

## Prevalence of Attention Deficit Hyperactivity Disorder among Preschool Children (3-6 Years), Menoufia Governorate

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### Abstract:

**Background:** Attention deficit hyperactivity disorder (ADHD) is the most common neurobehavioral disorder in children and adolescents. It is characterized by inattention and hyperactivity-impulsivity that often results in behavioral and academic difficulties. It affects about 3 - 12% of children with a male to female ratio varying from 3:1 to 9:1. **Objectives:** To estimate the prevalence and identifying possible risk factors of attention deficit hyperactivity disorder among preschool children (3-6 years), at Menoufia governorate. **Methods:** A cross-sectional comparative study was carried out in Menoufia governorate during the period from 15<sup>th</sup> March 2016 to 1<sup>st</sup> April 2018. The study included 572 preschool children (308) male and (264) female. They had been chosen from the preschool classes (KG1 and KG2) in the randomly selected schools. Written consents were taken from children caregivers to participate in the study. Parents and teachers were the respondent to the Arabic version of Conner's questionnaire. Suspected cases were confirmed and categorized by DSM-V criteria. Affected children and control group were subjected to medical and psychological assessment, IQ estimation and laboratory investigations. **Results:** Prevalence of attention deficit hyperactivity disorder among preschool children was 9.30%. It was higher in males (69.8%) with a male to female ratio about 2:1. Main risk factors were low socioeconomic level, large family size, living with a single parent and positive consanguinity. **Conclusion:** ADHD presents a troublesome problem among preschool children at Menoufia governorate. Collaborative efforts are required for early detection and management.

**Key words:** Attention deficit, Disorder, Prevalence, Risk factors

**Introduction:** Attention deficit hyperactivity disorder (ADHD) is a neuro-developmental disorder characterized by a definite behavioral pattern that might impair individual performance in the social, educational or work environments.<sup>(1)</sup> It affects about 3-12% of children with a male to female ratio varying from 3:1 to 9:1.<sup>(2)</sup> About 30-50% of people diagnosed in childhood continue to have symptoms into adulthood.<sup>(3)</sup> Attention deficit hyperactivity disorder can affect every aspect of the child's functioning and affect not only the school performance but also the family

life and peer interaction, resulting in significant academic delay, learning deficits and poor self-esteem, which further complicate the clinical presentation and treatment.<sup>(4)</sup>

The cause of most cases of ADHD is unknown however, it is believed to involve interactions between genetic and environmental factors.<sup>(5)</sup> There are three different subtypes of ADHD; combined ADHD is the most common subtype, which involves symptoms of both inattentiveness and hyperactivity/impulsivity. Inattentive

ADHD is marked by impaired attention and concentration. Hyperactive-impulsive ADHD is marked by hyperactivity without inattentiveness.<sup>(6)</sup>

In Egypt, previous studies indicated that attention deficit hyperactivity disorder is an important public health problem among children.<sup>(7)</sup> Diagnosis of ADHD depends on criteria of Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM V) of the American Psychiatric Association.<sup>(8)</sup> Treatment of ADHD consists of drug therapy, behavioral therapy, diet therapy or their combination. Regardless of the approach used, early and effective treatment of ADHD is recommended to yield a better prognosis and fewer problems in adulthood.<sup>(9)</sup>

There are limited published data on the prevalence and risk factors of ADHD among preschool children. This study aimed to estimate the prevalence of ADHD among preschool children (3-6 years) at Menoufia governorate by recognizing the potential risk factors that could be either prevented or managed.

**Methods:** This is a cross-sectional comparative study which was conducted on 572 preschool children aged 3-6 years old. They were chosen from the preschool classes (KG1 and KG2) in the selected schools during the period from March 15<sup>th</sup>, 2016 to 1<sup>st</sup> April

2018. This study was conducted after its approval by the ethical committee of the faculty of medicine, Menoufia University. All caregivers of children gave a valid written informed consent after clear explanation of the study aims and techniques.

**Sample size calculation:** The sample size was calculated using Epi Info (2000) program depending on both, the total number of preschool students in Menoufia governorate was 56908 during the scholastic year (2016-2017) and past review of literature Soliman et al.<sup>(7)</sup> who estimate prevalence of attention deficit hyperactivity disorder among children was (6.50%), sample size has been calculated at power 80% and CI 95%, using the following formula:  $N = \frac{Z^2 p q}{E^2}$ . So sample size calculated was 603 children. There were 31 incomplete questionnaires they were excluded giving response rate (94.8%) so the final sample size was 572 participants.

