Original Article

KNOWLEDGE OF ATTENTION DEFICIT HYPERACTIVITY DISORDER AMONG PAEDIATRICIANS

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Abstract

Background: Attention Deficit Hyperactivity Disorder is one of the most common problems among children predominantly males referred to mental health facilities. It affects different aspects of the child’s life i.e. educational status and academic input, parent-child relationship, social functioning and pragmatic capabilities. Speech and language disorders are often present making timely diagnosis and treatment essential to cope up with communication difficulties. In-spite of practice guidelines, patient diagnosis and therapy is still a far cry with pediatrician having a key role. Dearth of local literature and a high local prevalence of 11% prompted us to conduct this study to determine the level of Knowledge about Attention Deficit Hyperactivity disorder among pediatricians

Method: This Cross-sectional study was conducted using purposive sampling on a sample of N= 50 pediatricians from government and private hospitals of Rawalpindi and Islamabad, over a period of 6 months. The sample population was subjected to a 21 itemed self-structured questionnaire regarding knowledge of communication difficulties, behavioral problems, diagnosis and therapeutic management of ADHD. The SPSS version 21 was used for statistical analysis.

Result: The study population comprised of 80 % males and 20 % females with majority (74%) having experience of 1-5 years. Majority of pediatricians exhibited good knowledge of ADHD regarding diagnostic evaluation, communicational difficulties, behavioral issues and management with total mean score and standard deviation of 54.68 + 5.69 compared to maximum score of 63. Also there was no significant difference between mean scores achieved by pediatricians as regards different age groups, gender, experience and setting with p-value of 0.365, 0.454, 0.428 and 0.493 respectively.

Conclusion: The study concludes that Pediatricians in Rawalpindi and Islamabad possess good knowledge regarding Diagnostic Evaluation, Communication difficulties, Behavioral problems and Management of ADHD.

Keywords: Attention Deficit Hyper Activity Disorder (ADHD), Pediatricians, Communication difficulties, Diagnosis, Behavioral problems, Therapeutic management.
Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is one of the most common problems among children, predominantly males, who are referred to mental health facilities with a prevalence ranging from 1 to 20% \(^1\), \(^2\), \(^3\). A high prevalence of 11% was reported in a local study by Khan S et al. \(^4\). ADHD is a neuro-developmental disorder, defined as an ongoing pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning and development \(^5\), and may extent from childhood to adulthood with genetic as well as environmental interplay \(^6\). The environmental factors have a minimal effect including psychosocial difficulties; complications during prenatal, natal and postnatal period like low birth weight, alcohol intake, smoking and young maternal age; several toxins including elevated lead levels, and food substances including high intake of food additives like sugar etc. \(^7\). Also male gender and history of psychiatric illness in family is significantly associated with ADHD \(^3\).

This disorder affects different aspects of the child’s life i.e. educational status and academic input, parent-child relationship and social functioning and pragmatic capabilities. It has been found that the long-term outcome of the disorder depends on level of commitment to the early interventions and duration \(^8\). ADHD may occur along with other developmental disorders such as learning disabilities, intellectual disability, Autism Spectrum disorders and Cerebral Palsy \(^9\). Speech and language disorders are often present with ADHD, so timely diagnosis and treatment can help the child learn to cope up with communication difficulties. ADHD is a lifelong condition which creates many problems including communicational difficulties and profoundly affects the quality of life (QOL) of not only the individual suffering but those people surrounding him/her \(^10\). Shaw M et al. in a systematic review, found that ADHD patients who did not receive treatment had very poor long-term outcome as regards weak academics, antisocial behavior, drugs/ addiction, obesity, occupation, use of services, self-esteem and social function. \(^11\). In-spite of practice guidelines for ADHD by American Academy of Pediatrics \(^12\), patient diagnosis and therapy is still a far cry. Pediatrician can play a vital role in ADHD referral and management due to their frequent interactions with children and their care givers.

French B et al. investigated ADHD in primary care setting and found a number of barriers affecting the identification of ADHD by primary care practitioners and recommended to improve the knowledge of primary care practitioners regarding ADHD \(^13\), since the primary care physicians have the most important role in care of this population \(^14\).

