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RESEARCH ARTICLE

IMPACT OF ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) ON SCHOOL PERFORMANCE IN MECCA, SAUDI ARABIA.

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Several approaches directed to family members , teachers , ministry of education and community to improve the ADHD child school performance .

Abstract

Attention Deficit Hyperactivity Disorder (ADHD) is behavioral, developmental neurocognitive disorder presented as hyperactivity, impulsivity, and inattention (9). ADHD is a common mental disorder in children, becomes obvious in preschool and school years (9). 10 % of the US school- age children diagnosed as ADHD (7). It has affected about 5 % to 7 % among school-age children in our Arabian society. The aim of this study was to evaluate the impact of ADHD on school performance among children in Makkah Region. The targeted population consisted of 300, ages 7-18 years .A multistage sampling technique was used to select the sample. Data collected used Translating the International Classification of Functioning, Disability, and Health to Arabic version then re-translated into English and reviewed by a professor of psychiatry to ensure correct meaning of questions. The questionnaire it divided to 3 part according to the questions, and it filed by the student if he/she able to understand the questions or by the collectors data, the family and by the school administration. Written permission for the study it sought from school authorities and the parents of school boys.

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Introduction:-

Attention Deficit Hyperactivity Disorder (ADHD) is behavioral, developmental neurocognitive disorder presented as hyperactivity, impulsivity, and inattention (2). ADHD is a common mental disorder in children, becomes obvious in preschool and school years (9). 10 % of the US school- age children diagnosed as ADHD (7). It has affected about 5 % to 7 % among school-age children in our Arabian society (1). In Saudi Arabia, Dammam city the prevalence of ADHD is 16.4% of school age children 2008 (9). Also, there is a study done in 1996 at King Saud University, Riyadh which shows the prevalence is 12.6% (9). The causes and risk factors for ADHD still are unknown; a recent research reported that genetics contribute to be an important risk factor. There are possible risk factors which including Brain injury, environmental exposure during pregnancy, use Alcohol and tobacco during pregnancy, premature delivery and low birth weight. A person who is diagnosed with ADHD the ability to pay attention to conversations or sit for a long time it's difficult to them. Also it's hard for them to concentrate on details.The person is easily distracted or forgets details of daily routines.The person fidgets and talks a lot. Smaller children may run, jump or climb constantly. The individual feels restless and has trouble with impulsivity.They may disturb others and take things from them or talk at inappropriate times (CDC). ADHD is one of the causes of low school performance and underachievement among children⁽¹⁾.The Office of Special Education Programs (OSEP) offer special education

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services to children with ADHD-like the Individuals with Disabilities Education Act (IDEA) in the US which provides specific care to educate the children with ADHD⁽⁸⁾. A study among 4.4 million children in the United States reported that medicated children with ADHD, they have high academic performance in comparison with undedicated children with attention-deficit/hyperactivity disorder⁽¹¹⁾. Also, they have difficulties in reading and understanding of mathematics which affect their education level⁽¹⁰⁾, and these difficulties strongly related to inattention and executive function deficit⁽⁵⁾, inattention also it reflects on the academic skills in the patient with ADHD⁽¹³⁾. In long-term there is relation between ADHD and low education outcome⁽³⁾. ADHD patients risky when they drive because of car accident percentage increase in these people⁽¹⁴⁾. If the child reserves the appropriate attention it will decrease the number of accident and misbehavior during their adulthood⁽¹⁾. Conner's Rating Score is screening test of ADHD of two form one for the parent and the other for the teacher⁽⁶⁾. Primary health care play a role in diagnosing ADHD for more than the half of the cases⁽⁷⁾. The family of ADHD patient has concerns about their child's behavior 64.7%, also there is concern from school and daycare 30.1%⁽⁷⁾. The school environment and the program of the school should be a part of any treatment⁽⁷⁾. The AAP (American Academy of Pediatrics) guideline for the treatment of ADHD: the treatment of ADHD vary depending on the patient's age: 1) for preschool children (4–5 years of age), the clinician should prescribe parent and teacher-administered behavior therapy as the first line of treatment. if the behavior therapy failed or the child continues to have moderate to severe symptoms the clinician May prescribe methylphenidate (a medication to treat ADHD)⁽⁹⁾. For elementary school children (6–11 years of age), The clinician should medications for ADHD and/or parent and teacher-administered behavior therapy as the treatment for ADHD, although preferably both medication and behavior therapy should be used together⁽¹²⁾. For adolescents (12–18 years of age), the clinician should prescribe medications for ADHD and may prescribe behavior therapy, although preferably both medication and behavior therapy should be used together⁽⁴⁾.