**Sampling technique:** A multistage random sampling technique was used as follows, first stage: one district (Shebin El-Kom) out of 10 districts in Menoufia governorate was chosen randomly. Second stage: selection of schools by doing list for both private and governmental schools that have preschool classes (KG1 and KG2), then one private and three governmental schools were randomly selected. Third stage: selection

of children, two classes from each school were chosen.

**Inclusion criteria:** Children age from 3- 6 years and both sex. **Exclusion Criteria:** children with a neurological or chronic illness. Children who gave positive results on both parents and teachers Conners questionnaires as well as the DSM-V questionnaire were included in the study group. Children who gave negative results regarding the diagnosis of ADHD were included in control group. They were chosen randomly from the same schools and the same classes, with a case to control ratio 1: 1. Parents were interviewed by the researcher at schools and asked to fill a predesigned questionnaire to assess risk factors, Arabic form of Conner's scale<sup>(10)</sup> and Arabic form of the Diagnostic and Statistical Manual of Mental Disorders V (DSM-V) <sup>(8)</sup>, also teachers were invited after their consent to fill the corresponding form of Arabic Conner's questionnaire.

**Tools of the study:** The predesigned questionnaire included the socio-demographic data (age, sex, and residence), the socioeconomic level which was classified according to the scoring system done by Ibrahim and Abd El- Ghaffar.<sup>(11)</sup> This scoring system involved: fathers and mothers education and occupation, family size and income. The score of family income was

modified to be: more than sufficient =3, sufficient = 2 and less than sufficient =1. Scores of all parameters were added and the scoring system was based on 3 SE levels: High = 9 to 12, Middle = 5 to < 9 and Low = less than 5. The family history of the following: consanguinity, chronic illness (diabetes.M, hypertension, heart diseases etc...), psychiatric illness and history of ADHD among first-degree relatives). Also, food habits, watching TV and electronic games are include.

Arabic form of Conners parent scale-revised long versions <sup>(10)</sup>, it consists of 80 items with an average administration time of 25-30 minutes. It scores the parent's report of their child's behavior during the past month on a 4 point scoring, namely (0) not true or seldom true to (3) Very often true. Scoring of Conners was average, typical score (45 – 55), slightly atypical, borderline (56 – 60), mild atypical, possible problem (61 – 65), moderately atypical, an evident significant problem (66 – 70) and markedly atypical, a significant problem (>70). The Arabic version of Conners teacher scale- revised long versions<sup>(10)</sup>, it consists of 59 items questionnaire with an average administration time of 15-20 minutes. It provides data on the child's academic, social and emotional behavior in the classroom setting during the

past one month prior to the administration, its scoring is like the parent form.

The Diagnostic and Statistical Manual of Mental Disorders V (DSM-V)<sup>(8)</sup>, it consists of 18 items 9 for inattention and 9 for hyperactivity-impulsivity scoring is done on a 4 point response ( 0 = Never, 1 = Occasionally, 2 = Often, 3 = Very Often or always, symptoms that occur ‘often’ or ‘very often’ are considered as present, and those that occur ‘never’ or ‘occasionally’ are considered absent, diagnosis is made when 6 symptoms or more of inattention are available and 6 symptoms or more of hyperactivity-impulsivity are available as well. General and neurological examination, IQ tests and laboratory investigations were conducted to ADHD children and control group.

General examinations encompassed weight and height. Weight was measured on a calibrated digital electronic scale which was set to zero before placing the child on it and was checked weekly with known calibration weights.<sup>(12)</sup> Height was measured by a tape measure permanently fixed to a wall the head was held firmly at the top of the board.<sup>(13)</sup> Neurological examinations were conducted by a psychiatrist to detect any organic pathology. Intelligence quotient (IQ tests), Wechsler intelligence scale for children was done by a

psychologist. Blood samples were collected and examined for hemoglobin level and bio-elements in serum (Iron, Mg and zinc level) by using the spectrophotometer (Jenway, Keison International Ltd., Chelmsford, UK).

