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A DESCRIPTIVE STUDY OF ATTENTION DEFICIT HYPERACTIVITY DISORDER IN SABIA CITY, SAUDI ARABIA

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ABSTRACT

Introduction: Among childhood mental disorders, attention deficit hyperactivity disorder is a common yet under diagnosed condition. Few studies have addressed this problem in Saudi Arabia.

Objectives: To assess proportion of attention deficit hyperactivity disorder (ADHD) positive students among primary school children in Sabia City, Jizan and study their personal characteristics.

Subjects and Methods: Four primary schools in Sabia City were randomly selected. A total of 200 pupils (100 boys and 100 girls) were included in this study. Data collection tools included the personal characteristics questionnaire and the Arabic version of the ADHD Rating Scale.

Results: A total of 13.5% of students were positive regarding ADHD, with higher percentage of positive results among male than female students (15% vs. 12%, respectively). Younger students had higher percentage of positive results than older students. Highest percentage of positive results were observed among students who were first born (20.7%) followed by those who were last born (14.8%). Students whose fathers were illiterate had the highest proportion of positive results (31.3%), while students whose mothers were illiterate had significantly highest proportion of positive results (40.8%, $p<0.001$). Students whose family size was >10 members had the highest proportion of positive results.

Conclusions: ADHD is common among primary school children in Sabia City. Symptoms of ADHD are more among boys than girls. There is higher proportion of ADHD symptoms among school children whose mothers are illiterate.

Keywords: attention deficit hyperactivity disorder, school children, Saudi Arabia

INTRODUCTION

Behavioural and learning disorders among children present major challenges to parents and teachers. Studies show that attention deficit hyperactivity disorder (ADHD) is the most common mental disorder in childhood. It is also among the most prevalent chronic health conditions affecting school-aged children [(1)].

Diagnosis of ADHD depends on the core symptoms that include inattention, hyperactivity and impulsivity. These symptoms should exist before 7 years of age and persist for at least 6 months to a degree that is maladaptive and inconsistent with developmental level. In addition, these symptoms should exist in two or more settings (e.g.at school and at home) [(2)]. A review of global prevalence in school-aged community samples indicates rates varying from 4% to 12% [(3)]. In Saudi Arabia, ADHD manifests in about 4 -12 % of children aged 6 to 12 years [(4)].

Under-diagnosis and under-treatment of this condition leads to problems in adult life. Studies show that due to lack of awareness about ADHD and associated problems these children are often rejected from class or exposed to punishment by teachers and parents[(5)]. Early recognition, assessment and management of this condition can redirect the educational and psychosocial development of most children with ADHD.

Studies show that with adequate and timely management, a high percentage (90%) of patients with ADHD show good recovery [6, 7]. This study was conducted in Sabia city of Saudi Arabia to find the proportion of primary school children with ADHD and their socio-demographic characteristics.

MATERIAL AND METHODS

200 students (100 boys and 100 girls) from 4 primary schools in Sabia City, Jizan, were randomly selected to study the prevalence of ADHD using the Arabic version of the ADHD rating scale [8]. This scale contains 14 items, covering the three components of ADHD, i.e., inattention (items: 3, 6, 7, 12 and 13), hyperactivity (items: 1, 2, 9 and 10) and impulsivity (items: 4, 5, 8, 11 and 14).Each item is a 4-point scale (0-3) arranged in the following format: not at all, just a little, pretty much, very much. Scoring was done with the overall cut-off point for boys as 23.5 and 22.5 for girls [9]. Information was obtained from two settings (school and home). Data on sociodemographic variables, and possible risk factors was collected using interview questionnaire which was administered to the parents of the study subjects. All pupils who proved to have high scores (henceforth referred to as screen positive) were referred to Jizan Psychiatric Hospital to receive the necessary specialized management. The Statistical Package of Social Sciences (SPSS), version 16.0 was used for computerized data entry and analysis. Descriptive statistics were performed (frequency and percentage). To test the significance of differences between ADHD screen positive and normal children, χ^2 was applied. A significant statistical level was considered when the p-value < 0.05.

RESULTS

Table1 shows that 17% of students were aged 6 years, 25.5% aged 7 years, 36% of students were aged 8 years, while 21.5% of students were aged 9 years or more. Three students (1.5%), had no brothers or sisters among siblings, and most (42.5%) were in the middle birth order. The educational status of students' fathers showed that 8% were illiterate, while 47.5% were university graduates. On the other hand, educational status of mothers showed that 24.5% were illiterate, while 31.5% were university graduates. The family size of 37% students was 3-5 members, 49% had 6-10 members, while 14% had more than 10 members (Fig 1.)

