

# Clinical Types and associated maternal factors of Attention Deficit /Hyperactivity Disorder ADHD in a group of children in Baghdad

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## Summary:

**Background:** Attention Deficit Hyperactivity Disorder (ADHD) is a common neurobehavioral disorders in children includes pervasive inattention, over activity, and impulsivity imposing psychological and cognitive impairment.

**Objectives:** This study aims to examine the clinical types and the association of some maternal risk factors and developmental milestone with ADHD among a group of school-age children.

**Method:** 100 primary school- age children affected with ADHD of both sexes were clinically assessed by the semi-structured interview questionnaire of ADHD (SSIQ) according to (DSM-IV-TR) during April-August 2013at Ibn-Rushd Psychiatric Teaching Hospital in Baghdad results were submitted to statistical analysis.

**Results:** Most of the children were urban males with average age of 8 years old presented with combined type of ADHD and had a normal developmental milestone. Maternal adversities were not insignificantly associated.

**Conclusion:** ADHD was presented mostly in its combined form. Maternal adversities and type of labor was not significantly associated with its morbidity. The authors call for improvement child's mental health services.

**Key words:** clinical, maternal risk factors, ADHD, children, Baghdad.

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## Introduction:

Attention Deficit/ Hyperactivity Disorder (ADHD) is one of the most common mental disorders that develop in children. It is characterized by persistent inattention, over activity, and impulsivity leading to educational handicap for the affected children. It includes three observable subtypes: inattentive, hyperactive/impulsive, or combined types (1,2).Although ADHD is not diagnosed in many children before the school age , some signs appear much earlier ( 2,3,4).Impairment of attention and/or hyperactivity-impulsivity must be observed in at least two settings (3,4) .Its prevalence in some developed countries reaches to 4-9% of 4-16 years old children (4,5,6,7). In some Arab countries , about 25.5-29.7% of school children were affected by ADHD with male predominance over female in (8,9,10,11,12) .Many genetic, environmental ,dietary and maternal factors are attributed to its development in addition to psychological and harsh parenting style specially with hyperactive /impulsive subtypes(12,13).According to the Diagnostic and Statistical Manual o mental disorders ,Fourth Edition Text Revised (DSM-IV-TR) and the Tenth

International Code of Diagnosis (ICD-10), ADHD should not be diagnosed in presence of psychotic symptoms or pervasive developmental disorders also specific neurological or brain damage should be excluded . In the recent years, the emphasis changed to favoring attention with hyperactivity/impulsivity type of behavior (10, 13,14).

This study tries to explore the association of some socio-demographic characteristics, clinical types of ADHD, prenatal and perinatal factors of a group of children diagnosed with ADHD in Baghdad-Iraq. These factors included age, sex, mode of residence, financial status of the parents, developmental milestone, pre and perinatal difficulties.

## Method

During the period from April to August 2013, 100 primary school aged children referred from primary health care units and other health centers were assessed by conducting a detailed psychiatric interview at the child consultation clinic in Ibn-Rushd Psychiatric Teaching Hospital in Baghdad using the semi-structured interview questionnaire of ADHD (SSIQ) which was previously validated in Iraq, according to (DSM-IV-TR ) .The children and their parents were interviewed by the consultant child psychiatrist and senior psychiatric registrar assisted by a social worker to document the required

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demographic data and a clinical psychologist for testing their intellectual capacity and to exclude mental handicap .Epilepsy and brain lesions were excluded. The study protocol was approved by the ethical and research committee in the Iraqi Council for Medical Specializations together with formal approval from hospital administration .Attending parents were asked to give their consent to participate in this study after explaining its goal and nature and were documented in the child's file .The study sample involves primary school children aged 6-12 years old on criteria were history of major head trauma ,visual or auditory impairment, clinically proved epilepsy and presence of any degree of mental retardation. , The (SSIQ) form consisted of two parts: Part I included 9 questions designed to measure inattention . Part II included another 9 questions designed to measure hyperactivity-impulsivity. A special form included questions related to type of pregnancy, labor, birth trauma, type of feeding and developmental milestone of the children. Data were analyzed using the computer facility of the available software packages of SPSS-17 (statistical packages for social sciences -17),a proportion level of 0.05 was considered of significance using Pearson Chi-square test..

**Results:**

Demographic characteristics: Male children constituted 82% of the sample while female children constituted 119% of the sample, 75% of the children were residing in city of Baghdad and its suburb, the rest 25% came from other governorates and remote areas. 65% of the parents were of satisfactory financial status estimated by their monthly income and type of accommodation, the rest 35% were of a low income and poor accommodation.

Clinical characteristics: Figure 1 shows that 65% of the children were of the combined type of ADHD followed by hyperactive type 19%, and 16% of them were of the inattentive type.

Regarding the association of developmental milestone with types of ADHD it was found that 78% of the children had normal developmental milestone; the rest 22% suffered delayed speech development, walking and sphincter control as summarized in Table 1.

Regarding the maternal risk factors ,it was found that 89% of the children's mothers had full term, healthy pregnancy ,while 19% of them had full term pregnancy with 8% of the them had non hazardous associated medical problems ,only 3% of the mothers had pre and post term pregnancy which is not associated with any medical complications. Comparable ratio of normal labor and delivery by caesarian section 58%, 42% was found, mothers inquires about type of feeding during infancy revealed that 78% of them enjoyed breast feeding , while 22% had bottle feeding .These relation were summarized in Table 2.

