Attention Deficit Hyperactivity Disorder In a Sample of Preparatory School Students

Thesis Submitted for Partial Fulfillment for
MD Degree in Psychiatry

By

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Aim of the Work

In the theoretical part, we aim to:

1. Review the epidemiology of ADHD and variation in the prevalence rate.
2. Review literature about the clinical picture, diagnosis and comorbid psychiatric conditions with ADHD.
3. Review the main etiological factors, methods of assessment and treatment of ADHD.

In the practical part, we aim to:

1. To verify the study hypothesis.
2. To find answers to the following questions.
    a. How prevalent is ADHD in a sample of preparatory school students?
    b. What is the clinical profile of ADHD in this age group?
    c. Is there a gender difference in the clinical presentation of ADHD?
    d. What are the comorbid psychiatric disorders with ADHD?
    e. What are the psycho-socio-demographic correlates and different variables associated with ADHD?
    f. Are there any risk factors associated ADHD?

INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is a commonly diagnosed behavioral disorder of childhood that represents a costly major public health problem. Patients with ADHD have pronounced impairments and can experience long-term adverse effects on academic performance, vocational success and social-emotional development, which have a profound impact on individuals, families, schools, and society. Despite progress in the assessment, diagnosis, and treatment of ADHD, this disorder and its treatment have remained controversial *(Frazier et al., 2006)*.

Attention deficit/hyperactivity disorder (ADHD) is a highly prevalent and detrimental disorder characterized by developmentally inappropriate inattention, hyperactivity, and impulsivity. It appears in between 3% to 9% of the general population of children, affecting more males than females by a ratio between 2:1 to 9:1, with an average onset of 3-6 years of age *(American Psychiatric Association, 1994; Anastopoulos and Shaffer, 2001)*. Attention-deficit/hyperactivity disorder (ADHD) is a common neurobehavioral disorder of childhood and adolescence. It is often chronic in nature, with symptoms which may continue into adulthood *(Brown, 2000 and Leibson et al., 2001)*.

Contrary to early views of the disorder that indicated that it might represent a maturational lag and suggested that children would grow out of it, it has become clear that, in most cases, ADHD doesn't resolve once children enter puberty *(Brown, 2000)*. For the majority of children diagnosed with ADHD, as many as 65%, the diagnosis persists into adolescence *(Pelham et al., 2005)*.

Many studies have shown that the most salient manifestations of ADHD change during adolescence are hyperactivity, although still present, it becomes much less visible during this age group *(Biederman et al., 2004)*. Academic problems that might have been less noticeable or were treated effectively during elementary school may become much more of a problem. In middle school and high school, cognitive demands increase significantly and the adolescent is expected to become more independent of adult supervision. Students are exposed to multiple teachers and classes and the amount of assigned homework increases. Finally problems with peer relationships become more obvious as the social environment changes with adolescence and peer interactions assume a new importance *(Barkley et al., 2004)*.

These changes in context, expectations and maturation result in very different case presentations than among school aged children *(American Academy of Pediatricians, 2000)*.

Adolescents with ADHD often seem emotionally immature, compared with their same age peers. They often do best when interacting with younger children. Adolescents and children with ADHD often display affect, both negative and positive that is excessive for the situation. The symptoms include becoming frustrated easily and having a short fuse, with sudden outbursts of anger. Cognitive impairments become increasingly problematic. They are distracted easily or have difficulty tracking and completing their projects *(DuPaul et al., 2003)*.

Recently, evidence has been accumulating regarding high level of comorbidity of ADHD with a number of psychiatric disorders *(Pelham et al., 2005)*. Between 25% and 75% of adolescents with ADHD also meet diagnostic criteria for oppositional defiant disorder or conduct disorder, which result in significant additional impairment that increases difficulty treating these adolescents. Others reported similar increased risk for substance use disorder, mood disorder, anxiety disorder and antisocial personality disorder *(Barkley et al., 2004)*.

Assessment of ADHD among adolescents is often more challenging than assessment among younger children. Teachers and parents can usually provide helpful information about homework patterns, school grades, and daily routines of their adolescent son or daughter but little direct information on school function, social interactions, and peer

relationships *(Brown et al., 2001)*. Given the limitations of teacher and parent reports, it would be ideal if adolescents could provide reliable self-reports about symptoms and impairment; however, this does not seem to be the case. Consistent with studies reporting information for adolescents with ADHD tend to under-report dramatically their level of impairment and symptoms *(Frezier and Youngston, 2006)*.

Although much progress has been made in our understanding of the diagnosis and treatment of ADHD, much has yet to be researched, particularly for adolescents. It is clear that the current diagnostic criteria, although valid for children, may need to be modified for adolescents and adults to reflect the developmental changes that take place as children approach adulthood *(Silver, 2004)*.

Rationale of the study

According to the Egyptian population census, 2004; the total number of subjects aging between 11-15 years was found to be 9047362, which constitute about 13% of the total Egyptian population *(The Statistical Year Book, 2004)*. Such a fairly large population, couldn't be ignored to study the prevalence of ADHD disorder, especially that they are expected to be carryout a major part of the responsibility of raising the new generation in an appropriate way, thus playing an important role in building up healthy society.

Study of ADHD in this age group has received limited research attention, thus this study will be of great interest if it could be performed successfully as it would provide data to plan for prevention, early assessment and detection of cases, thus to reach the main goal of treatment, improvement in the domains of the subjects functioning including the academic performance and family functioning.

To our knowledge, this is one of the first attempts to study the prevalence of ADHD in preparatory school students in Egypt.

Hypothesis

The thesis was designed to verify the following hypotheses:

- ADHD is a prevalent disorder among preparatory school students and will show high comorbidity with other psychiatric disorders.
- There is a specific psycho-socio-demographic correlates and difference in profile of symptoms of ADHD in this age group.

SUBJECTS AND METHODS

In this chapter the details of the following will be described.

I- Study design.

II- Site of the study.

III- Selection of subjects and controls.

IV- Choice of subjects.

V- Choice of tools:

1- Conners adolescent self report scale (short form).
2- Conners adolescent self report scale (long form).
3- K-SADS-PL
4- IQ (WISC)
5- Others (Famy and Sherbini Social Scale Designed Questionnaire)

VI- Procedures.

a- Pilot study.
b- Study proper.

VII- Statistical analysis

A- Study design:

This study is a school based cross-sectional survey.

B- Site of the study

The plan was worked out to draw a sample of the population from male and female preparatory school students in Greater Cairo.

C- Sample Selection:

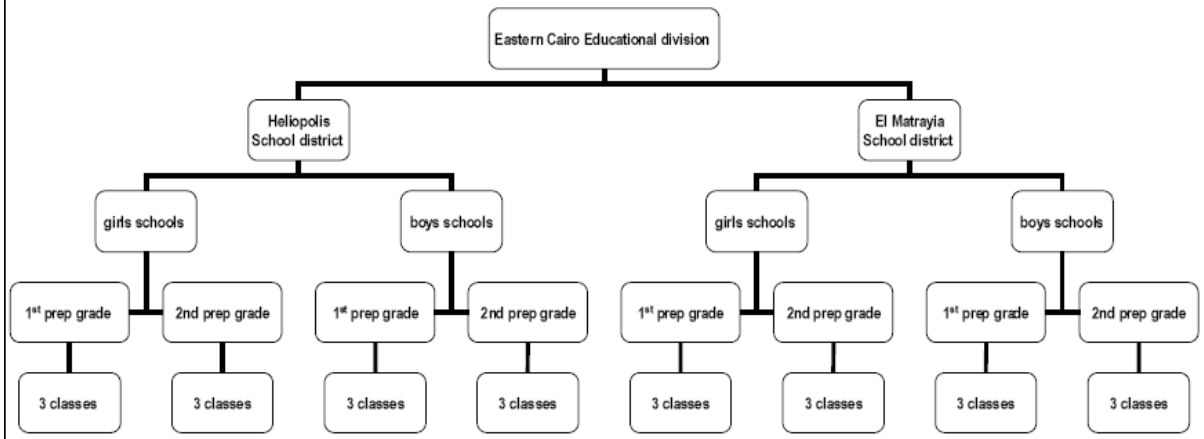
Determination of the size of this sample was after the consultation of Prof. Mohsen Gadallalla, Chair of Community Department, Ain Shams University.

Sampling was performed randomly at five different levels:

1. The city (Cairo) has 5 major geographical areas from which one was picked namely (Eastern Cairo).
2. Educational system in Eastern Cairo were divided into two major categories (Private and state) education.
3. Schools were selected from two educational district, one represents relatively higher socioeconomic status (private schools) in Heliopolis area and the other less affluent status, which is public schools in El Mataria area.
4. From each school district, we choose one school for boys and one school for girls.
5. From each school, 3-classes were selected for the first and second grade preparatory.

N.B. *We exclude 3rd preparatory grade because of cancellation of the 3rd preparatory grade in this year.*

Figure (M1) Illustration of the study sample


Eastern Cairo Educational division
Heliopolis School district
El Matrayia School district
girls schools
boys schools
girls schools
boys schools
1st prep grade
2nd prep grade
1st prep grade
2nd prep grade
1st prep grade
2nd prep grade
1st prep grade
2nd prep grade
3 classes
3 classes
3 classes
3 classes
3 classes
3 classes
3 classes
3 classes

D- Subjects:

1005 male and female students were chosen to be assessed and studied by our tools. Dropped out students were 80 students which makes the percentage of defaulters 8.6%. The reason for dropping out ranges from their absence from school at the period of the study or the absence during lessons or the period of the break and some refused to share.

Table (M1)

Inclusion criteria

- Both genders.
- Age between 12-15 yrs.
- No past history of sensory or motor disability.

Exclusion criteria

- Past history of sensory or motor disability.

E. Controls

- Controls were chosen from those who scored below 65 in Index Subscale (cut off point CASS:S) having no ADHD symptoms.
- We tried as much as possible to match them with the ADHD group as regards type of school, age and gender. Then we interview them using K-SADS-PL to exclude subjects with ADHD and psychiatric morbidity.
- The number of the control groups was similar to the number of the ADHD cases.

Fig. (M2.1) Fig. (M2.2) Fig. (M2.3) Fig. (M2.4)

F- Tools

Preparation of the tools:

Translation of the Conners Adolescent self rating scale short form and long form into Arabic was done by three bilingual individuals. All three were native Arabic speakers with excellent proficiency in English. The individuals were psychiatric physicians including the researcher of this study.

Once the three translations were completed discrepancies between them were resolved and one unified translation of the self report form was created. Then, the final Arabic version was back-translated by a fourth individual who was unaware of the original English language document. Once the back translation was completed further discrepancies between the back translation and the original document were resolved.

Few more modification were made based on feedback from students who completed the scale in the pilot phase.

We are now in the procedures for the approval and acceptance of these translations by the author, professor Keith Conners.

Conners-Wells' Adolescent Self report Scale:

1- Short form (CASS:S)

Aim: Screening preparatory schools adolescents for ADHD.

The CASS:S form contains 27 items and is appropriate for use with youth between the ages of 12 and 17. The subscales on the CASS:S closely parallel the subscales on the parent and teacher short forms. The short self report form, which is approximately 30% of the length of the long-self report, contains 4 subscales.

A. Conduct problems (6 items)
B. Cognitive problems/inattention (6 items)
C. Hyperactivity (6 items)
D. ADHD index (12 items)

2- Conners-Wells' Adolescent Self report Scale-Long form (CASS:L):

Aim: Detailed assessment of ADHD symptom pattern and severity of symptoms in the high scores on CASS:S.

The CASS:L form contains 87 items and is appropriate for use with youths between the ages of 12 and 17 the CASS:L is typically used with adolescents when extensive information and DSM-IV consideration are required. The CASS:L does not include the clinical global index. The adolescent should respond based on feeling and situations that he experienced.

This version includes 10 subscales: Family Problems (12-items), Emotional Problems (12-items), Conduct Problems (12-items), Cognitive Problems/ Inattention (12-items.), Anger Control Problems (8-items), Hyperactivity (8-items), ADHD Index (12-items), and DSM-IV Symptom Scales (18-items) (includes 2 subscales: DSM-IV Inattentive [9-items] and DSM-IV Hyperactive-Impulsive [9 items]).

These two self report scales are designed by Keith Conners to address the increasing emphasis on multimodal assessment of ADHD. This form was tailored to be easy for any typical adolescent to use and understand. Adolescents with a reading level of at least grade 6 are candidates for the CASS scales.

The forms were tailored to this age group, not younger children because as ADHD children become older, they have increased rates of antisocial acts, conduct disorder, substance abuse, family disturbance, negative academic and social outcome, anxiety, depression and other internalizing problems which were captured in this form.

Administration and scoring:

Administration time:

- CASS:S form takes about 5-10 minutes to complete.
- CASS:L form takes about 15-20 minutes to complete.
- The scale should be completed at one sitting if possible to obtain the data.
- Responses are made by circling (0) for "Never, Seldom", (1) for "Occasionally", (2) for "often", or (3) for "Very often or always".

Scoring:

- The scales are plotted on hand scored profile to obtain the raw scores, T-scores and percentile scores of the adolescents according to their age; two age groups are designated namely ages (12 to 14 years) and ages (15 to 17 years old).
- Two different profiles are available according to the adolescent's gender, namely: male profile and female profile. The percentiles and T-Scores of the patient are obtained by plotting the raw scores in the appropriate profile form and column. The T-scores are then interpreted as being typical or
- atypical according to 5-point categorization as follows in table (M2).

Interpretation:

- T-scores of above 65 are usually taken to indicate a clinically significant problem.

3- The Kiddie Schedule for Affective Disorders and Schizophrenia, Present and Lifetime versions (K-SADS-PL) (Kaufman et al., 2000)

Aim: Assessment of present and life time comorbid psychiatric disorders

- The Schedule for Affective Disorders and Schizophrenia for School age Children (K-SADS) was originally developed in 1977 by **Chambers et al. (1985)** on the basis of Endicott and Spitzer's Schedule for Affective Disorders and Schizophrenia (SADS) for adults. The K-SADS is an interviewer-based, semi-structured interview for children age, 6-18. Its primary goals is to assess current and life time history of psychiatric disorders, assess episodes of psychopathology and to make categorical diagnosis by directly interviewing children and adolescents and their parents, according to DSM-III-R and DSM-IV criteria.
- The K-SADS-PL is administered by interviewing the youth, the mean age of patients for administration ranges from 6-18 with less accuracy on extra-polation of the age range. The mean administration time is 80-90 minutes.
- It is preceded by an unstructured introductory interview which takes about 10-15 minutes to complete. In this section, demographic, medical data, presenting complaint and other areas of adolescents functioning are inquired about. The

screening interview assesses the primary symptoms of the different diagnoses of the K-SADS-PL. Positive scores (a score of 3 on any of the screened symptoms) in the screening interview mandates completion of the corresponding supplement questionnaire.

- Supplement completion checklist: The K-SADS-PL contains 5 diagnostic supplements for the psychiatric disorders assessed, namely: affective disorders, psychotic disorders, anxiety disorders, behavioral disorders and substance abuse and other disorders supplement, culminating in confirmation of the diagnosis.
- In this study we will use it for assessment of the ADHD adolescents for diagnostic and comorbidity profile.
- The majority of the items in the K-SADS-PL are scored using a 0-3 point-rating scales as follows:

-0 indicates no available information

-1 the symptom is not present

-2 subthreshold intensity of symptomatology

-3 threshold criteria

Whereas other points are scored on a 0-2 point rating scale on which

- 0 implies no available information
- 1 the symptom is not present
- 2 the symptom is present

- The Arabic version of the K-SADS-PL used in this study was translated and validated through previous research conducted by **(Ibrahim et al., 2000)** in the Institute of Psychiatry, Ain Shams University.

4- Wechsler Intelligence Scale for Children (WISC) Arabic version (Mohamed E. Ismail & Louis Melekia, 1999)

Aim: Assessment of intellectual abilities and cognitive functions

- The Wechsler scale provides information about the most important aspects of the subject's intellectual functioning. It was chosen in our study to:
  - Determine the general level of intelligence.
  - Explore the difference between verbal and performance scales.
- **Description:** Wechsler Intelligence Scale is a battery comprising 11 subtests-each is scored on its own-which are divided into two parts: **1) Verbal Scale Subtest;** for verbal I.Q., and is based on six verbal subtests. **2) Performance Scale Subtests;** for performance I.Q. and is based on five performance subtests. Both scored yield the **Full Scale I.Q.,** which is the average index of general intellectual functioning.
- **Choice of version:** We used the standardized Arabic version of the test **(Abdel Wahed and Melika, 1999)**.

This is one of a series of standardized tests to evaluate the cognitive and intellectual abilities of children and adults.

- **Choice of subjects:** In this study, it was used it to assess adolescents 12 years and older (as inclusion criteria).
- **Four verbal subscales were used:** Comprehension arithmetic, similarities and digit-span and three performance subscales were used: Picture completion, Block design and digit-symbol and accordingly verbal, performance and total IQ were calculated.
- The test was administrated by clinical psychologist in a special school classroom.

Table(M3)

5- Fahmy and El Sherbini social scale

Aim: Assessment of the social classes

- Subjects were classified into social class 1, 2, 3 and 4 according to an Egyptian classification developed by **Fahmy and El-Sherbini (1986)**.
- The classification is based on the following parameters education and work of the father, education and work of the mother, income, crowding index, health behavior and life style variables. The parameters yield a total score according to social class:
- This scale was proved to be an extremely useful in assessment of Egyptian community.
    - Score of 25-30 is considered high social class and high middle class.
    - Score of 20-25 is considered middle social class.
    - Score of 15-20 is considered low middle and low social classes.
    - Score of 14 or less is considered very low social classes.

6) Designed Questionnaire: (Appendix-1)

We have devised a set of questionnaires in the form of yes/no, multiple choice, or closed ended format to assess the following domains:

1- Personal data.
2- Family background and relation.
3- Family history of mental illness and ADHD symptoms.
4- Past history of medical condition.
5- Obstetric and developmental history.

6- Scholastic achievement and school performance.

G- Procedures:

I) Pilot Study:

A pilot study was carried out as soon as permits from the Ministry of Education were issued from the beginning of October 2006 to the end of that month to explore the kind of difficulties liable to occur during the actual running of the work.

This pilot study had the following aims:

1- To gauge the efficiency of the tools, that is whether the questionnaires would be acceptable and comprehensive to the subjects and detect possible needs to alter or modify the tools used.

2- To explore and identify the nature of the atmosphere that would be created inside the classroom while the students were given the questionnaire. It was crucial to know, in advance, whether such an atmosphere would have a facilitating or obstructing effect.

3- To assess the flexibility of the school authorities. In other words, to see to what extent the school authorities were willing to cope not only with the gross requirements of the work, but also with the unforeseen complications which might necessitate some change of already agreed-upon management.

The questionnaire was administered to about 106 preparatory school students distributed among 3 classes in one public school in El Matria district. Data collection was under the

supervision of a senior staff and analysis of the collected data made it clear that conducting the main study would certainly not be a fruitless effort.

We were able to identify and deal with some problem:

1- Place for interview: we had the permission to interview clinical cases of ADHD in a separate room.

2- Most of students were neither used nor acquainted to the idea of signing a written consent, thus we comforted our participants by obtaining verbal informed consent.

3- Regarding the applicability and feasibility of the assessment tools:

- The researcher had to give clear instructions and to clarify the questionnaires to students participating in the research.
- During the period, the researcher became acquainted with the research tools and be able to use KSADs-PL with good inter rater reliability.
- Feedback from students to make final modification in the translation of tools.
- Modifications of some of the designed questionnaire question were done with more description.

II) The study proper:

- The study proper was initiated and completed during the educational year of 2006-2007, in the period from the beginning of November 2006 till the end of March 2007.

1- Approval and consent

- A number of administrative clearances had to be obtained before entering the preparatory schools. Each Ministry of

Education administrative level had to give their approval; beginning with the Ministers office, The Ministry of Security Administration, local Ministry Administration Office, and then the school district.

- Data were collected through the administration of the predesigned questionnaires to the students. After explaining the purpose of the study, students were informed that participation was voluntary, and that any candidate can exit from the study at anytime without giving justification, subjects of the study were anonymous and results of the study would not be shared with a third party and would only be used for scientific purposes. Verbal consent was obtained Instructions had to be given to students about the way to answer the questionnaires.

2- Application of tools

- For each class, the study was not possible to be completed in the same school day. Therefore the students were assessed on two or three successive days.
- The assessment was conducted within the break time (about 20-30 minutes) and the two to three lessons (each about 45 minutes) preceding or following the break.

Step One:

All the students were assessed by:

- Designed Questionnaire.
- Fahmy and El Sherbiny Social Classification.
- Conners adolescent self rating scale short form (CASS:S).