**Statistical analysis:** Data were collected, tabulated, statistically analyzed using an IBM personal computer with Statistical Package of Social Science (SPSS) version 22 (SPSS, Inc, Chicago, Illinois, USA).where the following statistics were applied, Qualitative data were expressed as number and percent and tested by the chi-squared test. Quantitative data were expressed as mean and standard deviation and tested by the t-test. Crude and adjusted odds ratios using logistic regression analysis were calculated at 95% confidence intervals. Logistic regression was used to calculate the effects of risk factors as independent variables while the effects of other confounders were removed. P value < 0.05 was set to be significant.

**Results:** The prevalence of attention deficit hyperactivity disorder among preschool children was 9.3%. Mean age of ADHD children was higher than control group  $5.46 \pm 0.66$  and  $4.95 \pm 0.73$ , respectively. The prevalence of ADHD was higher in males (69.8%), with a male to female ratio was 2.31:1 (Table1). The combined type was the commonest present in 26 cases (49.1%),

followed by hyperactive-impulsive (28.3%) (Figure1). Skilled and professional jobs of mothers found to increase the risk for ADHD by about two folds (OR =2.79 CI 95% = 1.26-6.21). Low and middle socioeconomic level found to increase the risk for ADHD by about two folds (OR=2.49 CI95%= 1.10 - 5.62). Large family size, living with a single parent, consanguine parents, father smoking, and family history of chronic disease and history of ADHD were considered risk factors for ADHD (Table 1).

Delayed speech present in 32.1% of ADHD children compared to 9.40% of control group ( $X^2= 8.26$ , P value= 0.012), bad social relations with peers were more common in ADHD children 37.7% (Chi square test =18.5, P value=0.001). Regarding IQ level the present study found that 28.3% of ADHD children had IQ level from 80 – 90 compared to 11.3% in control group ( $X^2= 7.68$ , P value = 0.034) (Figure 2).

Frequent eating of chips, sweets, soft drinks , watching TV and playing electronic games for long time were risk factors for ADHD with significant difference between ADHD group and control group (OR=2.51 CI95%= 1.06-5.94) and (OR=7.09 CI95%= 2.93-17.1) respectively (Table 2). The biological elements (iron, magnesium, and zinc) were deficient in ADHD children

compared to control group, the difference was statistically significant (Table 3). Multivariate analysis was done by using binary logistic regression. Familial and socioeconomic risk factors like positive consanguinity, low socioeconomic level, living with a single parent, mother employed, father smoking and large family size were associated with an increased likelihood of ADHD. Also, frequent eating of chips and sweets daily, watching TV for a long time found to increase the chance of developing ADHD. Other significant risk factors before logistic regression analysis were found to be non-significant after this analysis as family history of chronic illness and ADHD (Table 4).

**Discussion:** In this study, the prevalence of attention deficit hyperactivity disorder was 9.30% among preschool children. These findings were consistent with Soliman et al.<sup>(7)</sup> who found that overall prevalence of ADHD among children was 6.5%. In the current study prevalence of ADHD was higher in males with a male to female ratio 2.31:1. This result agrees with Mohamed et al.<sup>(14)</sup> who found the distribution of male and female gender was 2.7:1.

In the current study, the combined type (ADHD-C) (49.1%) was the commonest type, followed by hyperactive-impulsive type (ADHD-HI) (28.3%) and inattentive type

(ADHD-IA) (22.6%). These results were similar to that reported by Mohamed et al.<sup>(14)</sup> who revealed that 47.4% of ADHD children presented with predominantly ADHD-C, compared to 29.6% presented with ADHD-HI and 23% presented with ADHD-I.

Many factors were implicated in increasing risk of ADHD. In our study, mother working had two folds increased risk for ADHD (OR=2.79 CI95%=1.26-6.21). This is similar to that reported by Farhat et al.<sup>(15)</sup> who found that housewife and simple workers are more protected from having ADHD than those with highly employed mothers. In the present study low and middle socioeconomic level had about two folds increased risk for ADHD more than high socioeconomic level (OR =2.49 CI95% = 1.10-5.62). This agrees with Al Hamed et al.<sup>(16)</sup> who found a significant difference in the prevalence of ADHD between the children belonging to lower and high socioeconomic level.

This could be explained by the fact that the children belonging to a lower social class are at an increased risk of having various psychiatric problems, because of factors such as complicated pregnancy, malnutrition and exposure to environmental toxins.

