



# Knowledge and Attitude of Female Teachers Toward ADHD at Elementary Schools, Jeddah, KSA, 2017

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## ABSTRACT

**Background:** Attention deficit hyperactivity disorder (ADHD) is one of the most common psychiatry disorders in children, it has negative impact on the academic, familial and social functioning of the child. The recent advances in its treatment calls for social intervention including school-based activities, which necessitates knowledgeable teachers. **Aim:** The main aim of this study is to explore the level of knowledge and attitude of the school teachers of female primary schools in Jeddah about ADHD. **Subjects and methods:** Through a cross sectional design, 376 school teachers were selected by multistage sampling from female primary schools in Jeddah, they were invited to fill a predesigned valid questionnaire reflecting their knowledge and attitude towards ADHD. SPSS ver 21 was used for data entry and statistical analysis which included descriptive as well as analytic analysis using Chi square test. P value<0.05 was considered an indication for significance. **Results:** Almost one half of the teachers (47.6%) aged between 40-49 years, who were mostly married (81.1%) and having children (84.3%). Out of them, 8.2% reported that they have ADHD child. Although that more than one half of the teachers (54.3%) thought that they had knowledge about ADHD, the true knowledge test questions revealed a much lower percentage (24.5%) who showed good knowledge about ADHD. Only older teachers had significant better knowledge. More than one half of the teachers (57.2%) perceive that the first step in the management policy when suspecting ADHD is the referral of the child to advisor and asking for attendance of the parents. **Conclusion and recommendations:** Most of the teachers have insufficient level of knowledge about ADHD. There is a tangible need for training programs provided to the teachers about early recognition and policy of care of ADHD children.

**Keywords:** Attention deficit hyperactivity disorder, ADHD, Teachers, Knowledge, Attitude

## 1. INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is one of the most common child psychiatry disorders, it begins in childhood and can continue to adolescence; characterized by persistent pattern of inattention and/or hyperactivity-impulsivity beyond the range of developmental norms, which may have an impact on personal, academic, familial and

societal functioning [1]. Since the second half of the twentieth century, ADHD recognized significant advances in its diagnosis and treatment [2], together with great concern of the researchers to identify its prevalence and risk factors, however, the reported prevalence showed remarkable variations due to differences in the adopted methodologies [3]. In Saudi Arabia, the prevalence of ADHD ranged between 2.7% among primary school children aged 7-9 years in Riyadh [4], up to 16.4% in Dammam, with a prevalence of 12.4% for hyperactivity-impulsivity and 16.3% for inattention disorders respectively [5]. Although medication treatment has been widely used as an effective treatment for ADHD, significant residual post-medication symptoms had been detected, which necessitates further psychological treatments, in addition to the medications, in order to provide comprehensive treatment [6]. Among promising psychosocial treatments, Evans et al. (2014) developed a school-based treatment program for ADHD, they found considerable effect on inattention and school functioning, family functioning and peer relations. The authors divided suggested psychosocial treatments into “behavioral treatments” in which activities are provided by others (e.g., parents and teachers) and “training interventions” in which skills are taught to the patients themselves [7]. In this respect teachers are expected to have adequate level of knowledge about recognition, referral and dealing with children with ADHD, as they play a major role in creating an environment that is conducive to academic, social and emotional success of these children [8]. Previous studies in Saudi Arabia showed controversial level of knowledge of the teachers about ADHD students, while Aldawodi and his colleagues (2017) reported on average good knowledge of teachers in Riyadh [9], Abed et al (2014) noted insufficient level of knowledge of the teachers about possible intervention for ADHD [10]. Therefore, the current study aims at exploring the level of knowledge and attitude of the teachers in female schools in Jeddah about ADHD, in an attempt to provide scientific background that could help in good planning for care of ADHD students.

## **2. METHODS**

Through a cross sectional study design, the study targeted female teachers working in elementary schools in Jeddah, Saudi Arabia (n=16,825), sample size was calculated by using Raosoft calculation website considering target population as 16.825. The