Step Two:

The students who scored > 65 on (CASS:S) [according to the cut off score suggested by Conners 2002] were further evaluated by:

A- Kiddie Schedule for Affective Disorders and Schizophrenia Present and Life Time version K-SADS-PL. for clinical diagnosis of ADHD and other comorbid psychiatric disorder.

B- Conners adolescent self report scale-long form (CASS;L) for detection of severity of ADHD.

C- IQ assessment using the Arabic version of Wechsler intelligence scale for children (WISC).

Step Three:

- We compared the ADHD group (87 students) with the matched **control group** (87 students) a regards different variables.

Statistical Analysis:

All data were recorded and entered on a compatible computer. Analysis was done using a Statistical Package for Social Sciences, version 15 (SPSS). The results were tabulated, grouped and statistically analyzed and described using descriptive and analytical statistics using the following tests:

- ***One way AVONA test (F):*** Was used when comparing several means to see how several independent variables interact with each other and what effects these interactions have on a dependent variable.
- ***Student t- test:*** Used to test for statistical significance of variance between two samples means.
- ***Logistic regression analysis***: Logistic regression is a model used for prediction of the probability of occurrence of an event by fitting data to a logistic curve. It makes use of several predictor variables that may be either numerical or categorical.
- ***Chi-square (x2):*** Statistical test to determine the probability that on observed deviation from the expect event or outcome occurs solely by chance for qualitative data.
- ***Mean and standard deviation (1±SD):*** for quantitative data.
- ***P Value:*** Used to indicate the level of significance:
  - $P > 0.05$: Insignificant
  - $P < 0.05$: Significant

- $P < 0.01$: highly significant
- $P < 0.001$: Very highly significant.

RESULTS

The prevalence of ADHD has increased across diagnostic classification systems as a greater proportion of individuals falling along the liability continuum are recognized as experiencing warranting clinical support ***(Skounti et al., 2007)***. Prevalence rates vary across populations from 2.2% to 16.1% with variability influenced by diagnostic criteria, number and type of information, degree of impairment, age and sex of the population and clinical versus community cohorts ***(Faraone et al., 2003; Skounti et al., 2007)***. Although most epidemiological studies have centered on children, recent studies have found prevalence rates of ADHD among adolescents to be comparable ***(Skounti et al., 2007)***, although several prospective studies support a decline in prevalence from childhood to adolescence ***(Nolan et al., 2001)***.

The present study investigates the prevalence of ADHD among (925) male and female preparatory school students. Conners-Wells Adolescent Self report scale-short form (CASS:S) was used as a screener for ADHD symptoms, on the other hand; K-SADS-PL, which is a valid standardized instrument, was used to diagnose ADHD cases, their subtype and associated comorbidity. Conners-Wells Adolescent Self report scale long form (CASS:L) was used to assess the clinical profile and severity in the ADHD group of students.

Results in this chapter were grouped to cover the following items

Section (1)

- Description of the whole students population included in the research.

Section (2)

- The prevalence of ADHD among sample of preparatory school Egyptian students.

Section (3)

- The clinical profile of ADHD cases.

Section (4)

- Different variables associated with ADHD cases.

Section (5)

- Severity of ADHD and its relation with different variables.

Section (6)

- Comparison between ADHD cases and controls.

SECTION (1)

Description of the whole students population

- **In this section the following items will be highlighted:-**
- **Description of the sample regarding:**

I- Socio demographic data:

- Age.
- Grade
- Socioeconomic class.
- Number of sib.
- Sib order.
- Mean number of rooms.
- Housing.

II- Family circumstances

A- Family background:

a. Parent's existence.

b. Consanguinity.

B- Family atmosphere:

a. Parental separation.

b. Parental disharmony.

c. Intra family relation.

d. Parent's attitude.

- Aggression (domestic violence).
- Abuse (physical).

C- Family history of psychiatric illness:

a. Psychiatric illness within the family.

b. Symptoms of ADHD within the family.

c. History of psychiatric medication.
d. History of psychiatric hospital admission.

III- Personal data and past history

A- Natal, postnatal problems:

- Natal problems (obstetric complication).
- Post natal adverse event.

B- Developmental history:

- Delayed milestones.
- Delayed sphincter control.
- Delayed language or language problems.

C- Medical history and physical health:

- Heart problems.
- Chest problems.
- Liver problems.
- Joint problems.
- Renal problems.
- Epilepsy problems.
- Head trauma.

I- Sociodemographic data

Data covered the following Items: *(Table 1)*

Age:

We found that the mean age for the whole students sample was 12.9±0.85 years.

Socio economic class

Table (1) demonstrates that 34.2% of the studied sample belonged to high social class according to Fahmy and EL Sherbini social classification scale, followed by 50.9% belonged to middle social class, 8.3% belonged to low social class and 6.6% belonged to very low social class.

Mean number of rooms

The mean number of rooms for the whole group was found to be 2.68±0.64.

Number of sibs

Subjects in our sample belonged to medium sized families and had approximately 2.29±1.22 mean number of sibs.

Sib order

Most of our sample students were the first child or the second child of their families (36.6% and 35.8% respectively).

Mean number of rooms and mean housing ratio

Our students (n=925) lived in 2.68±6.64 number of rooms and their mean share of housing was 0.69±0.274.

II- Family circumstances:

A. Family background: *(Fig. 1a,b & Table 2)*

Parents existence:

We found that 94.4% of our whole sample live with both parents, while only 5.6% had single parent family due to paternal death 4.0%, maternal death 1.5% or both parents death 0.1%.

Consanguinity:

Most of our students (78.5%) had non consanguineous families with only 20.5% who showed different degrees of consanguineous relation (Figure 1b & Table 2**).**

B. Family atmosphere

Parents separation and disharmony:

Only 11.8% of the whole group (n=925) were exposed to parental separation and 10.8% were suffering from parental troubles and disharmony (Fig. 2 a, b & Table 3).

Intra familial relation:

Most of the students had warm intra familial relation (89.9%) with 2.6% exposed to criticism, 3.4% had quarrelsome relationship and 4.1% had cold relationship (Fig. 2c & Table 3).

Parent's attitude:

10.2% of the whole students population (n=925) described their parents as (aggressive parents) and 4.8% were exposed to physical abuse by parents (Fig. 2d & Table 3).

C. Family history of psychiatric illness:

Most of our students population had no family history of psychiatric illness, treatment or admission to psychiatric hospitals (87.9%, 92.6% and 96.0% respectively) (Fig. 3a, b, c, d & Table 4).

Most of the students population had no ADHD symptoms in the family (Fig. 3b & Table 4).

III- Personal data and past history:

A- Natal and post natal adverse event:

Most of our group had not been exposed to obstetric (natal) complications (90.8%) or post natal problems (83.6%) (Fig. 4 & Table 5).

B- Developmental history:

Most of our studied population show no delay in the milestones of development, sphincter control and language problems (Fig. 5 & Table 6).

C- Medical history and physical health:

Most of our studied population had no associated medical illness. The most frequent medical illnesses were chest problems (12.8%), history of head trauma (12.4%) joint diseases (10.7%) and heart problems (3.8%) (Fig. 6 & Table 7).

SECTION (2)

In this section we will demonstrate:

1. **Prevalence of ADHD among sample of preparatory school Egyptian students using CASS:S.**
   - Prevalence according to whole group.
   - Prevalence according to gender.
   - Prevalence according to school type.

2. **ADHD cases according to K-SADS-PL diagnosis among the high scorers on the Conners Short Form**

Prevalence of ADHD among the studied group of preparatory school students

The prevalence of ADHD among the studied population is displayed on (Fig. 7a, b, c, d).

9.4% (87 students) of the whole students had ADHD symptoms as screened by CASS:S, we used the ADHD index for scoring to identify potential cases.

Empirical analysis showed that items on the ADHD Index are the best set of items for identifying adolescents “at risk” for an ADHD diagnosis ***(Conners, 2004)***.

ADHD symptoms are more prevalent in boys (13.8%) than girls (5.8%) with very highly statistically significant difference (P = 0.000) with a ratio of 2:1.

ADHD symptoms are also found higher in private school Vs state schools showing a percentage of (10.4%) vs (8.5%) respectively, with no statistical significant difference between the two groups.

2- ADHD cases according to diagnosis by K-SADS among high scorers on Conners Wells' adolescent self report form (CASS-S):

In our study, we used K-SADS-PL interview which is a useful semistructured tool for the clinical diagnosis of ADHD and associated comorbidity among the studied group.

Fig. (8a) shows that 86.2% of the high scorers on CASS:S had ADHD diagnosis, 13.8% didn't fulfill the full diagnosis of ADHD.

They were subthreshold cases who didn't fulfill the full diagnostic criteria of ADHD according to DSM-IV diagnosis. They had some symptoms which did not mount to the full diagnosis. They had also emotional, behavioral, social and academic problems, also they had comorbid psychiatric conditions.

Table (8)

Despite that there is no statistical significant difference among the examined groups. It appears that there is agreement between ADHD cases by CASS:S and diagnosis of ADHD by K-SADS-PL in the group of girls whether they were in state or private schools. Subthreshold cases are most prominent (23.1%) in boys from private school followed by boys from state schools (15.6%) (Fig. 8b).

Fig. (8c) showed that the comparison between girls and boys regarding K-SADS-PL diagnosis revealed that in 96.6% of girls who were diagnosed by CASS:S as ADHD were also diagnosed by K-SADS-PL compared to only 81% of boys (P=0.04).

When we compared the private versus state group we did not find any statistical significant differences as regards those who were considered subthreshold cases.

Figure (8d)

SECTION (3)
Clinical Profile of ADHD Cases

In this section we will answer the following questions:

1. What is the clinical profile of ADHD according to items of Conners-Wells Adolescent Self report scale-Long form (CASS:L) long version?
2. What is the clinical profile and distribution of different types of ADHD among our sample by K-SADS-PL?
3. What is the associated comorbidity among ADHD sample and the associated suicidal behavior?
4. Illustration of age of onset and duration of illness in the ADHD group.
5. Psychiatric consultation and medication.
6. IQ and school performance among ADHD cases.

The clinical profile of ADHD will be described according to: (CASS:L)

1. **Items of CASS:L**
   - Family problems
   - Emotional
   - Conduct
   - Cognitive
   - Anger
   - Hyperactivity
   - DSM Inattentive
   - DSM Hyperactive-Impulsive
2. **Clinical profile according to KSADS-PL**
3. **Psychiatric comorbidity**
4. **Suicidal behavior.**
5. **Date of onset, duration of illness.**
6. **Intelligence.**
7. **School performance.**
8. **Psychiatric consultation and medication**

The clinical profile of ADHD according to (CASS:L)

Conners Adolescent Self report scale long form was used in our study for the high scorers on CASS:S to illustrate the following data

A- Family problems:

Operational definition of the family problems according to Conners 2004:

High scorers are likely to perceive their parents and other family members as uncaring, harsh or overly critical. They may also feel emotionally distant or detached from family members ***(Conners, 2004)***.

About 2/3 of our ADHD subjects had no family problems (64.4%) (Fig. 9).

Yet, family problems were encountered more commonly in boys than girls, and in 2nd grade more that 1st grade students, moreover, in private more than state school students, yet, there is no statistical significant differences between them (Table 9a, b, c, d).

B- Emotional problems

Operational definition of the emotional problems according to Conners:

High scorers are likely to have low self esteem and little self confidence, feel lonely and isolated and generally have more worries and concern than most individuals at their age ***(Conners, 2004)***.

Figure 10

58.6% of our ADHD cases had no emotional problems while 41.4% had emotional problems.

When we compared different groups we found that emotional problems were slightly higher in boys, those in state schools and those in 2nd grade. Yet, no statistically significant differences were recoded (Table 10a, b, c, d).

C- Conduct problems

Operational definition of the conduct problems according to Conners, 2004

Individuals scoring high on this subscale are likely to break rules, have more problems with persons in authority and be engaged in antisocial activities than other individuals of their age. Many items of this subscales pertain to serious misbehavior (e.g. destruction of property, taking drugs) ***(Conners, 2004)***.

Conduct problems were found to be 13.8% among our ADHD group (Fig. 11).

Conduct problems were found to occur more oftenly in boys (15.5%) compared to girls (10.3%) with non significant differences (table. 11a). First grade students show slightly higher rate of conduct problems than did 2nd grade students (P=0.345) (table. 11b).

State school ADHD students showed higher significant rates of conduct problems than their private counter parts (table 11c).

D- Cognitive problems

Operational definitions of the cognitive problems/inattention according to Conners, 2004

High scorers may be inattentive. They may have more academic difficulties than most individuals of their age, have problems organizing and completing tasks and have particular trouble concentrating on work that require mental effort ***(Conners, 2004)***.

85.1% of our ADHD subjects had no cognitive problems (Fig. 12).

Cognitive problems were more prevalent in girls with very high statistical significance (P= 0.000) (Table 12b).

Cognitive problems were also slightly higher in private school ADHD students that those of state school (P=0.145) (Table 12c).

Despite that 2nd grade ADHD students showed high rates of cognitive problems than did 1st grade students. Yet, there is no statistical significant differences between them (Table 12d).

E- Anger Control problems

Operational definition of the anger control problems according to Conners

High scorers are more emotionally labile than most individuals of their age and are easily angered and irritated by people around them ***(Conners, 2004)***.

Most of our group had no anger control problems (92%) (Fig. 13). A Very highly significant statistical difference between the different groups were recorded (P=0.005) (Table 13a).

Anger control problems were more prevalent among girls than boys with statistically significant difference (P=0.026) (Table 13b).

Anger control problems were found to be more common in the 2nd grade and private school ADHD students, yet with no statistical significant difference (Table 13c, d).

F- Hyperactivity

Operational definition of the hyperactivity according to Conners, 2004

High scorers have difficulty staying still and feel more restless and "on the go" than most individuals of their age ***(Conners, 2004)***.

17.2% of our ADHD students were found to have hyperactivity (Fig. 14), which was more frequent in boys than girls and in the state than private school groups but with no statistical significant differences (Table 14b, c).

First grade students are significantly more hyperactive than second grade students (Table 14d).

G- DSM-IV inattentive

21.8% of our ADHD subjects were inattentive by DSM-IV criteria included in CASS-L (Fig. 15).

Table (15a) showed that girls from private school were significantly more inattentive compared to other groups.

Girls were more inattentive than boys, also private school students were more inattentive than state school ADHD students. However, there was no statistically significant difference that could be elicited (Table 15b, c, d).

H- DSM-IV Hyperactivity-Impulsivity

26.4% of our group was considered hyperactive impulsive. Statistical significant difference between the studied groups could not be elicited (Fig. 16 and Table 16a,b,c,d).

(I) DSM-IV total

16.1% of our group was considered to have combined (total) type. Statistical significant differences between the studied groups could not be elicited (Fig. 16b and Table 16 e, f, g, h)

2- Clinical profile of ADHD students by K-SADS-PL

Our results revealed that the most frequently recorded subtype was the hyperactive impulsive subtype being about (54.7%), followed by the combined subtype being (30.7%) then the inattentive subtype as the least frequent being (14.7%) (Fig. 17).

The hyperactive impulsive subtype was found to be significantly more prevalent in boys than girls (72.3% boys versus 25% girls). While the inattentive ADHD subtype was found to be more prevalent in girls than boys (35.7% girls versus 2.2% boys) and the combined type seemed to be more in girls (P=0.000) (Table 17a, b).

No statistical significant difference was found among different grades or different school types (Table 17c, d).

3- Psychiatric comorbidity

Results in our study displayed in (Fig. 18a) revealed that most of our ADHD subjects have associated psychiatric comorbidity being (85.1%).

The comorbid conditions were more encountered in boys (19%) than girls (6.9%); yet with no statistically significant difference (Fig. 18b).

There was no statistical significant difference between private and state school students or 1st and 2nd grade students (Table 18a, b).

Table 19

Figure 19

Comorbidity with anxiety disorders

Anxiety and stress related disorders are by far the most comorbid psychiatric disorders among our ADHD subjects. The most frequent anxiety disorder encountered in our patients is avoidant disorder, social phobia, simple phobia and generalized anxiety disorders followed by OCD and post traumatic stress disorder. Then comes acute stress reaction, over anxious disorder then panic disorder (Table 20).

Comorbidity with ODD and conduct disorder

ODD and CD was found to be among the most common comorbid psychiatric diagnosis in our ADHD students (n=31) only 4 ADHD students (n=4) were found to have comorbid conduct disorder while 27 students labeled the ODD diagnosis (Table 21).

ODD and conduct disorder were ranked the second comorbid disorder in our ADHD group 35.6% (Table 19).

Figure 21

Comorbidity with mood disorders

31% of our ADHD students have comorbid mood disorders. Depression not otherwise specified being the most common type (13.8%) followed by major depressive disorder (9.2%) and then dysthymia disorder (3.4%) (Table 22, Fig. 22).

One student was found to have manic episode previously diagnosed, two students were found to have bipolar II disorder (hypomania) and another student was diagnosed as bipolar disorder not otherwise specified (Table 22, Fig. 22).

Comorbidity with other disorders

12.6% have comorbid ***adjustment disorder***.

11.4% have comorbid ***nocturnal enuresis***.

6.9% have comorbid substance abuse mainly alcohol, cannabis and smoking cigarettes.

2 students had comorbid ***eating disorder*** and only one student suffered from comorbid tic disorder.

Table 23a b c d e

4- Suicidal behavior

The profile of associated suicidal behavior among the ADHD group

69% of our group had no suicidal behavior (Fig. 23a). Examination of the suicide behavior revealed no statistical significant difference between private and state group, girls and boys; 1st and 2nd grade group (Table 24c, d).

Among those who suffered of suicidal behavior most had suicidal ideations (96.3%) and only one girl from state school had previous suicidal attempt (Fig. 23b).

5- Age of onset and duration of illness

- Results in our study revealed that the mean age of onset in ADHD was 5.26±1.307 years while the mean duration of illness was (7.87±1.5).
- The mean age of onset in girls was lower than in boys and the duration of illness was found to be longer in girls than in boys with highly statistical significant difference between both groups (Table 25b).
- There was no statistical significant difference between private and state schools students or 1st and 2nd grade students (Table 25c, d).

6. Intellectual abilities (IQ) as measured by WISC *(Wecksler Intelligence Scale for Child)*

The whole ADHD group IQ lay within the average range of IQ. With the mean performance IQ being slightly higher than the mean verbal IQ (Fig. 24).

IQ Subscale	Cases N = 87
Comprehension	**11.72±4.91**
Arithmetic	**8.27±1.53**
Similarity	**11.50±2.4**
Digit span	**6.057±2.02**
Picture completion	**9.29±1.8**
Block design	**8.42±2.28**
Coding	**7.77±1.67**

Table 26 a

Table (26b) shows the IQ of girls versus boys. It is clearly illustrated that girls have higher scores in comprehension and digit span while boys were found to have higher scores in arithmetic, similarity, block design and coding.

There was a high statistical significant difference between boys and girls as regards comprehension, coding and verbal IQ subscale and very high statistical significance as regards similarity and digit span subscale.

Table (26c) shows no statistical difference between total IQ in private versus state school groups while, there is high statistical significant difference as regards similarity and picture completion subscale.

Table (26d) revealed the difference of IQ according to the grades (1^{st} versus 2^{nd} grade). All subscales together with verbal, performance and total IQ were not found to be of significant value.

7. School performance

Figure 25

Data in our results revealed that 43.7% of ADHD group had fair scholastic performance followed by poor school performance (39.1%) with 17.2% had good school performance.

Insignificant statistical difference were found when we compared boys and girls group, private and state group (Table 27b, c).

8- Psychiatric consultation and medication

Most of our ADHD students didn't seek psychiatric consultation or medication.

Figure 25a

Figure 25b

SECTION (4)

In this part we will answer the following questions:

1. What are the sociodemographic data of the ADHD students? (Age, social class category, mean number of sibs and sib order)
2. What are the different family circumstances surrounding our ADHD cases?
3. Do ADHD students in our study have a family history of psychiatric disorders?
4. What are the different aspects regarding personal data and past history of our ADHD cases?

Socio-demographic data

The whole ADHD cases had a mean age of (13.4±0.7). 66.7% of cases belong to high and high middle social class.

They had a mean number of sibs (2.5±1.5) with high prevalence of being the first sib in order (Table 29a).

Girls versus boys group showed no statistical significant difference in all items of sociodemographic data (Table 29b).

Yet there is an apparent significant statistical difference between private and state school ADHD students regarding social class category and mean number of sibs (P=0.000) (Table 29c).

Table(29d)

The attempt to compare first preparatory grade with second preparatory grade students revealed that there were statistically significant differences between the two groups as regard mean age and social class category.

Family circumstances

The majority of ADHD students had both parents existing and had no history of consanguinity between parents (Table 30a).

No statistically significant difference was revealed on comparing boys with girls group, private versus state school group or 1st and 2nd preparatory grade group (Table 30b,c,d).

Family atmosphere

About ¾ of ADHD students had not been exposed to parental separation, disharmony or cold and quarrelsome relationship in the family.

