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Knowledge, attitude, and performance of primary healthcare physicians in Aseer Region, Saudi Arabia about attention deficit hyperactivity disorder

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Abstract:

BACKGROUND: Attention-deficit hyperactivity disorder (ADHD) is one of the most common psychiatric disorders. This study aimed to assess the knowledge, attitude, and practice of primary health-care (PHC) physicians on diagnosis and management of ADHD.

MATERIALS AND METHODS: This was a cross-sectional study included 340 PHC physicians in Aseer Region, Saudi Arabia. A self-administered questionnaire was used to collect data on personal characteristics, knowledge, attitude, and practice of the diagnosis and management of ADHD.

RESULTS: Nearly 47.6% of the PHC physicians were aged <30 years, 60.3% were male, 79.1% were Saudi nationals, and 84.1% had completed MBBS. Only 13.2% had attended continuing medical education courses on ADHD, 63.2% had read about ADHD; Internet was the main source of information (30.7%). Participants' attitude toward ADHD was mainly positive, while 32.1% had poor knowledge and 17.6% had diagnosed ADHD cases in the last year, but 73.3% had referred the diagnosed cases to specialists. Participants' knowledge differed significantly according to their age, gender, and nationality.

CONCLUSIONS: PHC physicians' knowledge about ADHD was suboptimal, but they had a positive attitude toward their role with regard to ADHD. PHC physicians should focus on the clinical and diagnostic aspects of ADHD. Awareness and interest of undergraduate medical students and newly graduated physicians in ADHD should be raised. The Ministry of Health should encourage attendance at extracurricular courses and workshops.

Keywords:

Attention-deficit hyperactivity disorder, attitude and practice, knowledge, primary health care

Introduction

Attention-deficit hyperactivity disorder (ADHD) is one of the most common psychiatric disorders that cause distress in the lives of both children and adults. The core symptoms of ADHD include inattention, hyperactivity, and impulsivity. It affects millions of children around the world occurring in an estimated 3%–5% of preschool and school-age children.[1,2]

Several studies have estimated the prevalence of ADHD as 4%–8% in the USA , 7.6%–9.5% in Korea, 20% in India, 14.1% in Qatar, and 29.7% in the United Arab Emirates.[3,4] In Saudi Arabia, two studies carried out on the prevalence of ADHD in primary schools showed that the overall prevalence of combined ADHD was 16.4% in Dammam and 12.6% in Riyadh.[5,6] A hospital-based study of case records of 416 patients <18 years old in King Khalid

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University Hospital, Riyadh, reported that 12.7% were diagnosed with ADHD.[7]

ADHD is a syndrome with two categories of core symptoms, i.e., hyperactivity/impulsivity and inattention. Each of the core symptoms has its own pattern and course of development. The complaint of the symptoms of ADHD may arise from parents, teachers, or other caregivers.[8]

Recent studies suggest that 30%–60% of affected children continue to show significant symptoms of the disorder into adolescence and young adulthood, resulting in academic, behavioral, and social impairment.[9-11]

A set of guidelines for the diagnosis of ADHD and its treatment in primary care settings were developed. According to these collaborative guidelines, the diagnosis of ADHD should be based on a synthesis of information obtained from parents, school reports, and health-care professionals who may have been consulted, together with an interview and examination of the child.[6]

Therefore, this study aimed to assess the knowledge, attitude, and practice of primary health-care (PHC) physicians to the diagnosis and management of ADHD.

Materials and Methods

This study was conducted in January 2016, following a cross-sectional design. All physicians serving in a total of 228 PHC centers in Aseer Region, Saudi Arabia (n = 382), were invited to participate in this study. Altogether, 340 PHC physicians responded to the study questionnaire, giving a response rate of 89%.

Based on a thorough review of relevant literature,[1,2,4-6] a self-administered questionnaire was constructed by the researcher. It consisted of personal characteristics (i.e., age, gender, nationality, qualifications, experience in PHC practice, attendance of any workshop or training on ADHD, and sources of knowledge on ADHD). Thirty-seven knowledge questions were grouped into four different domains, i.e., 12 questions on the "general knowledge" of PHC physicians about ADHD, four statements on their attitude to diagnosis and management of ADHD cases, and two questions related to their performance on the diagnosis and management of ADHD cases.