The Main Goal:-

We would like to evaluate the impact of ADHD on school performance in the population of Makkah Region in Saudi Arabia Also; we would like to study the differences in several social-behavioral parameters in children with ADHD.

Main Objective:-

The impact of ADHD on school performance among children in Makkah Region.

Secondary Objectives:

1. To asses role of the attention deficit hyperactivity disorder on school performance.
2. To acknowledge the risk factors and the socioeconomic status which affect on school performance of children with ADHD.
3. To asses the way of dealing of the family members with them child who diagnosed by ADHD

Hypothesis:-

1. There is impact of ADHD (Attention Deficit Hyperactivity Disorder) on school performance.
2. The variety of socioeconomic status and risk factors has effects on school performance of children with ADHD.
3. There is misunderstanding of dealing of the family with the disorder and the child who diagnosed by this disorder

Methodology:-

This is a cross-sectional study will conduct among male and female primary school in Makkah population, Saudi Arabia. The target population consisted of 300, ages 7-18 years .A multistage sampling technique was used to select the sample. In the first stage government school will be selected using systematic random sampling technique. In the second stage the classes will be selected from each school comprising first to sixth grade using simple random sampling technique. There were variable responses for different questions. The main Idea to review the academic and educational outcomes of ADHD is organized around 5 questions: (1) What are the academic and educational characteristics of children with ADHD? (2) Are academic and educational problems transient or persistent? (3) What are the academic characteristics of children with symptoms of ADHD but without formal diagnoses? (4) How do treatments affect academic and educational outcomes? (5) How should we design future research to determine which treatments improve academic and educational outcomes of children with ADHD?

We will use the International Classification of Functioning, Disability, and Health (ICF) (15), as the conceptual framework for describing the functional problems associated with ADHD. The World Health Organization developed the ICF to provide a systematic and comprehensive framework and common language for describing and

assessing functional implications of health conditions, regardless of the specific disease or disorder. Use of this model facilitates comparisons of health-related states across conditions, studies, interventions, populations, and countries (Figure 2).

The following variables in the study

Beside the Basic information like; Age , Name (optional) , Gender , Code number ,family history , Lives with whom, family number and phone number (optional) , environmental factor we will measure the following data :

1. is the child diagnosis by ADHD
2. other psychiatric disorder
3. age when diagnosis confirm
4. current treatment
5. age of the child when treatment started
6. taking medication regularly
7. is the parent take less time with child
8. progressive of disease after enter the school
9. level education of the parent
10. Ability of Inattention
11. Memory impairment
12. Control of psychomotor functions
13. The relationship between parent and uncontrolled psychomotor functions
14. Emotion regulation
15. Organization
16. Problem solving
17. Reading disability
18. Writing disability
19. Calculating disability
20. Difficulty with general tasks and demands
21. Difficulty managing one's own behavior
22. Difficulty handling stress and psychological demands
23. Communication disorders
24. Is the student within the program applied by the ministry for ADHD
25. Study level
26. The ability to continue into educational program or across levels
27. Attending and adjusting to educational program
28. The extent of the impact of the program applied by the Ministry to the student

Data collection:-

Translating the International Classification of Functioning, Disability, and Health to Arabic version then re-translated into English and reviewed by a professor of psychiatry to ensure correct meaning of questions. The questionnaire it will divided to 3 part according to the questions, and it will filed by the student if he/she able to understand the questions or by the collectors data, the family and by the school administration. Written permission for the study it will be sought from school authorities and the parents of school boys.