The majority didn't record parental aggression or physical abuse (Table 31a).

Statistical significant difference was elicited in the item of parental aggression towards girls than boys (Table 31b).

No other statistical significant difference was shown in different groups regarding family atmosphere (Table 31c, d).

Family history of psychiatric disorders

About 80% of ADHD students reported no family history of psychiatric disorders, psychiatric treatment or psychiatric hospital admission. The majority of cases also showed no tendency to have family history of ADHD symptoms (Table 32a).

ADHD girls showed significantly higher rates of family history of psychiatric hospital admission (P=0.05) (Table 32b).

On comparing ADHD cases in private and state schools and in 1st and 2nd preparatory grade, no statistical difference was revealed (Table 32c, d).

Personal data and past history

Natal and post natal problems

Table (33a) clarifies that about 70% of ADHD students had not suffered of natal or post natal troubles.

There was no statistical significant difference between girls and boys; 1st and 2nd preparatory grade group (Table 33b,).

State school students showed higher statistical significant rates of natal troubles than their colleagues in the private schools (P=0.02) (Table 33c).

Table(33d)

Developmental data

The majority of the ADHD students did not experience delayed milestones of development, delayed sphincter control or delayed language development (Table 34a).

Table (34b) clarifies that female ADHD cases showed statistically significant rates of delayed sphincter control (P=0.003).

Table (34c) revealed a high statistical significant difference in delayed language development, being higher in state school ADHD students (P=0.04).

No statistical significant results were revealed in developmental milestones in 1st versus 2nd year group (Table 34d).

Medical history

It is obvious from table (35a) that most of the ADHD cases had no medical problems and they were in good physical condition, the most frequently encountered health problem were the chest troubles, then joint troubles and followed by history of head trauma.

ADHD girls showed higher statistical significant rates of joint troubles (P=0.001) (Table 35b)

State school ADHD students showed higher exposure to heart problems with high statistically significant difference (P=0.03).

Table(35c)

Younger ADHD students (1st preparatory grade) tended to have high statistical significant rates of chest problems (P=0.04).

Table (35d)

SECTION (5)

In this section, the following items will be highlighted:

- Severity of ADHD.
- Relation of different variables with ADHD severity.

Severity of ADHD

Severity of ADHD according to Conner's adolescent self report scale long form CASS:L is presented in (Fig. 26).

Table (36b) shows that girls had more severe form of ADHD than boys who more frequently had milder and moderate forms.

Table (36a)

Severe cases tended to be significantly higher in private schools (18.2%) in comparison to state schools (2.3%) (Table 36c) and in 2nd grade students more than the first grade (P=0.603) (Table 36d).

The relation between severity of ADHD according to (CASS:L) and different variables:

1- Sociodemographic data

No significant correlation between severity of ADHD symptoms and mean age, mean number of sibs or sibs order (Table 37).

Family circumstances

None of the family circumstances were significantly related to ADHD severity.

Parental existence, consanguinity, family atmosphere and parents attitude showed statistically insignificant difference when related to severity of ADHD symptoms (Table 38, 39).

Family history of psychiatric disorders

Family history of psychiatric illness, psychiatric treatment or psychiatric hospital admission showed no significant relation to severity of ADHD symptoms (Table 40).

Natal, post natal and developmental history

Neither natal or postnatal troubles showed statistically significant correlation to ADHD severity. Similarly, delayed milestones, delayed sphincter control and delayed language are non statistically significantly related to ADHD severity (Table 41a, b).

Table (42) shows that non of the medical illness (heart-chest-liver-joints-renal-epilepsy) or head trauma were significantly related to ADHD severity.

Severity of ADHD and comorbidity

Comorbidity is associated with the more severe form of ADHD 12.2% compared to noncomorbidity (0%) with statistically significant difference.

Table (43)

Severity of ADHD and its relation to disease onset and duration

Onset and duration of illness have no relation to severity as expressed in table (44).

School performance

Table (45) showed that school performance was statistically significantly correlated to severity of ADHD symptoms.

Poor school performance was more prevalent with ADHD severity (P=0.004).

SECTION (6)

A. Comparison between ADHD cases and controls

In this section we compared the ADHD cases with a matched group with no ADHD (matched as possible as we can regarding age, school grade, gender and type of school) and equal in number to the cases.

The following items were investigated:

I. Sociodemographic data including

- Age
- Social class category
- Mean number of sibs
- Sib order

II. Family circumstances

- Family background
- Family atmosphere
- Family history of psychiatric disorders.

III. Personal data and past history

- Natal, post natal problems, head trauma
- Developmental milestones
- Medical history
- **IQ and school performance**

B. Risk factors associated with ADHD in preparatory school students

Socio-demographic data

Data presented in (Table 46a) revealed that there is no statistical significant differences between cases and controls as regard mean age, yet social class category showed statistically significant difference between cases and controls.

However, ADHD students were significantly ranked the first and non ADHD students were predominately having the second sib order.

Comparing male cases and controls and female cases and controls revealed no statistical significant difference in any of the socio-demographic variables Table (46b, c).

Family circumstances

Family background

Data in our study showed that most of the controls lived with both parents. ADHD students were more likely to have either father or mother died (P=0.522).

The majority of ADHD cases had more consanguineous parents than the controls with very high statistical significance (P=0.003) (Table 47a).

On comparing female cases and controls regarding family background, no evident statistical significant difference was found (Table 47b).

On comparing male ADHD with control we found that they were exposed to parental death, yet with no statistical significant difference. Consanguineous parents were more significantly encountered among male ADHD than their healthy counterparts (Table 47c).

Family atmosphere

Table (48a) revealed that cases were exposed to inconvenient home atmosphere.

Cases were more exposed to parental separation, parental disharmony than controls with high statistically significant difference (Table 48a).

ADHD cases suffered significantly from cold family relations and criticism more than controls who had more warm yet quarrelsome relations with parents.

Cases were more exposed to parental aggression and parental abuse than controls with very high statistically significant difference (Table 48b).

Same inconvenient family atmosphere applied to female cases yet with high statistical significant difference regarding the family relations and parents' aggression (P=0.012 and 0.019) respectively) (Table 48b).

Male cases were also exposed to the inconvenient family atmosphere than controls yet with no statistical significant difference (Table 48c).

Family history of psychiatric disorders

The majority of ADHD patients had definite high statistical significant family history of psychiatric disorders, family history of psychiatric treatment and admission to psychiatric hospitals (Table 49a).

Females cases showed very high statistically significant difference as regards family history of psychiatric disorders and admission to psychiatric hospitals when they were compared to control (P=0.005) (P=0.04) (Table 49b).

The same data regarding family history of psychiatric illness applied to male cases versus controls yet with no statistical significant difference (Table 49c).

Personal data and past history

Natal and post natal problems

Table (50a) shows that ADHD cases were more exposed to postnatal problems with very high statistically significant difference between cases and controls.

Male ADHD cases were also more exposed to postnatal problems with high statistically significant difference (Table 50c).

No statistical significant difference was revealed on comparing female cases and controls (Table 50b).

Development

ADHD cases showed higher tendency to have delayed milestones of development (Table 51a) with high statistically significantly difference regarding delayed sphincter control.

Female ADHD cases showed significant delay of sphincter control than healthy controls (Table 51b).

Male cases were not found to have statistically significant difference in delayed milestones (Table 51c).

Medical history

ADHD cases tended to be statistically significantly exposed to chest and joint diseases more commonly than their non ADHD counterparts.

They also had higher non significant history of head trauma.

Data presented in (Table 52a, b) showed the clear statistically significant exposure to chest and joint diseases between the whole cases, female ADHD cases and their corresponding controls.

No significant differences could be elicited when we compared male ADHD with controls as shown in Table (52c).

Intellectual abilities (IQ)

ADHD cases showed statistically significant lower scores of total IQ and almost all subscales except similarities. It seems that digit span and coding were severely affected in ADHD cases in comparison to controls Table (53a).

Table (53b) revealed that female ADHD cases showed high statistically significant lower results in IQ and all subscales except picture completion and similarities. Coding is the most affected subscale.

IQ subscales and total IQ were also found to be lower in ADHD male cases than their corresponding controls with high statistical significant difference regarding all subscales except comprehension. Digit span was the most severely affected subscale (Table 53c).

School performance

The majority of the ADHD cases tended to have poor scholastic achievement while the majority of the controls tended to have good scholastic achievement with very high statistically significant difference between cases and controls (Table 54a).

Female and male cases showed tendency for poor to fair scholastic achievement compared to their corresponding controls with clear high statistical significant difference (Table 54b, c).

Risk factors associated with ADHD in preparatory school students

Logistic regression analysis was performed to explore the risk factors associated with ADHD. It was found as displayed in **table (55)** that the greatest risk is having one family member admitted to psychiatric hospitals, followed by exposure to head trauma, then comes the position among sibs, delayed control of sphincters, psychiatric medication of one of family members, epilepsy and parental disharmony.

DISCUSSION

ADHD is an early onset, highly prevalent neurobehavioral disorder, with genetic, environmental and biological etiologies that persist into adolescence and adulthood in a sizeable majority of afflicted children and adolescents of both sexes ***(Nijmeiger et al., 2008)***.

It is characterized by behavioral symptoms of inattention, hyperactivity and impulsivity across the life cycle and is associated with considerable morbidity and disability ***(Spencer et al., 2007)***.

Although the prevalence of attention-deficit/hyperactivity disorder (ADHD) in younger children has received extensive study, adolescents and adults have been relatively neglected ***(Cuffe et al., 2001; Skounti et al., 2007)***.

There is an urgent need to address the adolescent group as the majority of the studies have focused on school age children.

Prevalence rates of ADHD in adolescents have varied from 2.2% up to 9.9%. Although other studies support a decline in prevalence from childhood to adolescence ***(Nolan et al., 2001; Smalley et al., 2007)***.

The prevalence of ADHD has been reported with great variations among different studies. Population variables that definitely affect the prevalence rates include gender, age, type of informants, source of information and population sample, i.e., community or clinic cohorts. Methodology features that can affect the findings include one-or two-setting design, DSM-III-R or DSM-IV criteria and clinical impairment evaluation. As a

result of this complex influence, a definite prevalence of ADHD seems impossible to be achieved, unless studies of very similar design are employed ***(Skounti et al., 2007)***.

Thus the main focus of our study is to provide factual answers to questions pertaining to:

a. The prevalence of ADHD among male and female adolescent students.
b. The distribution of different types of ADHD in this age group.
c. The sociodemographic relevance in ADHD.
d. The clinical profile of ADHD and its comorbidity among adolescent students.

A considerable number of epidemiological studies of ADHD in preschool children and school children have been conducted in Egypt ***(Saad, 1974; Abu El Maaty, 1996; Mubarak et al., 1996; El Dafrawy, 1997; Magda et al., 2000; Abou Hatab et al., 2003; Abdel Aziz et al., 2004)***. And other Arab countries ***(Buharoon et al., 1999; Al Ghamdy and Qureshi, 2001; Al Qahtani et al., 2006)***.

However, to the best of our knowledge, no previous study addressed the epidemiology of ADHD in adolescent group of students in an Egyptian population sample.

Our study could be a first step towards better under standing of ADHD in adolescence in our community and improving awareness among teachers, primary care physicians

and psychiatrists thus allowing early detection and possibly prevent its impact on affected students.

Prevalence of ADHD among a sample of preparatory school Egyptian students using CASS:S

The prevalence rate of ADHD in our study was found to be 9.4%.

Our results are consistent with the findings of **Smalley et al. (2008)** who estimated an ADHD prevalence of (8.5%) among adolescents in the Northern Finland Birth Cohort and is also consistent with **Froehlich et al. (2007)** who found a prevalence rate of 8.7% in 8-15 years old children and adolescents in the national health and nutrition examination survey.

Our study supports prior research by **Barbaresi et al. (2002)** who found that ADHD prevalence was 7.4% in a sample of 5718 of children and adolescents with age range 5-19 using DSM-IV criteria in United States.

Our results are found nearly similar to that revealed by **Hudziak et al. (1998)** who found that ADHD symptoms were present in 9.9% among adolescents females with age range 12-19. And also an estimated prevalence of 6.8 to 7.5% was shown in an Australian study by **Graetz et al. (2001)** among 6-17 years old children and adolescents.

However, our results were found to be ***higher*** than that of **Kashani et al. (1989)** who estimated a prevalence rate of 2.9% among 4.8110 candidates aged 12 years old and also higher than **Siminoff et al. (1997)** whose study revealed a prevalence of 2.4% among (8-16) years old age group.

Our figures were higher than the 3.3% ADHD prevalence rate reported by **Breton et al. (1999)** on a (6-14) years old sample using DSM-III-R and self report.

ADHD symptoms were least noted in the study of **Verhulst et al. (1997)** who found a prevalence rate of 1.8% among (13-18) years old adolescents.

Prevalence estimates derived from **Rohde et al. (1999)** were 5.8% among Brazilian adolescents.

Also **Ford et al. (2003)** has recorded a prevalence rate of 2.2% among British adolescents ages 11-15 and **Cuffe et al. (2005)** who estimate a prevalence rate of 3.3% among (4-17) years old subjects.

Lower results were also reported by **Gomez et al. (1994)** with a prevalence rate of 5.3% among 17 years old Spanish adolescents and **Costello et al. (2003)** who found an ADHD prevalence of 4.1% among 9-13 years old adolescents.

Different results in our study may be attributed to:

a. **Different diagnostic criteria and methodological factors:**
   The application of K-SADS-PL according DSM-IV criteria seems to have lead to an increase in the frequency of the disorder **(Skounti et al., 2007)** and most of the above lower findings use DSM-III or DSM-III-R which causes lower prevalence rates than our results

   ADHD prevalence was higher with DSM-IV criteria than with DSM-III-R probably due to recognition of the disorder subtypes and including the new category predominantly inattentive type which was ignored in DSM-III-R. This possibility is strongly supported by two studies which applied

both DSM-III-R and DSM-IV criteria to the same population and demonstrated great difference in prevalence rates, 7.3% versus 11.4% and 10.9% versus 17.8%, respectively ***(Baumgaertel et al., 1995 and Wolarich et al., 1996)***.

b. **Difference of the source of information:** ADHD prevalence seemed to vary depending on who was being asked to report symptoms **(Stanger and Lewis, 1993)**, some of these studies use more than one source of information (parent – teacher – adolescent) which may be a cause of lower results. This is consistent with **Gadow et al. 2000**. Research routinely finds agreements between people to be low to modest when they are judging the behavior of another, unless more specific and operational definitions of the behavior being judged and training in the application of the definitions are provided ***(Barkely, 2006)***.

   Our study is based only on adolescent self report, which may cause higher results, than if taken from two sources as when adolescents endorsed symptoms, they were likely to be clinically significant ***(Dulcan, 1986)***.

   Supporting our view is the study by **Shaughency et al. (1994)** who found that 12.01% of boys and 10.22% of girls met criteria for self reported ADHD symptoms which dropped to 9.32% of boys and 10.22% of girls when using parent reported difficulties Evidence from different studies indicates that the use of self or parent report of ADHD results in 7% to 11% difference in prevalence rates ***(Barkely et al. 1990)***.

   Also **Gomez et al** reported rates of 8.8% and 9.9% when parents and teachers were asked respectively. However, the

prevalence rate dropped to 2.4% after diagnosis was based on both question raters.

Also, **Mark et al. (1996)** found a prevalence of 7.3% when using DSM-III-R and 11.4% when using DSM-IV diagnostic criteria.

We felt justified relying exclusively on the information provided by the adolescent students because recent findings have shown that the reliability of diagnostic information from the child increase with age, whereas the reliability of the parent's report decreases shortly, especially when we suspect recall bias ***(Edelbrock et al., 1985)***, and that the amount of agreement between adolescents and parents decline with age ***(Kazdin, 1989; Lewinsohn et al., 1993)***.

c. **Difference in educational system:** Educational system in Egypt may have some gaps that may allow primary school children to reach preparatory stage inspite of having academic difficulties and behavioral problems.

   Also poorly structured educational settings with relatively small class size and big number of students in crowded classes may lead to increased manifestation of ADHD symptoms.

d. **Cultural difference:** Cultural difference may play a role in the high prevalence found in Egypt as what is considered abnormal in one culture may be more acceptable in another. This is what is called (perception of deviance). The traditional structure of the Egyptian family is over protective or authoritative one. This model places strong emphasis on the importance of obedience and discipline. So the families can't afford any misbehavior from their children and find it as

abnormal and put them in a frame of being disordered so the children or adolescents may get the picture that they are suffering and hence can rate themselves higher in having problems which may be considered normal in other cultures.

Also, the harsh physical punishment rather than guidance and reinforcement as an upbringing method may be another cause for the high prevalence of ADHD in Egypt.

A support to our suggestion is a study by **Ho et al. (1996)** who found significantly higher rate of hyperactivity symptoms that were associated with low tolerance rates for hyperactive behavior in children and adolescents in China and hence higher reporting of symptoms. This supports existence of cultural variation in understanding ADHD behavior.

e. **One setting evaluation:** The high rate in our study may be due to getting the information in one setting (only the students in the schools). This is consistent with **Skounti et al. (2007)** where he reported that school-based studies commonly focused on a single setting. Twenty-nine studies **(Cohen et al., 1993; Baumgaertel et al., 1995; Gomez et al., 1999; Almgvist et al., 1999; Andrsen et al., 1999; Gimpel et al., 2000; Benjasuwantep et al., 2002; Costello et al., 2003; Ersan et al., 2004; Cuffe et al., 2005; Bener et al., 2006 etc…)** have used informants from a single setting and reported higher prevalence rates (2.8-17.8%). Eleven of them reported rates higher than the upper limit of 9%, which was suggested by almost all the two-setting studies.

f. **Difference in etiological factors:** one cause of the high prevalence in our study may be due to different etiological factors known to be associated with ADHD. Poor prenatal

care, child medical care, disease prevention, exposure to toxins with pollution in our developing country may contribute to these high results.

This is consistent with **Leung et al. (1996)** who conducted his study in China and **Bhatia et al. (1991)**. Higher prevalence in their studies was attributed to etiological factors in their countries.

g. One of the factors that may contribute to the high prevalence in our study, is the high rate of comorbid conditions (as evidenced in our results), which contain symptoms that overlap with the criteria for ADHD. For example, difficulty sustaining attention may be a characteristic of stress, depression or anxiety. In addition, some features associated with ADHD (e.g. non compliance) may also be prominent in other disorders like ODD or C.D. This overlap complicates diagnosis and may increase the likelihood of high ADHD prevalence rate. Our view is consistent with ***(Peterson and Palmer, 2002; Barkley, 2005)***.

On the other hand, our results were found to be ***lower*** than that of **Rowland et al. (2001)** who conducted his study on school students age (7-11) years and found prevalence rate of 16.1% and also **Pineda et al. (2003)** find slightly higher results 11.3% in (4-17) years old Colombian community sample.

ADHD symptoms were frequently noted by **Jensen et al. (1995)** found a prevalence rate of 15.1% among USA military sample students aged (6-17) years.

Our findings were lower than that of German school students aged (5-12) which was found to be ranging from (10.9-17.8%) ***(Baumgaertal et al., 1995)***.

Prevalence estimates derived from **Nolan et al. (2001)** were 15.8% among 3006 school students of (3-18) years old.

Our figures were lower than **Velez et al. (1989)** who found an ADHD prevalence of 13.3% among (12-18) years old sample.

The major outlier and highly different from our study was that conducted by **Bhatia et al. (1991)** on 1000 of Indian population aging (11-12) years and found a prevalence rate 29%.

This difference may be explained by:

Difference in the one who rate the results, as most of the higher result studies were either rated by parents or teachers or both who always perceive the problem bigger than it could be. This is consistent with **Breton et al. (1999)** who demonstrated prevalence rate of 3.3%, 5.0% and 8.9%, when children or adolescents, parents and teachers were asked respectively.

Also lower results may be to the difference in the age range between our study and other studies where most of them conducted the study on wider age range that lump together individuals entering adolescence with younger children. Presenting prevalence estimates for such broad categories seems problematic because age considerations are ignored. We examined adolescents within a narrow age range, allowing for more precise conclusions to be reached.

The influence of age was confirmed in a study of **Cohen et al. (1993)** who found a clear decline in prevalence as age advanced. This study evaluated the frequency of psychiatric disorders in the same cohort of children during an 8 year follow up. The prevalence of ADHD was 12.8%, 9% and 6.0% for children and adolescents aged 10-13, 14-16, 17-20 years

respectively. Similar findings were reported by **Nolan et al. (2001)**.

Gender difference in ADHD in the study population

Results in our study found a prevalence rate of 13.8% in boys and 5.8% in girls with a ratio of 2:1 using CASS:S.

Our results show that males have significantly higher rates of ADHD (double) than girls.