estimated sample size was 376, with  $\pm 5$  margin of error and 95% confidence level. Sampling was carried out by Multistage sampling technique. In stage I, one governmental school was selected by simple random sample from each sector, in stage II, we selected participants who fulfilled the inclusion criteria by simple random sampling. In this research, the researcher defined ADHD according to DSM5 as chronic neuro-developmental disorder with persistence of six or more symptoms of inattention and/or hyperactivity-impulsivity in two or more sitting (home, school) or (home, work) in the last six month that interferes with functioning or development with negatively impacts on social, academic or occupational achievement. For this reason, the researcher used a modified version of constructed questionnaire developed for a previous study (The effect of health education on knowledge and suspicion index about ADHD among kindergarten female teachers), an attitude section was added by using the psychiatric scale DSM5 (diagnostic statistical manual of mental disorders). Finally, the questionnaire included three sections: the first section that was modified to include information about the attitude among female teachers toward ADHD suspicion cases. the other two sections included case scenarios about ADHD behavior and general questions about knowledge and diagnostic criteria toward ADHD. The researcher visited the targeted school for collection of data after ensuring all relevant ethical and administrative approval. For data entry and statistical analysis, we used SPSS software 21 version, the questionnaire used in this study to assess the knowledge “consisted of Thirty-eight questions; twenty-one around general information about ADHD and the remaining seventeen were about symptoms of ADHD. A score of 60% correct answers was required to be considered as having good knowledge. Descriptive categorical data was analyzed using frequency distribution. Analytic part of categorical data was done by using chi square, level of significant was determined at  $p < 0.05$ .

## **3. RESULTS**

The study included 376 female teachers. Their age ranged between 20 and 59 years. Almost half of the participants (47.6%) aged between 40 and 49 years. Majority of them (81.1%) were married. Most of them had children (84.3%), with only (8.2%) who were diagnosed with ADHD. Children with ADHD in the family represented (14.6%). Educational level showed

that (71.5%) achieved bachelor's degree. Most of the participants (77.1%) were currently working as teachers and among those (36%) had more than 15

years of experience. Only (7%) of the participants reported that they had previously taught in special education schools (Table 1).

Table 1: Demographic characteristics of the study group (n=376)

| Category                                              |                   | Frequency | Percent % |
|-------------------------------------------------------|-------------------|-----------|-----------|
| <b>Age</b>                                            | 20-29             | 11        | 2.9       |
|                                                       | 30-39             | 146       | 38.8      |
|                                                       | 40-49             | 179       | 47.6      |
|                                                       | 50-59             | 40        | 10.6      |
| <b>Nationality</b>                                    | Saudi             | 375       | 99.7      |
|                                                       | Non-Saudi         | 1         | 0.3       |
| <b>Social Status</b>                                  | Married           | 305       | 81.1      |
|                                                       | Single            | 23        | 6.1       |
|                                                       | Divorced          | 35        | 9.3       |
|                                                       | Widowed           | 13        | 3.5       |
| <b>Have Children</b>                                  | Yes               | 317       | 84.3      |
|                                                       | No                | 59        | 15.7      |
| <b>Have Child with ADHD</b>                           | Yes               | 31        | 8.2       |
|                                                       | No                | 345       | 91.8      |
| <b>Family Children with ADHD</b>                      | Yes               | 55        | 14.6      |
|                                                       | No                | 321       | 85.4      |
| <b>Educational Level</b>                              | Bachelor's degree | 269       | 71.5      |
|                                                       | Postgraduate      | 6         | 1.6       |
|                                                       | Diploma           | 80        | 21.3      |
| <b>Currently Teacher</b>                              | Yes               | 290       | 77.1      |
|                                                       | No                | 86        | 22.9      |
| <b>Previously taught in special education schools</b> | Yes               | 27        | 7         |
|                                                       | No                | 349       | 93        |
| <b>Experience Years</b>                               | <2 years          | 5         | 1.3       |
|                                                       | 3-5 years         | 42        | 11.2      |
|                                                       | 6-10 years        | 95        | 25.3      |
|                                                       | 11-15 years       | 98        | 26.1      |
|                                                       | >15 years         | 136       | 36.2      |

Before answering the questionnaire, the participating teachers were asked if they have knowledge about ADHD using a "yes" or "no" question. Among those participating teachers (54.3%) reported they had information about ADHD and slightly lower percentage (45.7%) reported that they did not having information. (Figure 1). However, regarding the actual level of knowledge based on the questionnaire, only one quarter of the teachers (24.5%) had overall good knowledge about ADHD versus (75.5%) who had poor knowledge (Figure 2).

