# Knowledge and Attitude of Saudi Primary Teachers Towards Students with Attention-Deficit Hyperactivity Disorder (ADHD) in Albaha Region

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## Abstract

Background: Attention deficit hyperactivity disorder (ADHD) is among the most frequent psychiatric disorder in children, and it has a detrimental impact on the child's social, familial, and familial functioning. Teachers are frequently the first to suspect attention ADHD in their students since they are with them for the most of the day and are familiar with how normal students behave in the classroom.
Aims & Objective: this study aims to identify and measure the awareness and attitude of primary teachers towards the diagnosis and management of students with ADHD.
Subjects and methods: This cross-sectional study was conducted at a primary school in the AlBaha area of Saudi Arabia from January 18 to April 24, 2022. Data were collected using a written questionnaire in Arabic language and simple vocabulary. Data was statistically analyzed using SPSS (version 25).
Results: Around 361 participants completed the questionnaire; worked in AlBaha. Therefore, they were included in the analysis. Most of the teachers were female (N = 226, 62.6%) and had bachelor's as their highest qualification (N = 296, 81.9 %). For most of the questions, the teachers had inadequate or poor knowledge, around 66.5% of teachers had more than ten years of work experience.
Conclusions: The study emphasized the lack of understanding of ADHD among primary and kindergarten school teachers in AlBaha city. This information gap raises severe concerns about the screening of ADHD at the school level in Suadia Arabia.



**Key Words:** ADHD, Primary schools; Knowledge; Attitude; Saudi Arabia, Teachers.
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## Introduction

One of the most crucial periods of a person's life is their early childhood. In which the personality is established as a result of interactions to the surrounding environment (1). Neurodevelopmental disorders (NDDs) are a group of disorders that include problems with cognition, communication, behaviour, and motor skills (2). Although attention is a developing mental process, a preschool child with hyperactivity may suffer from an attention deficit. As a result, he exhibits inappropriate behaviour such as being distracted and unable to complete his assignment, being hyperactive and moving aimlessly, and being impulsive. Until the child enters kindergarten, most parents are unconcerned about these behaviours (3).

Attention deficit hyperactivity disorder (ADHD) is one of the most frequent psychiatric disorders in children, and it has a detrimental impact on the child's social, familial, and scholar functioning (4). ADHD is commonly diagnosed before the age of 12 years, and 30–50 % of children with ADHD will continue to have symptoms into adolescence and adulthood (5). There has been an increase in the incidence of ADHD among Saudi primary school children (6). Most of children spend the majority of their time in schools and interact with teachers on a daily basis more than their parents or physicians, thus, elementary school teachers have taken the lead in providing timely treatment following early

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in providing timely treatment following early detection giving the schools a critical role in the early detection and management of ADHD (7). Recent advancements in treatment demand social interaction, including school-based activities, requiring knowledgeable teaching staff (8). Therefore, this study aims to identify and measure the awareness and attitude about ADHD among primary and kindergarten teachers. It is an effort to give research-based knowledge that could aid in appropriate planning for ADHD children's care.

## Methods

### Study design

This is a cross-sectional study conducted in a primary school and kindergarten to determine the knowledge and awareness level regarding ADHD among teachers.

### Study setting

This study was conducted at a primary school and kindergarten in the Al Baha area, which lies in the southwest of the Kingdom of Saudi Arabia between the holy Makkah and Aseer. There are 42 female elementary schools (38 government schools and 4 private schools) and 40 Male in Albaha city (38 government schools and 2 private schools). The total number of male and female teachers in the kindergartens and primary schools in Al-Baha city was 1150 teachers (9).

### Inclusion and exclusion criteria

All male and female teachers in primary schools working at the selected public and private primary school in Al-Baha region who were present at the time of data collection were included in the study. Participants with a family member diagnosed with ADHD were excluded from the study, as they may be influenced with the problem. Also, Non-Arabic speaker teachers as well as primary school teachers working outside AlBaha were excluded.

### Calculation of sample size

According to a previous literature on ADHD (10), teachers have an average of 60.8 percent understanding of ADHD. Using the Raosoft sample size calculator application (11), the sample size calculation was 278 teachers with a confidence range of 95% and a sampling error of 5%.

### Pilot study

A pilot study was undertaken to test the clarity of the questionnaire and the time it took to complete it, in one male and one girl elementary puplic school. The pilot study enlisted the participation of about 20 male and female teachers. They were not included in the main study.

