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**Authors' Affiliation:**

<sup>1</sup>Assistant professor of internal medicine at college of medicine, University of Hail, KSA

<sup>2</sup>Medical intern at college of medicine, University of Hail, KSA

<sup>3</sup>Medical intern at college of medicine, Princess Nourah University, KSA

<sup>4</sup>Medical student at college of medicine, University of Hail, KSA

**\*Corresponding author**

Medical intern at college of medicine, University of Hail, KSA

Email: [Ahlammans96@gmail.com](mailto:Ahlammans96@gmail.com)

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# Public awareness about attention deficit hyperactivity disorder (ADHD) in the Hail region, Kingdom of Saudi Arabia

Kareemah Alshurtan<sup>1</sup>, Ahlam Alsuhaymi<sup>2\*</sup>, Abdulaziz Alenezi<sup>2</sup>, Sarah Aljumah<sup>3</sup>, Lama Alhemshy<sup>4</sup>, Saeed Alluwya<sup>4</sup>

## ABSTRACT

**Background:** Attention deficit hyperactivity disorder is one of the most common neurodevelopmental disorders in pediatric age. It is mostly diagnosed in childhood. Pediatrics with ADHD may have issue with attention, controlling impulsive behaviors and act without thinking about or be overly active. **Methods:** A cross sectional study including a questionnaire to measure the public information about ADHD in Hail region, Kingdom of Saudi Arabia. The questionnaire has been collected from DSM-IV criteria of attention deficit hyperactivity disorder (ADHD). **Results:** The participants were more than 400 persons from the public in Hail region, we found result of the test have been used in this study and showed that there is statistically significant association between source of knowledge about disease ADHD and participants. **Conclusion:** There were a lot of positive points regarding the results of the study, but still there were a negative point, need an intervention and take an action.

**Keywords:** ADHD, Hail region, Awareness, Attention, Deficit, Hyperactivity, Psychiatric disorders

## 1. INTRODUCTION

Attention deficit hyperactivity disorder is a chronic neuro behavior disorder that is characterized by inattention, hyperactivity, impulsivity or a combination of these symptoms (Marcdante and Kliegman, 2014; Aljabri et al., 2022). Also, loss of concentration is one of the symptoms that could be found in ADHD patients. ADHD is the most common neurobehavioral diagnosis affecting children in the world today (Polanczyk et al., 2015). It is a dangerous disorder that associated with multiple social, functional, academic and psychiatric problems during human life. It is supposed to be identified by general doctors and health workers so that adequate diagnosis and

management approaches can be established soon (Leslie et al., 2004). The parents may be aware of these symptoms earlier it can help to manage them perfectly. In addition, other members of the family can assist and detect the children how supposed to have ADHD. As initial detection and referrals are required to reduce behavioral and learning outcomes from ADHD in children and their parents (Subcommittee on Attention Deficit/Hyperactivity Disorder & Management, 2011). However, Children with ADHD have higher average of comorbid psychiatric disorders, are hospitalized more often and incur higher overall medical costs compared to those without attention deficit hyperactivity disorder (Doshi et al., 2012). Those with ADHD are likely to drop out education, infrequently complete their college have fewer friends and are engaged in more antisocial activities than children without ADHD (Barkley and Poillion, 1994). As children with attention deficit hyperactivity disorder move into maturity, they experience more difficulties obtaining employment, have higher average of psychiatric disorders and have more auto accidents (Barbaresi et al., 2013). Many studies stated that attention deficit hyperactivity disorder prevalence in the pediatric age group ranges from 5-10% (Shetty and Rai, 2014). Despite increasing efforts to raise awareness about ADHD, misconceptions surrounding the disorder persist. The effects of the illness can go beyond the child, having detrimental effects on family relationships. ADHD is associated with significant psychiatric comorbidity, with around 50-60% of affected children meeting the criteria for at least one additional psychiatric disorder (Jensen et al., 2001). Also, 30% to 50% of those diagnosed with ADHD in childhood continue to have symptoms into adulthood (Cleave and Leslie, 2008; Elia et al., 1999). Regarding (ADHD) Critics charge that it is a behavior that parents and schools have become unable to tolerate also it's over diagnosed that children will receive unnecessary treatment.