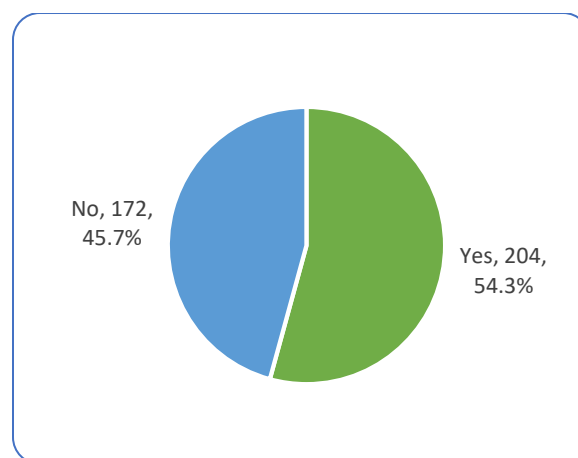


Figure 1: Participants perceived having knowledge About ADHD

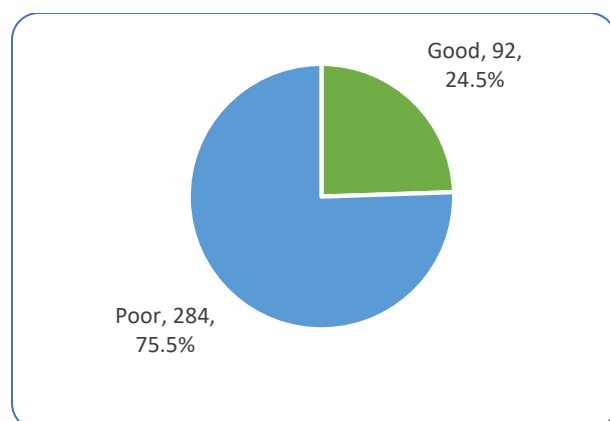


Figure 2: Participants' actual level of knowledge About ADHD

The most reported source of information was media (22.9%). Others reported that they learned about ADHD during educational years (12.2%), educational book about ADHD (6.4%). Meanwhile, few reported that they had more than one source (9.8%). Only 3 participants (0.8%) learned about ADHD from cases in their families (Table 2). As shown in (Table 3), among the factors influencing the actual level of knowledge of the teachers about ADHD, only age had significant difference (p-value 0.037). Other factors; social status, have children, having a child diagnosed with ADHD, children in family with ADHD, educational level, taught previously in special education school and years of experience had no significant effect (p value >0.05).

Table 2: Reported sources of information about ADHD

| Source of information         | Frequency | Percent % |
|-------------------------------|-----------|-----------|
| More than one source          | 37        | 9.8       |
| During educational years      | 46        | 12.2      |
| Educational book              | 24        | 6.4       |
| The media                     | 86        | 22.9      |
| Training courses              | 22        | 5.9       |
| Other                         | 5         | 1.3       |
| Does not have information     | 151       | 40.2      |
| Learning difficulties teacher | 1         | 0.3       |
| From ADHD cases in family     | 3         | 0.8       |
| Reading about ADHD            | 1         | 0.3       |

Table 3: Socio-demographic factors related to having true information about ADHD

| Parameter                      | Category    | Information About ADHD |      |              |      | p-value |
|--------------------------------|-------------|------------------------|------|--------------|------|---------|
|                                |             | Good (N=92)            |      | Poor (N=284) |      |         |
|                                |             | Freq.                  | %    | Freq.        | %    |         |
| Age (years)                    | 20-29       | 0                      | 0    | 11           | 11   | 0.037*  |
|                                | 30-39       | 29                     | 19.9 | 117          | 80.1 |         |
|                                | 40-49       | 54                     | 30.2 | 125          | 69.8 |         |
|                                | 50-59       | 9                      | 22.5 | 31           | 77.5 |         |
| Social status                  | Married     | 76                     | 24.9 | 229          | 75.1 | 0.141   |
|                                | Not married | 3                      | 13   | 20           | 87   |         |
|                                | Divorced    | 12                     | 34.3 | 23           | 65.7 |         |
|                                | Widow       | 1                      | 7.7  | 13           | 92.3 |         |
| Have Children                  | Yes         | 83                     | 26.2 | 234          | 73.8 | 0.073   |
|                                | No          | 9                      | 15.3 | 50           | 84.7 |         |
| Have child diagnosed with ADHD | Yes         | 8                      | 25.8 | 23           | 74.2 | 0.856   |
|                                | No          | 84                     | 24.3 | 261          | 75.7 |         |
| Children in Family with ADHD   | Yes         | 13                     | 23.6 | 42           | 76.4 | 0.877   |
|                                | No          | 79                     | 24.6 | 242          | 75.4 |         |

|                                                       |                 |    |      |     |      |       |
|-------------------------------------------------------|-----------------|----|------|-----|------|-------|
| <b>Educational level</b>                              | Bachelor Degree | 68 | 25.3 | 201 | 74.7 | 0.256 |
|                                                       | Post Graduate   | 1  | 16.7 | 5   | 83.3 |       |
|                                                       | Diploma         | 19 | 23.8 | 61  | 76.3 |       |
|                                                       | Other           | 0  | 0    | 2   | 100  |       |
|                                                       | High School     | 4  | 21.1 | 15  | 78.9 |       |
| <b>Taught Previously in Special Education Schools</b> | Yes             | 3  | 20   | 12  | 80   | 0.681 |
|                                                       | No              | 89 | 24.7 | 272 | 75.3 |       |
| <b>Years Of Experience</b>                            | <2              | 0  | 0    | 5   | 100  | 0.169 |
|                                                       | 3-5             | 6  | 14.3 | 36  | 85.7 |       |
|                                                       | 6-10            | 25 | 26.3 | 70  | 73.7 |       |
|                                                       | 11-15           | 21 | 21.4 | 77  | 78.6 |       |
|                                                       | >15             | 40 | 29.4 | 96  | 70.6 |       |