Statistical Analysis:-

Data collect and will check for accuracy and completeness and coding and entering into the Statistical Package for Social Sciences (SPSS) software version 23.

Result:-

The response rate to different questionnaires (chart1) 42.0% (71) male and 58% (98) female of total participants of 169 and their age between 6 to 13 years old. The prevalence of early diagnosed child (5-9 year old) with ADHD 44.4%. The presence of similar symptoms in the family counts as 2.4%. (7.7%) is the compline to treatment plan. 40.8% deny the effect of attention deficit hyperactivity disorders on school performance while 59.2% prove the opposite.

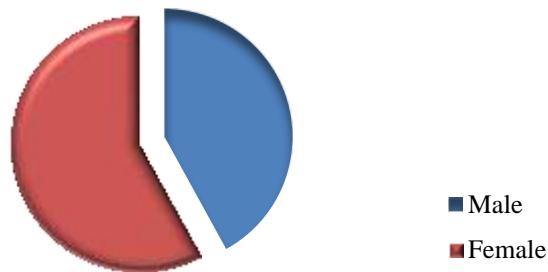


Chart1:-The response rate (Gender)

(Table1) demonstrates the relationship between the attention deficit hyperactivity disorders and child's performance at school. There is positive significant relationship between ADHD and submitting to regular study plan whereas it shows negative significant relationship with participating in activity. There is insignificant relationship between ADHD and other performance indicators.

Statistic shows positive significance relationship between ADHD and child's violence behavior toward self or his/her family ($p=0.080$), nevertheless there is negative significance relationship between Attention Deficit Hyperactivity Disorders and dealing with stressor ($p=0.030$).

Sociodemographic characteristics distribution shown in (Table2a,b) which contains level of parent's level of education However , number of siblings.

there is insignificant relationship between ADHD and mentioned socioeconomic status .

Discussion:-

The characteristic of the studied population represents the pattern of school student in Macca, Saudi Arabia. By comparing with normal healthy child , there is a difference in the general student level , healthy child is having excellence more than ADHD child , also the ADHD child having more weakness in the school performance as we suspected in our hypothesis.

There is difficult to be study more than 2 hours daily and completed their assignment in child with ADHD in comparing with healthy child.

The variety of socioeconomic status is apparent as the sample of different geographic distribution of the city. This study showed the lack of significant association between parents' education and ADHD. However, the statistics controvert our hypothesis and result of our literature (9). Possible reasons of in-signification as our researchers propose; a) parents with either low level of education or higher don't reflect the amount of care received by their children,

There is no significant association of ADHD with siblings' count and is also contradict our hypothesis which proposed the existence of significant association as in similar research done at Dammam city (9).

There is variety of dealing of family members with their child who diagnosed by ADHD as we suspected in our hypothesis , most of them dealing by hitting their child , after that by discussion and the least by ignore.

Conclusion and recommendation:-

We find relation between ADHD and weakness in school performance also we find poor family awareness of dealing with ADHD child so we provide some approaches directed to family members , teachers , ministry of education and community to improve the ADHD child school performance like :

1. ADHD childrens need more focus during teaching by teachers and they need special classes by special well trained teachers.

2. Families of childrens with ADHD should know how to deal with them child and their important role of improving school performance.