Fig 1 shows the proportion of students with positive results on ADHD screening. Out of total 200 students, 27 (13.5%) showed positive result on ADHD screening (Table 2).

Studying the distribution of screen positive children it is seen that higher percentage of positive results were found among male than female students (15% vs. 12%) respectively. Percentage of positive results decreased with increasing age. Highest percentage of positive results were observed among students who were first born (20.7%) followed by those who were last born (14.8%). According to father's educational status, students whose fathers were illiterate had the highest proportion of positive results (31.3%). Students whose family size was >10 members had the highest proportion of positive results (25%). None of the above differences were significant. Students whose mothers were illiterate had the highest proportion of positive results (40.8%). Differences in screening results according to mothers' educational status were statistically significant ($p<0.001$).

DISCUSSION

The present study revealed higher percentage of positive results for ADHD among male than female students, with no significant difference according to sex. Several studies indicated a higher prevalence of ADHD among boys. In western studies it is reported that male sex is associated with a raised prevalence of ADHD [10-13]. In Qatar, also it was reported that prevalence for ADHD symptoms among boys was 14.1% and 4.4% among girls respectively[14].This could be explained by noting that, like many other childhood-onset behavioral disorders, ADHD is diagnosed more frequently in boys than in girls.

This study showed that younger students had higher percentage of ADHD screen positive than older ones. This finding is in agreement with that of Faraone et al. [15], who reported that prevalence of ADHD among children gradually lessens with their age. Reduction in symptoms with advancing age may be explained by acquisition of cognitive strategies to ameliorate these features [16]

The present study showed that the highest percentage of positive results were observed among students who were first born followed by those who were last born . However, birth order was not significantly associated with higher or lower rates for ADHD screen positive among school children. This finding is in agreement with that of Berger et al.[17] who reported that the chances of first, middle, or later born children, as well as single children, to suffer from attention-deficit hyperactivity disorder are almost equal. They concluded that birth order has no effect in relation to attention-deficit hyperactivity disorder.

Students within this study whose fathers or mothers were illiterate had the highest proportion of positive results. Differences in ADHD screening rates among school children according to mothers' educational status were statistically significant. This finding is in agreement with that of Al-Hamed et al.[4],who reported statistically significant association between fathers' education and ADHD among male school children. It has been shown that low maternal education, low social class, and single parenthood are important adverse factors for ADHD[18]. This may be because the parents with low level of education have poor knowledge of how to deal with children having ADHD while high levels of parents' education, especially mothers' education, may reflect positively on better physical and psychological health of their children.

Students whose family size was more than 10 members had the highest proportion of positive results though not statistically significant. This finding is in accordance with the finding that families of children with ADHD are larger than those with no ADHD [19]. However, a study in Congo denied any association between family size and incidence of ADHD [20]. Socio-cultural differences in developed v/s less developed countries may explain these results.

CONCLUSION

A high proportion of students have positive screening results for ADHD. Maternal education has a significant role in development of ADHD. Undiagnosed and untreated children are likely to suffer problems related to their mental wellbeing, as well as have poorer school outcomes. Population based screening and consequent management of children with ADHD is recommended to mitigate the problems caused by this hidden illness.