The pediatricians can play a key role in the screening; diagnosing and managing children with ADHD because they are the one with whom parents discuss their concerns regarding problematic behaviors of their children at first place. With a high prevalence of ADHD in Pakistan, physicians and general practitioners especially pediatricians who are in repeated contact with children and are expected to recognize ADHD in order to promptly initiate appropriate diagnostic and therapeutic interventions. Such early intervention and referrals are needed to prevent the psychosocial and educational consequences of ADHD on the child and family. Also there is dearth of local literature on the subject as well as in the Arab world with recommendations of research on the subject \(^9\). Hence this study was conducted to determine the knowledge of pediatricians about ADHD. The study is very important since the information is directly related to rehabilitation of these patients by early identification thus leading to timely intervention and for resource allocation.
Methods

This cross sectional study using purposive sampling technique was carried out to determine the level of Knowledge about Attention Deficit Hyperactivity disorder (ADHD) among the pediatricians of Rawalpindi and Islamabad region in both government and private sector, over a period of six months 1st Feb.2018 to 31st July 2018. Following ethical approval of study from Institutional Research Board (No. 1502-SLP-008 dated 18 April, 2017), the study recruited a sample of n=50 pediatricians of both gender, having clinical experience > 1 year after taking consent for inclusion in the study. Cases with other disabilities were excluded from the study.

A demographic sheet and a 21 item self-structured questionnaire was employed to assess the knowledge concerning ADHD. The questionnaire comprised statements regarding knowledge of communicational difficulties, behavioral problems, therapeutic management and counseling regarding ADHD. Questionnaire was first subjected to pilot study on a small sample (n=15) to establish the conceptual clarification and feasibility of administration. The participants were required to mark their response on three point Likert scale having options strongly agree = 3, somewhat agree = 2, strongly disagree = 1. Items measuring knowledge regarding diagnosis and evaluation of ADHD were 1-4. Items regarding communication difficulties were 6-11. Items regarding behavioral issues were 12-17. Items regarding management of ADHD were items 18-21. The minimum score of scale was 21 and the maximum score was 63.

The study was conducted in Government and private hospitals of Islamabad and Rawalpindi and questionnaires was individually distributed among participant pediatricians. Prior to final data collection the questionnaire was administered on a small subset of population (n=15) for piloting to check the feasibility of administration.

Study was conducted with compliance to Helsinki Declaration of 1975 revised 1983, following approval of Institutional Research Board (No. 1502-SLP-008 dated 18 April, 2017) and Participant’s consent was ensured by taking their signatures on consents forms attached in the beginning of study questionnaire.

The data was descriptively analyzed through SPSS 21. Descriptive measures included frequency distributions, percentages, mean, standard deviation and chi-square.

Results

Our study population comprised of N=50 participant including 40(80 %) males and 10(20 %) females with a male to female ratio of 4:1 (table 1).

Majority of the pediatricians (37, 74%) had 1-5 years’ experience while the remaining (13, 26%) had 6 to 10 years’ experience.

Knowledge of diagnostic evaluation of ADHD was assessed by item 1 to 5 (table 2) with majority of pediatricians i.e., 94% agreed ADHD can be co-morbid with psychiatric and neurologic disorders and is diagnosed by psychiatric evaluation, while 82 % agreed that it is diagnosed on basis of parent/ teachers’ report and 74% shown the knowledge that laboratory and radiological investigations are not required for the diagnosis.
In connection with communicational difficulties results of item 5 to 11 (table 2) indicate that participants had very good knowledge of the communicational difficulties being faced by ADHD and 98% of participants were of the view that ADHD experience inappropriate fluctuations in pitch, they increase loudness in voice while conversing, produce more filters and have delayed speech; while 100 were of the view that they ADHD children are at risk of developing unclear speech.

Regarding behavioral issues in ADHD (item 12 to 17), pediatricians have fair knowledge regarding attention, education and performance of the ADHD children. ADHD face difficulty in organizing task activities, agreed by 96%, while 84% agree that ADHD require education in schools for special education, 92% agree that child’s school performance is affected and 94% agree that they can concentrate on their interest issues.