Our results are consistent with different community samples that found male to female ratio ranged from 1:1 to 3:1. These studies include **Ford et al. (1999)** on community sample in England aged (11-15) years, **Breton et al. (1999), Rowland et al. (2001)** on a school sample, **Cohen et al. (1993), Wang et al. (1993)** on a school sample in Taiwan, **Jensen et al. (1995), Baumgaertel et al. (1995)** on a school sample in Germany, **Costello et al. (1996)** on community sample in USA aged (9-13) years, **Wolarich et al. (1998) and Rohde et al. (1999)** on 1013 school sample in Brazil with age range (12-14) years, **Ersan et al. (2004)** on a community sample in Turkey and **Cuffe et al. (2005)** on a USA community samples.

Our results are also nearly similar to **Pineda (2003)** who estimated an ADHD prevalence of 19.8% for boys and 12.3% for girls among 330 participants with the risk being twice as high for boys.

Similarly, males showed a prevalence of 2.62% and females showed a prevalence of 0.54% in a community sample study of older adolescents conducted by **Cuffe et al. (2001)**.

However, some previous studies of college students reported no significant gender difference in self reported ADHD symptoms ***(Heiligenstein et al., 1998; Du Paul et al., 2001)***

Our results were found ***lower*** than studies done on clinical samples **only** or adolescents referred for clinical evaluation (i.e.

clinical population) where boys to girls ratio increased to values up to 9:1

Different factors may contribute to this gender difference and the high prevalence of boys than girls:

1. Disruptive behavior disorders are clearly less prevalent in girls regardless of ADHD status. The low risk of disruptive behavior disorders in girls would have led to under identification or under referral of girls with ADHD, consistent with this suggestion, girls with ADHD had fewer school problems than boys with ADHD.

   This is supported by **Lahey et al. (1998); Morgan et al. (1996); Barkley (2004) and Ruchkin et al. (2008)** who find that studies drawing ADHD samples from the community find that girls are significantly less likely to have comorbid oppositional defiant disorder and conduct disorder and less intellectial deficits.
2. Girls with ADHD manifest manly inattentive type of the disorder (as will be shown later in our results) and supported by **Biederman et al. (2002)** and since symptoms of inattention are more covert than those of hyperactivity and impulsivity, the higher rate of these symptoms in girls with ADHD than in boys with ADHD may partially explain the higher male to female rates for ADHD.
3. Girls with ADHD have significantly lower rates of learning disabilities and since academic under achievement represents another leading reason for whether the ADHD adolescents themselves or parents or teachers seek help, the markedly low

rate of learning disability in girls will lead to decrease identification of ADHD in girls.

These data are consistent with a study by **Biederman et al. (2002)** on the influence of gender on ADHD in children referred to psychiatric clinic.

Distribution of ADHD subtypes among ADHD preparatory school students

Results in our study found that the most common subtype of ADHD was the hyperactive impulsive subtype (54.7%) followed by the combined subtype (30.7%) then the inattentive subtype (14.7%).

Higher distribution of hyperactive impulsive subtype in our study over the inattentive subtype are consistent with **Pineda et al. (1999)**, who conduct his study in Colombia and found a prevalence of 9.9% for ADHD-PHI and 5.1% for ADHD-PI and 4.8% for ADHD-C among boys and 7.1%, 3.4% and 1.9% respectively among girls, aged 4-18 yrs.

Our view support previous studies ***(Lahey et al., 1994; Milberger et al., 1995; Riccio et al., 1996; and Du Paul et al., 2001)*** on self report scale. And are similar to a recent study in Ukraine based on 600 subjects aged 10-12 years that found a highest prevalence of ADHD-PHI (8.5%) followed by ADHD-PI (7.2%) then ADHD-C (4.2%) ***(Gadow et al., 2000)***.

A recent study by **Lee et al. (2008)** reports that hyperactive impulsive type was the most prevalent among college freshmen on a self report scale.

On the other hand, other studies that addressed prevalence of ADHD found that the inattentive type is the more common form of ADHD, followed by combined type and hyperactive impulsive type Table (B1).

Our results are different from **Slavica et al. (2005)** who found that the combined type (77%) was the most prevalent type then the inattentive type (17.1%) followed by hyperactive impulsive type (5.4%), **Byun et al. (2006)** found the same distribution.

Similar difference from our study is reported by **Smalley et al. (2007)** who estimated a distribution of ADHD subtypes as 64% inattentive, 28% combined and 8% hyperactive impulsive among adolescent finish population.

Additionally, **Froehlich et al. (2007)** found similar results of the higher prevalence of ADHD inattentive and combined subtypes than the hyperactive impulsive subtype.

Relatively high reporting of the high distribution of the hyperactive impulsive subtype in our study may be explained by:

The fact that hyperactive impulsive subtype has been related to externalizing and social problems affecting the adolescent in home and school, while ADHD inattentive subtype are more impaired in learning but are rated as displaying more appropriate behaviors. So higher reporting of hyperactive impulsive subtype in our sample may be due to different

influences of hyperactive impulsive and inattentive symptoms on school adjustment. This is consistent with **Lahey et al. (1994); McBurnett (1997)**.

In addition academic performance may be affected more by inattentivness, **Yang et al. (2007)**, and less by hyperactivity impulsivity. Thus elementary primary school students who display inattentivness may be more likely to drop out of school or less inclined to attend preparatory school consequently, students with hyperactive impulsive type may be more common than those with the inattentive type because their disorder may be less deleterious to their academic performance and they may reach the preparatory stage.

Different ADHD subtypes and its relation to gender

Our results revealed that boys with ADHD were more rated as hyperactive impulsive while girls were rated as having inattentive and combined subtype.

Our data are similar to **Dong Hun Lee (2008)** who reported that females display more inattention while males display more hyperactivity and impulsivity.

Our view is also supported by **Biederman et al. (2002); Baumgaertel et al. (1995); Gomez et al. (1999); Hudziak et al. (1998); Montel-Navac et al. (2002); Pineda et al. (2003) and Wollarich et al. (1998)** Nearly similar results are derived by **Schaughency et al. (1994)** on his sample of self reported inattention, impulsivity and hyperactivety at age (15-18) years in general population revealing that females rated more inattention and males rated more motor excess.

Psychiatric comorbidity with ADHD among preparatory school students

Results in our study found a percentage of 85.1% of associated psychiatric comorbidity with ADHD.

Our results are similar to **Byun et al. (2006)** who found 76.2% comorbidity with ADHD (having at least one comorbid condition using K-SADS-PL Korean version.

Our results are consistent with the MTA study, which found that only 31.8% of the participants had a diagnosis of ADHD alone; 29.5% were diagnosed with ADHD and either ODD or CD, 14% were diagnosed with both ADHD and an anxiety disorder and 24.7% were diagnosed with ADHD, ODD or CD and an anxiety disorder ***(Jensen et al., 2001)***.

Our results are similar to **Pfiffner et al. (1999)** and **Wilens et al. (2002)** who found that 80% of school age ADHD patients had at least one other disorder besides ADHD with an average of 1.4 additional disorders.

Our results are consistent with **Schaughency et al. (1994)** on their sample of ADHD adolescent group who found 60-63% comorbidity of other psychiatric diagnosis.

Another large community sample study showed that 44% of those diagnosed with ADHD had at least one other psychiatric disorder ***(Szatmari et al., 1989)***.

Lower results were reported by **Katusic et al. (2005)** who found a psychiatric comorbidity of 20.6%.

The reason for this high psychiatric comorbidity may be due to common underlying etiologies that may lead to comorbid disorders (genetics, family environment, parental conflicts,

family history of psychiatric conditions,..) which is evident in our sample or that two disorders may be correlated with a third that accounts for their relationship ***(Angold et al., 1999)***.

Additionally, it may be due to an artifact of methodological problem in research as overlap in symptoms on diagnostic symptom lists.

Most common comorbid conditions

Our results find that the most common comorbid condition was anxiety disorders followed by the oppositional defiant disorders while mood disorders come in third place.

These results are similar to **Pineda et al. (2003)** who recorded that anxiety was observed in 19.2% of the cases. Oppositional defiant disorder (ODD) was the second most common disorder (15.4%) followed by mild symptoms of depression (15.4%) and finally conduct disorder (3.8%).

Biederman et al. (1991) reported near results to ours. However, **Cuffe et al. (2001)** found in their sample of older adolescents that affective disorders were the most common comorbid diagnosis among this age group.

And **Byun et al. (2006)** found that ODD was the most common disorder followed by anxiety disorder then affective disorders in ADHD adolescents.

Comorbidity with mood disorders

Our study found a comorbidity of 31% of mood disorders with ADHD cases. Major depressive disorder represents 9.2%,

3.4% for dysthymia and 13.8% for depression not otherwise specified.

Our data are supported by most studies which reported rates of 9.32% of children and adolescents with ADHD having major depressive disorder and 15% to 75% having mood disorders ***(Biederman et al., 1991)***.

In support to our results, **Wilens et al. (2002)** reported that dysthymia disorder occurred in 5% of their school age group sample while MDD was diagnosed in about 47% of their sample.

Nearly similar results were reported by **Biederman et al. (1992)** who found a comorbidity of 11% for MDD in ADHD cases. And **Byun et al. (2006)** found a comorbidity of 14.3% among ADHD cases.

However, **Spencer et al. (2000)** found higher rates up to 20% of children and adolescents with ADHD seen in pediatric clinic and up to 38% of those seen in a psychiatric clinic may have comorbid MDD, also **Biederman et al. (1992)** found comorbid depression in subjects with ADHD ranging between 29% to 45% at an average age of 15 years.

Comorbidity with bipolar disorders

Data in our study found that mania represent 1.15% (one student), hypomania represent 2.3% and bipolar disorder NOS represent 1.1% with a total of 4.5% for all bipolar disorders.

Our results were found lower than **Biederman et al. (1996)**, who found in a 4 year follow-up involving ADHD children, 12% of the adolescents with ADHD now met criteria for BPD.

Similarly, **Spencer et al. (2000)** reported in his study that 20-27% of subjects with ADHD had bipolar disorder. Other studies as **Milberger et al. (1995)** found that 11% of their cases with ADHD had bipolar disorder.

Our low results may be explained by the inability of the adolescent group sample to identify and rate symptoms of bipolar disorder due to the great symptom overlap between mania and ADHD.

Our explanation is supported by the findings of a study by **Fristad et al. (1992)** in which subjects with mania and subjects with ADHD received similar scores on the Conners ADHD rating scale, where as subjects with mania scored significantly higher those with ADHD on the mania rating scale.

Comorbidity of ADHD with anxiety disorders

Anxiety disorders are commonly comorbid with ADHD findings in our study with a comorbidity of 32.1% for generalized anxiety disorder. Separation anxiety represents 13.75%, simple phobia represent 22.9%, social phobia represent 3.45% and panic disorder represent 2.3%.

Our data showed also that some subjects with ADHD may have more than one anxiety disorder. This is supported by recent epidemiological work that find that about one in four children with ADHD is likely to present with one or more concurrent anxiety disorders. Confirming the presence of more than one anxiety disorder is the study of **Biederman et al. (1993)** who defined a category multiple anxieties as having 2 or more anxiety disorders to index the severity of comorbid anxiety in ADHD subjects. It was found to be 27% and at 4 years follow up 35%.

Our data are near to **Last et al. (1987)** who found a comorbidity of 20-27% for anxiety disorders with ADHD.

Another study by **Biederman et al. (1991)** found that 27-30% of children and adolescents with ADHD met criteria of anxiety disorders. **Jensen et al. (1993)** come to nearly equal results in his study and **Jarrett and Ollendick, 2008** reviewed a comorbidity of 25% of ADHD cases exhibiting an anxiety disorder.

A support to our study is the study by **Szatmaria et al. (1989)** who found that 17% of girls and 21% of boys with ADHD between 4 and 11 years of age had at least one anxiety or mood disorder, while these figures rose to 24% for boys and 50% for girls during the adolescent years.

The large multimodal treatment study of ADHD (MTA) found that 33-39% of its clinic referred sample (n=498) having ADHD comorbid subtype, also had an anxiety disorder ***(March et al., 2000; Newcorn et al., 2001)***.

A different low result from our study was reported by **Wolraich et al. (1996)** who found a prevalence of 4.9% for anxiety depression. These low results were attributed to the fact that the data were based on teacher reports which may not identify internalizing problems as readily as externalizing problems.

Suggested causes for this high comorbidity

Adolescents with comorbid anxiety and ADHD may have a higher risk for perinatal complications (problems with pregnancy, delivery, or the early neonatal period) than do subjects with ADHD and no anxiety disorders. The former may also experience greater stressful life events, and may report lower levels of self-esteem, than do those only having ADHD ***(Jensen et al., 1997 and Tannock, 2000)***.

Additional support to the strong familial occurrence of anxiety disorders in ADHD patient was concluded by **Tannock, 2000** who found a threefold increase in risk that relatives of ADHD children and adolescents will have anxiety disorder.

Different factors as genetics, temperament, family influence and neuropsychological functioning may influence such comorbidity ***(Jarrett and Ollendic, 2008)***.

Comorbidity of OCD and ADHD

Data in our study found that OCD represent 13.7% comorbidity with ADHD. This data is nearly similar to **Hanna (1995)** who found 16% of comorbid OCD with ADHD.

In support to our results, **Riddle et al. (1990) and Swedo et al. (1989)** reported a 10% overlap between OCD and ADHD.

However, other studies showed lower level of comorbidity than our results as **Toro et al. (1992)** who rated an overlap of 6% between OCD with ADHD.

Comorbidity of OCD and ADHD may be explained by familial pattern as OCD was found to run in families as well as ADHD. **Biederman et al. (1991)** reported that the overall risk of anxiety disorders is markedly elevated among relatives of patients with ADHD compared with relatives of subjects without ADHD.

A second possible reason is the overlap of the cognitive deficits between both disorders as **Purcell et al. (1998)** reported that OCD patients demonstrated specific cognitive deficits on tasks of executive and visual memory function which are closely related to cognitive impairment associated with ADHD.

Comorbidity of ADHD with PTSD

PTSD was found to represent 22.9% comorbidity with ADHD. This results is nearly higher than most studies done as **Wozniack et al. (1999)** who recorded that 12% of ADHD patients had been exposed to some type of traumatic event, **Ford et al. (2000)** found that 6% of ADHD group had PTSD. Higher results in our study may be attributed to disrupted parenting, family social adversity, parental psychopathology which was found highly significant in our data results, that may be a significant predictor of victimization abuse and exposure to trauma in ADHD patients and more liability to be exposed to injuries or accidents.

Comorbidity of ADHD with ODD and CD

Data in our study are near to Smalley et al. 2000 who found a 58.5% comorbidity of ODD with ADHD and 4.5% comorbid CD with ADHD, which means an overall of 63% of ODD and CD comorbidity with ADHD (disruptive behavior disorders).

Our results are similar to most estimates for the occurrence of either disorder which range between (30-50%) in both clinical and epidemiological samples ***(Biederman and Faraone, 2005; Spencer, 2006)***.

Similar results were also reported by **Satterfield et al., 1994; Tannock, 1995**. Our results are in agreement with **Rohde et al (1999)** who found a comorbidity of 47.8% with disruptive behavior disorders.

Our results are consistent with **Barkley et al. (1990); Farone and Biederman (1997); Fisher et al. (1990); Cohen et al. (1989)** whose studies suggest that from 45% to 84% of children and adolescents with ADHD meet full diagnostic criteria of ODD ± CD. **Biederman et al. (1991)** found an average of 55% of comorbidity of ODD ± CD across studies. Additionaly **Byun et al. (2006)** found 50% comorbidity of ODD with ADHD.

Our results are also in agreement with **Wilens et al. (2002)** who reported that 59% of their school age sample had ODD. And **Barkley et al. (1991)** found a 68% comorbidity of ADHD and ODD in his adolescent group.

As to the comorbid conduct disorder, **Pfiffner et al. (1999)** supported data in our study he found that 7% of their 111 boys with ADHD were diagnosed with CD alone.

Suggested causes for the comorbidity with ODD and CD in our ADHD students:

Possible explanations include the following

- One disorder represents a developmental precursor to another; our view is supported by ***(Burns and Walsh, 2002)***.
- One disorder represents a risk factor for the subsequent development of the other disorder which is similar to the conclusion of **Maughan et al., 2004**.
- The disorders share the same or related risk factors.
- There is a common underlying symptomatic basis for one or more of these disorders. So they represent related but independent dimension. Our suggestion is supported by ***(Brown, 2000)***.
- We also suggest that early-onset noncompliance and covert antisocial behavior may also typify this comorbidity. This comes is support to the findings of **Lee and Hinshaw, 2004**.
- Some of the ODD symptoms may be attributed to the stage of early adolescence which represent our students sample (adolescent turmoil).
- Poor family relations and parental disharmony which are evident in our results may contribute to this high comorbidity of ODD with ADHD.

Comorbidity of substance use disorder with ADHD patients

Results in our study found that 6.9% of our ADHD cases are abusing substances (mainly smoking, hashish and alcohol).

ADHD may pose an especially salient risk factor for substance abuse which constitute a serious health problem ***(Bukstein, 2008)***.

Previous research has been equivocal concerning whether the rates of substance use disorder among ADHD adolescents differ from those of typical adolescents. Some have found no association ***(Weiss et al., 1985 and Biederman et al., 1997)***, while others found greater occurrence of alcohol and drug use ***(Loney et al., 1981)***.

Biederman et al. (2006) found that ADHD adolescents show more regular use of nicotine, alcohol and illicit substances. On the other hand, some studies correlated the substance abuse in ADHD adolescents only if associated conduct disorder or oppositional defiant disorder were comorbid with ADHD ***(Molina and Pelham, 2003; August et al., 2006)***.

Barkley et al. (2006); Tercyak et al. (2002) found that a greater number of ADHD adolescents had smoked cigarettes than in normal adolescents.

Milberger et al. (1997) and Burke et al. (2001) found that ADHD was specifically associated with a higher risk for initating cigarette smoking.

Concerning alcohol use, **Weiss and Hechtman (1993); Biederman et al. (1997) and Blouin et al. (1978)** found higher risk for adolescent alcohol use in ADHD teenagers.

Suggested causes for the comorbidity

- **Etiological association:** Both disorders may share some familial, genetic and environmental risk factors as higher

prevalence of psychopathology in parents and relatives of these subjects.

- ADHD may be a risk factor to develop substance use disorder. Symptom clusters within ADHD that have been linked to later development of substance abuse include aggression and impulsivity. Also the secondary problems caused by long standing attention problems, resulting in underachievement and demoralization can mediate development of substance abuse.
- **Neurobiologic perspective:** Subjects who have ADHD have dysfunctions in the dopaminergic circuits mostly in basal ganglia and frontal cortex ***(Seidman et al., 2005)*** with defects in the executive functions and reward system ***(Sonuga – Barke, 2002)*** which have a strong influence on substance use disorder liability. Subjects who have ADHD may have cognitive dysfunction that may impair them in high risk drug use situations or evaluating the negative consequences of drug use.

  Further more, similar dysfunctions in the brain reward system in both ADHD and substance use disorder ***(Kalivas et al., 2005)*** may cause the subjects to decide on choices with high immediate gains despite future losses.
- **Self medication:** given the stimulant-like action on the dopamine transporter in the striatum of the brain and its similarity to the effect of methylphenidate ***(Krause et al., 2002)***. It is suggested that nicotine is used by ADHD subjects as self medication.

- Identification of the teenagers with their parents who smoke or drink alcohol (due to parental psychopathology) may be a suggested cause for the comorbidity.

Comorbidity of tic disorder with ADHD

Results in our study found 1.1% comorbidity of tic disorder with ADHD (one student among the 87 ADHD cases).

No evidence appears to point to a higher than normal frequency of tic disorders among ADHD patients ***(Peterson et al., 2001)*** except for a study by **Spencer et al. (1999)** evaluated 128 children with ADHD and 110 control children and found a significantly elevated rate of tic disorders (other than TS) in the group with ADHD (34% vs. 6%).

Tics occur in childhood and adolescence in between 4% and 18% with high probability of remission by adolescence ***(Peterson et al., 2001)***, which may describe low results in our study, as it is conducted on adolescent group, so the tic disorder may have been remitted. Our explanation is supported by **Spencer et al (2001)**.

Suicidal behavior in ADHD

- Results in our study found that about 31% of the ADHD cases have suicidal behavior.
- We suggest that suicidal behavior in ADHD may be related to the associated comorbid depression which is common with ADHD adolescents. Our view is confirmed by **Greening et al. (2008)** who found direct effect of depressive symptoms on suicidal ideations and **Skounti et al. (2007)** reported that

subjects with ADHD and depression may be at increased risk for suicidal behavior.

- We also suggest that associated high aggression in ADHD may be related to this suicidal behavior. Our view is supported by **Goodman et al. (2008)** who found that aggression mediated the relation between ADHD and suicidal behavior.

