child with ADHD. KADDS designed by Scitutto and Feldhammer consists of 39- items. The scale measures three domains: symptoms/diagnosis of ADHD; treatment of ADHD; and general information about the etiology. Scitutto and Feldhammer determined that KADDS total scale was shown to have a moderate to a high degree of internal consistency ( $\alpha = .80$  to  $.90$ ). The KADDS was also determined to have adequate validity evidence. The scale was translated into the Gujarati language and it was validated. Teachers from Gujarati medium were given Gujarati version of KADDS while English medium teachers were given the option to use either Gujarati or English version of KADDS along with Performa containing demographic details. As this is an observational, cross-sectional study and participants do not require bearing any cost, no ethical issues are involved. The demographic questionnaire and KADD scale was distributed personally through the principal's office, and asked to submit the forms at the end of the day in the principal's office and from principal's office forms were collected within a week. However, all participants signed the informed consent form, and the voluntary nature of participation was emphasized. Primary school teachers willing to give written consent were included in the study.

### 2.1 Inclusion Criteria

- Participants who gave informed and written consent
- Participants who returned the filled forms within one week
- Primary school teachers working in government and private school

### 2.2 Exclusion Criteria

- Participants who did not give informed written consent
- Participants who did not return filled forms within one week

### 2.3 Statistical Analysis

Knowledge and misperception was assessed by KADDS. Data were pooled and statistical

analysis was done with SPSS v16 software package using multivariate analysis with analysis of covariance test. Chi square test & independent t-tests were applied. Total 495 teachers have participated in the study, as 4 teachers did not completed study, analysis for 491 participants was done.

## 3. RESULT

The study was conducted on 491 primary school teachers of the Vadodara District, Gujarat. 219(44.60%) participants were males while 272(55.40%) were females in the study. The mean age of the primary school teacher was 33.9 years. 407(82.89%) were from Gujarati medium school while the rest was from English medium school. 404(82.28%) were from government schools while 87(17.72%) were from private schools.

66.1 % of rural & 62.2% of urban school teachers; 62.1 % female & 68.2 % male teachers with an average of 64.8 % feel that they should undergo training for ADHD. Only 9.6% of teachers had undergone training for ADHD. 25.4% of teachers reported that they have taught children with ADHD.

Primary school teachers from Gujarati medium had a significantly higher understanding of overall knowledge ( $p=0.002$ ), symptoms of ADHD ( $p=0.000$ ) & treatment of ADHD ( $p=0.004$ ) compared to English medium primary school teachers.

The government school primary teachers had a significantly higher understanding of overall knowledge ( $p=0.003$ ), symptoms of ADHD ( $p=0.000$ ) & treatment of ADHD ( $p=0.003$ ) compared to private primary school teachers.

Those primary school teachers who have undergone training for ADHD showed a significant difference in the understanding of ADHD compared to those who have not been trained ( $p=0.000$ ).

As per the KADD scale only 12.2 % of teachers having Good knowledge, the rest study population is having either medium knowledge (62.5%) or poor knowledge (25.3%) and having misconceptions about ADHD.

On the further comparison of the difference in knowledge on the different subscales of KADD scale-like general subscale, symptoms subscale,

treatment subscale was done and there is no significant difference was found on knowledge of different domains of ADHD.

As shown in table association was obtained between some demographic variables and different domains of ADHD as per KADDS. Statistically significant difference found between Gujarati medium and English medium teachers about overall knowledge (p=0.003) and treatment of ADHD (p=0.004), suggestive higher knowledge among Gujarati medium teachers in these two domains. No statistical difference in domain of diagnosis.

Further comparing knowledge among government and private sector teachers it was found that government teachers have higher knowledge in all domains than private sector teachers (P= 0.004, P= 0.00, P= 0.001).

