



# CHILDREN ATTENTION DEFICIT HYPERACTIVITY DISORDER; FUNCTIONAL IMPAIRMENT IN THE DOMAIN OF SCHOOL AND LEARNING AMONG SCHOOL GOING AGE

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**ABSTRACT... Objective:** To determine the frequency of functional impairment in the domain of “school and learning” among school going age children with ADHD. **Study Design:** Cross-sectional study. **Setting:** Neuropsychiatry OPD at National Institute of Child Health (NICH), Karachi. **Period:** April 2012 to October 2012. **Methodology:** A total 122 child and adolescent patients of school going age i.e. 05-15 years diagnosed as having ADHD were included in the study. A Proforma was used to denote demographic details of the patients. Impairment in the domain of “school and learning” was measured by using the Weiss Functional Impairment Rating Scale – Parent Report (WFIRS-P). **Results:** of the total 122 patients 74% were males and 26% were females. 61% were studying in primary school whereas 28% either never went to school or had quit school. overall the domain of school and learning was impaired in about 48% of children with females’ representation being slightly more (50%) compared to males (46%). within the domain of school and learning maximum number of children were impaired in keeping up with schoolwork and needing tutoring (61%); whereas the least frequency of impairment was observed in being suspended or expelled from school (30%). **Conclusions:** ADHD causes functional impairment among children of school going age in the domain of school and learning.

#### Key words:

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## INTRODUCTION

Attention Deficit Hyperactivity Disorder (ADHD) is one of the commonest disorders of childhood and adolescence which appears to be a significant factor in many referrals for psychological/psychiatric evaluation in that age group.<sup>1,2,3</sup> Epidemiological studies have reported highly variable prevalence rates Of ADHD worldwide ranging from as low as 1% to as high as nearly 20% among school age children.<sup>4,5,6,7</sup> More recent studies place the figure closer to 7% to 8% for school age children.<sup>8</sup> In Pakistan prevalence of ADHD among school going age children has been found to be around 2.49%.<sup>9</sup>

Symptoms of ADHD such as: inattention, hyperactivity/impulsivity, and executive dysfunction lead to a number of impairments within multiple domains of life including school and learning. Such impairments create challenges not only for the child him/herself but also for their

families and teachers.<sup>10,11,12</sup> Difficulties in school are a key feature of ADHD, often bringing the child with this disorder to clinical attention.<sup>13,14</sup> Academic difficulties for children with ADHD begin early in life. Longitudinal studies have revealed that the academic under-achievement and poor educational outcomes caused by this disorder are persistent.<sup>15</sup>

In a study on the outcome of ADHD it was found that a substantial proportion of children with this disorder were recognized as having special educational needs and required additional support in school including tutoring, remedial pull- out classes, after-school programs, and special accommodations.<sup>16</sup> Since the children with ADHD have poor coping strategies in a variety of academic and interpersonal settings, these make them more vulnerable to indulge in smoking and other unhealthy behaviors.<sup>17</sup> Pakistan is a nation of relatively younger people with a high ratio of

population between 5 and 15 years<sup>18</sup> -school going age<sup>19</sup>- to which ADHD affects seriously.<sup>13</sup> Keeping in view the adverse impact of ADHD on the academic performance, the aim of this study was to determine frequency of impairment in the domain of school and learning caused by ADHD among school going age children. The study may help identify the aspects which are impaired and hence take effective measures to improve the academic performance of these children.