## 2. METHODOLOGY

### Participants

A cross sectional study including a questionnaire formed of 16 questions to assess the awareness about ADHD in Hail region, northern Kingdom of Saudi Arabia. The questionnaire has been collected from DSM-IV criteria of ADHD. The questionnaire divided into two parts. The first one of the survey obtained their personal information and aimed to identify the participants' demographic data, such as age, gender, education level and profession. And the second part included 16 questions to determine the awareness about ADHD. The total number of participants almost 427 samples with 95% confidence level and 5% margin of errors are accomplished. Our population included male and female Saudi adult above 18 years old. The questionnaire has been hosted by Google form and sent through WhatsApp messenger application in October 2022.

### Statistical analysis

Descriptive statistics, such as frequency, percentage, mean and standard deviation (SD), were used. The Chi Squared test for knowing relation between variables and demographic data and analysis of variance (ANOVA) was used to compare different between the opinion of participants and for the entire test among the different demographic data, where appropriate. The 95% confidence degree of test was computed using the independent sample t test. The significance level for pair wise comparison was used all statistical analyses were performed using SPSS v28.

## 3. RESULTS

The participants were 427 persons from the public, the percentage of female respondents was 61.4%, the percentage of male respondents was 38.6% and Most of the sample members are in the age group over 46 is (29.3%) and (73.5%) had university degrees as we explain clearly in the coming (Table 1). As what has been showed in (Table 1) distribution of sample from which we found that 61.4% female respondents and (38.6%) of male respondents, the sample members were in the age group over 46 is (29.3%) followed by age group between (36-45).

**Table 1** Numbers and percentages of personal information

| Variable | Size of sample (427) |
|----------|----------------------|
| Sex      |                      |
| Male     | 165 (38.6%)          |
| Female   | 262 (61.4%)          |

|                 |             |
|-----------------|-------------|
| Age             |             |
| 18-25           | 94 (22%)    |
| 26-35           | 91 (21.3%)  |
| 36-45           | 117 (27.4%) |
| >46             | 125 (29.3%) |
| Nationality     |             |
| Saudi           | 365 (85.5%) |
| Non-Saudi       | 62 (14.5%)  |
| Residency       |             |
| Hail Region     | 278 (65.1%) |
| Other region    | 149(34.9%)  |
| Education level |             |
| Basic           | 35 (8.2%)   |
| Secondary       | 78 (18.3%)  |
| University      | 314 (73.5%) |

A substantial number of study participants were from Saudi citizen (85.5%) and other non-Saudi who live in hail region were (65.1%) and other in other region (34.9%) A substantial number of study participants had university degree (73.5%) and this enhances the results of the study followed by secondary degree (18.3%). Regarding (Table 2), we found that (31%) of total sample source of your knowledge about ADHD from social media, Shows the effectiveness of social media in raising awareness of the disease followed by 25.8% from family and friends then 24.6% from college finally 12.4% from other source of information. Also from the table 2, we found that (49.2%) of total sample their idea about ADHD it is a mental disorder and behavior disorder, followed by 34.9% think it is behavior disorder then 11.5% from total sample thought it is mental disorder.