Regarding management (item 18-21), pediatricians showed fair knowledge and 62% agreed that it can be managed by drug therapy, while 98% agreed that children need habilitation// rehabilitation services and only 64% agreed that pediatrician play significant role in multidisciplinary team work for ADHD. Also 88% agreed that ADHD can be treated by speech language pathologist.

T-Test results (table 1) did not reveal significant difference between mean scores achieved by pediatricians as regards different age groups, gender, experience and setting (private or public) with p-value of 0.365, 0.454, 0.428 and 0.493 respectively.

Discussion

The current study was conducted on sample of 50 pediatricians, with male to female ratio of 4:1. Eighty percent of the pediatricians revealed good level of knowledge regarding ADHD with total mean score of 54.68 ± 5.69 out of a total score of 63. This was contrary to a previous study which revealed substantial deficit in the knowledge of both pediatricians and general practitioners with only 21.6% of pediatricians and 13.7 percent of general practitioners showed reasonable level of knowledge. In contrast in a Saudi study targeting young < 30 years old primary health care physicians, revealed that 32.1% lacked ADHD knowledge, while 17.6% had good knowledge and were able to make diagnosis and out of these 73.3% referred the cases to specialists. In another local study targeting pediatric residents, only 16%were found to have adequate knowledge. Similarly in a Turkish study by Hirfanoglu T et al. targeting pediatric residents, 81.4% had deficiency in their knowledge regarding ADHD.

Present study indicated that knowledge regarding diagnostic evaluation of ADHD as assessed by item 1 to 5 (table 2) revealed good knowledge with majority of pediatricians and they agreed that diagnosis of ADHD cannot be based on laboratory and radiological investigations etc. and can be diagnosed by psychiatric and behavioral evaluation as it can be co-morbid with psychiatric and neurologic disorders. In another study involving pediatric residents, 85.2% reported deficient in knowledge to establish diagnosis of ADHD. In a study by Wolraich M L et al. majority (81%) pediatricians use formal diagnostic criteria including 67% use teacher rating scales on routine basis. Children who are
initially diagnosed with speech and language impairments are likely to be diagnosed with ADHD since it can be co-morbid with other psychiatric and neurologic disorder

In the current study regarding communicational disorders in ADHD, participant pediatricians were found to have very good knowledge with most agreeing that ADHD experience inappropriate fluctuations in pitch, they increase loudness in voice while conversing, face more difficulty in understanding non-verbal language, produce more filters and have delayed speech; and are also at risk of developing unclear speech.

It is a fact that individuals with ADHD face difficulty in non-verbal communication of others. The non-verbal language in ADHD child encodes fewer emotional cues which expands the current understanding of their social cognitive processes. Evidence highlights that children with ADHD are likely to support prosaic responses in the response decision stage. Inappropriate social behavior of children in ADHD children appears to be linked to different stages of social processing in which they encounter difficulties. Most children with ADHD have difficulties in communication. Three main areas of communication that can be affected are comprehension, expression and social skills.

Regarding behavioral issues in ADHD (item 12 to 17), pediatricians have fair knowledge regarding attention, education and performance of the ADHD children. ADHD face difficulty in organizing task activities, agreed by 96%, while 84% agree that ADHD require education in schools for special education, 92% agree that child’s school performance is affected and 94% agree that they can concentrate on their interest issues.

In current study most pediatricians have good knowledge about behavior problems in ADHD. Children with ADHD display behaviors that place them at risk for the development of poor peer relationship. Children with ADHD confirm an assortment of commonsense deficiencies and are especially in danger for other discourse and dialect issue. The recent research expresses that ADHD is closely concerned with speech-language, mental and behavioral problems that frequently appear in combination with ADHD. And may suffer from increased behavioral risks like substance abuse, obesity with binge eating and sexual abuse along with depression and disruptive behavior.