In the current study large family size had two folds increased risk for ADHD more than small families (OR=2.33CI95%=1.07-5.10),

this result is similar to Jenahi et al.<sup>(17)</sup> who showed the association of ADHD symptoms with large family size. This could be explained that the care needed by children is more likely to be afforded when the size of the family is smaller. In the present study living with single parent increase risk for ADHD by about three folds more than living with both parents (OR=3.14 CI95%= 1.23-8.03). This is similar to El-Tallawy et al.<sup>(18)</sup> who found that separation of the child from one or both parents early in life was associated with increasing the prevalence of ADHD. This also agrees with Al Hamed et al.<sup>(16)</sup> who reported that prevalence of hyperactivity-impulsivity disorder was found to be significantly higher in boys living with single parents. This disagrees with Farhat et al.<sup>(15)</sup> who found that disrupted family environment was not a risk factor for ADHD.

In the present study, positive consanguinity was important risk factor had about five folds increased risk for ADHD (OR= 5.93 CI95%= 1.23-28.5). It does consistent with Abdulbari et al.<sup>(19)</sup> who found a significant relationship between ADHD symptoms and consanguineous parents. In the current study father smoking found to increase risk by about two folds (OR = 2.35 CI95% = 1.07-5.15). These findings are similar to D'Onofrio, et al.<sup>(20)</sup> who reported that there is

evidence of a dose- response relationship between the number of cigarettes smoked and ADHD severity.

The results of the present study showed that, children having first degree relative with chronic illness have about five and half folds increased chance for having ADHD more than children don't have first degree relative with chronic illness (OR= 5.78 CI95%= 1.79-18.6) This is similar to Banerjee et al.<sup>(21)</sup> who found that children having first degree relative with chronic illness have increased chance for having ADHD. In the present study children having first degree relative with ADHD have about three folds increased the chance for having ADHD more than children don't have first degree relative with ADHD ( OR= 3.45 CI95%= 1.14, 10.4).

These results were in agreement with Mohamed et al<sup>(12)</sup> who reported a significant association of ADHD and family history of ADHD. In this study delayed speech was found in 32.1% of ADHD children compared to 9.40% of control group. This agrees with El Hamrawy et al<sup>(22)</sup> who found that 23.3% of ADHD children had delayed language development also, in the present study 37.7% of ADHD children had bad social relations with their peers compared to 3.80% of control group. The findings were in concordance with El Hamrawy et al<sup>(22)</sup> who found that behaviors

of children with ADHD are often characterized as more impulsive, intrusive, excessive, disorganized, aggressive, intense, and emotional.

The current study showed that frequent eating chips, sweets and soft drinks had daily about two and half folds increased the risk for developing ADHD (OR=2.51 CI95%=1.06-5.94). This agrees with a study conducted by Millichap JG and Yee MM<sup>(23)</sup> who concluded that the more sugar hyperactive children consumed the more destructive and restless they became. The current study showed that watching TV and playing electronic games for long time increase risk for ADHD by about seven folds (OR= 7.09 CI95%= 2.93-17.1). This agrees with El Gendy et al <sup>(24)</sup> who found that there was increased risk of ADHD associated with watching TV. The present study found that there were deficiencies in bio elements (iron, magnesium, and zinc) in ADHD children.

These results were similar to El- Baz et al<sup>(25)</sup> who found that magnesium deficiency was detected in 72% of ADHD Egyptian children and supplementation with Mg significantly improved hyperactivity and inattention also, found that 70% of ADHD cases aged 6 to 16 were zinc deficient.

**Study limitations:** Extrapolation of the obtained results must be taken cautiously due to small sample size.

**Conclusion:** It is a serious concern that ADHD is a common disorder among children 3 - 6 years at Menoufia governorate. Early detection and parent training programs should be developed to increase parenting skills in managing their child's behavior.