Variables related to ADHD among preparatory school students

There is general consensus that genetic, environmental, and neurological elements converge to contribute to the presence of ADHD, and it is often difficult to infer causality, especially from cross-sectional studies ***(Rickel and Brown, 2007)***.

Relation of ADHD to socioeconomic status

Our results showed that most of ADHD students belong to middle or very low social class in comparison to controls. Our data are consistent with **Gimpel and Kuhn (2000)** who found that higher prevalence rates of ADHD have been associated with lower socioeconomic status.

Our findings were similar to **Kadesjo et al. (2001)** who estimated the prevalence of ADHD among Swedish school aged students and found that ADHD was higher in the lower social class category.

Similarly **Pineda et al. (2003)** also supported the view that the highest prevalence of ADHD was found in low social class category yet with no statistical significant difference between high and low strata.

Another support to this view is the study by **Sugawara et al. (1999)** estimating a higher prevalence of ADHD in lower social class category in a community sample in Japan.

Additionally, **Graetz et al. (2001)** who conducted study on nationally representative sample of Australian children and adolescents found that children and adolescents from socially disadvantaged backgrounds are more likely to meet the combined

type classification which they found it to have the severe impairment of different ADHD subtypes.

Another report by **Froehlich et al. (2007)** showed similar results that poorest children were more likely than the wealthiest to fulfill criteria for ADHD.

Our results are in agreement with **Szatmari (1992)** who found that rates of ADHD tended to increase with lower SES, family dysfunction, presence of developmental impairment and urban living and **Visser et al. (2005)** found that ADHD diagnosis was significantly reported in families with incomes below the poverty threshold.

First: This fact may be related to disadvantaged educational, social and familial conditions, which worsen ADHD symptoms. Our explanation is supported by **Biederman et al., 1995**. It may be that subjects from the high SES group are more able to limit their symptoms, because they work in highly structured educational settings with relatively small class size (15 to 25 students per classroom). In contrast those in low SES strata typically attend crowded classes (40 to 50 students per classroom) in strife-torn and unstable environment. Economic disadvantage was also evident in the study of **Lee et al. (2008)**.

Second: An association between central nervous system disorders and low SES has been pointed out ***(Alvarez, 1983)***. We suggest that low SES subjects receive quantitatively and qualitatively less stimulation at home in comparison with the high SES subjects. This differential stimulation contributes to the development of different behavioral styles. Our view is consistent with ***(Cravioto and Arrieta, 1982)***.

An impoverished social environment results in insufficient stimulation, which in turn alters the development of the central nervous system and may aggravate ADHD symptoms ***(Gracia et al., 1988)***.

Third: Low SES individuals have poorer medical resources and are exposed to a higher number of potential risky conditions including birth complications. ADHD has been associated with a higher number of prenatal, postnatal troubles (as evidenced in our results) and early pathologies which comes in agreement with ***(Pineda, 1999)***.

Fourth: In addition, given the high heritability of ADHD and its negative impact on social, academic and career outcomes, it is plausible that families with ADHD may cluster within the lower socioeconomic strata, this is consistent with **Froehlich et al. (2007)**. Also low socioeconomic status may contribute to poor compliance and poor outcome of parent training and hence increase severity of ADHD.

Fifth: psychosocial adversity is suggested to moderate the effect of DAT1 (dopamine transporter) genotype on ADHD symptoms in adolescents so they exhibit significantly more inattention and hyperactivity-impulsivity than adolescents who lived in less adverse family conditions, this is supported by **Laucht et al. (2007)**.

Relation of sib order to ADHD

1st sib order shows highly significant rates in our study, which means that being ranked the first child in order is considered a risk factor for ADHD.

Our data are consistent with ***Sami (2006)*** who found that 66.7% of 30 ADHD children are the first born children and ***Barakat (2008)*** who found that 42% of ADHD subjects are the eldest among their sibs.

This may be explained by the mother's age at the time of birth of first child. Young mothers would tend to have less education, less experience and more worry about their children, lower income, relative lack of child rearing experience and more exposure to pregnancy complications, which all may contribute to be risk factors for ADHD and impairment in the older siblings.

Parental consanguinity and its relation to ADHD

Our study found that ADHD cases have been subjected to highly statistical significant parental rates of consanguinity. Our results are consistent with different studies that suggest that genes predispose individuals to ADHD ***(Rickel and Brown, 2007)***.

Our finding is in accordance with the study done by **Croes et al. (2005)** in a Dutch isolated population on phenotypic subtypes in ADHD, who found that patients of the inattentive subtype were connected to a common ancestor and 81% of these patients derive of consanguineous marriages.

Relation of family history of psychiatric disorders to ADHD

Data in our results have found that family history of psychiatric disorder, psychiatric treatment and hospital admission showed high statistical significant rates in ADHD students in comparison to controls.

This is consistent with many studies by **Barkley et al. (1990); Biederman et al. (1992); Pauls (1991)** and **Lahey et al. (2003)** who have noted the higher prevalence of psychopathology in the parents and other relatives of children and adolescents with ADHD. In particular, higher rates of ADHD, conduct problems, substance abuse and depression have been repeatedly observed in these studies.

Our findings may be supported by research by **Faraone and Biederman (1997)** at Massachusetts General Hospital who found that family members of subjects with ADHD are at

increased risk for MDD, whereas individuals who have MDD have first-degree relatives at increased risk for ADHD.
Equally, **Ghanizadeh et al. (2008)** found high rates of MDD in parents of a sample of ADHD cases in Iran.

These findings may explain the genetic load of ADHD and also that parental psychopathology may contribute to the severity of ADHD as distressed individuals often lack the motivation or organization to help their ADHD children and adolescents in the proper intervention or complete tasks of parental training or behavioral management techniques. This is consistent with **Chronis et al. (2004)**.

Very high statistical significant family history of psychiatric disorders and hospital admission were related to female ADHD cases in comparison to controls.

This may be explained by some research that has suggested that females who manifest ADHD may need to have a greater genetic loading than do males with ADHD in order to express the disorder ***(Smalley et al., 2000; Faraone and Doyle, 2001)***. Further research using twins finds that females appear to have a higher threshold for expression of the disorder than do males with ADHD ***(Rhee, et al., 1999)***.

Effect of different family circumstances on ADHD

Results in our study have found that ADHD patients were more subjected to parental disharmony, cold family relationships and criticism and parental aggression, with very high statistical significant difference in comparison to controls.

Our results are similar to **Pressman et al. (2006)** who concluded a strong link between impairment in ADHD and parental conflict and disharmony.

Our data are consistent with **Kreppner et al. (2001)** who found that symptoms of inattention and overactivity were related to disturbed attachment styles as an insecure attachment with caregivers.

Our results are also confirming those of **(Campbell, 1989; Campbell and Ewing 1990; Barkley et al., 1991)** who have shown that the continuation of hyperactive behaviors over development are related in part to parents; use of commands, criticism and an over controlling and intrusive style of management. In addition, negative parenting behavior is associated with externalizing symptoms ***(Liang and Eley, 2005; Burt et al., 2006)***.

Similarly, **Counts et al. (2005)** found that inattention and hyperactivity, as identified by parents and teachers, were independently associated with adolescents perception of marital conflict. We suggest that low levels of intellectual stimulation and emotional support predicted problems associated with inattention and overactivity. This is in accordance with **Jester et al. (2005)** who found equal results.

Additionally, **Willis and Lovaas (1977)** claimed that hyperactive behavior was the result of poor stimulus control by

maternal commands, and that this poor regulation of behavior arose from poor parental management of the children or adolescents.

Also, parental disharmony and negative parental styles may be associated with poor response to behavioral and pharmacological treatment for ADHD which contribute to the high prevalence and persistence to adolescence ***(Burt et al., 2006)***.

Child abuse sequelae and physical maltreatment may contribute to the development of ADHD as subjects may use divided attention to separate distressing information from awareness. Though this may represent an initially adaptive coping mechanism, it may later predispose individuals to develop attentional difficulties. Our suggestion is supported by **Cohen et al. (2002) and Becker-Blease et al. (2004)** who demonstrates similar results.

Another possible explanation to our results is that those who remain diagnosed with ADHD in adolescence represent cases of severe ADHD. This may lead to increased family disruption by the time of early adolescence.

Finally, stressors in families experiencing disharmony, cold relations, aggression and abuse may contribute to ADHD symptoms and aggressive behavior that can arise from inadequate ventral prefrontal cortex regulation of emotional and cognitive processes ***(*Brennan and Arnsten, 2008*)***.

Possible explanation for higher statistical significant rate of parental aggression in female ADHD cases more than their corresponding controls:

This may be related to difference of cultural view towards males and females. Females are not allowed to show any misbehavior or non obedience in contrast to males. So females may be more subjected to parental aggression.

Given that hyperactive behavior is more normative in boys than in girls, it has been suggested that ADHD symptoms may have bigger impact on girls social status hence may cause them to be more subjected to parental aggression. This is consistent with **Oham and Johnston, 2007 and Nijmeijer et al., 2008**.

They may be more handicapped than boys in the social domain because hyperactive and impulsive behavior is considered more deviant for girls than for boys.

Postnatal birth complication and its relation to ADHD

Postnatal troubles were found to be more prevalent in ADHD students which is consistent with **Claycomb et al. (2004)** who found that time between onset of labor and birth (longer) and presence of delivery complications accounted for 42% of the variance in ADHD. The study, however, did not control for maternal ADHD symptoms, which may have resulted in the younger age at delivery and lower educational level of the mothers.

Our findings are also supported by **Hartsough and Lambert, 1985** who found a slightly higher prevalence of unusually short or long labor, fetal distress, forceps delivery, and toxemia or eclampsia in ADHD subjects.

Also, low birth weight is proved in a Swedish study to increase risk of ADHD ***(Hultman et al., 2007)***.

In contrast to our results some studies have not found a greater incidence of such complications in subjects with ADHD than in non disabled ones ***(Barkley, DuPaul, and McMurray, 1990)***.

Relation of ADHD to physical health

Most ADHD cases in our study were more subjected to medical troubles and head trauma. Chest diseases and joint disorders were of high statistical significance.

High prevalence of chest troubles may be explained due to medication used for treatment of significant allergies and asthma as theophylline which is increasingly recognized as affecting

attention span and may exacerbate a pre-existing case of ADHD ***(Barkley, 2006)***.

A study by **Yuksep et al. (2008)** reported increased rates of ADHD in subjects suffering of asthma which comes in support to our data.

Joint troubles may be explained by the frequent accidental injuries as ADHD subjects are more prone to accidents due to their hyperactivity and impulsivity. This is supported by ***(Barkley, 2001)***. Also, poor parental care due to their frequently associated psychopathology may contribute to their neglect in treating their children and seeking help for their medical conditions.

IQ and its relation to ADHD

Our ADHD cases were found to have lower IQ in comparison to controls with very highly significant statistical difference in total, verbal and performance IQ. Digit span was most severely affected in male ADHD students.

Our data are consistent with **Frazier Demaree and Young Storm (2004)** who found that subjects with ADHD demonstrate lower intellectual ability than those in non-disabled or community comparison groups. Their average score is often 7-10 points or about 0.61 standard deviations below the mean of their comparison group.

Our data are also consistent with **Barkley et al. (1985); Faraone et al. (1993); Fischer et al. (1990); Mariani and Barkley (1997); McGee et al. (1992)** who came to the conclusion that subjects with ADHD display lower level of intellectual performance.

Our data are similar to the study which find that both children, adolescents and adults with ADHD show more difficulties with digit span (particularly backwards) ***(Barkley et al., 1996b; Mariani and Barkley, 1997)***.

An explanation to this decline may be in part due to the associated learning disabilities frequently related to ADHD. It may be also due to impairment in behavioral inhibition and defects in the executive functions seen in children and adolescents with ADHD which could results in a small but significant and negative relationship between ADHD and IQ. This is because IQ is related to the executive functions of working memory, internalized speech and the eventual development of verbal thought, all of which are deficient in subjects with ADHD. This view is in agreement with ***(Hervey et al., 2004 and Rommelse et al., 2008)***.

School performance and ADHD

Poor scholastic achievement was strongly associated with ADHD students with very high statistical significant difference.

Evidence supporting results in our study comes from numerous studies that find subjects with ADHD likely to show performance that are lower than their classmates by as much as 10-30 standard score points on various standardized achievement tests ***(Barkley et al., 1990; Fischer et al., 1990; Casey et al., 1996; Brock and Knapp, 1996; Frazcer et al., 2004; Samuelsson et al., 2004)***.

Similarly **Lee et al. (2008)** found that ADHD subjects are at greater risk for under achievement, school drop out and lower grade points.

An explanation to the poor academic achievement may be due to the inattentive, impulsive and restless behavior in the classroom and also due to the associated decrements in intelligence and associated learning disability, the higher rates of grade retention, and expulsion found in adolescents with ADHD.

Clinical profile of ADHD among preparatory school students

On describing our ADHD group we found different results that may raise attention.

We found highly significant statistical difference between ADHD group in private and state schools regarding each of the following: ***low social class category, mean number of sibs, natal troubles, delayed language problems and heart problems being more in the state schools.***

We think that the relation of most of state school students to their belonging to ***lower social class category*** may have contributed to this discrepancy with the tendency in our culture to have a lot of children. This group is more subjected to ***natal problems*** due to the poor health care, poverty and ignorance, which make them more subjected to ***natal troubles (Polanzyack, 2007)***. Subjects in this group may suffer from ***delayed language*** as a results of poor stimulation in the surrounding environment, or due to under recognition of ADHD symptoms early in life that may be associated with language delay. Our assumption is consistent with studies showing that ADHD children are more likely than typical children to have delayed onset of talking in early childhood (6-35% versus 2-5.5%) ***(Hartsough and Hambert, 1985; Szatamri et al., 1989)***. While other studies, using clinic referred children have found no difference in the risk of delayed speech development ***(Barkley, Dupaul and McMurray, 1990)***.

Additionally, subjects in this group are more prone to ***health and medical problems*** due to unhealthy conditions, natal

and postnatal troubles crowding and more exposure to toxin, pollution and infection, all of which may contribute to significant medical problems.

Parental aggression in ADHD patients

Significantly high rates of parental aggression with ADHD girls in our study may be due to cultural reasons. Culturally, girls must show more displine and control than boys, so ADHD especially hyperactivity and impulsivity symptoms may not be accepted from girls, as it is for boys.

Family history of psychiatric troubles among the ADHD group

ADHD girls in our study tend to have family history of psychiatric hospital admission with very high statistical significant difference. More genetic load is needed for girls to express the disorder than boys. This is consistent with the studies done by ***(Smalley et al., 2000; Faraone and Doyle, 2001)***.

ADHD and its relation to sphincter control

ADHD Girls in our study were found to have high statistical significant delayed sphincter control. We suggest that girls are more exposed to stress and aggression from parents, which may contribute to delayed sphincter control due to psychological stressful situations.

Difference in age in the ADHD group

Statistically significantly higher age in the older groups in our study may be explained that they may be more subjected to repeat a grade in school more than younger group. This is consistent with ***(Barkley et al., 1990; Fischer et al., in press; Weiss and Hechtman 1993; Lee et al., 2008)*** who found that 56% of ADHD subjects may repeat a grade in school and 30-40% may be placed in one or more special education programs.

Difference of IQ in ADHD patients

Different subscales of (WISC-IQ) showed statistical significant difference between male and female ADHD cases in our results including digit span and comprehension where boys scored less than girls who themselves showed lower scores in similarity, coding and verbal IQ. In addition, high statistically significant rates of similarity and problem solving subscales were noted in private school ADHD students.

Our results are supported by **Berry et al. (1985)** who reported that ADHD girls had lower verbal IQ scores and were more likely to have language difficulties.

Similarly **Taylor (1986)** found a greater degree of intellectual deficits in girls than in boys with ADHD and **Hinshaw et al. (2007)** found that girls in adolescence continue to have executive deficits which may affect their IQ.

In contrast, to our results **Breen (1989); Guab and Carlson (1997); Horn et al. (1989); Sharp et al. (1997)** found virtually no difference between boys and girls with ADHD on measures of intelligence.

Although there is statistical significant difference in subscale across gender, those differences were of limited clinical significance. Our results are largely different with those of other studies that have failed to identify meaningful effects of gender on cognitive performance as studies of ***(Houghton et al., 1999; Arica et al., 1998 and Biederman et al., 2002)***.

Difference with our results can vary, depending on the source of the samples (clinic or community), the source of information and other sample characteristic (age, social class).

We suggest that the predominance of the inattentive subtype in females and the higher prevalence of internalizing problems may contribute to the difference of IQ found across gender in our study.

Age of onset and its effect on ADHD

Data in our study revealed that girls who develop ADHD were younger at the age of onset and thus have longer duration of the disorder than boys with ADHD.

Our results are different from **Hegazy et al. (2006)** who revealed no significant gender difference regarding the mean age of onset.

Our data are also different from **Biederman et al. (2002)** who found that girls with ADHD were statistically meaningfully older at onset of ADHD than boys with ADHD.

This difference in our study may be related to cultural difference. Boys may be allowed to show hyperactivity and abnormal behavior while any deviance in behavior especially hyperactivity an impulsivity in girls will be reported earlier as it is not allowed in our culture for girls to show such behaviors.

Difference in the clinical profile of ADHD cases by CASS:L

Conduct problems in our study were found statistically significantly higher in state schools while cognitive and anger control problems were found statistical significantly higher in ADHD girls. Hyperactivity was also shown to be significantly higher in first preparatory grade students with ADHD than their corresponding older 2nd preparatory grade students.

A. Higher conduct problems in state schools in our study may be related to the low socioeconomic class in state schools and higher parental rate of psychopathology as evident in our results.

Our view consistent with **Moffit, 1990 and Szatmari et al. 1989a** who found that subjects with CD were characterized as having lower socioeconomic status and experiencing higher levels of psychosocial adversity, including increased family problems.

Our data is also supported by **Faraone et al. (1997); Loeber et al. (2000); Newcorn et al. (2000)** who reported that subjects with conduct problems or disorder usually come from

backgrounds with greater social adversity and having higher prevalence of psychiatric disorders among their parents and relatives than ADHD patients but without significant conduct problems.

B. Higher cognitive problems in ADHD girls were revealed in our study which is consistent with **Gershon et al. (2002)** who found that girls with ADHD had greater intellectual impairment, all in agreement with **Gaub and Carson (1997)** who found that girls were more impaired in their intelligence.

In contrast to our results, **Horn et al. (1989); Mc Gee et al. (1987) and Sharp et al. (1997)** found no difference between ADHD boys and girls on measures of intelligence and academic achievement.

Our results may be explained by the high prevalence of the inattentive ADHD subtype in girls with ADHD (as evident in our study) which may be more related to cognitive and academic problems ***(Yang et al., 2007)***.

C. Anger control problems are higher in our ADHD girls. To our knowledge, our results are contradictory to most of the studies that find anger control problems to be higher in boys. These studies include **De Haas (1986); Pascaulvaca et al. (1988); Gershon (2002); Gaub and Carlson (1997) and Abikoff et al. (2002); Richards et al. (2002)**, they found that girls with ADHD show lower level of externalizing behaviors, impulsivity and aggression.

Higher rates in our results may be related to the difference in the parents' attitude especially mothers and their treatment of

boys with ADHD compared to girls. Boys receive greater praise and direction from their mothers although they may be less complaint than girls to mother's commands. Girls may not receive same praise or direction which may lead to a higher level of anger and impulsivity. Our explanation is supported by **Befera and Barkley (1984)** who reported difference in parents' handling of their ADHD children problems between boys and girls.

In addition, the findings are likely to reflect developmental differences in the manifestation of ADHD symptoms in males and females over the lifetime. Females with ADHD, tend to perceive themselves as having more problems with ADHD symptoms and with associated problems such as anger, self confidence and family relations and so may rate themselves higher in anger control problems ***(Arcia and Conners, 1998)***.

In contrast, young males with ADHD may be more limited in their self awareness of ADHD symptoms including anger and thus tend to under report their symptoms on self report ***(Young, 2004)***.

D. Hyperactivity was statistically significant in the younger age group (1st preparatory grade).

Decline in the level of hyperactivity as age increases (adolescence) as shown in our results is consistent with **Fischer et al. (2005) and Schmit and Moll (1995)**, yet these same studies reported that 70-80% of subjects with ADHD are likely to continue to display symptoms into adolescence.

Similarly, our results are consistent with **Manuzza et al. (1994); Hart et al. (1995) and Biederman et al. (2000)** who

concluded that hyperactivity-impulsivity symptoms declined with increasing age but inattention symptoms did not.

The prevalence of ADHD-hyperactive symptoms decrease after the preschool years (with age) whereas the inattention subtype symptoms increase dramatically, our view is supported by **Nolan et al. (2001)**.

Relation of ADHD severity to comorbidity and school performance

Results in our research found that ADHD severity was highly statistically significantly related to comorbidity and poor scholastic performance.

Our results are supported by **Hurting et al. (2007)** who found in his study that adolescents with ADHD and comorbid disorders had more severe ADHD symptoms.