**Table1. Developmental milestone of the studied children distributed in the clinical types of ADHD.**

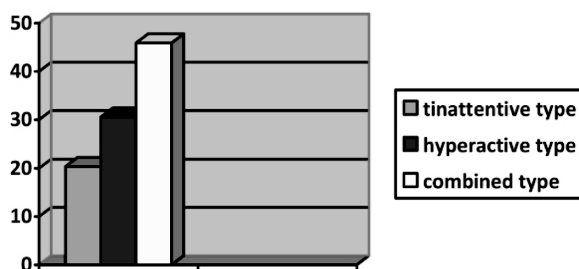
| Total  | Combined | Hyperactive | Inattentive | milestones status |
|--------|----------|-------------|-------------|-------------------|
| 78     | 48       | 20          | 10          | Normal            |
| 78%    | 75%      | 75%         | 80%         |                   |
| 22     | 12       | 5           | 5           | Delayed           |
| 22%    | 24.6%    | 11%         | 12.3%       |                   |
| 100    | 65       | 19          | 14          | Total             |
| 100.0% | 100.0%   | 100.0%      | 100.0%      |                   |

P .Value= 0.005 significant for the normal milestones

**Table 2. Selected prenatal and per natal factors associated with ADHD in the studied children**

|                                |                               | N  | %   | Chi square | P. value             |
|--------------------------------|-------------------------------|----|-----|------------|----------------------|
| Pregnancy                      | With medical complications    | 19 | 19% | 67.2       | 0.008 Significant    |
|                                | Without medical complications | 81 | 81% |            |                      |
| Pregnancy                      | Full term                     | 89 | 89% | 183.3      | 0.00016 Significant  |
|                                | Preterm                       | 8  | 8%  |            |                      |
|                                | Post term                     | 3  | 3%  |            |                      |
| Type of labor                  | NVD                           | 58 | 58% | 24.12      | 0.15 Not Significant |
|                                | CS                            | 42 | 42% |            |                      |
| Type of feeding during infancy | Beast feeding                 | 78 | 78% | 3.35       | 1.19 Not significant |
|                                | Bottle feeding                | 22 | 22% |            |                      |

NVD; normal vaginal delivery  
CS; caesarian section



**Figure1. The clinical types of ADHD in children attending Ibn-Rushd Psychiatric Hospital**

**Discussion:**

There are numerous published literatures about childhood neurodevelopmental disorders in industrial and western countries but studies about ADHD in Arab world countries are scares (12, 14, 15). In Iraq, little is known about its prevalence, comorbidity and the associated risk factors. To the best of the authors' knowledge this is the first study that discusses possible associated factors of ADHD in school aged children in Baghdad keeping in mind the difficulties of recruiting such samples and the shortage of proper specialized centers, shortage of human resources; lack of funding; lack of appropriate research tools and research training of local professionals; low priority of data collection by state agencies; and insecurity (16,17). The male predominance in the sample is consistent with the international figures of prevalence and nature of the disorders and many previous studies including one local studies in 1999 it may also reflect the gender preference by Iraqi families regarding school education (4,5,6,7,12) .

This study also showed that the mean age of the children was 8.6 years which is consistent with clinical course of the disorder. The children of age group 9-11years showed significantly higher prevalence for the three subtypes of the ADHD disorder than the boys of the younger age groups, this finding confirmed what Al Hamed et al(2008) and Al-Sharbati (2004), found in Saudi and Omani school children ,also it may be the age where the scholastic performance is mostly observed by the teachers (18,19).

The majority of the children 75% were urban dwellers probably because of easy accessibility to the hospital. Again the majority of the children 65%, came from middle income families reflecting their advantaged situation that may motivated them to consult child psychiatric units.(17). In consistency with previous studies ,the majority of the studied sample 65% were of the combined type of ADHD with symptoms of in attention and hyperactivity/impulsivity were predominant. This finding needs further confirmation in future similar studies keeping in mind the possibility of biased reporting from the parents specially in families with low standard of living and poor education(7,8,9,17,18,19).

Botting(1997), Elgen (2002) ,Sasaluxnanon(2005), found scanty evidence of the association of infant pre maturity, low birth weight with development of ADHD (20,21,22).,however this association is still controversial .The vast majority of the studied mothers 89% had full term uncomplicated pregnancy further more, the type of labor (NVD or C/S) did not seem to have any effect on the development of ADHD, may be because of excluding children who suffered brain damage ,as it was found by many studies that traumatic brain injury especially the severe ones has been associated with attention & behavioral problems in children which compromise ongoing brain development and disturb executive functions (4,10,23,24).It

was interesting to find that breast or bottle feeding did not show any association with the development of ADHD may be because most of the inquired mothers gave a history of mixed breast and bottle feeding(P.Value=0.19).There was a significant association of ADHD with the types of pregnancies ( P. Value =0.008, 0.00016) but not statically significant with type of labor(P.Value=0.15).

**Conclusion:**

The studied children with were mostly urban males of a middle socio-economic, educational background, clinically presented as the combined type of ADHD with no clear evidence of association with maternal adversities as risk factors .It also indicates the inadequacy of social and psychological facilities manifested by absence of school reports & referral. The paper calls for future studies on larger samples and extending the child's mental health clinics to serve the increasing number of such in other regions of Iraq.

**Author's contributions:**

Dr. Maha sulaiman Younis: editing the whole manuscript, supervising data sampling, reviewing, language amendment.

De. Abbass marmos Al-Saedy: data sampling, assessing the patients, collecting the references.

Dr. Basim Dawood Sadiq: data sampling, clinical assessment, reviewing.

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