Validity of the study questionnaire (face and content) was assessed by three consultants of family medicine. Internal consistency of the study questionnaire was assessed by applying Cronbach's alpha coefficient.

The response to each knowledge statement was assigned a score of "1" if correct, or "0" if incorrect. Therefore, the minimum total knowledge score was 0, while the maximum score was 12. Percentage knowledge score was then calculated for each participant by dividing his/her knowledge score by 12 and multiplying the product by 100. Fifty percent was considered an "acceptable" knowledge grade, while <50% was considered "poor."

Ethical approval was obtained from the Ethical Committee of King Khalid University. Informed written consent was taken from all participating primary care physicians. Confidentiality of collected data was assured in all steps of the study.

Data were entered into a personal computer and were analyzed using Statistical Package for the Social Sciences (SPSS, IL, USA), version 22. Descriptive statistics (i.e., frequency and percentage) were calculated. Chi-square test was applied to test the significance of differences. $P < 0.05$ was considered statistically significant.

Results

Table 1 shows that 47.6% of PHC physicians were aged <30 years, while 43.2% were aged 30–40 years. About two-thirds of the participants (60.3%) were male. Most participants (79.1%) were Saudi nationals, 84.1% had only MBBS degree, and 77.6% had <5 years' experience in PHC.

Table 2 shows that 32.1% of the PHC physicians had poor knowledge of ADHD. Their main sources of knowledge about ADHD were self-learning (63.2%) and the internet provided sources for 30.7% of the participants. Only 13.2% had attended continuing medical education (CME) courses related to ADHD.

Table 1: Personal characteristics of the study sample (n=340)

Personal characteristics	*N* (%)
Age groups (years)	
<30	162 (47.6)
30-40	147 (43.2)
>40	31 (9.1)
Gender	
Male	205 (60.3)
Female	135 (39.7)
Nationality	
Saudi	269 (79.1)
Non-Saudi	71 (20.9)
Qualification	
MBBS	286 (84.1)
Diploma/master's	46 (13.5)
Doctorate	8 (2.4)
Experience in health care	
<5 years	264 (77.6)
5+ years	76 (22.4)

Table 3 shows participants' correct responses to the 12 knowledge statements. The most frequent correct responses were related to "ADHD is a disorder that manifests in early childhood with symptoms of hyperactivity, impulsivity, and/or inattention" (92.9%) followed by "difficulty organizing tasks, activities, and belongings and being easily distracted by irrelevant stimuli are symptoms of inattention" (78.2%). On the other hand, the least correctly answered responses were related to the statements such as "ADHD is associated with poor health condition" (16.2%) and "Children with ADHD need not be supported by private education" (23.5%).

Table 2: Primary care physicians' knowledge and sources of information about attention-deficit hyperactivity disorder (*n*=340)

Sources of knowledge	*N* (%)
Participants' knowledge level of ADHD	
Poor	109 (32.1)
Acceptable	231 (67.9)
Sources of knowledge regarding ADHD	
Reading about ADHD	215 (63.2)
Internet	66 (30.7)
Attending CME on ADHD	45 (13.2)

ADHD=Attention-deficit hyperactivity disorder, CME=Continuing medical education

Table 3: Participants' correct responses regarding knowledge statements

Statements	*N* (%)
1. ADHD is a disorder that manifests in early childhood with symptoms of hyperactivity, impulsivity, and/or inattention	316 (92.9)
2. ADHD is one of the most common neuropsychiatric disorders of childhood and adolescence	227 (66.8)
3. There are no gender differences in ADHD	106 (31.2)
4. ADHD is associated with poor health condition	55 (16.2)
5. Slow reading speed and learning difficulties are frequent in ADHD	223 (65.6)
6. Children with ADHD have low level of arithmetic (mathematic) ability	112 (32.9)
7. Children with ADHD need not be supported by private education	80 (23.5)
8. Parents of ADHD children may have psychiatric disorders	130 (38.2)
9. ADHD may become a lifelong disease	191 (56.2)
10. ADHD may be seen during adulthood	218 (64.1)
11. Difficulty in remaining seated when sitting is required and difficulty waiting turns are symptoms of inattention	192 (56.5)
12. Difficulty organizing tasks, activities, and belongings and easily distracted by irrelevant stimuli are symptoms of inattention	266 (78.2)

