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ORIGINAL RESEARCH ARTICLE

Awareness and Knowledge of Attention Deficit Hyperactivity Disorder Among the Population of Hail, Saudi Arabia

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ABSTRACT

Background: The prevalence of attention deficit hyperactivity disorder in Saudi Arabian children aged 6–12 years is approximately 4–12%. The current study assessed beliefs and awareness regarding ADHD among Hail population.

Methods: This cross-sectional study was conducted in the Hail region, via an online questionnaire for 422 participants aged 15 years or greater and residing in Hail.

Results: 94.1% had heard of ADHD, 5.9% had not. Of the former, 20.1% obtained their information from previous experience with a patient, 19.9% knew about the disorder through a medical website, 13.1% from books and journals, 37.0% through social media, and 9.9% did not mention the source. 54.3% believed ADHD to be a mixed disorder that has behavioral, neurological, and psychiatric aspects, while 26.8% believed it to be a behavioral disorder, 6.6% with neurological, 6.4% considered it a psychiatric disorder, and 5.9% of respondents didn't know. Regarding the cause, 11.4% believed it is genetic, 5.5% attributed the causes to nutritional habits, 5.6% attributed causes to food preservatives, 0.2% believed it's caused by smoking, and 77.3% thought it's a multi-cause disorder.

Conclusion: This study reveals that the level of knowledge appears to be good among the population of Hail compared to the Madina region.

KEYWORDS: Coagulopathy; Venous thrombosis; Puerperium; Medical Research Day; Tabuk

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INTRODUCTION

According to the American Psychiatric Association, attention deficit hyperactivity disorder (ADHD) is characterized by elements of inattention, hyperactivity, and impulsivity. ADHD is considered a chronic disorder that affects mainly children and often extends into adult life. The disorder should be present in at least two domains -home and school- to be considered a functional impairment [1].

Subsequently, ADHD has an impact on interpersonal, academic, and occupational performance and can lead to numerous accidents [2]. Additionally, there is a risk of comorbidities, such as oppositional defiant disorder (ODD), conduct disorder, substance abuse, and possibly mood disorder [3-8].

ADHD can be divided into three main types: primarily inattentive (50-75%), primarily hyperactive/impulsive (20-30%), and a combined subtype (less than 15%) [9]. The prevalence of ADHD in children aged 6 to 12 years in Saudi Arabia is approximately 4-12% [10], while it is 4-8% [11,12] in the US, and 7.6%–9.5% in Korea [13]. However, the prevalence in India has reached 20% [14].

The etiology of ADHD is composed of several factors, such as genetics, nutrition, and environment. In particular, nutritional factors, such as food colorants, have been found to raise the risk of ADHD [15]. Children with ADHD need support in several areas owing to many difficulties, including learning disabilities, low self-esteem, frustration, and depression [16]. Further, this disorder can lead to numerous problems in adulthood if the disorder is under-diagnosed or under-treated. Studies have shown that children with ADHD often face rejection from their peers and punishment by their parents and teachers; this may be attributed to a lack of awareness and knowledge of ADHD and its associated problems [17]. There is a 30–60% chance of a continuation of ADHD symptoms throughout adult life [18, 19]. The diagnosis of ADHD is usually controversial as concerns are expressed by parents, teachers, healthcare professionals and the public as well. The diagnosis and treatment of ADHD in children will be dependent mainly on the knowledge and perspectives of every person around the child. The diagnosis and treatment of children with ADHD require a good participation and cooperation among the family and educational and health professionals to achieve a common goal [20, 21].

The identification of individuals with ADHD is based on the diagnostic criteria that are included in the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-V) [22]. In the treatment plan, two approaches to managing the disorder can be considered and utilized, medication and behavioral therapy. If used in combination, they are the most effective treatment for children with ADHD [23]. Medication is more effective for patients diagnosed with ADHD, although behavioral therapy by itself is extremely valuable. The combination of medication and behavioral modification is highly recommended in both school and home settings [24].

To our knowledge, no studies of attention deficit hyperactivity disorder (ADHD) have been conducted in Hail region. The aim of this study was to assess beliefs regarding the cause, nature, and treatment of ADHD and to estimate the level of familiarity with common signs and symptoms of individuals in Hail region. Specifically, we addressed aspects that have not been covered in the previous studies [25].