**Table 2** Information Source about ADHD

| What is the source of your information? |           |         |
|---|-----------|---------|
| Numbers                                 | Frequency | Percent |
| College                                 | 105       | 24.6    |
| family, friends                         | 110       | 25.8    |
| social media                            | 135       | 31.6    |
| Others                                  | 53        | 12.4    |
| Don't know                              | 24        | 5.6     |
| Total                                   | 427       | 100.0   |

| What is your idea about attention deficit hyperactivity disorder? Is it * |     |       |
|---|-----|-------|
| Behavioral disorder   | 149 | 34.9  |
| Mental disorder   | 49  | 11.5  |
| Both  | 210 | 49.2  |
| I don't know  | 19  | 4.4   |
| Total   | 427 | 100.0 |

In (Figure 1), we found that (68.9%) of total sample the cause of ADHD it is multi causes, followed by 12.2% think it is psychological causes followed by hereditary causes. From (Figure 2), about methods of treat ADHD we found that (56.4%) of total sample thought that treatment of these disease by behavior therapy and pharmacotherapy and (26.7) thought that behavior therapy is a treatment for ADHD followed by (11.7) say that I don't know. The sample members confirm that the use of various tools (behavioral therapy pharmacotherapy) contributes to recovery.

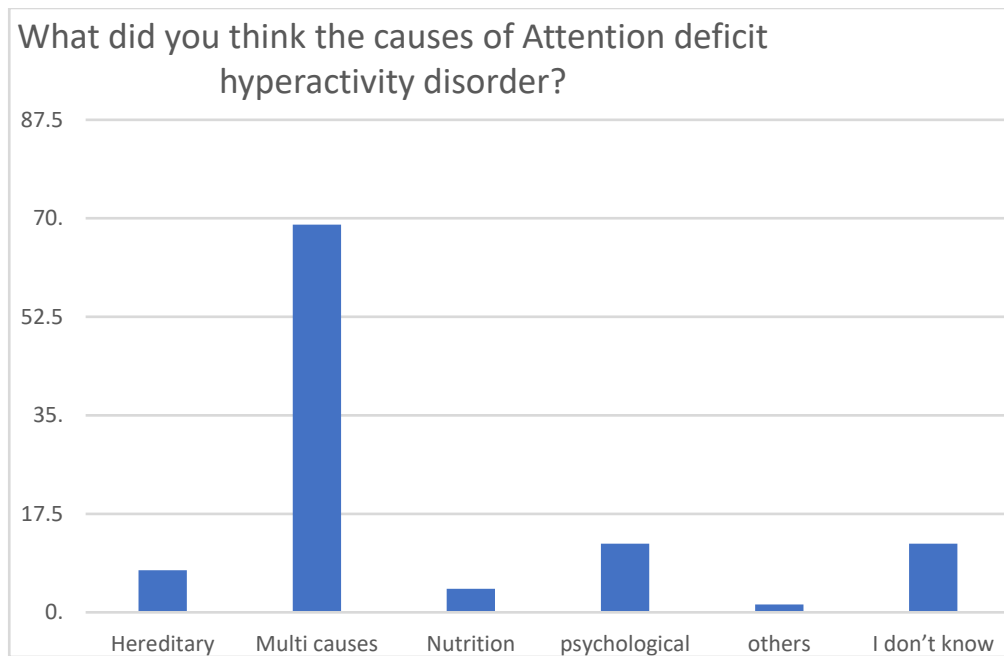


Figure 1 Causes of ADHD

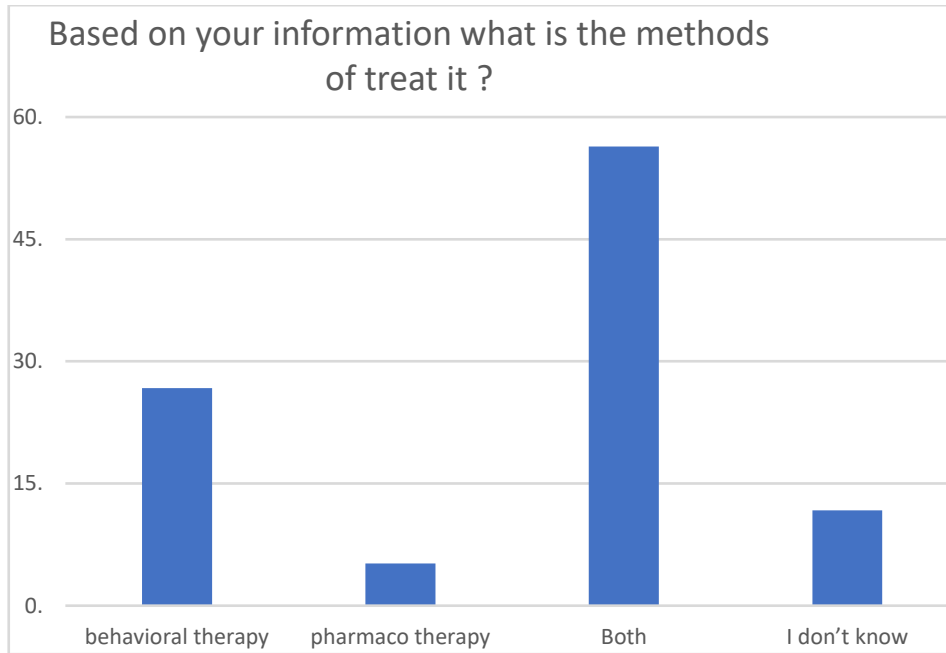


Figure 2 Knowledge measurement of the ADHD management

Table 3 Knowledge of the ADHD and compare with education level

| Source of Knowledge | Age   |           |            |       | Total | X <sup>2</sup> |
|---------------------|-------|-----------|------------|-------|-------|----------------|
|                     | 18-25 | 26-35     | 36-45      | >46   | 427   |                |
| College             | 26    | 29        | 25         | 22    | 102   |                |
| Family, friends     | 18    | 23        | 25         | 40    | 106   |                |
| Social media        | 35    | 23        | 37         | 32    | 127   |                |
| Others              | 4     | 7         | 17         | 26    | 54    |                |
| Don't know          | 11    | 9         | 13         | 5     | 38    |                |