**Conflict of Interests:** No conflict of interest to be declared

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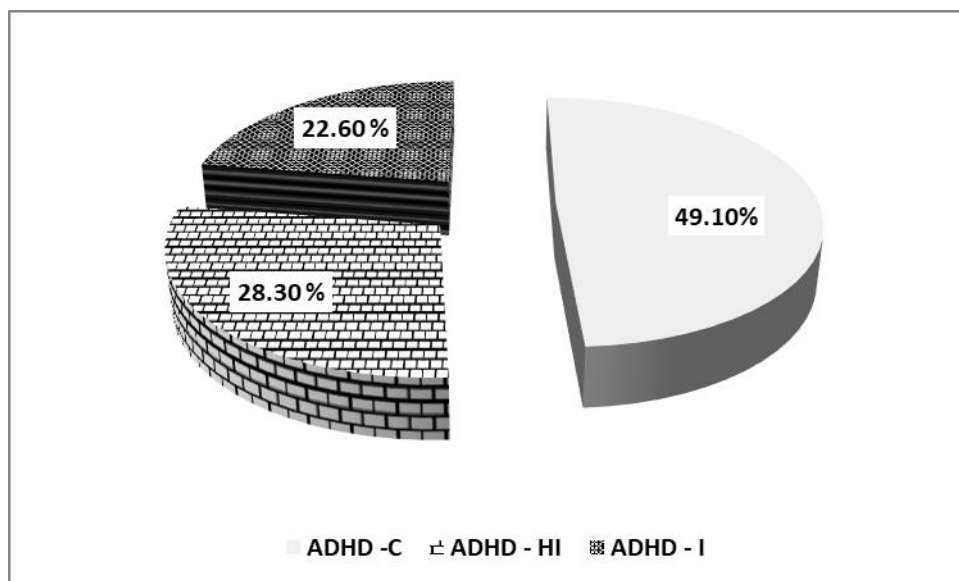
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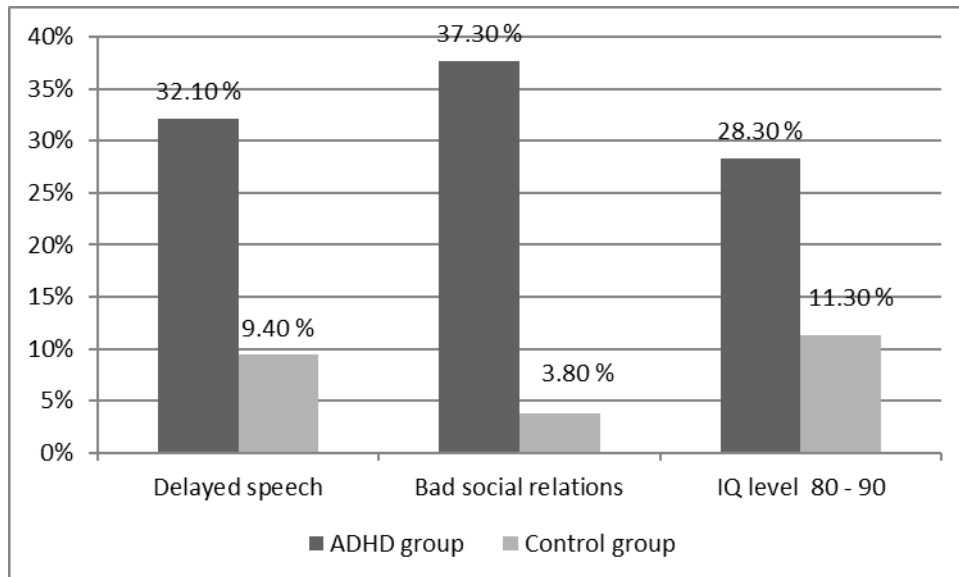
Table (1): Socio-demographic and family characters among studied groups

Studied variables	Studied groups				$\chi^2$	P value	Odds ratio CI 95%
	ADHD group (N=53)		Control group (N=53)				
	No.	%	No.	%			
Age / years ( $\bar{X} \pm SD$ )	5.46±0.66		4.95±0.73		t-test		
Range	3.50 – 6.00		3.00 – 6.00		3.77	<b>0.001*</b>	-----
<b>Gender</b>							
▪ Male	37	69.8	25	47.2	5.60	<b>0.018*</b>	2.59(1.17 – 5.75)
▪ Female	16	30.2	28	52.8			
<b>Occupation of mother</b>							
▪ Housewife+ Unskilled	16	30.2	29	54.7	6.53	<b>0.010*</b>	2.79(1.26 – 6.21)
▪ Skilled+ Professional	37	69.8	24	45.3			
<b>Occupation of father</b>							
▪ Unskilled	13	24.5	10	18.9	0.500	0.479	1.40(0.55 – 3.54)
▪ Skilled +Professional	40	75.5	43	81.1			
<b>Socioeconomic level</b>							
▪ Low + Middle	39	73.6	28	52.8	4.91	<b>0.026*</b>	2.49(1.10 – 5.62)
▪ High	14	26.4	25	47.2			
<b>Family size</b>							
▪ ≤ 4	23	43.4	34	64.2	4.59	<b>0.032*</b>	2.33(1.07 – 5.10)
▪ > 4	30	56.6	19	35.8			
<b>Living with parents</b>							
▪ Both parents	34	64.2	45	84.9	6.01	<b>0.014*</b>	3.14(1.23-8.03)
▪ Single parent	19	35.8	8	15.1			
<b>Consanguinity</b>							
▪ Positive	10	18.9	2	3.80	6.01	<b>0.014*</b>	5.93(1.23-28.5)
▪ Negative	43	81.1	51	96.2			
<b>Father smoking</b>							
▪ Yes	29	54.7	18	34.0	4.62	<b>0.031*</b>	2.35(1.07 -5.15)
▪ No	24	45.3	35	66.0			
<b>Family history of chronic disease</b>							
▪ Present	17	32.1	4	7.50	10.0	<b>0.002*</b>	5.78(1.79-18.6)
▪ Absent	36	67.9	49	92.5			
<b>Family history of ADHD</b>							
▪ Present	14	26.4	5	9.40	5.19	<b>0.023*</b>	3.45(1.14- 10.4)
▪ Absent	39	73.6	48	90.6			