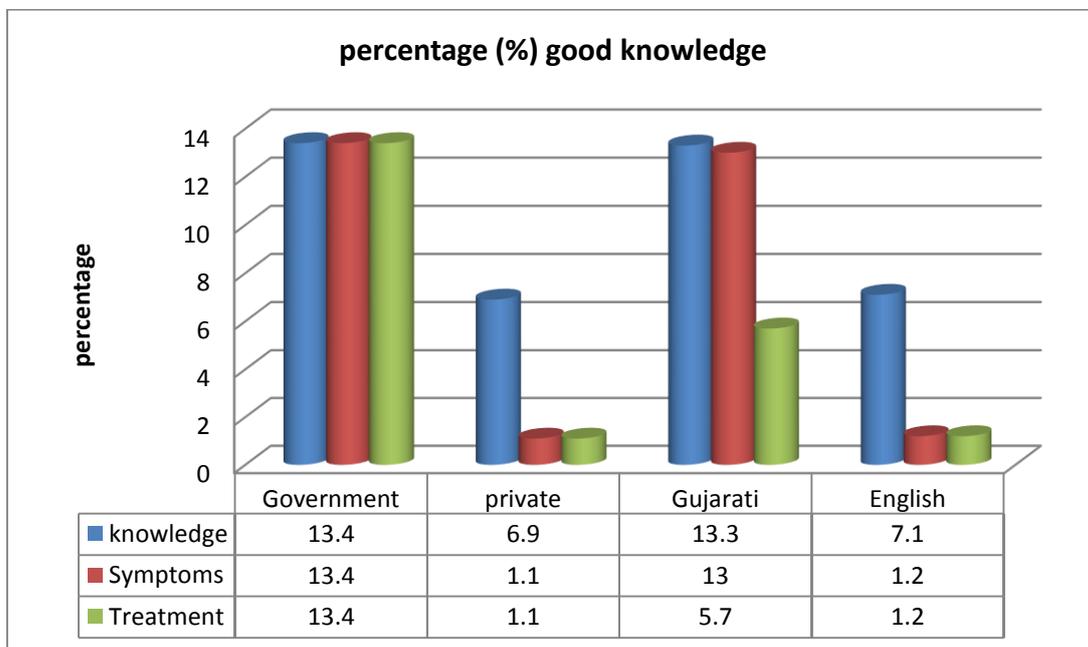
Government school teachers & Gujarati medium school teachers showed good knowledge on all three aspects of scale compared to private school teachers & English medium school teachers, respectively.

**Table 1. Demographic characteristics of participants (n=491)**

Variable		Frequency (n)	Percentage (%)
<b>Gender</b>	Male	219	44.60
	Female	272	55.40
<b>Domicile</b>	Urban	156	31.77
	Rural	335	68.23
<b>Medium of school</b>	Gujarati	407	82.89
	English	84	17.11
<b>Type of School/ Service sector</b>	Government	404	82.28
	Private	87	17.72

**Table 2. Overall Knowledge about ADHD (As per KADSS)**

Level of knowledge	Frequency (%)
<b>Poor</b>	124 (25.3)
<b>Medium</b>	307 (62.5)
<b>Good</b>	60 (12.2)
<b>Total</b>	491 (100)



**Fig. 1. Representing percentage (%) good knowledge all three aspects of KADSS**

**Table 3. Knowledge about Different domain of ADHD (As per KADSS)**

<b>KADDS Interpretation</b>	<b>Knowledge subscale N (%)</b>	<b>Symptoms Subscale N (%)</b>	<b>Treatment Subscales N (%)</b>
Poor	124 ( 25.3)	143 ( 29.1)	222 (45.2)
Medium	307 (62.5)	294 ( 59.9)	245( 49.9)
Good	60 (12.2)	54 (11)	24 (4.9)