### Tools and data collection

Data was collected using a paper-based questionnaire in Arabic language and simple vocabulary based on a previously published study (12). The questionnaire is divided into three sections: the first section contains demographic information, teaching history (including grades taught and years of experience), the second section examines teacher's understanding of ADHD, teachers' contact with ADHD pupils as well as a training about ADHD, and the third section assess the teacher's attitude toward ADHD kids.

The teachers completed these questionnaires after giving written signed consent. They were provided with the necessary information about the study. They were informed that the data would be stored anonymously, and their confidentiality was guaranteed.



### Data analysis

Data were analyzed using SPSS (version 25). Frequency and percentages were calculated for categorical data. A Chi-square test was used to find associations between attitude and knowledge about ADHD with the demographic characteristics of Kindergarten teachers. A p-value of less than 0.05 was considered significant.

### Ethical considerations

The research ethical committee of Al-Baha College of Medicine gave their approval. Participants gave their informed consent and personal data was kept confidential.

## Results

A total of 361 participants completed the questionnaire; they were working in AlBaha. As regard the demographics of the primary schools and Kindergarten teachers the majority of the teachers were aged 31-40 Years (N = 167, 46.3%), most of them were females (N = 226, 62.6%) and had bachelor's as their highest qualification (N =

296, 81.9%). Most of teachers (N = 240, 66.5%) had more than ten years of work experience and work in Elementary Schools (N = 290, 80.3%) (table 1).

**Table 1: Demographics of the primary schools teachers**

| Variables | | Frequency (N) | Percentage (%) |
|---|---|---|---|
| Age Group | 20-30 Years | 34 | 9.4 |
| | 31-40 Years | 167 | 46.3 |
| | 41-50 Years | 144 | 39.9 |
| | > 50 years | 16 | 4.4 |
| Gender | Male | 135 | 37.4 |
| | Female | 226 | 62.6 |
| Marital Status | Single or Widow | 18 | 4.9 |
| | Married with children | 15 | 4.1 |
| | Married without children | 328 | 90.8 |
| Educational Level | Diploma Degree | 50 | 13.8 |
| | Bachelor Degree | 296 | 81.9 |
| | Master Degree | 13 | 3.6 |
| Years in Career | 1-5 Years | 45 | 12.4 |
| | 6-10 Years | 76 | 21.1 |
| | 11-20 Years | 137 | 37.9 |
| | 21-30 Years | 97 | 26.8 |
| | 31-40 years | 5 | 1.3 |
| | > 40 years | 1 | 0.3 |
| Students Educational Stage | Kindergarten | 71 | 19.6 |
| | Elementary School | 290 | 80.3 |



As regard the knowledge and understandings of the primary schools teachers and their source of information on ADHD, most of them, 218 (60.3%), had no instructions regarding ADHD provided during teaching training, and 216 (59.8%) had not read any book related to ADHD. Around 265 (78.1%) teachers taught students not diagnosed with ADHD; however, they suspected them of having it (Table 2).

**Table 2: Teacher's understanding of ADHD of the primary schools and Kindergarten teachers and their source of information on ADHD**

| Variables | | Frequency (N) | Percentage (%) |
|---|---|---|---|
| Receive instructions about ADHD during training | No | 218 | 60.3 |
| | Yes, Briefly in passing | 62 | 17.2 |
| | Yes, Briefly as a separate topic | 61 | 16.9 |
| | Yes, Covered extensively | 20 | 5.5 |
| Books read about ADHD | None | 216 | 59.8 |
| | 1-5 | 131 | 36.3 |
| | 6-10 | 10 | 2.8 |
| | More than 10 | 4 | 1.1 |
| Taught known ADHD diagnosed children over last two years | None | 132 | 36.6 |
| | 1-5 Student/Students | 139 | 38.5 |
| | 6-10 Students | 17 | 4.7 |
| | More than 10 Students | 73 | 20.2 |
| Taught children over the last two years that | None | 96 | 26.6 |
| | 1-5 Student/Students | 189 | 52.4 |

| | | | |
|---|---|---|---|
| you suspected have ADHD | 6-10 Students | 37 | 10.4 |
| | More than 10 Students | 39 | 10.8 |
| ADHD is a legitimate educational problem | Yes, absolutely | 171 | 47.4 |
| | Yes, Maybe | 115 | 31.9 |
| | No, Maybe | 24 | 6.6 |
| | No, absolutely | 19 | 5.3 |
| | Don't know | 32 | 8.9 |
| Require additional training for ADHD | Yes, absolutely | 224 | 62.05 |
| | Yes, Maybe | 101 | 28 |
| | No, Maybe | 4 | 1.1 |
| | No, absolutely | 13 | 3.6 |
| | Don't know | 19 | 5.3 |