ADHD=Attention-deficit hyperactivity disorder

Table 4 shows that 66.8% of the PHC physicians did not think that ADHD was difficult to diagnose or manage by PHC physicians, 84.4% agreed that PHC physicians could play an active role in the management of ADHD, 70% disagreed that the management of ADHD was not the job for PHC physicians, while 57.6% agreed that "PHC physicians should refer any suspected ADHD cases in children to pediatricians for diagnosis."

Table 5 shows that only sixty PHC physicians (17.6%) had diagnosed cases of ADHD in the last few years. However, most of them (73.3%) referred the diagnosed cases to specialists.

Table 6 shows that participants' general knowledge of ADHD significantly differed according to their age (P = 0.001), with old-age physicians having better knowledge. Male physicians had significantly better general knowledge of ADHD than female physicians (P < 0.001). Non-Saudi PHC physicians had significantly better general knowledge of ADHD than Saudi physicians (P = 0.005). However, PHC physicians' knowledge of ADHD did not differ significantly by their qualification, experience in PHC, or their sources of knowledge of ADHD.

Discussion

Results of the present study revealed that the knowledge of about one-third of the PHC physicians of ADHD was poor. They taught themselves by reading, and their main source of knowledge on ADHD was the Internet; only 13.2% had attended a CME activity on ADHD.

These findings are in agreement with those reported in studies in several countries. In Pakistan, Jawaid *et al*.[12] reported that the knowledge of general practitioners on ADHD was deficient. They questioned the ability of physicians at the PHC level to screen children for ADHD. In the UK, Thapar and Thapar[13] stated that general practitioners did not have adequate knowledge to diagnose or manage ADHD. Ghanizadeh[14] also reported that general practitioners needed to be more informed about ADHD. In the USA, Goodman *et al*.[15] found that

Table 4: Primary healthcare physicians' attitude toward attention-deficit hyperactivity disorder

Statements	Agree *N* (%)	Disagree *N* (%)
ADHD is difficult to diagnose or manage by PHC physicians	113 (33.2)	227 (66.8)
PHC physicians can play an active role in the management of ADHD	287 (84.4)	53 (15.6)
Management of ADHD is not the job for PHC physicians	102 (30.0)	238 (70.0)
For the diagnosis of ADHD in children, PHC physicians should refer any suspected case to a pediatrician	196 (57.6)	144 (42.4)

ADHD=Attention-deficit hyperactivity disorder, PHC=Primary health care

Table 5: Primary health-care physicians' practices in the last year related to attention-deficit hyperactivity disorder (*n*=340)

Practices	*N* (%)
Diagnosed case(s) with ADHD in the last year	
No	280 (82.4)
Yes	60 (17.6)
Prescribed treatment to ADHD patients	16 (26.7)
Refer ADHD patients to a specialist	44 (73.3)

ADHD=Attention-deficit hyperactivity disorder

Table 6: Participants' general knowledge on attention-deficit hyperactivity disorder according to their personal characteristics

Personal characteristics	Poor (*n*=109) *N* (%)	Acceptable (*n*=231) *N* (%)	*p*-Value
Age groups (years)			
<30 years	53 (32.7)	109 (67.3)	0.001
30-40 years	55 (37.4)	92 (62.6)	
>40 years	1 (3.2)	30 (96.8)	
Gender			
Male	42 (20.5)	163 (79.5)	<0.001
Female	67 (49.6)	68 (50.4)	
Nationality			
Saudi	96 (35.7)	173 (64.3)	0.005
Non-Saudi	13 (18.3)	58 (81.7)	
Qualification			
MBBS	95 (33.2)	191 (66.8)	0.135
Diploma/master's	14 (30.04)	32 (69.6)	
Doctorate	0	8 (100.0)	
Experience in primary care			
<5 years	91 (34.5)	173 (65.5)	0.076
5+ years	18 (23.7)	58 (76.3)	
Sources of knowledge			
Reading about ADHD	59 (27.4)	156 (72.6)	0.219
Internet	19 (28.8)	47 (71.2)	
Attending CME on ADHD	7 (15.6)	38 (84.4)	