**Table 4. Demographic variable and Knowledge of ADHD**

<b>Demographic variables</b>		<b>Knowledge KADDS</b>		<b>Diagnoses/Symptoms</b>		<b>Treatment Subscale</b>	
			<b>Chi-Square df P value</b>		<b>Chi-Square df P value</b>		<b>Chi-Square df ,P value</b>
Gujarati	Poor	90 (22.1%)	13.10 Df-2 P-value 0.003	106 (26%)	17.05 Df-2 P-value 0.009	171(42%)	11.04 Df-2 P-value 0.004
	Medium	263(64.6%)		248(60.9%)		213(52.3%)	
	Good	54 (13.1%)		53 (13%)		23(5.7%)	
English	Poor	34 (40.5%)	11.67 Df-2 P-value 0.004	37 (44%)	16.07 Df-2 P-value 0.00	51(60.7%)	11.82 Df-2 P-value 0.001
	Medium	44 (52.4%)		46 (54.8%)		32 (38.1%)	
	Good	6 (7.1%)		1 (1.2%)		1(1.2%)	
Govt.	Poor	90 (22.3%)	11.67 Df-2 P-value 0.004	106(26.2%)	16.07 Df-2 P-value 0.00	169 (41.8%)	11.82 Df-2 P-value 0.001
	Medium	260 (64.4%)		245(60.6%)		212 (52.5%)	
	Good	54 (13.4%)		53(13.1%)		23 (5.7%)	
Private	Poor	34 (39.1%)	11.67 Df-2 P-value 0.004	37 (42.5%)	16.07 Df-2 P-value 0.00	53 (60.9%)	11.82 Df-2 P-value 0.001
	Medium	47 (54.0%)		49 (56.3%)		33 (37.9%)	
	Good	06 (6.9%)		01 (1.1%)		01 (1.1%)	

#### 4. DISCUSSION

Attention Deficit Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder. For a child to be diagnosed with ADHD, adults such as parents, carers, healthcare workers or teachers must have noticed higher levels of inattention, hyperactivity and impulsivity in the child before the age of seven years compared to children of similar age. The inattention, hyperactivity and impulsivity must be observed in a range of situations, for a substantial period of time and cause impairment to the child's learning or social development. Parent training programmes aim to equip parents with techniques to manage their child's 'difficult' or ADHD-related behavior. The finding of the current study showed that only 12.2 % of teachers were having Good knowledge, rest of the study population was either having medium knowledge (62.5%) or poor knowledge (25.3%) or having misconceptions about ADHD. These results were similar to the Study by Scitutto et al. (2000) suggests that most teachers have good knowledge (42.6% correct responses, while poor knowledge and misperceptions (35.4% don't know responses and 22% incorrect responses) [10,11]. Our study did not find any significant difference in knowledge of different domains of ADHD like Knowledge of symptoms/Diagnosis and treatment. An Indian study reported that teacher's deficient knowledge regarding ADHD has existed in various degrees among school teachers in all areas of learning. The highest deficit was noted in the area of "symptoms and diagnosis [12]. Another Indian study reported a lower level of knowledge of ADHD among primary school teacher especially about general knowledge and treatment knowledge and hence these teachers population requires training on all aspects of ADHD [13].

Our study also showed that knowledge about diagnosis /symptoms of ADHD was higher in Gujarati medium & Government sector teachers as compared to English medium school teachers and private school teachers. In literature, we did not find similar parameters being studying in other studies. One possible explanation might be the selection criteria in the government sector, where qualifications were given more importance and their B.Ed course curriculum has some components of child psychology [13].

It was found that 90.4% of teachers have never undergone training for ADHD screening during

their study or the service. 64.8 % of teachers feel that they should undergo such training, 74.6% of the teachers denied that they have ever taught any child with ADHD. This finding is similar to another study like practicing teachers had received very little ADHD training as part of their earlier university studies and just over half had received some form of brief in-service training throughout their teaching career [14,15]. One Australian study and two North American studies were identified [10,8,16] These studies showed that the teachers that participated had an average to good general knowledge of ADHD, that few teachers had any training in ADHD and that teachers' overall knowledge improved as a result of teaching a child with ADHD [13].

In the B.Ed curriculum, they have aspects of child psychology of learning but it does not contain any aspects of child psychiatric problems which adversely affect children's academic performance. Hence it is recommended to include these aspects in their curriculum only.

#### 5. CONCLUSION

Teachers' overall knowledge about ADHD is low and has more misperceptions. There was no significant difference in knowledge was found in different domains of ADHD. Teachers from the Gujarati medium and Government sector have more knowledge as compared with English medium teachers and the private sector. Teachers wanted training on ADHD as they have never received such training during education or their service. This will be helpful for early diagnoses of a child with ADHD, managing the child, managing class, and hence prevent further complications like academic impairment, school drop-out, and further complications like Drug abuse, High-risk sexual behavior, peer relationships problems, risky sexual behavior, and unemployment.

#### CONSENT

Informed written consent from participants was taken.

#### ETHICAL APPROVAL

Prior approval for the study was taken from Sumandep Vidapeeth Institutional Ethics Committee.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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