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REFERENCES

1. 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.
2. Booklet: Attention deficit hyperactivity disorder. Accessed online on 10 April 2013, from http://www.nimh.nih.gov/health/publications/attention-deficit-hyperactivity disorder/adhd_booklet.pdf
3. Kieling C, Kieling RR, Rohde LA, Frick PJ, Moffitt T, Nigg JT, Tannock R, Castellanos FX.The age at onset of attention deficit hyperactivity disorder. Am J Psychiatry. 2010;167(1):14-6.
4. 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.
5. Alqahtani MM. The comorbidity of ADHD in the general population of Saudi Arabian school age children. J Atten Disord. 2010;14(1):25-30.
6. Al-Ghamdy YS, Qureshi NA. Attention deficit hyperactivity disorder. Epidemiologic pathophysiologic , diagnostic and treatment perspectives. Saudi Med J. 2001; 22(8) : 666-73.
7. Smoot LC, Boothby LA, Gillett RC.Clinical assessment and treatment of ADHD in children. Int J Clin Pract. 2007;61(10):1730-8.
8. DuPaul GJ. The ADHD Rating Scale: normative data, reliability, and validity. In: Russell A Barkley. Unpublished manuscript, University of Massachusetts Medical Center, Worcester. New York: The Guilford Press; 1990. Attention Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment.
9. Wender PH. Attention-Deficit Hyperactivity Disorder in Adults. New York, NY: Oxford University Press; 1995.
10. Scahill L, Schwab-Stone M. Epidemiology of ADHD in school-age children. Child Adolesc Psychiatr Clin N Am 2000; 9: 541-55.
11. Pastor PN, Reuben CA. Attention deficit disorder and learning disability: United States, 1997–98. Vital Health Stat. 2002; 10 (206):1–12.
12. Doyle R. The history of adult attention-defidt/hyperactivity disorder. Psychiatr Clin North Am 2004; 27: 203-14.
13. Polanczyk G,de Lima MS,Horta BL, Biederman J, Rohde LA:The worldwide prevalence of ADHD:a systematic review & metaregression analysis.Am J Psychiatry 2007,164(6):942-948.
14. Bener A, Qahtani RA, Abdelaal I. The Prevalence of ADHD among Primary School Children in an Arabian Society. J Atten Disord 2006; 10(1):77-82.
15. Faraone SV, Biederman J, Spencer TJ, Aleardi M: Comparing the efficacy of medications for ADHD using meta-analysis. MedGenMed 2006, 8(4):4.
16. Newton-Howes G. What happens when children with attention deficit/hyperactivity disorder grow up? J R Soc Med 2004;97:531–535
17. Berger I, Felsenthal-Berger N. J Child Neurol. 2009; 24(6):692-6. Attention-deficit hyperactivity disorder (ADHD) and birth order.
18. Barkley RA. Attention deficit hyperactivity disorder: a handbook for diagnosis and treatment. New York: Guilford, 1998.

19. Marks G. Family size, family type and student achievement: cross-national differences and the role of socioeconomic and school factors. Journal of Comparative Family Studies, 2006; 37(1): 1-24.

20. Kashala E, Tylleskar T, Elgen I, Kayembe KT, Sommerfelt K. Attention deficit and hyperactivity disorder among school children in Kinshasa, Democratic Republic of Congo. African Health Sciences 2005; 5(3):172-181.

Table (1): Personal characteristics of study sample (n=200).

Characteristics	No.	%
Sex		
• Males	100	50.0
• Females	100	50.0
Age (in years)		
• 6	34	17.0
• 7	51	25.5
• 8	72	36.0
• 9 or more	43	21.5
Birth order		
• Only child	3	1.5
• Youngest	54	27.0
• Middle	85	42.5
• Oldest	58	29.0
Father's educational status		
• Illiterate	16	8.0
• Primary/Intermediate	29	14.5
• Secondary	60	30.0
• University	95	47.5
Mother's educational status		
• Illiterate	49	24.5
• Primary/Intermediate	38	19.0
• Secondary	50	25.0
• University	63	31.5
Family size		
• 3-5	74	37.0
• 6-10	98	49.0
• >10	28	14.0

Table (2): Distribution of personal characteristics in ADHD positive and negative children

Personal characteristics	Negative No.	%	Positive No.	%	p-value
Sex					
• Males	85	85.0	15	15.0	
• Females	88	88.0	12	12.0	0.535
Age (in years)					
• 6	26	76.5	8	23.5	
• 7	43	84.3	8	15.7	
• 8	64	88.9	8	11.1	
• 9 or more	40	93.0	3	7.0	0.168
Birth order					
• Only child	3	100.0	0	0.0	
• Youngest	46	85.2	8	14.8	
• Middle	78	91.8	7	8.2	
• Oldest	46	79.3	12	20.7	0.162
Father's education					
• Illiterate	11	68.8	5	31.3	
• Primary/Inter.	28	96.6	1	3.4	
• Secondary	53	88.3	7	11.7	
• University	81	85.3	14	14.7	0.068
Mother's education					
• Illiterate	29	59.2	20	40.8	
• Primary/Inter.	37	97.4	1	2.6	
• Secondary	46	92.0	4	8.0	
• University	61	96.8	2	3.2	<0.001
Family size					
• 3-5	64	86.5	10	13.5	
• 6-10	88	89.8	10	10.2	
• >10	21	75.0	7	25.0	0.130