ADHD=Attention-deficit hyperactivity disorder, CME=Continuing medical education

primary care physicians had limited knowledge and experience with ADHD.

In 2009, Louw *et al*.[9] in South Africa found that PHC physicians' knowledge on ADHD, even among those who had attended training courses on ADHD, was insufficient. They explained that finding by the inadequacy of PHC physicians' undergraduate training in core psychiatric conditions.

In 2005, Kelly and Aylward[16] emphasized that PHC physicians should have adequate knowledge to be able to make a probable diagnosis of ADHD and other behavioral disorders. One of the first steps is to give adequate training to primary care physicians. In 2001, Szymanski and Zolotor[17] added that trained PHC physicians were well equipped to diagnose and treat most cases of ADHD. They were the most appropriate group of physicians to manage ADHD since they had a comprehensive understanding of its impact on the patient as well as the family.

In 2010, the British Columbia Medical Journal[18] recommended that PHC physicians should always be ready at the front line of early diagnosis and management of children with ADHD. They need the support of specialists in other specialties, for example, pediatricians or psychiatrists when a second opinion is required. However, precious time can be wasted if the family physician did not have enough training to screen and manage ADHD, in a child or adolescent who may already be responding to the treatment prescribed. Consequently, Venter *et al*.[19] recommended that family medicine curricula should be revisited to ensure that the PHC physicians have ample knowledge and training to manage ADHD in children.

Results of present study show that most participants did not consider the management of ADHD in children within the remit of their current practice. Although most participants exhibited a positive attitude to playing an active role in the management of ADHD, only two-thirds of them considered management of ADHD as their work, while most believed that they may be actively involved in the management of ADHD in the future. Moreover, only 17.6% of the participants had diagnosed cases of ADHD in the last few years, and most of those cases were referred to specialists. This finding indicates that there is much room for improvement in the training of PHC physicians on ADHD.

Louw *et al*.[9] reported that PHC physicians generally have a positive attitude toward treating ADHD, particularly in children. However, about two-thirds of family physicians usually refer these patients to psychiatrists for care.

Weiss and Weiss[20] observed that most PHC physicians were untrained, not only in the use of diagnostic or assessment tools to evaluate suspected cases of ADHD, but also in the management of already diagnosed cases. Similarly, Faraone[21] reported that PHC physicians were less capable than psychiatrists in the diagnosis of patients with ADHD.

Results of the present study showed that the participants' knowledge of ADHD significantly differed according to their personal characteristics, with older, male, and non-Saudi participants showing significantly better knowledge of ADHD. These findings indicate that although the knowledge of all PHC physicians needs improvement, special emphasis was required for younger, female, and Saudi PHC physicians.

Conclusions

Most of the PHC physicians do not attend courses on ADHD or become involved in the management of children with ADHD. Knowledge of PHC physicians on ADHD is suboptimal. However, most PHC physicians have a positive attitude toward their role with regard to ADHD. PHC physicians' knowledge on ADHD differs according to their personal characteristics, experience, and sources of knowledge.

Given the prevalence of ADHD and the increasing social awareness of its effect on school performance and relationships and the burden on families, as well as the shortage of child psychiatrists, we recommend that all strategies should be employed to improve PHC physicians' abilities to diagnose, treat, and know when cases need to be referred to psychiatrists. This can be done by emphasizing ADHD in undergraduate courses, postgraduate family medicine programs, and CME courses. Even cases referred to psychiatrists could return to PHC physicians after they are stabilized for maintenance treatment and family support. Teachers should also be given training and advice.

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Conflicts of interest
There are no conflicts of interest.

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