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METHODS

Participants

The ethical approval was obtained from the Ethics Committee, College of Medicine at the University of Hail. A total of 422 adults from Hail region of Saudi Arabia participated in this study. A random sampling method was used to determine a sample of the population. The studied population included both genders female and male, Saudi and Non-Saudi individuals residing in Hail who were above 15 years of age. We excluded participants residing outside Hail region and those under 15 years of age.

Design and Materials

A quantitative method was used to elicit aspects of knowledge and the level of understanding of the nature of ADHD among participants. Self-reported questionnaire method has been chosen, as it is the best available method to achieve the aim of this research. Quantitative data was collected using a multi-item cross-sectional survey, which was a link containing the questionnaire written in Arabic (see the questionnaire below) and conducted via social media applications, WhatsApp and Twitter with an explanation of the purpose of the study. First of all, we put a comment with the link that the study is only for adults and those who reside in Hail and also in the questionnaire we asked the participants to specify their age and place of residence so that those who do not meet the including criteria are excluded. The questionnaire content was divided into two parts. The first part contains questions assessed general knowledge, similar to the research done in Madina region regarding attention deficit hyperactivity disorder (ADHD), this part assessed participant's previous information about ADHD, the source of information, beliefs about underlying causes of ADHD, nature of ADHD, and treatment [25]. The second part primarily considered diagnostic symptoms and signs of ADHD based on Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-V) criteria which includes 15 items. Each item is phrased as a question with the answer format as "agree" or "disagree". Additional variables considered in the study were gender, age, level of education. Descriptive analysis was used by the software Statistical Package for the Social Sciences (SPSS) version 22.

RESULTS

In our study, the number of study participants is 422, most of them were female (n = 354, 83.9%), while 16.1% (n = 68) were male (Table 1). Regarding age, 30.3% of the sample were between 30–39 years, 26.5% were between 21–29 years, and the others were distributed among the remaining age groups (Figure 1). Table 2 shows the educational levels of the participants, 1.4% had only elementary education, 2.6% had middle-school education, 38.2% had secondary-school education, 53.3% were university graduates which was highest percentage, and 4.5% were postgraduates.

Figure 2 shows the answers participants gave to the first question "have you heard about Attention Deficit Hyperactivity Disorder (ADHD)?". Interestingly, 94.1% of respondents had heard of ADHD and they were able to provide information about sources of their information.; 20.1% were aware of this disorder from previous experience with an ADHD patient known to them, 19.9% knew of the disorder through reading a medical website, 13.1% learned of the disorder from books, journals, and newspapers, 37.0% heard of the disorder through social media, and 9.9% did not mention the source of their knowledge.

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Furthermore, 54.3% of the sample believed ADHD considered to be a mixed disorder with behavioral, neurological, and psychiatric aspects; 26.8% believed ADHD considered to be a behavioral disorder only; and 6.6% and 6.4% considered it to be a neurological and psychiatric disorder, respectively. The remaining 5.9% of respondents knew nothing about the nature of the disorder. Additionally, when questioned what about the underlying cause of the disorder, 11.4% believed it to be a genetic disorder, 5.5% attributed the causes to nutritional habits, 5.6% attributed causes to food preservatives and dyes, 0.2% considered it to be caused by smoking, and 77.3% believed it to be a multi-cause disorder.

In the second part of the questionnaire, we asked about the diagnostic signs and symptoms of ADHD based on the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V) criteria. The percentages of responses to the sign and symptoms questions were shown as follow: 84.8% of the participants believed that the patient of ADHD doesn't listen to the instructions given to him, 64.0% believed that the child who is affected fails to complete the tasks they start, 66.6% believed that the patient avoids difficult tasks that require mental effort and attention, 82.9% who are thought that it is difficult for the patient to organize his tasks and activities. 67.3% who are agreeing that the patient with ADHD forgets his important things or tools such as "pens, games, books", 50.9%, 86.7% and 88.4% considered that the affected child suffers from academic failure or difficulty in learning, hyperactivity and inability to stop the movements and suffers from the running, jumping and excessive climbing, respectively, 70.4% of the participants thought that the patient does not enjoy playing and does not fit quietly with others, 50.9% had an idea that the affected child speaks excessively. 88.6% thought it is difficult for the child to wait. 67.8% were believing that the child quarrels with other children, and 86.0% of the participants were assuming that the patient cannot control his actions. 76.5% of respondents were agreeing that the deterioration of the disease should be reflected at least in two places, for example at home and school and 23.5% have disagreed. These results are summarized and presented in the table 3.