| Education level     |       |           |            |       |       |                |
|                     | Basic | secondary | University | Total | .048  |                |
| College             | 9     | 13        | 80         | 102   |       |                |
| Family, friends     | 8     | 24        | 74         | 106   |       |                |
| Social media        | 7     | 19        | 101        | 127   |       |                |
| Others              | 4     | 11        | 39         | 54    |       |                |
| Don't know          | 7     | 11        | 20         | 38    |       |                |
| Sex                 |       |           |            |       |       |                |
|                     | Male  | Female    | Total      |       |       |                |
| College             | 41    | 61        | 102        |       |       |                |
| Family, friends     | 37    | 69        | 106        |       |       |                |

|                      |     |     |     |      |
|----------------------|-----|-----|-----|------|
| Others<br>Don't know | 39  | 88  | 127 | .001 |
|                      | 24  | 30  | 54  |      |
|                      | 24  | 14  | 38  |      |
|                      | 165 | 262 | 427 |      |

**Table 4** Criteria of the ADHD information

| ADHD information  | Respondent  |             |
|---|-------------|-------------|
|   | Yes         | No          |
| Do you think it has a difficulty sustaining attention in tasks or play? | 343(80.3%)  | 84 (19.7%)  |
| Do you think it has a difficulty of organizing tasks/activities?        | 343 (80.3%) | 84(19.7%)   |
| Do you think it avoids doing things that require ongoing mental effort? | 303(71.0%)  | 124(29.0%)  |
| Do you think it talks too much?   | 217 (50.8%) | 210 (49.2%) |
| Do you think it acts and speaks without thinking?                       | 300(70.3%)  | 127(29.7%)  |
| Do you think it calls out answers before the question is complete?      | 302(70.7%)  | 125(29.3%)  |
| Do you think it interrupts for when they talk?                          | 292(68.4%)  | 135(31.6%)  |
| Do you think it cannot play quietly?                                    | 330(77.3%)  | 97(22.7%)   |
| Do you think it cannot stay seated?                                     | 344(80.6%)  | 83(19.4%)   |