Table1:-The relationship between Attention Deficit Hyperactivity Disorders and child's performance at school

Performance Indicators		With ADHD % No.*	Healthy Individuals % No.*	p-value (χ^2 test)
Student Level	Excellent	22.2% 6	29.6% 42	0.727
	Good	59.3% 16	54.9% 78	
	Weak	18.5% 5	15.5% 22	
Regular study plan	Yes	70.4% 19	89.4% 8	0.014
	No	29.6% 15	10.6% 127	
Average hour of daily studying	One hour and less	55.6% 15	55.6% 79	0.496
	Two-hour	37.0% 10	26.1% 37	
	More than two-hour	7.4% 2	18.3% 26	
Attentiveness	Able	22.2% 6	24.8% 35	0.922
	Difficult	40.7% 11	36.9% 52	
	Unable	37.0% 10	38.3% 54	
Math Skill	Excellent	14.8% 4	28.9% 41	0.201
	Good	33.3% 9	35.2% 50	
	Weak	51.9% 14	35.9% 51	
Reading Skill	Excellent	33.3% 9	40.8% 58	0.631
	Good	37.0% 10	37.3% 53	
	Weak	29.6% 8	21.8% 31	
Writing Skill	Excellent	29.6% 8	34.5% 49	0.436
	Good	37.0% 10	43.7% 62	
	Weak	33.3% 9	21.8% 31	
Complete assignment	Able	29.6% 8	50.0% 71	0.119
	Difficult	51.9%	33.1%	

		14	47	
	Unable	18.5% 5	16.9% 24	
Conversation skill	Able	25.9% 7	33.1% 47	0.630
	Difficult	44.4% 12	35.2% 50	
	Unable	29.6% 8	31.7% 45	
Participation in activity	Yes	37.0% 10	14.8% 21	0.012
	No	63.0% 17	85.2% 121	
Solve problem	Able	22.2% 6	38.7% 55	0.210
	Difficult	44.4% 12	39.4% 56	
	Unable	33.3% 9	21.8% 31	
Difficulty in participation in team work	Rarely	18.5% 5	28.9% 41	0.474
	Sometime	59.3% 16	47.9% 68	
	Always	22.2% 6	23.2% 33	

* Respondents number

Table 2-a:- School performance of the child * level of education of his/her parents

			level of education of his/her parents			Total
			Less than high school	high school	university and more	
Is there any relation between School performance and parents education.	No	Count	51	50	41	142
		% with parents education	35.9%	35.2%	28.9%	100.0%
	Yes	Count	8	6	13	27
		% with parents education	29.6%	22.2%	48.1%	100.0%
Total		Count	59	56	54	169
		% with parents education	34.9%	33.1%	32.0%	100.0%

Table 2-b:- Number Of Siblings * Child Level At School.

		Child level at school			Total
		.week	Good		
How many family members dose he/she live with?	1.0	Count	1	0	1
		% child level at school	0.7%	0.0%	0.6%
	2.0	Count	12	2	14
		% child level at school	8.5%	7.4%	8.3%
	3.0	Count	25	6	31
		% child level at school	17.6%	22.2%	18.3%
	4.0	Count	26	3	29
		% child level at school	18.3%	11.1%	17.2%
	5.0	Count	26	4	30
		% child level at school	18.3%	14.8%	17.8%

	6.0	Count	23	8	31
		% child level at school	16.2%	29.6%	18.3%
	7.0	Count	11	0	11
		% child level at school	7.7%	0.0%	6.5%
		Count	10	1	11
		% child level at school	7.0%	3.7%	6.5%
		Count	3	0	3
		% child level at school	2.1%	0.0%	1.8%
		Count	2	1	3
		% child level at school	1.4%	3.7%	1.8%
Total	11.0	Count	0	1	1
		% child level at school	0.0%	3.7%	0.6%
		Count	2	0	2
		% child level at school	1.4%	0.0%	1.2%
		Count	0	1	1
		% child level at school	0.0%	3.7%	0.6%
		Count	1	0	1
		% child level at school	0.7%	0.0%	0.6%
		Count	142	27	169
		% child level at school	100.0%	100.0%	100.0%

Table 3:- Way Of Dealing Of The Parents With Them Child Who Diagnosed By Adhd

	Frequency	Percent	Valid Percent	Cumulative Percent
Total	Iagnore	37	21.9	21.9
	dissction	63	37.3	59.8
	Hitting	69	40.2	100.0
	Total	169	100.0	100.0

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