Treatment plan of ADHD needs to address multiple conditions which might need combination of treatment like pharmacologic, psychologic, behavioral interventions along with academic interventions and parent training. Current study indicated average knowledge among pediatricians about the therapeutic management. It is important for parents to remember that ADHD can be successfully managed. Several treatment options pledge parents to work closely with those involved in the child’s life i.e. healthcare providers, therapists, teachers, and other family members. Medication is a viable option that may help control few behavioral problems that could lead to trouble with family, friends and at school. ADHD is manageable with drug therapy and most of the time it becomes necessary to continue medication to benefit from behavior, occupation and speech therapies. In one study 60.9% of pediatric residents indicated their knowledge and awareness of the adverse effects.
Another study described that pediatricians ought to have the capacity to make a preliminary diagnosis of ADHD and reduce parental concerns with respect to behavioral issues and educational issues of their ADHD children. However for a final diagnosis a multidisciplinary team is essential including Eye and ENT specialist, psychologist, counselor, special educator and child psychiatrist. Multidisciplinary teamwork is increasingly considered the ideal way to provide mental health services.

In present study pediatricians were seem to have better knowledge regarding diagnosis, intervention and management of ADHD may be because Islamabad and its twin city Rawalpindi are well developed in rehabilitation services for such disorder as compared to other cities of Pakistan. Many Government and Private hospitals and institutes provide rehabilitative services to these children like NIRM (National Institute of Rehabilitation Medicine, Islamabad), IMR (Institute of Medical Rehabilitation, Islamabad), ISRA (Institute of Rehabilitation Sciences, Islamabad) · Shifa International Hospital Islamabad. Yusra Institute of Rehabilitation Sciences, Rawalpindi. Armed Forces Institute of Rehabilitation Medicine (AFIRM) and Autism Society of Pakistan.

The knowledge of ADHD of primary health care physicians in a Saudi study varied depending on age, gender and nationality. However in current study age, gender, and setting of their work (public / private) did not reveal statistically significant difference with p-value of 0.365, 0.454, and 0.493 respectively.

Independent sample t-test results (table 1) was used to compare difference between mean scores of pediatricians. Though, it was assumed that increase in years of experience in pediatricians might had a positive impact on knowledge regarding ADHD, however this was not the case and the difference between the mean scores was statistically not significant with p value of 0.428. It means that doctors’ clinical intuition regarding ADHD needs more theoretical and symptomatic knowledge relating to this disorder rather than just gain in experience in Pediatrics. It showed that pediatrician knowledge regarding comorbidity of other psychiatric disorders in ADHD significantly associates with their knowledge regarding need of habilitation and rehabilitation services in ADHD.

The results of this study supported previous findings that ADHD is significantly associated with increased risk of comorbidity of disorders i.e. unipolar depressive disorder, Bipolar Disorder, anxiety disorder, ADHD, delayed development, and mental retardation among children and adolescents.

Limitations of the study included lack of generalizability due to small sample size and settings of study limited only to Islamabad and Rawalpindi. Also no association of level of knowledge regarding ADHD with actual practice of pediatricians was evaluated.

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There was no funding received for this paper.
Conflict of interest

All authors declare that they have no conflict of interest.
References:


Table-1: Demographic Variables * Descriptive statistics including T-Test Result (n=50)  

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>No</th>
<th>%</th>
<th>Mean &amp; SD</th>
<th>T</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Group</td>
<td>30-35 years</td>
<td>27</td>
<td>54%</td>
<td>54.000 ± 5.449</td>
<td>-.915</td>
<td>.365</td>
</tr>
<tr>
<td></td>
<td>36-40 years</td>
<td>23</td>
<td>46%</td>
<td>55.478 ± 5.976</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>Female</td>
<td>10</td>
<td>20%</td>
<td>55.900 ± 4.724</td>
<td>.755</td>
<td>.454</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>40</td>
<td>80%</td>
<td>54.375 ± 5.916</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience</td>
<td>1-5 years</td>
<td>37</td>
<td>74%</td>
<td>54.297 ± 5.868</td>
<td>-.800</td>
<td>.428</td>
</tr>
<tr>
<td></td>
<td>6-10 years</td>
<td>13</td>
<td>26%</td>
<td>55.769 ± 5.198</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setting</td>
<td>Private</td>
<td>35</td>
<td>70%</td>
<td>54.314 ± 5.362</td>
<td>-.691</td>
<td>.493</td>
</tr>
<tr>
<td></td>
<td>Public</td>
<td>15</td>
<td>30%</td>
<td>55.533 ± 6.501</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Questionnaire Based Descriptive Statistics of Study Population (n=50)  