As regard the knowledge and attitude of the primary schools teachers on ADHD, the majority of teachers (N = 305, 84%) believed poor parenting to cause ADHD or did not know if ADHD was related to parenting. Similarly, only 127 (36%) had correct knowledge that ADHD can be an inherited disorder. For most of the questions, the teachers had inadequate or poor understanding. The highest accurate knowledge (N = 240, 67%) was about requiring educational intervention, even if medications are provided. However, only 25 (7%) teachers correctly identified that ADHD children will not always get better even if they tried harder, making it the most incorrectly answered question (fig.1).

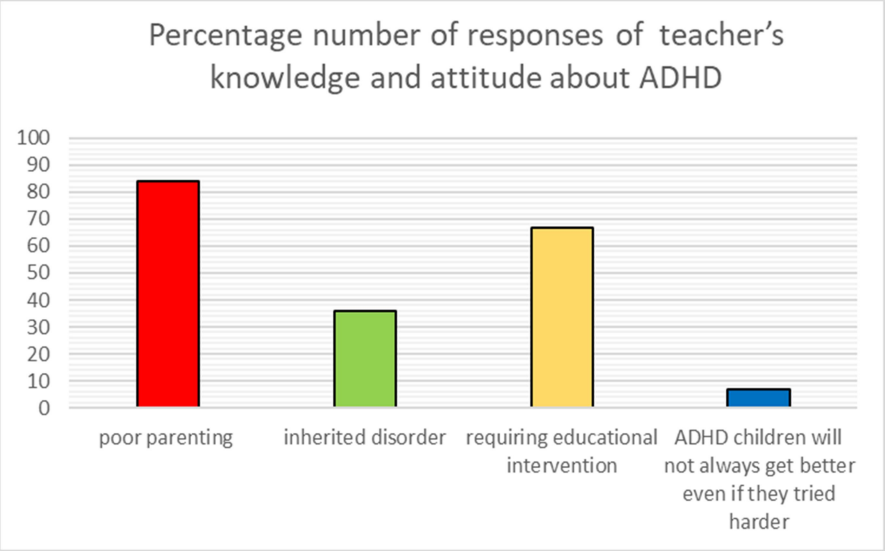


**Figure 1: demonstrates the responses of teacher's knowledge and attitude about ADHD**

Knowledge and attitude of teachers were compared to gender. Majorly most of the answers have no relation to gender. More males had correct answers in questions with a significant difference (Table 3).

**Table 3: Association of knowledge regarding ADHD among Kindergarten teachers with gender**

| Variables | Male (N= 135) | Female (N = 226) | X (Df), P-value |
|---|---|---|---|
| Caused by poor parenting practices | 20 (14.8%) | 36 (15.9%) | 0.081 (1), 0.777 |
| Caused by sugar or food additives | 11(8.1%) | 17 (7.5%) | 0.046 (1), 0.830 |
| Misbehave not to follow the rules and assignments | 38 (28.1%) | 36 (15.9%) | 7.7 (1), 0.005* |
| ADHD can be inherited | 48 (35.6%) | 79 (35.0%) | 0.013 (1), 0.908 |
| Born with biological vulnerabilities | 58 (43.0%) | 106 (46.9%) | 0.529 (1), 0.467 |
| ADHD children must be over-active | 9 (6.7%) | 25 (11.1%) | 1.914 (1), 0.167 |