Regarding treatment of ADHD, most respondents (68.5%) thought that the main pattern of treatment is medical and behavioral therapy provided simultaneously, while 28.0% believed that behavioral therapy is the main treatment option, 1.4% believed that medication is the main modality, and 2.1% believed that no treatments exist for ADHD.

DISCUSSION

ADHD is the most common psychiatric disorder that presents in children [26], which is why community awareness of the condition is crucial. The present study was conducted to determine the level of knowledge regarding ADHD in Hail region of Saudi Arabia; there is a lack of studies about ADHD knowledge level in this region.

The study achieved its aim of assessing the level of knowledge among the participants; the results showed that the people of Hail appear to have a good level of knowledge regarding the disorder compared to other study conducted in Madina, although the study was subject to some unavoidable limitations.

First, this study was conducted among participants in Hail region without considering participants' educational degrees or careers, including whether they were medical professionals. Second, the study was cross-sectional and conducted through electronic surveys with long and detailed questions, which may have discouraged the participants from completing the questions or providing accurate responses reflecting their real knowledge.

Also, as it is a cross-sectional study, it is difficult to involve all Hail populations in the study to assess their awareness. Therefore, we cannot decide if all residents of Hail have the same awareness level based on our 422 participants.

Most of the study population were younger than 39 years, and more than three-quarters of the participants were female. Many participants had previous experience with patients with ADHD; this demonstrates how common the problem is in Hail region. In contrast, we learned that most of the participants became informed and received their knowledge regarding the disorder via social media, which is a non-ideal source of medical-related topics as both specialized and nonspecialized people can give their opinion, wrong concepts and knowledge with their thoughts without any available reliable references. Thus, it is necessary to guide the society to the appropriate trustworthy medical sources and to design these resources as simple as possible with an easy language by which all the society strata and individuals can obtain the needed information in an accurate way from accessible materials.

While some participants believed that ADHD is a mixed behavioral, neurological, and psychiatric disorder, there were some participants who are convinced that the disorder has multiple causes and factors.

Indeed, it is notable that many participants were fully aware of the symptoms and the way that the disorder can present in the affected children with ADHD.

Regarding the treatment modalities, the majority of the participants had believed that the most effective way that had been used in the treatment of the disorder is the combination between medical therapy that includes using medications and the behavioral therapy.

In comparison to the population study in Madina region [25] as they had been chosen by the similar inclusion criteria which had been used in this study, the people of Hail region showed a better knowledge level of the disorder's nature. Likewise, people in Hail had a high level of knowledge of the cause, symptoms, and treatment of ADHD.

In order to raise awareness, we suggest conducting similar studies in all regions of the country to focus on weaknesses in this topic and to start working on them.

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REFERENCES

- 1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders (DSM-5®), American Psychiatric Publications: Washington, DC; 2013.
- 2. Schonwald A, Lechner E. Attention deficit/hyperactivity disorder: complexities and controversies. Curr Opin Pediatr 2006;18(2):189–195.
- 3. Barkley RA. Attention deficit hyperactivity disorder: a clinical handbook, 3rd ed. New York: Guilford; 2005.
- 4. Faraone, SV, Biederman J, Jetton JG, Tsuang MT. Attention deficit disorder and conduct disorder: longitudinal evidence for a familial subtype. Psychol Med 1997;27(2):291–300.