\*Significant



**Figure (1): Types of Attention deficit hyperactivity disorder.**



**Figure (2): Comparison between studied groups regarding speech development, social relations and IQ level.**

**Table (2): Dietary habits and watching TV as risk factors for ADHD among studied groups**

Studied variables	Studied groups				$\chi^2$	P-value	Odds ratio CI 95%
	ADHD group (N=53)		Control group (N=53)				
	No.	%	No.	%			
<b>Chicken or meat / week</b>							
▪ $\leq 2$	30	56.6	27	50.9	0.342	0.559	1.26(0.58 – 2.70)
▪ $> 2$	23	43.4	26	49.1			
<b>Fruits and vegetables / week</b>							
▪ $\leq 2$	28	52.8	24	45.3	0.604	0.437	1.35(0.63 – 2.90)
▪ $> 2$	25	47.2	29	54.7			
<b>Fast foods / month</b>							
▪ $> 2$	23	43.4	26	49.1	0.342	0.559	1.26(0.58-2.70)
▪ $\leq 2$	30	56.6	27	50.9			
<b>Milk and milk products / week</b>							
▪ $\leq 2$	27	50.9	20	37.7	1.87	0.171	1.71(0.79 – 3.71)
▪ $> 2$	26	49.1	33	62.3			
<b>Chips , soft drinks and sweets daily</b>							
▪ Yes	42	79.2	32	60.4	4.47	<b>0.034*</b>	2.51(1.06 – 5.94)
▪ No	11	20.8	21	39.6			
<b>Watching TV or electronic games / day</b>							
▪ $\leq 2$ hours	10	18.9	33	62.3	20.7	<b>0.001*</b>	7.09(2.93-17.1)
▪ $> 2$ hours	43	81.1	20	37.7			

\*Significant

**Table (3): Laboratory investigations among studied groups:**

Laboratory investigations		Studied groups		t-test	P value
		ADHD group (N=53)	Control group (N=53)		
<b>Hb (g/dl)</b>	<b>Mean ±SD</b>	11.3±0.69	11.5±0.59	1.92	0.056
<b>Normal level (11.1 - 13 g/dl)</b>	<b>Range</b>	10 – 12.5	10.5 – 12.5		
<b>Iron (ug/dl)</b>	<b>Mean ±SD</b>	52.2±7.53	68.2±11.1	8.63	<b>0.001*</b>
<b>Normal level (49-181) ug/dl</b>	<b>Range</b>	43 - 69	50 - 89		
<b>Zn (mcg/mL)</b>	<b>Mean ±SD</b>	57.0±7.70	72.8±11.5	8.24	<b>0.001*</b>
<b>Normal level (66 -101)mcg/mL</b>	<b>Range</b>	40 - 66	55 -98		
<b>Mg (mg/dl)</b>	<b>Mean ±SD</b>	1.57±0.49	1.97±0.37	4.71	<b>0.001*</b>
<b>Normal level (1.5-2.3) mg/dl</b>	<b>Range</b>	1 – 2.23	1.3 – 2.33		

\*Significant

**Table (4): Logistic regression of the most relevant risk factors of attention deficit hyperactivity disorder among studied group**