| | | | |
|---|---|---|---|
| Need a quiet, sterile environment to concentrate | 19 (14.1%) | 15 (6.6%) | 5.479 (1), 0.019* |
| Inattention is not a consequence of defiance, oppositionality, and an unwillingness to please others | 71 (52.6%) | 125 (55.3%) | 0.251 (1), 0.616 |
| It is a medical disorder only treated with medication | 71 (52.6%) | 123 (54.4%) | 0.114 (1), 0.735 |
| ADHD occurs equally as often in girls as in boys | 32 (23.7%) | 45 (19.9%) | 0.724 (1), 0.395 |
| Results from chaotic, dysfunctional family life | 32 (23.7%) | 71 (31.4%) | 2.465 (1), 0.116 |
| More in minority groups than in Caucasian groups | 17 (12.6%) | 16 (7.1%) | 3.09 (1), 0.079* |
| Educational interventions unnecessary with medicine | 84 (62.2%) | 156 (69.0%) | 1.756 (1), 0.185 |
| Excellent grades and later awful grades are not ADHD | 37 (27.4%) | 67 (29.6%) | 0.207 (1), 0.650 |
| They would do better if they only tried harder | 10 (7.4%) | 15 (6.6%) | 0.078 (1), 0.780 |
| Children outgrow their disorder and are normal adults | 18(13.3%) | 11 (4.9%) | 8.199 (1), 0.004* |
| Have a high risk for becoming delinquent as teenagers | 47 (34.8%) | 76 (33.6%) | 0.053 (1), 0.818 |
| Diets are usually not helpful in treating | 27 (20.0%) | 61 (27.0%) | 2.241 (1), 0.134 |
| If a child can play videogames for hours, isn't ADHD | 42 (31.1%) | 71 (31.4%) | 0.004 (1), 0.952 |
| Better behave on 1-to-1 interactions than group | 49 (36.3%) | 100 (44.2%) | 2.205 (1), 0.138 |



Association between previous training regarding ADHD and correct knowledge was calculated. Only 34/218 (15.6%) who had not received instruction about ADHD gave the correct answer, whereas 6/20 (30%) who had extensively been instructed about ADHD were correct when asked that 'ADHD children misbehave to not follow the rules and complete assignments' (X2(3) = 8.17, p-value = 0.042). Similarly, 4/20 (20%) with extensive knowledge correctly identified that a quiet and sterile environment is not necessary for ADHD children to concentrate. At the same time, only 14/218 (6.4%) with no training had correct knowledge (X2(3) = 8.403, 0.038). Furthermore, 12/20 (60%) with extensive knowledge correctly identified that ADHD doesn't often result from chaotic and dysfunctional life. In comparison, only 57/218 (26.1%) with no training had correct knowledge (X2(3) = 10.371, 0.016).

## Discussion

Attention deficit hyperactivity disorder (ADHD) is one of the most prevalent neurobehavioral illnesses of childhood. A child with ADHD experiences numerous challenges in both social and academic settings (13). The knowledge and attitude of primary school teachers about ADHD is critical in early detection and referral of children to treatment centres (7). Two studies were done in Saudi Arabia to investigate the incidence of ADHD among primary school pupils found that it ranged between 12.6 percent in Riyadh and 16.4 percent in Dammam, indicating that it is not an uncommon illness in this community (14,15). Furthermore, considering that early identification of comorbid diseases linked with ADHD can lead to more accurate diagnosis, optimal therapy, and perhaps better diagnosis. To do this, there must be informed teachers capable of identifying these diseases in their students (16).

The current study assessed the level of knowledge and attitudes of primary school teachers towards ADHD in Albaha region. The importance of the study emerged from what was discovered in the literature (17) which stated that, Teachers are thought to be the first to notice children with ADHD. As a result, they must have a good understanding of ADHD, its symptoms, risk factors,

and problems. Having a solid and sufficient understanding allows school instructors to establish the accurate diagnosis, which improves the physician's subsequent actions and dramatically improves the recovery chances of ADHD .

In the present study, A total of 361 participants completed the questionnaire; they were working in AlBaha. As regard the demographics of the primary schools teachers the majority of the teachers were aged 31-40 Years (N = 167, 46.3%), most of them were females (N = 226, 62.6%) and had bachelor's as their highest qualification (N = 296, 81.9%). Most of teachers (N = 240, 66.5%) had more than ten years of work experience and work in elementary Schools (N = 290, 80.3%). Similar to the teachers' socio-demographic data and the high response rate in our study, A total of 130 teachers participated in a previous study in Al-Rusaifah District, Makkah City, Saudi Arabia, with a 100% response rate (10). This high response rate is likely due to the researcher personal contact with the school directors, as well as explaining the study's goal, scientific importance, and value to each instructor.