Our findings are consistent with many studies as **Barkley et al. 2002; Greene et al. 1997 and Wilson and Marcotte, 1996** who found that severe ADHD cases who have low level of adaptive functioning are the most likely to have comorbid psychiatric disorders and academic impairment in adolescence.

Also, **Barkley, Fisher et al. (1990)** found that academic performance difficulties in adolescence are associated with having persistent ADHD.

We suggest that severe ADHD cases may be more cognitively impaired than their healthy counterparts which may influence the school performance and academic achievement.

Also we suggest that severe cases may be more aggressive and impulsive, with poor social adjustment and low self esteem which all may be triggering comorbid conditions with ADHD.

Psychiatric consultation and medication

- Results in our study found that more than half of the ADHD sample didn't seek any psychiatric consultation and most of them didn't take any psychiatric medication.
- Our results are supported by **Montiel et al. (2008)** on a Venezuelan sample in which only 3.9% received medication for ADHD.
- Our results reflect the poor awareness with the ADHD disorder.
- Poor consultation or medication treatment may be related to different factors as:
  - Lower rates of awareness among adolescent school students about behaviours associated with ADHD which may be attributed to cultural difference including standards of behaviours for this disorder. Cultural determinants in their conceptions and beliefs about ADHD may influence their knowledge of ADHD standards for judging its appropriatness and preferred intervention and which may account for the low rates of consultation and medication as they are less likely to be concerned about their disturbances.
- Family factors as parental psychopathology and low socioeconomic status (which are significantly higher in ADHD cases in our results) may influence the degree of

seeking consultation or medication for the problems in their ADHD teenagers.

- Additionally, the severity of the ADHD disorder or the associated comorbidity may influence the need for consultation and medication. The more severe and comorbid cases seek help and consultation. Our results found that most of our ADHD cases have mild ADHD symptoms yet with high comorbid conditions.
- The impact of stigma as a barrier for consultation or psychiatric medication especially in the teenager group may be a cause for the reluctance to engage in treatment and address psychosocial intervention.

Risk factors associated with ADHD (done by logistic regression analysis) were:

First: The most important and first high significant risk factor in our study was: ***History of psychiatric medication and/or hospital admission*** of one of family members (i.e. that having family member with severe psychiatric disorder).

Our results are similar to ***(Cantuvell 1972; Faraone and Biederman, 1997; Singer et al., 1981)*** who reported that conduct problems and antisocial behavior (25-28%) alcoholism (14-25%), hysteria or affective disorders (10-28%) and learning disability are the most common psychiatric disorders in parents and relatives of ADHD subjects.

Our results are also confirmed by **August and Stewart (1983) and Biederman et al. (1987)** who found greater incidence of antisocial behavior and alcoholism among the first

degree relatives of subjects with ADHD ± comorbid ODD/conduct disorder.

Also, our results are equivalent to **Faraone and Biederman (1997)** who found greater maternal mood disorders, anxiety disorders, stimulant dependence and great parental ODD/CD in subjects having ADHD and comorbid ODD/CD.

Equally **Chronis et al. (2003)** found that 37-43% of mothers of ADHD patients reported a mood disorder and 23-27% reported an anxiety disorder.

Second: History of ***head trauma*** is considered to be the second most important risk factor to develop ADHD in our study.

Head trauma may be early in life due to birth trauma or later due to accidental injuries.

Significant head trauma may result in brain damage which was initially proposed as a chief cause of ADHD symptoms.

Our results are consistent with studies showing that brain damage is associated with greater attention deficits and hyperactivity ***(Cruickshank et al., 1988; O'Dougherty et al., 1984)***.

Our view is contradicted by other studies showing that most subjects with ADHD have no history of significant brain injury or trauma ***(Rutter, 1983)***.

We think that head trauma may result in part in structural and/or functional differences in the brain areas.

This is consistent with **Tannock (1998)** who found MRI difference in the structure of selected brain regions in those with ADHD relative to control groups.

And it is also supported by studies that showed that subjects suffering from injuries to the prefrontal region demonstrate deficit in sustained attention, inhibition, regulation of emotions and organizing behavior ***(Grattan and Eslinger, 1991; Fuster, 1997)***.

Head trauma due to accidental injuries is addressed in many studies, which find that subjects experiencing accidents are more likely to be overactive, impulsive and defiant ***(Rosen and Peterson, 1990; Cataldo et al., 1992)***.

A support to our explanation is derived from **Pless et al. (1995)** who found that subjects injured as pedestrians or bicycle riders in traffic accidents received higher parent and teacher rating of hyperactive aggressive behavior, which suggest that those experiencing trauma due to accidents have high ADHD symptoms than average.

Third: Our study attributed ***epilepsy*** to be one of the risk factors associated with ADHD.

This data is consistent with **Holdsworth and Whitmore (1974)** who found that ADHD symptoms occur more often with seizure disorders.

Additionally our results are similar to a recent study by **Hesdorffer et al. (2004)** who found a significant association of ADHD with risk for Epilepsy and unprovoked seizures, ADHD (predominantly inattentive) type was found to be 2.5 times more common among subjects with Epilepsy or Seizures.

Fourth: ***Delayed sphincter control*** was found to be one of the risk factors associated with ADHD in our study. To our knowledge, no studies have found or addressed this point. Yet

studies found that there is an association between delayed sphincter control (Enuresis or Encorporesis) and ADHD.

Studies found that enuresis was noted to occur in as many as 43% of hyperactive children, compared to 28% of control children ***(Stewart et al., 1966)***.

Similarly **Hartsough and Lambert (1985)** reported that ADHD have more difficulties with bowel training than non-disabled children (10.1% versus 4.5%). And **Munir et al. (1987)** found that 18% of their sample with ADHD had functional encorporesis.

On the other hand, **Barkley et al. (1990) and Kaplan et al (1988)** did not find this to be the case.

We suggest that delayed sphincter control in children may be a cause of parental abuse and aggression and criticism to the child, all of which may contribute to developing ADHD symptoms.

CONCLUSION

We concluded from our research that our study verified the hypothesis that ADHD is a highly prevalent disorder in early adolescence and in males more than females and is associated with significant academic impairment in school performance, which may have a negative effect on the student's ability to continue education and join high school or university and progress in his life.

We have found difference in clinical profile among ADHD cases, more over differences between male and female students.

We have concluded that there is a unique difference between ADHD subjects and normal students in different aspects of sociodemographic data, family circumstances, physical health, family history and personal history, which must be considered while assessing an adolescent for ADHD.

We found that severity of ADHD affect the academic, school performance and psychiatric morbidity.

We concluded that anxiety disorders, mood disorders and oppositional defiant disorders were by far the most common comorbid diagnoses with ADHD adolescents.

We illustrated many different risk factors predicting ADHD, the most important of which is the family history of

psychiatric disorders which supports the importance of genetic evidence in ADHD.

Finally we come to the conclusion that ADHD is still a problem in adolescent group with often comorbid conditions and different risk factors, which can be early prevented, diagnosed and properly treated to decrease the burden of the disorder in adult life.

SUMMARY

Attention-deficit/hyperactivity disorder (ADHD) is the most common neuro-developmental disorder of childhood. However, basic information about how the prevalence of ADHD varies by race/ethnicity, sex, age, and socio-economic status remains poorly described. One reason is that difficulties in the diagnosis of ADHD have translated into difficulties developing an adequate case definition for epidemiologic studies. Diagnosis depends heavily on parent and teacher reports; no laboratory tests reliably predict ADHD. Prevalence estimates of ADHD are sensitive to who is asked what and how information is combined. Consequently, recent systematic reviews report ADHD prevalence estimates as wide as 2%-18%. The diagnosis of ADHD is complicated by the frequent occurrence of comorbid conditions such as learning disability, conduct disorder, and anxiety disorder. Symptoms of these conditions may also mimic ADHD. Nevertheless, we suggest that developing an adequate epidemiologic case definition based on current diagnostic criteria is possible and is a prerequisite for further developing the epidemiology of ADHD. The etiology of ADHD is not known but recent studies suggest both a strong genetic link as well as environmental factors such as history of preterm delivery and perhaps, maternal smoking during pregnancy. Children and teenagers with ADHD use health and mental health services more often than their peers and engage in more health threatening behaviors. Better methods are needed for monitoring the prevalence and understanding the public health implications

of ADHD. Stimulant medication is the treatment of choice for treating ADHD but psychosocial interventions may also be warranted if comorbid disorders are present.

Epidemiologic studies could clarify whether the patterns of ADHD diagnosis and assessment in community settings is appropriate. Population-based epidemiologic studies may shed important new light on how we understand ADHD, its natural history, its risk factors and its consequences.

The prevalence of ADHD in adolescence is deficient and poorly studied especially national data. And since still a limited database exist, therefore, research and academic dialogues on ADHD is essential if we are to understand, prevent and control this disorder.

This thesis was designed aiming to cover the following areas in theoretical part:

1. Review of the epidemiology of ADHD and variation in the prevalence rates.
2. Review literature about the clinical picture and diagnosis of ADHD.
3. Review the different comorbid psychiatric conditions with ADHD.
4. Review the main etiological factors, methods of assessment and treatment of ADHD.

The practical part aimed to:

1. Estimate the prevalence of ADHD in a sample of Egyptian preparatory school students.
2. Find if there is a gender difference and a specific clinical profile in ADHD.
3. Estimate the presence of comorbid psychiatric disorders with ADHD.
4. Compare the ADHD students with normal controls and identify associated psycho-socio-demographic correlates and different variables in the study population.
5. Find if there are any risk factors associated with ADHD.

The present study evaluated 925 male and female preparatory school students in Eastern Cairo. They were chosen from 4 schools from two educational districts, one district represents higher socioeconomic status (private schools) and the other less affluent status (public “state” schools) and those districts are (Heliopolis and El Matarya). School classes were randomly selected from both first and second preparatory grade as third preparatory grade was cancelled due to changes in the educational system.

The necessary approvals, permits and consents were completed and inclusion and exclusion criteria were also insured before the start of the study.

The tools were carefully selected to serve for the purpose of the study, this included:

1. Conners Wells Adolescent Self Rating Scale-Short Form (CASS:S).
2. Conners Wells Adolescent Self Rating Scale-Long Form (CASS:L).
3. The Kiddie Schedule for Affective Disorders and Schizophrenia, present and Lifetime versions (K-SADS-PL).
4. Wechsler Intelligence Scale for Children-Arabic version.
5. Fahmy and Sherbini Social Scale.
6. Designed questionnaire to cover personal, family and medical history.

- The study proper was preceded by a pilot study to identify any problems that can face the study proper, identify suitability of the tools used and assess reliability of the clinical diagnosis.

- The study proper was initiated and completed during the educational year of 2006-2007, in the period from beginning of November, 2006 till the end of April, 2007.
- The study was conducted on different steps: step one: administration of the designed questionnaire, Fahmy & El Sherbini Social Scale and Conner's Adolescent Self Report Scale: Short form, was done to the whole sample of students.
- The students who scored equal to or more than 65 (t score) on the index subscale of (CASS:S) were further evaluated in step two: where administration of the (KSADS-PL) was done for the clinical diagnosis of ADHD then (CASS:L) Conners Adolescent Self Report Scale-Long form was introduced to detect different aspects of ADHD and to asses its severity and IQ was done for them.
- Lastly; we compared the ADHD students with a matched group of non ADHD students (proved by KSADS-PL), the comparison was performed to investigate the different variables associated with ADHD.
- All data gathered were recorded, tabulated and transferred on statistical package for social sciences (SPSS) version 15 and the suitable statistical parameters were used.
- Results were displayed to answer questions raised in the hypothesis of this study.

The ***first group of results*** aimed to estimate the prevalence of ADHD among a sample of Egyptian preparatory school students (males and females) data declared that:

- About 9.4% of the studied population proved to have ADHD as measured by (CASS:S) index subscale.
- Boys were more prevalent than girls with a ratio of (2:1), and showing very high statistical significant difference.
- The ***second group of results*** was displayed to clarify the clinical profile of ADHD, according to (CASS:L) and its severity, the date of onset and duration of illness and assess the IQ and school performance and socio-demographic data, family circumstances, and personal and medical history.

There were very high statistical significant differences (P<0.001) regarding the following points:

- Social class category and mean number of sibs between private and state school students.
- Difference in the mean age between first and second preparatory grade students.
- Cognitive problems which were more prevalent in girls than boys.
- Difference between boys and girls in digit span subscale of IQ.

There were high statistical significant differences (P<0.01) regarding:

- Similarity subscale of IQ between girls and boys group of cases.
- Difference in similarity and picture completion subscale of IQ between private and state school ADHD students.

- Delayed sphincter control and joint diseases in ADHD girls more than ADHD boys.

There were statistical significant differences (P<0.05) regarding:

- Difference between first and second preparatory grade ADHD students as regard social class category (P=0.017).
- Difference in the item of parental aggression towards ADHD girls than ADHD boys.
- ADHD girls showed higher rates of family history of psychiatric hospital admission.
- Mean age of onset of ADHD was lower in girls than boys, with a longer duration of illness.
- Anger control problems were more prevalent in girls (P=0.026).
- Hyperactivity was shown to be more in the first preparatory grade students (P=0.02) than the second preparatory grade students.
- State school students showed higher rates of natal troubles than their private school colleagues.
- Delayed language development and heart problems were higher in state school ADHD students.
- Younger ADHD students (first preparatory grade) had higher rates of chest problems than the older students (second preparatory grade).
- Difference in comprehension subscale, coding subscale and the verbal IQ between boys and girls group of cases.

The ***third group of results*** aimed at displaying the comorbid psychiatric condition with ADHD, data assumed that: Anxiety disorders were by far the most common comorbid disorders with ADHD, followed by oppositional defiant disorder and then the mood disorders (mainly depression).

On displaying the distribution of ADHD subtypes among ADHD students, it revealed that the hyperactive subtype of ADHD was the most common subtype followed by the combined subtype and then the inattentive subtype with very high statistical significant difference between boys and girls, boys were more hyperactive and less inattentive than girls.

The ***fourth group of results*** aimed at identifying the severity of ADHD symptoms among ADHD students and its impact on different variables.

Mild ADHD symptoms were be far the most common ADHD symptoms across the ADHD students with statistical significant rates of severity in private schools and among girls.

Severity seems to affect the school performance with high statistical significant value yet severity of ADHD seems to have no impact on other variables. Comorbidity seems to be related to the more severe cases of ADHD with high statistical significance.

The ***last group of results*** was displayed to compare ADHD students with their corresponding controls: Data revealed that **there were very highly statistical significant difference (P<0.001) when we compared the following points:**

- Different subscales of IQ, verbal, performance and total IQ were lower in ADHD cases and in male and female ADHD cases than their corresponding controls.
- Poor school performance among ADHD cases, male cases and female cases in comparison to their corresponding controls.

There were high statistical significant differences (P<0.01) when we compared the two groups as regards:

- More consanguineous marriage were more encountered in male ADHD cases.
- Cold family relations, criticism and parental abuse were more common in ADHD cases.
- Female cases tend to have family history of psychiatric disorders more than their corresponding controls.
- Exposure to postnatal troubles is more in ADHD cases than controls.
- Joint diseases were more common in ADHD cases and female cases than their corresponding controls.
- Block design subscale is lower in female cases than their corresponding controls.

There were statistical significant difference (P<0.05) when we compared:

- Social class category with cases belonging mainly to lower social class.
- Mean number of sibs: ADHD students were ranked the first among their sibs.

- Consanguinity, parental disharmony and parental aggression being more common in cases.
- Cold and critical family relations and parental aggression are more common in female cases than their corresponding controls.
- Family history of psychiatric disorders, psychiatric treatment and psychiatric hospital admission being more common in cases than their corresponding controls.
- Female ADHD cases show more tendency to have family history of psychiatric hospital admission.
- Postnatal troubles were more common in male ADHD cases than their corresponding controls.
- Delayed sphincter control in ADHD cases and female cases were more than their healthy counterparts.
- Chest problems were more common in ADHD cases, and in female cases than their healthy counterparts.
- Comprehension subscale is lower in ADHD cases and in female cases.
- Similarity subscale is lower in male cases.

Different risk factors have been proposed to predict ADHD, the most important of which is history of psychiatric hospital admission of one of the family members, history of head trauma, and position among sibs, delayed sphincter control, epilepsy and parental disharmony.

We **concluded** that ADHD is a highly prevalent disorder even in adolescent group and is associated with different risk

factors, different variables and different comorbid conditions. Further studies should be encouraged to engage in continuing on this issue.

It is **hoped** that this dialogue will result in concentrated effort to provide accurate data about the prevalence of ADHD in this age group and older groups and to provide awareness for parents and school teacher and provide effective mental health services with proper prevention and comprehensive intervention.

Based on our findings, we **recommend** replication of the study on a larger sample size with different age groups and different geographic distribution using reliable brief standard instruments and interviews for parents, teachers and peers and neuropsychological assessments for a better evaluation of ADHD.

We are **hopeful** that there will be a collaboration between health care professionals, general practionners and school mental health team together with parents aiming at increasing awareness about ADHD.

We are also **hopeful** to increase training of general health team for screening ADHD, early diagnosis and comprehensive intervention and management to decrease the suffering of our adolescents ADHD students.

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اضطراب فرط الحركة ونقص الانتباه
فى عينة من طلبة المدارس الإعدادية

الملخص العربى

المقدمة:

يعد اضطراب فرط الحركة ونقص الانتباه من أكثر الأمراض النفسية والسلوكية شيوعا لدى الأطفال مما يمثل عبء على الصحة العامة. وهناك حاجة الى الكثير من المعلومات الأساسية عن نسبة انتشار هذا الاضطراب وكيفية اختلافه باختلاف السن ، النوع ، والمستوى الاجتماعي والمتغيرات البيئية والديموجرافية الاجتماعية .

وقد يكون السبب المؤدي الى هذا الاختلاف هو أن تشخيص اضطراب فرط الحركة ونقص الانتباه يعتمد على اكثر من شخص مثل الوالدين ، المدرس ، والطفل أو المراهق نفسه وتزداد الصعوبة لعدم وجود أي دلائل معملية تساعد على اكتشاف هذا الاضطراب. ومن ثم فإن نسبة انتشار الاضطراب تتراوح ما بين 2% الى 18% مع وجود قصور فى معرفة النسب فى فترة المراهقة ، وتزيد النسبة فى الذكور مقارنة بالإناث بين (1:2) الى (1:9).

إن وجود أمراض نفسية مصاحبة لاضطراب فرط الحركة ونقص الانتباه أدى الى صعوبة التشخيص حيث تتشابه بعض أعراض هذه الأمراض مع الاضطراب ذاته ومن أكثر هذه الأمراض شيوعا هى (صعوبات التعلم ، اضطرابات القلق ، اضطرابات وجدانية واضطرابات العناد الشارد والجنوح).

ما زالت أسباب اضطراب فرط الحركة ونقص الانتباه غير واضحة ولكن غالبية الدراسات ترجح وجود أسباب جينية ووراثية وقد يصاحبها بعض العوامل البيئية والنفس اجتماعية مثل المشاكل فى الحمل والولادة ، تدخين الأم أثناء الحمل وغيرها من الأسباب.

وتظهر أهمية هذا الاضطراب ومشاكله فى أن نسبة كبيرة من الأطفال والمراهقين المصابين به يعانون من مشاكل نفسية وسلوكية مصاحبة ومنها التدخين ، الادمان ، التعرض للحوادث وهنا تأتى أهمية وجود وسائل وطرق للتشخيص والعلاج المبكر لهذا الاضطراب.

فرضية البحث

يقوم هذا البحث على فرضية ان اضطراب فرط الحركة ونقص الانتباه منتشر بنسبة عالية بين المراهقين الذين تتراوح أعمارهم بين (11 الى 15 سنة) وعلى هذا الأساس قام البحث بدراسة نسبة انتشار اضطراب فرط الحركة ونقص الانتباه لديهم مع فرضية وجود اختلاف فى النوع لهذا الاضطراب وتأثيره على التشخيص الإكلينيكي. كما يفترض البحث وجود زيادة فى الأمراض النفسية المصاحبة لهذا الاضطراب مع وجود عوامل نفس اجتماعية وديموجرافية مختلفة.

أهداف البحث

- تحديد معدل انتشار اضطراب فرط الحركة ونقص الانتباه فى عينة من طلبة المدارس الإعدادية بالقاهرة الكبرى.
- دراسة اختلاف الأنماط الإكلينيكية لاضطراب فرط الحركة ونقص الانتباه.
- دراسة اختلاف النوع ومدى تأثيره على أعراض اضطراب فرط الحركة ونقص الانتباه فى عينة البحث.
- دراسة أهم الأمراض النفسية المصاحبة لهذا الاضطراب وما مدى انتشارها.