#### 4. DISCUSSION

The considerable majority of participants in our study fell in the age group over 46 (29.3%), followed by the age group between (36-45) and 61.4% of the participants were female. A substantial number of study participants had a university degree (73.5%) and this enhances the results of the study followed by a secondary degree (18.3%). Our findings highlight (31%) of the total sample received their knowledge regarding ADHD via social media, thus Showing the effectiveness of social media in raising awareness of the disease followed by 25.8% from family and friends then 24.6% from college finally 12.4% from other source of information. About half of the participants are aware that ADHD is a combined of mental illness and behavioural disorder, among the sample, 34.9% think ADHD is only a behavioural condition. In addition, the majority of respondents 68.9% believe there are several reasons that contributing to attention deficit hyperactivity disorder ADHD, then psychological causes followed by hereditary causes.

In contrast, previous study performed in Medina (Alghamdi et al., 2017) revealed that 32.2% of the sample believed it a genetic predisposition. Regarding ADHD symptom, 80.3% of respondents reported having trouble maintaining their focus during activities or play this support the previous study's findings, which indicated that the local populace in the Hail region is well aware of ADHD. The vast majority of participants in our study had a great knowledge about the signs and symptoms of ADHD where almost two-third of responders identified symptoms that are in line with clinically established picture of attention deficit hyperactivity disorder patients. Where 70.3% believed the ADHD patients acts and speaks without thinking and answering before completing question also interrupting other by 70.7% and 68.4% respectively. Moreover, our responders believed that ADHD patient can-not play quality or stay steady by 77.3% and 80.3% respectively. And this shows us that most participants in this study

were thoroughly informed of the signs and how the illness may manifest in ADHD affected individuals these findings are in parallel with other studies (McLeod et al., 2007; See et al., 2021). Nevertheless, in contrary to the findings of the Rodrigo et al., (2011) and Qashqari et al., (2017) which claimed that most respondents had little knowledge of ADHD signs and symptoms, this may be attributed to the limited set of responders in those studies or to the growth of social media and internet knowledge sharing.

In our study more than half of the participants believed that the best modularity of treating children affected by ADHD was a combination of behavior therapy and pharmacotherapy (56.4%), which is in line with experts' recommendations on how to control ADHD and this shows us that most of our responders value the significance of therapy. Additionally, although the majority of respondents believed that both counseling and medication were effective treatments for ADHD, a lot fewer people supported pharmacotherapy than did behavioral therapy, this demonstrates that some individuals have doubts regarding the efficacy of pharmacological therapy or perhaps due to their fear of drugs side effects, other studies suggest similar finding, where the majority of respondents concurred that combination treatment was the finest method for treating ADHD (Alghamdi et al., 2017; McLeod et al., 2007; See et al., 2021). However, findings in our study contradict 2011 research done by Rodrigo et al., (2011) which revealed that many of the respondents had inaccurate beliefs regarding the efficacy of ADHD medications. This finding may be attributed to the homogenous set of participants.

## 5. CONCLUSION

The result of this study showed a lot of positive results about the level of awareness. However, there was a significant association between level of education and understand ADHD. In addition, there were many ways to had information about this disorder and how to deal with it. Regarding some points we have to continue spread the awareness about attention deficit hyperactivity disorder.

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### Authors' contribution

Each author contributed to the data analysis and interpretation and they all contributed to the final draft's critical review and approval. They are also each accountable for the manuscript's content and similarity score.

### Ethical Approval

Received in October 2022, the study was approved by the Medical Ethics Committee College of medicine, University of Hail, KSA (Ethical approval code H-2022-329).

### Informed consent

Written informed consent was obtained from all individual participants included in the study.

### Funding

This study has not received any external funding.

### Conflict of interest

The authors declare that there is no conflict of interests.

### Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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