Regarding attitude of teachers towards ADHD, their viewpoints on the proper policy is presented in (Table 4) where (57.2%) chose referral to advisor and attendance of parents, (8.8%) chose to notify school principal, (2.9%) chose referral to PHC or hospital, (2.1%) chose referral to psychiatry, (0.8%) chose to transfer the student from school and (0.5%) chose referral to learning difficulties teacher. The

participating teachers were evaluated on how they manage students with ADHD in class, most responded by giving her leading tasks (33.8%) and making them sit in front row (22.9%). Others made summaries to help them focus in case of distraction (14.4%), re-explanation of facilitate explanation (15.4%), transferred them from class (2.4%) and (11.2%) didn't know how to manage (Table 5).

Table 4: Participants' response regarding the first step in the policy when suspecting ADHD in a student.

| First step in the policy when suspecting ADHD in a student | Frequency | Percent % |
|------------------------------------------------------------|-----------|-----------|
| Referral to advisor and attendance of parents              | 215       | 57.2      |
| Referral to PHC or hospital                                | 11        | 2.9       |
| Referral to psychiatry                                     | 8         | 2.1       |
| Transfer the student from school                           | 3         | 0.8       |
| Notify school principal                                    | 33        | 8.8       |
| Referral to learning difficulties teacher                  | 2         | 0.5       |

Table 5: Shows how the participating teachers manage students with ADHD in the class room.

| If there was a student with ADHD in the class how she will be managed | Frequency | Percent % |
|-----------------------------------------------------------------------|-----------|-----------|
| Does not know                                                         | 42        | 11.2      |
| Sit in front row                                                      | 86        | 22.9      |
| Transfer from class                                                   | 9         | 2.4       |
| Give her leading tasks                                                | 127       | 33.8      |
| Make summaries to help them focus in case of distraction              | 54        | 14.4      |
| Re-explanation or facilitate explanation                              | 58        | 15.4      |

#### 4. DISCUSSION

One of the primary objectives of this study was to assess the knowledge of elementary school teachers about ADHD. Two major types of knowledge were assessed perceived and actual knowledge. The perceived knowledge reported by the participating teachers was (54.3%) meanwhile, the actual

knowledge (24.5%) calculated by our questionnaire indicate that there is a substantial knowledge gap about ADHD among teachers in elementary schools in Jeddah Saudi Arabia. These wide-ranging results propose that the perceived knowledge did not reflect the actual knowledge, thus suggesting that the participating teachers have misperceptions about their knowledge. (75.5%) of the participating teachers

scored poor in knowledge with less than 60% correct answers. This result is lower than other reported study results. For instance, Munshi (2014), conducted a cross sectional study to evaluate the knowledge of primary school and kindergarten teachers towards the diagnosis and the management of ADHD. More than half of the female teachers (55.4%) had insufficient information regarding ADHD during their undergraduate stage [11]. Furthermore, a research done by Youssef MK, (2015) reported that teachers had poor knowledge about ADHD with the mean total correct knowledge score being less than 50% [12]. The reasons responsible for these low scores are ambiguous. Age was the only significant factor associated with teachers having good knowledge. This finding was different than Youssef MK (2015) in his study, which stated that age had no impact on knowledge scores [12]. Other factors such as social status, having children, having a child diagnosed with ADHD, having children in family with ADHD, educational level, taught previously in special education school and years of experience had no significant effect on the actual knowledge scores. On the other hand, research (Aguiar AP, 2014 and Youssef MK, 2015) suggested that education level may be influential. Teachers with a master's level education scored highest, as did those who received ADHD specific training [1,12]. Knowledge scores were largely affected by having previous experience of teaching a child with ADHD, findings in keeping with other research [13,14]. Perhaps the challenges of teaching children with ADHD triggered teachers to seek out information and additional training resources,