Studied variables	Wald	Adjusted OR	CI 95 %	P value
<b>Mother work</b>	6.43	1.84	(1.51 – 26.1)	<b>0.011*</b>
<b>Low and middle Socioeconomic level</b>	6.82	3.15	(1.65 – 28.3)	<b>0.001*</b>
<b>Large family size &gt; 4</b>	4.98	1.42	(1.21– 20.6)	<b>0.030*</b>
<b>Living with a single parent</b>	7.86	1.96	(2.31– 26.8)	<b>0.022*</b>
<b>Positive consanguinity</b>	8.16	3.24	(1.82 – 36.7)	<b>0.016*</b>
<b>Father smoking</b>	5.04	1.62	(1.13 – 22.6)	<b>0.034*</b>
<b>Positive family history of chronic illness</b>	0.527	0.88	(0.222 – 26.5)	0.468
<b>Positive family history of ADHD</b>	0.944	1.19	(0.027 – 3.36)	0.303
<b>Problems during pregnancy</b>	12.5	2.52	(1.27 – 123.5)	<b>0.030*</b>
<b>Eating chips and sweets daily</b>	12.3	2.51	(2.62 – 58.0)	<b>0.001*</b>
<b>Watching TV or electronic games &gt; 2 hours / day</b>	17.1	2.58	(2.34 – 120.5)	<b>0.001*</b>

\*Significant

## الملخص العربي

مدي انتشار نقص الانتباه وفرط الحركة بين أطفال ما قبل المدرسة (3-6 عاماً) في محافظة المنوفية

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**الخلفيه:** يعتبر نقص الانتباه وفرط الحركة أحد أكثر الأمراض النفسية شيوعاً بين الأطفال وترتفع نسبة الإصابة في الذكور عن الإناث. **الأهداف:** معرفة مدى انتشار نقص الانتباه وفرط الحركة بين عينة مختارة عشوائياً لأطفال المرحلة التمهيديّة الذين تتراوح أعمارهم بين 3 إلى 6 عاماً في محافظة المنوفية وكذلك دراسة عوامل الخطورة المحتملة لهذا الاضطراب بين أفراد العينة. **المنهجية وطرق البحث:** أجريت هذه الدراسة وهي دراسة المرضي والشواهد مبنية علي دراسة مستعرضة علي 572 طفل تتراوح أعمارهم بين 3 إلى 6 عاماً تم اختيارهم بطريقة عشوائية من بين أطفال المرحلة التمهيديّة في أربعة مدارس بمحافظة المنوفية. وتم أخذ موافقة مستنيرة من أولياء أمور الأطفال للمشاركة في الدراسة ثم قام أولياء الأمور بملء استمارة استبيان تشمل اسم الطالب, العمر, محل الإقامة وعوامل الخطوره المحتمله وكذلك النسخه العربية من كلا من مقياس كونرز لنقص الانتباه وفرط الحركة وإستبيان معتمد علي معايير التشخيص في الدليل الاحصائي والتشخيصي(الإصدار الخامس) للأمراض النفسيه والعقليه لمرض ضعف الانتباه وفرط الحركة وقد تم عمل فحص إكلينيكي وقياس معدل الذكاء للاطفال واختبارات معمله للأطفال الذين تم تشخيصهم بهذا الاضطراب وكذلك لمجموعه مماثلة مختارة عشوائيا من الأطفال الذين لا يعانون من نقص الانتباه و فرط الحركة. **النتائج:** أوضحت النتائج أن معدل انتشار نقص الانتباه وفرط الحركة بين أطفال المرحلة التمهيديّة ( 9.30%) وكانت نسبة الإصابة في الذكور اعلي من الاناث بنسبة 1:2. كما وجد أن هناك نقصاً في نسبة الزنك والحديد و الماغنسيوم وأن هذا النقص ذو دلالة إحصائية مقارنة بالمجموعه الضابطه . ووجد أن من العوامل المؤثره في هذا الاضطراب هو صلة القرابه بين الابوين , مستوي الدخل المنخفض والاضطرابات الأسريه. كما لوحظ أن معدل استهلاك الأطفال المصابين للحلوي والسكريات وكذلك معدل مشاهدته التلفاز يوميا أكثر من اقرانهم في المجموعه الضابطه وكانت الفروق ذات دلالة إحصائية هامة. **الاستنتاجات:** وقد أوصت الدراسه بضروره زياده الوعي لدي الآباء والمدرسين عن الامراض السلوكيه للأطفال وكيفية التعامل معها.