## METHODOLOGY

This study was carried out at the neuropsychiatry OPD of National Institute of Child Health (NICH), Karachi from April 2012 to October 2012. It was reviewed and approved by Ethical Review Committee of Jinnah Postgraduate Medical Centre (JPMC) Karachi. Diagnosis was based on the comprehensive clinical interview, and general physical and neurological examination. Diagnostic and Statistical Manual of Mental Disorders IV edition Text Revision (DSM-IV TR) was used for this purpose. A Proforma was used to denote demographic details of the patients. Weiss Functional Impairment Rating Scale – Parent Report (WFIRS-P), a valid rating scale<sup>20</sup>, was used to measure the functional impairments caused by ADHD. The domain of school and learning contains 10 questions covering important aspects related to education and school life of a child and adolescent with ADHD. The scale gives a score range from 0 (never or not at all) to 3 (very often or very much/occurring most of the time) with an additional option of “Not Applicable”. Children who had either never gone to school or who quit school were kept in the category of “not applicable”. A mean score of 1.5 or more in the overall domain of “school and learning” was considered as impairment. For the individual questions/areas, impairment was taken when the score was 2 or more on that particular question/area. The data collected was entered in and analyzed by using the software statistical package for social science (SPSS) version 17. Qualitative variables such as gender and outcome variables were calculated using frequency and percentages. Stratification was done with regard to gender to see the impact of this on the outcome.

## RESULTS

A total 122 children of school going age were included in the study. Male children outnumbered their female counterparts i.e., 74% (N=90) vs 26% (N=32). To look into the educational status, the children were grouped into four categories: never went to school, quit school, studying in primary/elementary school, studying in secondary school. The results showed that 61% (n=74) of the patients were studying in primary school and only 12% (n=14) had reached the secondary school level. A substantial number of the patients had either never gone to school or had quit school (so falling in the category of “not applicable”) (Figure 1).

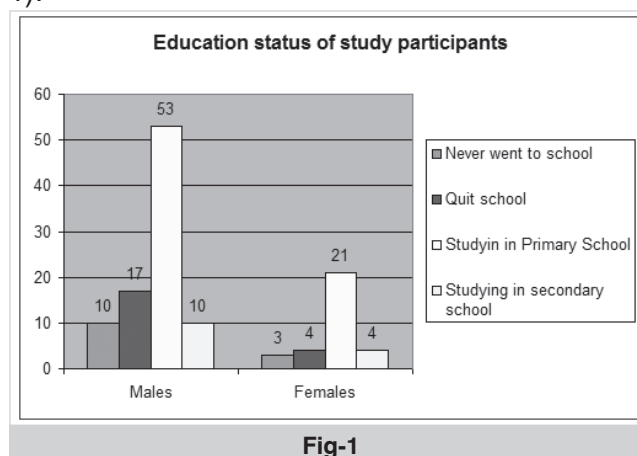


Fig-1

Regarding the overall impairment in the domain of school and learning, results revealed that more female patients suffered impairment than their male counterparts (50% vs 46%) with a p-value of 0.891 (Table-I). Results in ten important areas within the domain of school and education revealed that the school going age children with ADHD were most frequently impaired in keeping up with schoolwork and needing tutoring (61%); whereas the least frequency of impairment was observed in being suspended or expelled from school (30%). About one-fourth (28%) of the children were in the category of “not applicable” (Table-II).

## DISCUSSION

The study was conducted with an objective of assessing the frequency of functional impairments in the domain of school and learning caused by

School and learning	Male (n=90)		Female (n=32)		P-value
	Frequency	%	Frequency	%	
Impaired	41	46	17	50	0.891
Not impaired	22	26	08	25	
Not applicable	27	29	07	25	

**Table-I. Overall impairment in school and learning**

Area within domain of school and learning	Not impaired			Impaired			Not applicable		
	M	F	Total	M	F	Total	M	F	Total
Makes it difficult to keep up with schoolwork	11	9	11	59	69	61	30	22	28
Needs extra help at school	16	22	17	54	56	55	30	22	28
Needs tutoring	11	9	11	59	69	61	30	22	28
Causes problems for teachers	30	25	29	40	53	43	30	22	28
Receives "time-out" or removal from the classroom	29	25	28	41	53	44	30	22	28
Having problems in the school yard	24	31	26	46	47	46	30	22	28
Receives detentions (during or after school)	14	31	19	56	47	53	30	22	28
Suspended or expelled from school	38	53	42	32	25	30	30	22	28
Misses classes or is late for school	40	44	41	30	34	31	30	22	28
Receives grades that are not as good as his/her ability	14	31	19	56	47	53	30	22	28