- دراسة العوامل النفسية والاجتماعية والديموجرافية والمؤثرات المتعددة المرتبطة باضطراب فرط الحركة ونقص الانتباه بمقارنة الحالات المرضية بقرينتها السليمة.
- دراسة أهم عوامل المخاطر لاضطراب فرط الحركة ونقص الانتباه.

منهج وعينة البحث

قد صممت هذه الدراسة على خطة عمل تتكون من عينة من طلبة وطالبات المرحلة الإعدادية بمدارس المنطقة الشرقية بالقاهرة. وقد حددت الدراسة أربعة مدارس من منطقتين تعليميتين مختلفتين تمثل أحدها حالة اجتماعية واقتصادية مرتفعة (منطقة مصر الجديدة التعليمية وتشمل المدارس الخاصة) والمنطقة الاخرى تمثل الحالة الاقتصادية والاجتماعية الأقل مستوى (منطقة المطرية وتشمل المدارس الحكومية).

تم اختيار بعض فصول من كل مدرسة ، كل ثلاثة فصول تمثل عام دراسي من المرحلة الإعدادية (الأول والثانى الإعدادي) وتضمنت الدراسة كل الطلبة أو الطالبات بالفصل المختار.

تكونت عينة البحث من 925 (تسعمائة خمس وعشرين) طالب وطالبة وانقسمت العينة الى أربع مجموعات وهى طلبة المدارس الخاصة ، طلبة المدارس الحكومية ، طالبات المدارس الخاصة وطالبات المدارس الحكومية.

وتضمنت أدوات البحث

1. استخدام استبيان كونرز ويلز لفرط الحركة ونقص الانتباه للمراهقين (الطبعة المختصرة).
2. مقياس استبيان كونرز ويلز لفرط الحركة ونقص الانتباه للمراهقين (الطبعة المطولة)
3. مقياس كا-ساد (KSADs-PL) لتشخيص اضطراب فرط الحركة ونقص الانتباه ومعرفة الأمراض النفسية المصاحبة.
4. التصنيف الاجتماعى لفهمى والشربينى.
5. مقياس وكسيلر للذكاء للأطفال والمراهقين (المعرب).
6. استبيان معد للتاريخ الشخصي ، العائلي والصحة العامة.

الدراسة الاستطلاعية

سبقت الدراسة الأساسية دراسة استرشادية مبدئية وذلك لإمكانية تحديد أي مشاكل قد تواجه سير البحث ، ولمعرفة ما إذا كانت الأدوات المستخدمة فى البحث مناسبة لتقييم الدراسة وأخيرا لمعرفة مدى مصداقية التشخيص الطبي الإكلينيكي.

الدراسة الفعلية

بدأت حيثيات هذه الدراسة وانتهت خلال العام الدراسي 2006-2007 فى المدة الزمنية ما بين بداية الدراسة فى نوفمبر 2006 حتى نهاية شهر أبريل 2007.

وقد تم الحصول على بعض الموافقات الحكومية قبل دخول المدارس الاعدادية ومنها مكتب الوزير ، الإدارة الأمنية بالوزارة ، الجهاز المركزى للتعبئة العامة والإحصاء ، الإدارة التعليمية ثم المنطقة التعليمية التابع لها المدرسة.

طريقة جمع المعلومات

تم تجميع كافة البيانات من خلال الاستبيانات المصممة سابقة الذكر والموزعة على الطلبة والطالبات ، وبعد توضيح هدف الدراسة أبلغ الطلبة والطالبات بأن الاشتراك فى البحث تطوعي وتم أخذ موافقة لفظية منهم للاشتراك فى البحث مع توضيح التعليمات الخاصة بالإجابة على الاستبيان.

وقد تم تقييم الطلبة والطالبات المشتركين فى الدراسة على عدة مراحل:

المرحلة الأولى:

وتشمل تقييم الطلبة والطالبات باستخدام الاستبيان الشخصى المُعد والتصنيف الاجتماعي لفهمى والشربيني ثم مقياس كونرز ويلز للمراهقين (الطبعة المختصرة) لتحديد أي أعراض لاضطراب فرط الحركة ونقص الانتباه بين عينة البحث.

المرحلة الثانية

تم اخضاع الطلبة والطالبات الذين سجلوا اكثر من أو يساوى (65) فى عنصر index من مقياس كونرز ويلز (الطبعة المختصرة) الى اختبار (KSADs-PL) للتشخيص الإكلينيكي لاضطراب فرط الحركة ونقص الانتباه وقد تم خضوعهم ايضا لمقياس كونرز ويلز للمراهقين (الطبعة المطولة) لمعرفة مدى شدة الاضطراب وما يصاحبه من مشاكل مع عمل اختبار وكسيلر للذكاء لهؤلاء الطلبة والطالبات.

المرحلة الأخيرة

تم مقارنة الطلبة والطالبات التى اكتشفت إصابتهم باضطراب فرط الحركة ونقص الانتباه بقرنائهم (المجموعة القياسية) وهم غير المصابين بهذا الاضطراب والذى تم اثباته باختبار (KSADs-PL) وقد تمت المناظرة فيما يخص الصف الدراسي ، السن ، نوع المدرسة (حكومي أو خاص) والنوع (طلبة أو طالبات) وتم جمع العينة القياسية وأجريت المقارنة لاختيار المتغيرات وعوامل الخطورة المختلفة لاضطراب فرط الحركة ونقص الانتباه.

وقد قمنا بتسجيل كل البيانات التى تم تجميعها وتم تحويلها الى برنامج إحصائي للعلوم الاجتماعية النسخة الخامسة عشر وذلك باستخدام حاسب آلي واستخدام المقاييس الإحصائية المناسبة وقد تم جدولة النتائج وعرضها للإجابة على فرضية البحث.

نتائج البحث

هدفت المجموعة الأولى من النتائج الى تقدير نسبة انتشار اضطراب فرط الحركة ونقص الانتباه بين عينة من طلبة وطالبات المدارس الاعدادية بالقاهرة الكبرى وكان هذا من خلال استبيان المرض بواسطة (CASS:S) مقياس كونرز ويلز (الطبعة المختصرة).

أثبتت النتائج أن حوالى 9.4% من عينة البحث تعانى من اضطراب فرط الحركة ونقص الانتباه وقد أظهرت النتائج أيضا أن الطلبة الذكور يعانون من هذا الاضطراب أكثر من الطالبات الإناث بنسبة حوالى 1:2 وكان تصنيف الأنماط الإكلينيكية لهذا الاضطراب كالآتى من حيث الأكثر شيوعا: اضطراب فرط الحركة ونقص الانتباه نمط فرط الحركة يليه اضطراب فرط الحركة ونقص الانتباه (النمط المركب) ثم اضطراب فرط الحركة ونقص الانتباه نمط نقص الانتباه. وكان الطلبة الذكور يعانون من نمط فرط الحركة أكثر من الطالبات الإناث التى اظهرن نمط نقص الانتباه اكثر من الذكور.

أما المجموعة الثانية من النتائج هدفت الى معرفة العوامل والخواص الإكلينيكية المؤثرة فى اضطراب فرط الحركة ونقص الانتباه حسب (CASS:L) مقياس كونرز ويلز للمراهقين (الطبعة المطولة) كما استهدفت معرفة بداية المرض ومعرفة مستوى الأداء المدرسي ومستوى

الذكاء و المتغيرات الديموجرافية الاجتماعية ، التاريخ الشخصي والاسري والصحة العامة.

وقد كانت النسب ذات دلالة إحصائية مرتفعة جدا فى بعض النقاط ومنها:

- المستوى الاجتماعي ومتوسط عدد الأخوة واختلافهم بين طلبة المدارس الحكومية والمدارس الخاصة.
- متوسط السن واختلافه بين طلبة الفصل الدراسي الأول والثانى الإعدادي.
- المشاكل المعرفية لدى الطالبات اللاتي يعانين من اضطراب فرط الحركة ونقص الانتباه.
- اختلاف فى اختبار إعادة الأرقام بين طلبة وطالبات العينة.

وقد كانت النسب ذات دلالة إحصائية مرتفعة فى النقاط الاتية:

- اختلاف فى اختبار المتشبهات فى اختبار الذكاء بين الطلبة والطالبات المصابين باضطراب فرط الحركة ونقص الانتباه.
- اختلاف فى اختبار المتشبهات وتكميل الصور فى اختبار الذكاء بين طلبة المدارس الحكومية والخاصة المصابين باضطراب فرط الحركة ونقص الانتباه.

- مشاكل صحية ومنها تأخر التحكم فى التبول ومشاكل فى المفاصل والتى ظهرت لدى الطالبات المصابات بالاضطراب أكثر من الطلبة المصابين بالاضطراب.

وقد كانت النسب ذات دلالة إحصائية فى بعض النقاط ومنها:

- اختلاف المستوى الاجتماعي بين طلبة المرحلة الأولى والثانية الإعدادية المصابين بالاضطراب.
- زيادة تعرض الطالبات المصابات للعنف الاسري مع وجود تاريخ مرضي وعائلي لدخول المستشفيات النفسية لذويهم بمقارنتهم بالطلبة المصابين بالاضطراب.
- مشاكل ضبط الغضب والتى ظهرت فى عينة الطالبات المصابات أكثر من الطلبة المصابين.
- فرط الحركة وقد وجد أنه أكثر فى طلبة وطالبات المرحلة الأولى الإعدادية أكثر من طلبة وطالبات المرحلة الثانية الإعدادية.
- بداية ظهور المرض ومدته الزمنية وقد أظهرت الدراسة أنه ظهر مبكرا فى الطالبات عن الطلبة المصابين بالاضطراب.
- تعرض طلبة المدارس الحكومية لنسب أعلى من مشاكل الولادة والتأخر اللغوي وأمراض القلب.
- تعرض طلبة المرحلة الأولى الإعدادية لأمراض الصدر ومشاكل صدرية أكثر من قرنائهم من طلبة المرحلة الثانية إعدادية.
- اختلاف فى اختبار الفهم والشفرة ونسبة الذكاء اللفظي بين الحالات المرضية من الطلبة والطالبات.

وقد أوضحت المجموعة الثالثة من النتائج: مدى انتشار الأمراض النفسية المصاحبة لاضطراب فرط الحركة ونقص الانتباه ، حيث وجد أن بمراجعة

الاعتلال بين اضطراب فرط الحركة ونقص الانتباه والأمراض النفسية الاخرى ، كانت اضطرابات القلق هى التشخيص المرضى الأكثر شيوعا عن باقى الأمراض ويليه فى الانتشار اضطراب العناد الشارد ثم الاضطرابات الوجدانية (الاكتئاب).

هدفت المجموعة الرابعة من النتائج الى تحديد حدة أعراض اضطراب فرط الحركة ونقص الانتباه ومدى تأثيرها على المتغيرات المختلفة وقد أوضحت النتائج الأتى: أن الأعراض الطفيفة للاضطراب هى الأكثر شيوعا بين عينة المصابين وهى ذات دلالة إحصائية مرتفعة عند ارتباطها بنوع المدرسة.

ولكن لم يتضح أي تأثير واضح لحدة المرض فى باقى المتغيرات الديموجرافية الاجتماعية ، التاريخ الاسرى أو المرضي لعينة المصابين إلا أن حدة المرض أظهرت علاقة طردية مع الأداء الدراسي والأمراض النفسية المصاحبة لعينة المصابين بالبحث وهى ذات دلالة إحصائية مرتفعة.

أما المجموعة الأخيرة من النتائج فقد هدفت الى تحديد المتغيرات التى تؤثر على اضطراب فرط الحركة ونقص الانتباه بين المراهقين والمراهقات من عينة البحث وذلك بمقارنتهم بنظائرهم من المجموعة القياسية وقد تركز اهتمامنا على المتغيرات الديموجرافية الاجتماعية ،

التاريخ الشخصي ، التاريخ الاسري ، التاريخ المرضي السابق والمؤثرات النفس اجتماعية.

أوضحت نتائج البيانات عند مقارنة الطلبة والطالبات المصابين باضطراب فرط الحركة ونقص الانتباه بقرنائهم غير المصابين بالاضطراب ما يلى:

- كانت النسب ذات الدلالة الإحصائية مرتفعة جدا أو مرتفعة فى النقاط الآتية:

1. وجد أن غالبية العينة المصابة تنتمي الى مستوى اجتماعي واقتصادي اقل من العينة القياسية.
2. كما أظهرت النتائج ان غالبيتهم كان ترتيبهم (الطفل الأول) فى الاسرة.
3. كانت النسب ذات دلالة إحصائية مرتفعة بين عينة المصابين بالاضطراب اللذين لديهم مناخ اسرى غير مستقر أو معرضين الى سوء المعاملة من الوالدين أو العنف الاسرى خاصة فى الإناث.
4. ترتبط نسبة العينة المصابة باضطراب فرط الحركة ونقص الانتباه ارتباطا طرديا مع وجود تاريخ للقرابة بين أهل المصابين خاصة الذكور.
5. ترتبط نسبة الإصابة باضطراب فرط الحركة ونقص الانتباه ارتباطا طرديا مع وجود تاريخ مرضى نفسى للاسرة من حيث وجود

المرض النفسي ، استخدام العلاج النفسي أو دخول مستشفيات نفسية خاصة فى الإناث.

6. وجد أن العينة المصابة كانوا أكثر عرضة لمشاكل ما بعد الولادة خاصة بين الذكور.
7. يعد التأخر فى التحكم فى البول أكثر شيوعا فى العينة المصابة خاصة الإناث.
8. يعتبر وجود تاريخ مرضى عضوي من حيث مشاكل المفاصل أو أزمات صدرية أكثر شيوعا فى العينة المصابة خاصة الإناث.
9. أظهرت بعض نقاط الاختبارات الفرعية المستخدمة فى اختبار الذكاء واختبار الذكاء اللفظي ، الفعلي والتام اختلافا خاصة بين الذكور وقرنائهم والإناث وقرنائهن من المجموعة القياسية.
10. كانت غالبية المصابين والمصابات باضطراب فرط الحركة ونقص الانتباه أقل فى مستوى التحصيل الأكاديمي والأداء المدرسي عن المجموعة القياسية.

وقد أوضحت الدراسة بعض عوامل المخاطرة لاضطراب فرط الحركة ونقص الانتباه أهمها:

- تاريخ عائلي مرضي نفسي لدخول مستشفيات نفسية.
- تاريخ مرضي لإصابات الرأس.
- ترتيب الأخوة والأخوات.

- تأخر التحكم فى التبول.
- تاريخ عائلي مرضي نفسي لتناول عقاقير نفسية.
- نوبات صرعية.
- الخلافات بين الوالدين.

توصيات البحث

التوصيات البحثية:

يعتبر البحث فى مجال الأمراض النفسية للمراهقين ليس كافيا وقاصرا خاصة فى اضطراب فرط الحركة ونقص الانتباه ولذلك فإننا لا نزال بحاجة ماسة الى جهود بحثية اخرى وعليه فإننا نوصى بما يلي:

- تطبيق البحث على عينة اكبر من المراهقين فى أعمار مختلفة ومن نواحي جغرافية مختلفة وعلى مستوى مدارس مختلفة (مدارس فنية وصنائع).
- استنباط أدوات بحثية قياسية قصيرة وحديثة وتطبيقها ليس على المراهقين فقط ولكن أيضا على ذويهم ومعلميهم وزملائهم كمحاولة لجمع المعلومات الكاملة عنهم فى مختلف مجالات الحياة.
- استخدام قياسات إكلينيكية-عصبية لتقييم أفضل لاضطراب فرط الحركة ونقص الانتباه.
- تطبيق أبحاث مختلفة فى مجال اضطراب فرط الحركة ونقص الانتباه لدى المراهقين وذلك لتحسين قاعدة البيانات لهذا الاضطراب.

التوصيات الطبية والإكلينيكية:

- ضرورة تنظيم برامج توعية مختلفة عن الصحة النفسية للمراهقين خاصة عن اضطراب فرط الحركة ونقص الانتباه وهذه البرامج تقدم لكل من المراهقين وذويهم ومدرسيهم.
- زيادة التوعية عن اضطراب فرط الحركة ونقص الانتباه لدى الأهل وفى المدارس.
- زيادة الخدمات المتاحة للصحة النفسية داخل المدارس وإنشاء عيادات نفسية متخصصة لاضطراب فرط الحركة ونقص الانتباه.
- إعداد دورات تدريبية مكثفة للممارس العام عن الصحة النفسية للمراهقين وكيفية الاكتشاف المبكر لاضطراب فرط الحركة ونقص الانتباه ومعرفة وسائل التشخيص والعلاج المختلفة.
- ضرورة التعاون بين أطباء الأمراض النفسية والممارس العام من أجل التوصل الى طرق مختلفة للتشخيص والعلاج المبكر وهذا لتخفيف وطأة المعانة من اضطراب فرط الحركة ونقص الانتباه لدى المراهقين.

استبيان كونورز ويلز لفرط الحركة
ونقص الانتباه للمراهقين (الطبعة المختصرة)

الاسم : ---------- **طالب :** ----------
تاريخ الميلاد : ----/------/-------- **اسم المدرسة :** ----------
السن : ---------- **الصف الدراسى :** ----------
العنوان : ----------
التليفون : ----------

تعليمات :

فيما يلى مجموعه من الأسئلة رجاء التكرم بالأجابة على جميع الأسئلة مع وضـع علامـة أمـام أكثـر الأجابات المناسبة ما بين (ابداً –احياناً –غالباً - دائماً)

م	السؤال	ابداً	احياناً	غالباً	دائماً
١-	يلتزم والدى بنظام صارم				
٢-	أكسر القواعد حينما تحين لى الفرصة				
٣-	أتعلم ببطئ أكثر مما ينبغى				
٤-	أنا حساس وسهل الغضب				
٥-	لا يمكننى الجلوس لفترة طويلة				
٦-	أشعر وكأننى أبكى				
٧-	لدى مشاكل مع السلطة (مثل الأهل-المدرسة –الشرطة)				
٨-	لدى مشكلة فى تنظيم واجباتى المدرسية				
٩-	يتوقع والدى منى الكثير				
١٠	لدى طاقة زائدة لا تجعلنى قادر على أن أبقى ساكناً فترة طويلة				
١١	الضوضاء تصيبنى بالتشتت حين أذاكر				
١٢	أخالف القواعد				
١٣	أنسى الأشياء التى تعلمتها				
١٤	أتململ وأفرك كثيراً				
١٥	حكمى على كثير من الأشياء غير موفق				
١٦	أحب إيذاء بعض الأفراد				
١٧	لدى صعوبة فى الألتزام بالأشياء لأكثر من دقائق معدودة				
١٨	أشعر بإضطراب (قلق) حتى لو كنت جالس بدون حركة				
١٩	خط سئ				
٢٠	لدى رغبة ملحة لعمل أشياء سيئة (مضرة)				
٢١	لدى مشكلة فى التركيز على شئ واحد لفترة				
٢٢	أقوم وأـحرك عند عمل واجباتى المدرسية				
٢٣	متأخر فى دراستى				
٢٤	أدمر ممتلكات الغير				
٢٥	لا أستطيع متابعة السطور أثناء القراءة (أنسى مكان السطر الذى كنت اقرأه)				
٢٦	لدى مشكلة فى ان ابقى ساكناً أثناء الطعام				
٢٧	والدى لا يقدمون لى مكافأة على تصرفاتى الجيدة				

استبيان كونورز ويلز لفرط الحركة
ونقص الانتباه للمراهقين (الطبعة المطولة)

الاسم : ------------------------ **طالب :** ----------------------
تاريخ الميلاد : ----/------/-------- **اسم المدرسة :** ----------------------
السن : ------------ **الصف الدراسى :** ----------------------
العنوان: ----------------------
التليفون: ----------------------

تعليمات :

ƺيما يلى مجموǋǇ من الأسئلة رجاء التارم بالإجابة Ƴلى جميع الأسئلة مع وضع Ƴلامة Ǝصحيحة أمام الإجابة المناسبة ما بين (ابدا –احيانا –ƺالبا - دائما)

م	السؤال	ابداً	احياناً	غالباً	دائماً
.Č	يلتزم والدى بنظام صارم				
.č	أشعر وكأننى أبكى				
.Ď	أكسر القواعد حينما تحين لى الفرصة				
.ď	أتعلم ببطئ أكثر مما ينبغى				
.Đ	أشعر بغضب بسهولة				
.đ	لايمكننى أن أبقى ساكناً لفترات طويلة				
.Ē	والدى يلاحظان تصرفاتى السيئة فقط				
.ē	أقوم بعمل غلطات لقلة التركيز (أو) لدى صعوبة فى التركيـز فـى التفاصيل				
.Ě	العقاب فى البيت عندنا غير منصف				
.Čċ	أنا غير متحمس				
.ČČ	أشعر بصعوبة فى تركيز انتباهى حين ألعب واعمل واجباتى				
.Čč	لدى مشاكل مع السلطة (مثل الأهل-المدرسة –الشرطة)				
.ČĎ	لدى مشكلة فى تنظيم واجباتى المدرسية				
.Čď	أنفجر من الغضب بسهولة				
.ČĐ	لدى طاقة زائدة لا تجعلنى أبقى ساكناً فترة طويلة				
.Čđ	والدى لا يقدمان لى مكافأة على تصرفاتى الجيدة				
.ČĒ	لدى مشكلة فى الأنصات (السماع) لما يقوله الآخرين				
.Čē	والدى ملتزمان بشدة				
.ČĚ	أشعر بالحزن والكآبة				
.čċ	لدى مشكلة فى إنهاء واجباتى المدرسية				
.čČ	أكسر القواعد				
.čč	أنسى الأشياء التى قمت بتعلمها من قبل				