<table>
<thead>
<tr>
<th>Questions Regarding Children with ADHD</th>
<th>Mean (SD)</th>
<th>Disagree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is diagnosed by medical tests e.g. blood test etc.</td>
<td>1.34 (0.63)</td>
<td>37(74)</td>
<td>13(26)</td>
</tr>
<tr>
<td>Is diagnosed on the basis of parents/teacher's report.</td>
<td>1.98 (0.59)</td>
<td>8(18)</td>
<td>41(82)</td>
</tr>
<tr>
<td>Can be co-morbid with psychiatric and neurologic disorder e.g. ASD, learning disabilities, ID and CP.</td>
<td>2.18 (0.52)</td>
<td>3(6)</td>
<td>47(94)</td>
</tr>
<tr>
<td>Is diagnosed by psychiatric evaluation</td>
<td>2.44 (0.61)</td>
<td>3(6)</td>
<td>47(94)</td>
</tr>
<tr>
<td>Shows inappropriate fluctuations in their voice pitch.</td>
<td>2.46 (0.54)</td>
<td>1(2)</td>
<td>49(98)</td>
</tr>
<tr>
<td>Can trouble with social communication skills</td>
<td>2.54 (0.61)</td>
<td>3(6)</td>
<td>47(94)</td>
</tr>
<tr>
<td>Often increases loudness in voice while conversation.</td>
<td>2.34 (0.52)</td>
<td>1(2)</td>
<td>49(98)</td>
</tr>
<tr>
<td>Face difficulty to understand other people’s non-verbal language (body language, gestures)</td>
<td>2.40 (0.64)</td>
<td>4(8)</td>
<td>46(92)</td>
</tr>
<tr>
<td>Produce more filters (expressions) as they try to organize their thoughts.</td>
<td>2.34 (0.52)</td>
<td>1(2)</td>
<td>49(98)</td>
</tr>
<tr>
<td>May appear in infants with undeveloped fine motor skills and delayed speech.</td>
<td>2.46 (0.54)</td>
<td>1(2)</td>
<td>49(98)</td>
</tr>
<tr>
<td>Are at risk for developing unclear speech</td>
<td>2.32 (0.47)</td>
<td>0(0)</td>
<td>50(100)</td>
</tr>
<tr>
<td>Often face difficulty organizing task or activity.</td>
<td>2.54 (0.54)</td>
<td>2(4)</td>
<td>48(96)</td>
</tr>
<tr>
<td>Often answers before the question is completed</td>
<td>2.62 (0.49)</td>
<td>0(0)</td>
<td>50(100)</td>
</tr>
<tr>
<td>Can only get education in schools for special education</td>
<td>2.08 (0.63)</td>
<td>8(16)</td>
<td>42(84)</td>
</tr>
<tr>
<td>Affects the child's school performance</td>
<td>2.22 (0.58)</td>
<td>4(8)</td>
<td>46(92)</td>
</tr>
<tr>
<td>Can concentrate on their interest issues.</td>
<td>2.48 (0.61)</td>
<td>3(6)</td>
<td>47(94)</td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>Frequency</td>
<td>Severity</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------</td>
<td>----------</td>
</tr>
<tr>
<td>17</td>
<td>Frequently interrupt in conversations</td>
<td>2.26 (0.57)</td>
<td>3(6)</td>
</tr>
<tr>
<td>19</td>
<td>Needs habilitation/rehabilitation services.</td>
<td>2.46 (0.54)</td>
<td>1(2)</td>
</tr>
<tr>
<td>20</td>
<td>Pediatrician does play a significant role in multi-disciplinary team work for ADHD.</td>
<td>1.66 (0.52)</td>
<td>18(36)</td>
</tr>
<tr>
<td>21</td>
<td>Can have trouble with social communication skills &amp; can be treated by speech therapist.</td>
<td>2.22 (0.65)</td>
<td>6(12)</td>
</tr>
<tr>
<td></td>
<td><strong>TOTALSCORE</strong></td>
<td>54.68 (5.69)</td>
<td></td>
</tr>
</tbody>
</table>