**Table-II. Impairment in ten important areas within the "domain of school and learning"**

ADHD among school going age children in our part of the world. Despite the fact that it was a hospital-based study and its findings represent only tip of the ice-berg, these hold significance because it was conducted in a public sector tertiary care child hospital, which caters to the needs of a huge population of child and adolescent patients being referred from almost all parts of the country. The rationale for selecting school going age, i.e. 05 to 15 years, was that this age group relates to the objective of our study and also it is during this age when ADHD becomes evident and comes to the focus of clinical attention. Furthermore this is the period when a child is growing physically, mentally, and socially and the disorder is likely to affect all of these aspects adversely especially the domain of school and learning.<sup>13,14</sup>

The results of this study revealed that ADHD was more prevalent in male than female child and adolescent patients. Male to female ratio was about 3:1 which coincides with the previous evidence shown in numerous studies across the globe.<sup>3</sup> A contributory factor for this finding, i.e. more number of male than female patients, is the fact that in our society male children are taken care of more than their female counterparts. Therefore

families are more likely to show concern and resort for the medical advice if they feel that there is something wrong with their son that may affect his academic and other performances adversely.

The study showed 11% (N=13) children had never gone to school and 17% (N=21) had quit school. Besides the overall trend of lower number of school admissions and high rates of drop out from schools<sup>21</sup>, lack of knowledge about mental health, and paucity of schools and trained teachers who could meet the needs of children with mental disorders appear to be major contributory factors in keeping the children with ADHD deprived of education.<sup>22</sup>

Regarding the functionality in school and learning activities, results of this study coincided with the findings of many studies done in different parts of the world, i.e. it is markedly impaired in children and adolescents with ADHD and remains persistent throughout school going age years.<sup>16,23,24,25</sup> In our study the overall domain of "school and learning" was functionally impaired in 47% of school going age children with ADHD. Additionally 28% of children had either never gone to school or had quit school so falling in the

category of “not applicable”. In most of the cases of lateral category, patients’ symptom of ADHD may be the main causative factor. Difference in impairment between the two genders was not very significant.

Results of this study relating to impairments in various areas of school and learning were consistent with many other studies conducted in different other parts of the world which reveal that school age children suffering from ADHD have a persistent pattern of problems in social participation (problems in school yard), spend more years to complete primary and higher school levels, have low rates of attendance, and are more likely to be expelled and suspended.<sup>23</sup> Many findings of this study are consistent with the meticulous review of Loe and Feldman on the academic and educational outcomes of children with ADHD which concluded that the disorder has dramatic associations with poor grades, increased utilization of school-based services, increased rates of detention and expulsion, and low rates of high school graduation and post-secondary education.<sup>26</sup>

Such a huge frequency of impairment caused by ADHD calls for immediate attention to this issue and take effective steps to mitigate the adverse impacts. Here are suggested few measures which will prove beneficial in this regard:

- Mental health in general and of children in particular should be paid special attention on the priority basis in our national and provincial health policies.
- More funds should be allocated in the budget for the provision of mental health service especially for children.
- Material regarding mental health and illnesses should be included in text books to educate our younger generation and common people.
- There is a severe dearth of qualified psychiatrists in Pakistan especially child and adolescent psychiatrists. It is need of the hour that we may pay attention to this issue.
- Proper education and training of teachers regarding some common mental disorders of childhood such as: ADHD, and Mental

retardation can be helpful in the early detection of those and adoption of more empathetic attitudes towards the suffering children.

- There is a dire need to establish special schools/institutes with trained staff for the children who cannot be managed and educated in normal schools like those suffering from mental retardation, severe ADHD, and autism. Day-care service in such institutes can provide respite to parents and families.

## CONCLUSIONS

This study showed that Attention Deficit Hyperactivity Disorder has adverse impact on the various aspects of academic performance of the child and adolescent patients. Children and adolescents are affected adversely regardless of their gender and age within the range of school age years.


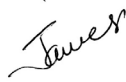
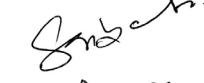
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