again a very positive finding in the context of future training interventions. Predominantly though, large number of the participants in our study selected the choice "I don't know" this may be due to a high level of uncertainty about the correct information, rather than a high level of misperception about ADHD. This is an important point to consider for future training programs and policies. The teachers' attitude towards ADHD was another objective in our study. Teachers were uncertain whether existing policies around proper action when suspecting ADHD in a student exist. The majority of the participants chose either to refer to advisor and demand attendance of parents or notify school administration when suspecting a child with ADHD. Correspondingly, Visser et al (2014) stated that one of the main approaches used by teachers is communicating with the parents of students with ADHD advising them to undergo evaluation for their child [15]. In fact, research shows that teachers are the most common source of early referral. In regard to dealing with students with ADHD in the class room, most responded by giving them leading tasks (33.8%), making them sit in front row (22.9%), making summaries to help them focus in case of distraction (14.4%), re-explanation of facilitate explanation (15.4%), transferred them from class (2.4%) and (11.2%) didn't know how to manage. Conclusively, the overall knowledge about ADHD among teachers was poor. Putting into consideration that the prevalence of ADHD in Saudi Arabia is 11.6%, which is similar to worldwide prevalence, teachers must be educated and prepared to properly interact with children with ADHD.

## **REFERENCES**

1. Aguiar AP, Kieling RR, Costa AC, Chardosim N, Almeida MR, et al. Increasing teachers knowledge about ADHD and learning disorders: an investigation on the role of a psychoeducational intervention. *Journal of Attention Disorders* 2014;18(8):691-8.
2. Singh I. Beyond polemics: science and ethics of ADHD. *Nature Reviews Neuroscience* 2008;9(12):957.
3. Polanczyk GV, Willcutt EG, Salum GA, Kieling C, Rohde LA. ADHD prevalence estimates across three decades: an updated systematic review and meta-regression analysis. *International Journal of Epidemiology* 2014 Apr 1;43(2):434-42.
4. Alqahtani MM. Attention-deficit hyperactive disorder in school-aged children in Saudi Arabia. *European Journal of Pediatrics* 2010;169(9):1113-7.
5. Al Hamed JH, Taha AZ, Sabra AA, Bella H. Attention deficit hyperactivity disorder (ADHD) among male primary school children in Dammam, Saudi Arabia: prevalence and associated factors. *J Egypt Public Health Assoc* 2008;83(3-4):165-82.
6. Chronis AM, Jones HA, Raggi VL. Evidence-based psychosocial treatments for children and adolescents with attention-deficit/hyperactivity disorder. *Clinical psychology review* 2006;26(4):486-502.
7. Evans SW, Owens JS, Bunford N. Evidence-based psychosocial treatments for children and adolescents with attention-deficit/hyperactivity disorder. *Journal of Clinical Child & Adolescent Psychology* 2014;43(4):527-51.
8. Topkin B, Roman NV. Attention Deficit Disorder (ADHD): Primary school teachers knowledge of symptoms, treatment and managing classroom behaviour. *South African Journal of Education* 2015;35(2):988.

9. Aldawodi MD, Alfageer HH, Al Queflie SA, Masud N, Al Harthy NA, Alogayyel N, et al. Knowledge and Attitude of Male Primary School Teachers about Attention Deficit and Hyperactivity Disorder in Riyadh, Saudi Arabia. 2017.
10. Abed M, Pearson S, Clarke P, Chambers M. Saudi Arabian Teachers' Knowledge and Beliefs about ADHD. *Journal of the International Association of Special Education* 2014;15(1).
11. Munshi AMA. Knowledge and misperceptions towards diagnosis and management of attention deficit hyperactivity disorder (ADHD) among primary school and kindergarten female teachers in Al-Rusaifah district, Makkah city, Saudi Arabia. *International Journal of Medical Science and Public Health* 2014;3(4):444-51.
12. Youssef MK, Hutchinson G, Youssef FF. Knowledge of and attitudes toward ADHD among teachers: insights from a Caribbean Nation. *Sage Open* 2015;5(1).
13. Kos JM, Richdale AL, Jackson MS. Knowledge about Attention Deficit/Hyperactivity Disorder: A comparison of in-service and preservice teachers. *Psychology in the Schools* 2004;41(5):517-26.
14. Scitutto MJ, Terjesen MD, Frank ASB. Teachers' knowledge and misperceptions of attention deficit/hyperactivity disorder. *Psychology in the Schools* 2000;37(2):115-22.
15. Visser SN, Danielson ML, Bitsko RH, Holbrook JR, Kogan MD, et al. Trends in the parent-report of health care provider-diagnosed and medicated attention-deficit/hyperactivity disorder: United States, 2003G\_02011. *Journal of the American Academy of Child & Adolescent Psychiatry* 2014;53(1):34-46.