In this study, as regard the knowledge and understandings of the primary schools teachers and their source of information on ADHD, most of them, 218 (60.3%), had no instructions regarding ADHD provided during teaching training, and 216 (59.8%) had not read any book related to ADHD. In agreements to our results an Egyptian survey found that more than 75 % of teachers did not attend any training sessions on ADHD at the college-level (18). Also, In a previous Ethiopian study, 55.2 % of elementary school teachers had no knowledge about ADHD (7), this indicating that the demographic variable of gender had no significant relationship with overall knowledge and attitudes toward ADHD and there is a knowledge gap in this population about the problem and this significant difference could be due to the use of different tools assessing ADHD knowledge in different research, including ours.

on the other hand, a previous study assessed "the knowledge, perspectives, and attitudes of primary classroom teachers regarding ADHD students at Egyptian international schools at the Governorate of Helwan." the majority of instructors, have taken ADHD training classes (19). This difference could be attributable to the awareness campaigns offered to Egyptian foreign schools' teachers. This results was similar to a previous study in Saudi Arabia among male primary school teachers (12), indicating that those who had previously received information about ADHD during training had slightly more knowledge about the disorder than others.

In the present study, around 265 (78.1%) teachers taught students not diagnosed with ADHD. In accordance to our results, a previous study, found that 66.3 % of teachers had no prior experience working with students who had been diagnosed with ADHD (18). This findings was contrary to the findings of a study of the Knowledge and attitudes about ADHD conducted among New Zealand's primary school teachers, the majority of teachers were reported having taught a student with ADHD (20). The cultural differences in the people being researched, the existence of awareness and training programmes about ADHD, could all be contributing factors in the difference between the current work and prior studies.

In this study, Age, job experience, and educational level were shown to have no significant link with general knowledge and attitudes concerning ADHD. Those who had either taken ADHD courses or taught a kid with ADHD, on the other hand, had a better understanding of the illness than others. According to a systematic review, ADHD teacher training programs may be helpful in initially enhancing the knowledge of ADHD instructors (21). Teachers who answered this questionnaire knew less about ADHD than others, given their critical role in identifying and treating ADHD. Overall, there was a misconception about ADHD and diet among teachers. Majority (92%) incorrectly believed that food and sugar additives cause ADHD, and 76% thought that diet could help in treating ADHD. A recent systematic review and meta-analysis of double-blind placebo-controlled studies looked at the impact of diet treatments (supplementation and elimination) on ADHD (22).

The study found that dietary supplementation is unlikely to make a significant difference in ADHD therapy. Similarly, teachers were poorly informed regarding other ADHD myths. A more significant proportion of the teachers (91%) disagreed with the statement that "A child can be appropriately labeled as ADHD and not necessarily present as overactive." It has been established that many ADHD children are hyperactive, though others with attention issues are not. ADHD-diagnosed children who are inattentive but not too active may look uninspired and spacey.

Likewise, majority (92%) agreed with the



hypothesis that "Most ADHD children outgrow their disorder and are normal as adults." However, the previous study suggests that around 90% children with ADHD continue to have persistent symptoms throughout their adolescence (23). This viewpoint may indicate that the significance of this condition is being neglected. Compared to non-ADHD children, teenagers with ADHD have a greater risk of school suspension, academic failure, dropping out of school, and drug misuse (24). This observed more minor degree of awareness among the teachers raises the concern that the near future for children affected by ADHD remains uncertain unless intensive action is done to increase the teachers' understanding of it.

In the current study, it was discovered that, while 29% percent of the teachers were aware that ADHD is associated with grades, only 21% were aware that there is a gender difference, and only 35% were aware that ADHD is a hereditary disease, demonstrating the diversity of teachers' knowledge about the disorder's definite spectrum. One of the most significant contributions to this condition, according to evidence, is genetics (25). With this understanding, instructors should be able to interact more effectively with children's parents, recognize that one or both parents may have/had ADHD, and be realistic about the structure in the household of the child with ADHD.

From the above findings we suppose that the recorded high response rate in this study may increase the capacity to generalize the results on wide regions in the country. Also, a comprehensive and well-designed strategy will be required for making a timely solution to minimise the possibility of delayed diagnosis of ADHD and classroom mistreatment. While, a significant restriction was that most of the sample of participants was mainly female, limiting the application of these findings to male teachers. A self-report questionnaire was used in the survey. While self-report surveys are easily handled and reasonably straightforward to explore, there may be a tendency to respond concerning socially accepted criteria.

## Conclusions

Based on the findings of this study, it is determined that elementary school teachers have an inadequate understanding of ADHD. Some teachers had misconceptions regarding ADHD symptoms and general facts, indicating the need for further training to improve this knowledge. The current study's baseline state of teachers' understanding of ADHD underscores the necessity for effective educator intervention.

## Competing interests

The author declares no competing interests.

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## Authors' contributions

The author have designed the study, collect and analyzed the data as well as write the manuscript.

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