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- 5. Biederman J, Wilens T, Mick E, Faraone SV, Weber W, Curtis S, et al. Is ADHD a risk factor for psychoactive substance use disorders? Findings from a four-year prospective follow-up study. J Am Acad Child Adolesc Psychiatry 1997;36(1):21–29.
- 6. Milberger S, Biederman J, Faraone SV, Chen L, Jones J. ADHD is associated with early initiation of cigarette smoking in children and adolescents. J Am Acad Child Adolesc Psychiatry 1997;36(1):37–44.
- 7. Faraone SV, Biederman J. Do attention deficit hyperactivity disorder and major depression share familial risk factors? J Nerv Ment Dis 1997;185(9):533–541.
- 8. Biederman J, Faraone S, Mick E, Wozniak J, Chen L, Ouellette C, et al. Attention-deficit hyperactivity disorder and juvenile mania: an overlooked comorbidity? J Am Acad Child Adolesc Psychiatry 1996;35(8):997–1008.
- 9. Wilens TE, Biederman J, Spencer TJ. Attention deficit/hyperactivity disorder across the lifespan. Ann Rev Med 2002;53:113–131.
- 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):165–182.
- 11. National Centers for Health and Disease Control and Prevention. CDC National Center on Birth Defects and Developmental Disabilities. ADHD: United States. (Cited 2005 Jan 14). Available from: http://www.cdc.gov/ncbddd/adhd/databepi.htm.
- 12. Subcommittee on Attention-Deficit/Hyperactivity Disorder and Committee on Quality Improvement. Clinical Practice Guideline: Treatment of the school-aged child with attentiondeficit/hyperactivity disorder. Pediatrics 2001;108:1033–1044.
- 13. Chae PK, Jung HO, Noh K. Attention deficit hyperactivity disorder in Korean juvenile delinquents. Adolescence 2001;36(144):707–725.
- 14. Malhi P, Singhi P. Spectrum of attention deficit hyperactivity disorders in children among referrals to psychology services. Indian Pediatr 2000;37(11):1256–1260.
- 15. Schnoll R, Burshteyn D, Cea-Aravena J. Nutrition in the treatment of attention-deficit hyperactivity disorder: a neglected but important aspect. Appl Psychophysiol Biofeedback 2003;28:63–75.
- Goldstein S, Goldstein M, Jones CB, Braswell L, Sheridan SM, Goldstein S. Managing attention deficit hyperactivity disorder in children: A guide for practitioners. New York: Wiley; 1998.
- 17. Alqahtani MM. The comorbidity of ADHD in the general population of Saudi Arabian school-age children. J Atten Disord 2010;14(1):25–30.
- 18. Harpin VA. The effect of ADHD on the life of an individual, their family, and community from preschool to adult life. Arch Dis Child 2005;90(suppl 1):i2–7.
- 19. Weiss G, Hechtman L. Hyperactive children grown up. New York: Guilford Press; 1993.
- 20. DeGrandpre RJ. Ritalin nation: rapid fire culture and the transformation of human consciousness. New York: W. W. Norton &Company; 2000.
- 21. American Academy of Pediatrics, Project Advisory Committee .The medical home: medical home initiatives for children with special needs. Pediatrics. 2002;110:184–6.
- 22. Welsh R, Swope M. Behavioral disorders in children. In: South-Paul JE, Matheny SC, Lewis EL. eds. Current diagnosis & treatment: family medicine, 4e. New York, NY: McGraw-Hill; 2015.
- Jensen PS, Arnold LE, Swanson JM, Vitiello B, Abikoff HB, Greenhill LL, et al. 3-year follow-up of the NIMH MTA study. J Am Acad Child Adolesc Psychiatry 2007;46(8):989– 1002.
- 24. Leslie LK., Lambros KM, AaronsGA, HaineRA, Hough RL. School-based services use by youth with ADHD in public-sector settings. J Emot Behav Disord 2008;16(3):163–177.

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- 25. Alghamdi K, Alharbi A, Susi A, Thani T. Awareness of Saudi population in Madina region about attention deficit hyper-active disorder (ADHD) in children. Int J Adv Res 2017;5(2):1571–1575
- 26. Manos MJ, Tom-Revzon C, Bukstein OG, Crismon ML.Changes and challenges: managing ADHD in a fast-paced world. J Manag Care Pharm. 2007; 13(9 Suppl B):S2-S13.

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The Questionnaire:

العمر:	الجنس: ذكر- أنتى	الاسم (اختياري):
متوسط ـثانوي ـجامعي ـدراسات عليا	يى() مستوى التعليم: -ابتدائي	المدينة: حائل- مدينة أخر
	فرط الحركة وتشتت الانتباه؟	هل سمعت عن اضطراب نعم. لا.
عليها عن هذا الاضطراب؟	هو مصدر المعلومات التي حصلت ، بها مع مريض مصاب ية جلات يتماعي	إذا كانت الإجابة بنعم فما ا 1-من خلال تجربه مررت 2-القراءه من المواقع الطني 3-من الكتب والجرائد والم 4-من مواقع التواصل الاج 5-لا أعلم
حركة وتشتت الانتباه لدى الأطفال:	انها تمثّل طبيعة اضطراب فرط الـ	أياً من هذه العبارات تعتقد 1-اضطراب سلوكي 2-مرض عصبي 3-اضطراب نفسي 4-مختلط من جميع ما ذكر 5-لا أعلم
	غ	هل تعتقد ان سببه: 1-وراثى 2-التغذيه 3-المواد الحافظة والاصبا 4- التدخين 5-متعدد الأسباب
الانتباه يعاني من الآتي:	ئلة التالية: ب باضطر اب فرط الحركة وتشتت باه والتركيز ؟ التعامات التي تقده المه؟	من فضلك أجب على الأسد هل تعتقد أن الطفل المصاد 1-ضعف القدرة على الانتر نعم. لا. 2-لا يستمع أو يصغي الـ.
	، بي يبدأها؟	2-2 يسمع أو يسمي ألى نعم. لا. 3-يفشل في اتمام المهام الذ
ِاكًا؟	تي تتطلب جهداً عقلياً وانتباهًا وإدر	نعم. لا. 4-يتجنب المهام الصعبة ال
	مه و أنشطته؟	نعم. لا. 5-يصعب عليه تنظيم مهاه نعب لا
	لهامة مثل "اقلام، العاب، كتب"؟	صم. م. 6-ينسى أشيائه أو أدواته ال نعم. لا.
	ي او صعوبة في مجال التعلم؟	7- ٰيعاني من تخلف در اس نعم. لاً.
	على ايقاف حركاته؟	8-كثير الحركة غير قادر نعم. لا.
	بسكل معرط: نه ع؟ 10-لا بتمتع بعملية اللعب	9-الجري والفقر والنسلق ب نعم. لا. ولا ينسجو مع الآخرين بعد
		و یہ پید بم مع ایک ریں بھ نعم لا ۔ 11-یتحدث بشکل مفرط؟
	تظار ؟	نعم. لا. 12-يواجه صعوبة في الاذ
	فال الأخرين؟	نعم. لا. 13-كثير الشجار مع الأطف نبي لا
	لى افعاله؟	لغم. لا. 14-لا يستطيع السيطرة ع نعم لا
ثنين، مثلاً في المنزل والمدرسة؟	شكلة وهذا التدهور في موضعين ا	15-هل يجب ان تظهر الم نعم لا
	ę	16-ماذا تعتقد نوع العلاج 1-علاج سلوكي
		2-علاج دوائي 3-علاج سلوكي ودوائي 4-لايوجد له علاج

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	Frequency	Percent%
Male	68	16.1
Female	354	83.9
Total	422	100.0

Table 1: Gender categories of individuals surveyed in ADHD study (n = 422)

Table 2: Educational level of individuals surveyed in the ADHD study.

	Frequency	Percent
Elementary	6	1.4
Middle school	11	2.6
Secondary	161	38.2
University	225	53.3
Postgraduates	19	4.5
Total	422	100.0

Table 3: Signs and symptoms based on the DSM-V criteria for ADHD.

Item	DSM-V criteria	Agree	Disagree
no.			
1	Poor attention and concentration.	85.8 %	14.2 %
2	Not listen to instructions.	84.8 %	15.2 %
3	Fail to complete the tasks they start.	64.0 %	36.0 %
4	Avoid difficult tasks that require mental effort and attention.	66.6 %	33.4 %
5	Difficult to organize tasks and activities.	82.9 %	17.1 %
6	Misplace their belongings such as pens, games, and books.	67.3 %	32.7 %
7	Experience academic failure or difficulty in learning.	50.9 %	49.1 %
8	Show hyperactivity and inhibition issues.	86.7 %	13.3 %
9	Show excessive running, jumping, and climbing.	88.4 %	11.6 %
10	Do not enjoy playing and do not sit quietly with others.	70.4 %	29.6 %
11	Speak excessively.	50.9 %	49.1 %
12	Find it difficult to wait for their turn.	88.6 %	11.4 %
13	Quarrel with other children often.	67.8 %	32.2 %
14	Cannot control their actions.	86.0 %	14.0 %
15	The problem should be present in two settings (e.g., home and school).	76.5 %	23.5 %

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Figure 1. Distribution of age categories in the sample.

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Figure 2: Proportion of answers to the question "have you heard about ADHD?".