استبيان كونورز ويلز لفرط الحركة
ونقص الانتباه للمراهقين (الطبعة المطولة)

م	السؤال	ابداً	احياناً	غالباً	دائماً
.ČĎ	مزاجى حاد				
.čď	أتململ وأفرك كثيراً				
.ČĐ	يتوقع والدى الكثير منى				
.čđ	لدى مشكلة فى تنظيم مهامى وأنشطتى				
.ČĒ	يبدو لى أن والدى ينتقدونى دائماً				
.čē	أقلق كثيراً بشأن أشياء صغيرة				
.ČĔ	أحب إيذاء بعض الأفراد				
.Čċ	عمل واجباتى المدرسية يأخذ منى مجهود كثير				
.ČČ	أفقد أعصابى				
.Čč	أشعر بعدم الأرتياΘ الداخلى حتى لو كنت جالس بدون حركة				
.ČĎ	الضوضاء تصيبنى بالتشتت حين أذاكر				
.Čď	لا أحب الأعمال أوالواجبات المدرسية التى تحتاللا لتفكير كثير				
.ČĐ	يوجد الكثير من الصرا|Q فى منزلنا				
.Čđ	تخيفنى أشياء كثيرة حتى لو كنت لاأقرها لأحد				
.ČĒ	لدى رغبة ملحة لأرتكاب أشياء سيئة (مضرة)				
.Čē	صعب على الألتزام بأشياء لأكثر من دقائق محدودة				
.ČĔ	مزاجى يدخلنى فى الكثير من المشاكل				
.ďċ	أقوم وأتحرك عند عمل وجباتى المدرسية				
.ďČ	حكمى على الأشياء غير موفق فى كثير من الأشياء				
.ďč	أنسى أشيائى التى أحتاجها فى مذاكرتى مثل (الأقلام –الكتب)				
.ďĎ	القواعد فى منزلنا غير واضحة				
.ďď	برغم تصرفاتى الخارجية الجيدة لا أشعر أننى غير واثق من نفسى				
.ďĐ	أدمر ممتلكات الغير				
.ďđ	أجد صعوبة فى ترتيب أفكارى				
.ďĒ	أشياء كثيرة تثيرنى				
.ďē	لدى مشكلة فى أن أبقى ساكناً أثناء الطعام				
.ďĔ	أجد صعوبة فى اللعب أو القيام باعمال ممتعة بهدوء				
.Đċ	أشعر بالتشتت حينما تكون هناك أشياء كثيررة حولى				
.ĐČ	أسرتى لا تقوم باعمال مرحة سوياً				
.Đč	أنا أخاف أن أكون بمفردى				
.ĐĎ	أنسى أنشطتى اليومية				
.Đď	أحب ان أقوم باعمال خطيرة				
.ĐĐ	أفقد الطريق لما يجب أن أقوم بعمله				
.Đđ	الناس تضايقنى وتثير غضبى				
.ĐĒ	أحرك يدى ورجلى وأفرك وأتململ فى مقعدى				
.Đē	أحب أن أتحرك على أن أبقى ساكناً فى مكان واحد				
.ĐĔ	متأخر فى دراستى				

استبيان كونورز ويلز لفرط الحركة
ونقص الانتباه للمراهقين (الطبعة المطولة)

م	السؤال	ابداً	احياناً	غالباً	دائماً
đċ.	أترك مكانى عندما لايكون مفترضاً (مثال المدرسة)				
đČ.	أنا لست قريب جداً من أسرتى				
đč.	أتعصب بسهولة				
đĎ.	أنا لا ابقى ساكناً (أو) كثير الحركة				
đď.	أترك المدرسة بدون أذن				
đĐ.	لدى مشكلة فى التركيز على شئ واحد لفترة				
đđ.	لا يزال عندى نوبات غضب				
đĒ.	أنا أنسان وحيد				
đē.	أحياناً أشعر وكأننى أساق بالمحرك (موتور)				
đĔ.	أنا حساس أو سهل الغضب				
Ēċ.	أنا دائماً على الحافة (أتنرفز بسرعة جداً)				
ĒČ.	والدى لا يهتمان بى				
Ēč.	أرى المستقبل مظلماً بالنسبة لى				
ĒĎ.	أخذ أشياء لا أملكها				
Ēď.	أنا غير منظم فى واجباتى المدرسية				
ĒĐ.	أتكلم كثيرا				
Ēđ.	أعانى الكثير من الأوجاY والآلام				
ĒĒ.	أنا اشرب المشروبات الكحولية				
Ēē.	أقرا ببطء وبكثير من الجهد				
ĒĔ.	أتسرY بالأجابة قبل أن ينهى الشخ f سؤاله				
ēċ.	أتعاطى المخدرات				
ēČ.	أجد صعوبة فى القراءة والأستهجاء				
ēč.	أجد صعوبة فى أنتظار دورى أو الوقوف بالطابور				
ēĎ.	خطى سئ				
ēď.	أفقد مكان السطر الذى أقراه (لا أستطيع متابعة السـطور أثنـاء القراءة)				
ēĐ.	أدخل فى المشاكل بسهولة				
ēđ.	أقاطع الآخرين حينما يعملوا أو يلعبوا				
ēĒ.	أعانى من الكوابيس				

مقياس التصنيف الأجتماعى (فهمى والشربينى)

هذه الاستمارة تحتوى على أسئلة لتحديد الحالة الاجتماعية والنفسية وهى جزء من بحـ ا طبـى مختـ ا فى هذه المجال وجميع الأجابات سرية للغاية فالرجاء التكرم ومسـاعدتنا بمـلء جميـع الأسئلة بهذه الاستمراة بعمل علامة على الأجابة التى تناسبك فى الخانة المقابلة .

FS1	تعليم الأب		FS3	متوسط دخل الأسرة	
يقرأ ويكتب أو امى	٢		متوسط الدخل يزيد عن الأحتياجات	٤	
تخرلا من المرحلة الأبتدائية	٤		متوسط الدخل يكفى الأحتياجات	٣	
تخرلا من المرحلة الأعدادية أو مايعادلها	٦		متوسط الدخل أقل من الأحتياجات	٢	
تخرلا من المرحلة الثانوية أو مايعادلها	٨		متوسط الدخل أقل بكثير من الأحتياجات مع وجود مشاكل مالية مستمرة	١	
تخرلا من الجامعة أو مايعادلها	١٠				
FS2	تعليم وأمية الأم		FS4	عدد غرف النوم بالمنزل	
تقرأ وتكتب أو امية ولا تعمل	١		كم عدد غرف النوم بالمنزل		
تقرأ وتكتب أو امية و تعمل	٢		كم عدد أفراد الأسرة الذين يعيشون بهذا المنزل		
تخرجت من المرحلة الأبتدائية ولا تعمل	٣		خمسة أفراد أو اكثر لكل غرفة نوم		
تخرجت من المرحلة الأبتدائية و تعمل	٤		أربعة أفراد أو اكثر لكل غرفة نوم		
تخرجت من المرحلة الأعدادية أو مايعادلها ولا تعمل	٥		ثلاثة أفراد لكل غرفة نوم		
تخرجت من المرحلة الأعدادية أو مايعادلها و تعمل	٦		فردين لكل غرفة نوم		
تخرجت من المرحلة الثانوية أو مايعادلها ولا تعمل	٧		FS5	الخدمات	
تخرجت من المرحلة الثانوية أو مايعادلها و تعمل	٨		هل يوجد كهرباء	نعم	لا
تخرجت من الجامعة أو مايعادلها ولا تعمل	٩		هل يوجد مياه صالحة للشرب	نعم	لا
تخرجت من الجامعة أو مايعادلها و تعمل	١٠		هل يوجد صرف صحى	نعم	لا
			يوجد جميع الثلا ا خدمات	١	
			يوجد خدمتان فقط من الثلاثة	٢	
			يوجد خدمة واحدة فقط من الثلاثة	٣	

FS6 Total Score	
25 -30	High Social Class
20-2	Middle Social Class
15-20	Low Social Class
14 or Less	Very Low Social Class

K- SAD –PL
Diagnostic Interview

اسم الطفل	:	----------
تاريخ المقابلة	:	----------
عدد الجلسات التى تم تاجيلها	:	----------
السن	:	----------
النوع	:	----------
العنوان الحالى للطفل	:	----------
الحالة (القائم على الطفل)	:	----------
اسم الأب	:	----------
اسم الأم	:	----------
الأولاد	:	----------
أ. الاسم والسن	:	----------
ب. الاسم والسن	:	----------
ج. الاسم والسن	:	----------
د. الاسم والسن	:	----------
عدد الأولاد	:	----------
الترتيب بين الأولاد	:	----------
التاريخ : المرضى	:	----------
الأداء المدرسى	:	----------
نظام التعليم :	:	----------

إضطراب الأكتئاب

مزاج مكتئب

- هل حد ا فى أى وقت شعرت إنك حزين ل مهموم مغموم
- هل تشعر بأنك عايز تبكى كان أمتى
- هل تشعر ..... الآن
- هل فى أى وقت ئخر شعرت إنك .....
- هل عندك أى مشاعر سيئة تانى
- هل شعرت طول الوقت بمشاعر سيئة ولم تستطع التخا f منها
- هل بكيت طول أو عينيك أمتلئت بالدمو Y هل شعرت ب..... كل الوقت أو بعض من الوقت
- هل بتيجى وتروθ كم مرة كل يوم بتستمر قد ايه تفتكر أيه اللى بيجيبها
- هل تشعر بالحزن ووالدتك بعيدة عنك
- لو الأنفصال عن الأم كان السبب هل تشعر ب..... لما بتكون والدتك معاك
- هل الناس الآخرين يستطيعون معرفة إنك حزين إزاى بيعرفوا هل منظرك بيتغير

التوتر والغضب

- هل حد ا فى أى وقت إنك كنت متضايق ل متوتر لاغضبان من أى أشياء صغيرة
- هل كان فى أى وقت فقدت فيه أعصابك بشدة أمتى كان ده هل تشعر إنك كده دلوقتى
- هل كان فى أى وقت ئخر شعرت أنك.....
- إيه الأشياء اللى بتجعلك.....
- هل كنت تشعر إنك هتتجنن أو أنك غضبان أيضاً (متى لو لم تظهر ذلك)
- قد ايه كنت غضبان أكثر من قبل كده
- إيه طبيعة الأشياء اللى بتخليك تشعر بالغضب
- هل أحياناً بتشعر بانك غضبان أو متوتر أو متضايق وانت م t عارف ليه
- هل حد ا ذلك كثيراً
- هل فقدت أعصابك مع العائلة أصحابك ومع مين كمان فى المدرسة ماذا فعلت
- هل فيه أى حد قال أى حاجة عنها
- قد أيه من الوقت بتشعر أنك غضبان ل متوتر أو زعلان
- كل الوقت معظم الوقت من حين لآخر لا يحد ا أبداً
- لما كنت غضبان ل كنت بتفكر فى أيه
- هل كنت بتفكر تقتل حد أو تاذى نفسك أو تاذيهم أو تعذبهم مين هل كان عندك خطة كيف

الزهق (الملل)

- ما هى الأشياء اللى بتعملها للتسلية لكن استمتاع (أعطى مثلاً: أتارى رياضة أصحاب ألعاب مفضلة مواد الدراسة التنزه أنشطة عائلية برامج تليفزيونية مفضلة ألعاب الكمبيوتر أو الفيديو موسيقى الرقص اللعب وحيداً القراءة الخروج.....الخ).
- هل كان فى أى وقت شعرت بالضيق والزهق لفترة طويلة متى هل تشعر بالزهق كثراً الآن
- هل كان فى أى وقت شعرت فيه بالزهق كثيراً هل شعرت بالزهق عندما فكرن فى عمل الأشياء اللى بتحب تعملها عادة للتسلية(أعطى أمثلة ذكرت سابقاً). هل الزهق يمنعك عن عمل الأشياء . هل شعرت أيضاً بالزهق وأنت بتعمل الأشياء اللى كنت متعود تستمتع بيها

فقدان المتعة :

- هل كنت مترقب إنك تعمل الأشياء اللى بتمتعك عادة (اعطى أمثلة).
- هل حاولت الأندمالل فيهم
- هل ضغت على نفسك علشان تعمل أنشطتك المفضلة
- هل بيسلوك
- هل شعرت بالأثارة أو الحماس لأنك هاتعملهم ليه لاء
- هل أنبسطت من عملهم زى الأول قبل ما تحس بالحزن
- لو كانت المتعة أقل هل استمتاعك أقل شوية ولا كثير ولا مافيش خالص
- هل شعرت بالتسلية زيك زى أصحابك
- أيه الأشياء اللى أقل متعة الآن عن ماكانوا (استخدام أمثلة مادية أعطيتها للطفل من قبل).
- أيه الأكثر الأشياء متعه أو متعة أزيد
- هل بتعمل ..... أقل من اللى أنت متعود عليه أقل قد أيه

ج- أفكار أن الموت مستقر :

- أحياناً الأطفال لما بيتضايقوا أو يزعلوا بيتمنوا أنهم يكونوا ميتين
- هل حد ك فى أى وقت النوع ده من الأفكار هل تشعر بذلك الآن هل كان فى وقت شعرت فيه بذلك

ب- أفكار إنتحارية :

- أحياناً الأطفال لما بيتضايقوا أو بيزعلوا بيفكروا فى الموت أو حتى فى أنهم ينتحروا. هل كان عندك فى أى وقت مثل هذه الأفكار إزاى كنت هاتعملها هل كان عندك خطة

أ- محاولات إنتحارية – نية المحاولة:

- هل فعلاً حاولت انك تنتحر أمتى عملت أيه
- فى أى حاجة ثانية
- هل فعلاً كنت عايز تموت
- قد أيه كنت قريب من أنك تعملها
- هل كان فى أى حد معاك فى الحجرة فى الشقة

- هل قلتلهم قبلهاþ
- إزاى وجدوكþ
- هل فعلاً كنت عايز تموتþ
- هل طلبت المساعدة بعد ما عملتهاþ

د- ϩاولا انتϴارية –ثياƧ ϙطورγ الϴالة الصϴية:

- قد ايه كنت قريب من الموت بعد ماعملت .... (أكثر محاولة جدية للأنتحار)þ
- أيه اللى عملته عندما حاولت الأنتحار þ
- أيه اللى حصلك بعد ما حاولت الأنتحارþ

øأ - ϩاولا االسدية ǓيƤظ اƤا –ليƧ ϵرض f الأنتϴار :

- هل حد أ فى أى وقت إنك حاولت تϑذى نفسكþ
- هل حد أ أنك حرقت نفسك بالكبريت أو الشمعþ
- هل خربشت نفسك بالأبرةأو سكينþ أو أظافرك þ أو وضعت عملة ساخنة على جلدكþ
- أى حاجة ثانيةþ ليه عملت كدهþ كم مرةþ
- هل حصلك حواد أ كثيرة þ نوعها أيه þ كم مرةþ
-

ϵض f الاطفاϜ ϵيعملوا ƤشΏƒا ϵأƟيȘ ƟǓاƳ ان ϵيعرϜين يمتϴرو ϵاطفاϜ ϵƤƟرين ϵيعمϴلو ϵƟا ϵان øمϵ ϵالعلاقƢ ϵϯ ϵيعرون Ǝ ϵƏالϯ ϵسϴن ϵعد ادƜƳ

- ليه أنت بتعمل هذه الأشياء þ

الهـــــوس

Č- ǾljŖ ومŖlŧ منتآى :

- هل حدŧ فى أى وقت شعرت إنك كويس جداً Ü حقيقى فرحان أو مبسوط þ أكثر من طبيعتكþ

لو مţ واضǾ :

- هل شعرت كأن ما فيţ حاجة متقدرţ إنك تعملهاþ
- هل شعرت أن كل حاجة هاتحصل زى ما أنت عايزþ
- هل شعرت إنك مضحكþ
- هل بتضحك أكثر من معظم أصحابكþ هل أصحابك قالوا لك أى حاجة عن أنك سعيد جـ ـداً أو مضحك جداًþ
- لو الناس شافتك Ü هل بيعتقدوا إن مزاجك كويس أو بشفوك أكثر من كده þ
- هل شعرت كأنك سكرانþ
- هل شعرت إنك سعيد أكثر من اللازمþ أعطنى بعض الأمثلةþ قد أيه هذه المشاعر بتستمر عادة þ

č- نǿţ الǾاللة الى النوم :

- هل حدŧ فى أى وقت أحتجت إنك تنام أقل من المعتاد علشان إنك أرتحتþ
- بتنام قد أيه فى العادى þ نمت قد أيه. هل فضلت صاحى بالذات لأنك حاسس إنك مبسوط أو عندك حيويةþ
- هل كنت مع أصحابك ولا لوحدك þ هل أخذت أى أدوية þ

Ď- ŖيادƔ ǿى النآاط المواǖ :

- هل حدŧ فى أى وقت كنت فيه أكثر نشاطاً أو مندمǋ فى أشياء أكثر من المعتاد þ
- هل عملت أى مشاريع فى البيت أو فى المدرسةþ بتخرǖ أكثر من المعتاد þ
- هل كنت أنشط جنسياً عن المعتادþ مزاجك كان أزاى فى الوقت ده þ أحساسك بنفسك كان أيه þ اكثر ثقة بنفسك عن المعتاد þ

ď- ǽاǖار متلاǾقة :

- هل حدŧ فى أى وقت إن أفكارك كانت متلاحقة بسرعة لدرجة أنه كان من الصعب عليـ ـك إن تلاحقهاþ
- هل حدŧ فى أى وقت شعرت زى ما يكون فى أفكار كثيرة بتتزاحم فى عقلكþ تقـ ـدر توقـ ـف الأفكار دى لما تكون عايزþ مزاجك كان أزاى فى الوقت ده þ

الذهـــان

č- الهلاووس

- فى بعض الأحيان لما بيكونوا الأطفال لوحدهم بيسمعوا أصوات أو بيشفوا أشياء أو بيشموا حاجات من غير ما يعرفوا هى جاية منين . هل ده حصلكþ أحكى لنا عنه.
- هل حدث فى أى وقت إنك سمعت أصوات لوحدك þ أيه اللى سمعتهþ هل حدث فـى أى وقت إنك سمعت حد بينده أسمك ووقتها محد ţ كان حوليكþ أيه نوع الأشياء þ
- اللى كنت بتسمعهاþ هل حدث فى أى وقت سمعت موسيقى لا يسمعها الآخرون
- هل حدث فى أى وقت إنك شوفت أشباح . امتىþ
- هل ده بيحدث فقط بالليل وأنت بتحاول تنام ولا بيحصل أيضاً بالنهارþ شوفت أيهþ
- هل حدث فى أى وقت أنك شميت رائحة غريبة عنكþ

***** فى حالة وجود هلاوس وإذا كان الطفل يعتقد إنها حقيقية يجب التأكد من ذلك عن طريق الأسئلة التالية:**

- تفتكر ده كان ليهþ تفتكر ده من خيالك ولا حقيقىþ
- تفتكر اللى سمعته أو شوفته كان حقيقىþ
- أيه اللى عملته لما (سمعته أو شوفته ....)þ
- الأصوات اللى سمعتها (أى نوع آخر من الهلاووس)... هل حدثت لما كنت صاحى ولا نايمþ
- ممكن تكون حلم þ هل حدثت وانت بتبتدى تنام أو ونت بتبتدى تصحى þ فقط فى الظلامþهـل حدثت أيضاً فى أى وقت آخرþ هل كنت مريض بالحمى لما حدث ذلكþ
- هل حدث فى أى وقت أنك شربت بيرة أو خمرةþ
- هل اللى شوفته أو سمعته حدث لما شربت بيرة أو خمرة أو أخذت أدويةþ هل كانت زى فكرة ولا زى صوت (ضوضاء) أو منظرþ

č - الأوهام :

- هل تعرف أيه هو الخيال þ أحكى لى .
- هل حدث فى أى وقت أن تخيلك أو همك بحاجاتþ
- أيه نوع الأوهام دى þ أحكى لى عنها أكترþ
- هل كان عندك أى أفكار عن أشياء لم تخبر بها أحد لأنك خايف أنه ممكن ميفهمكţ þ زى أيهþ
- هل تعتقد بأشياء لا يعتقد الناس فيهاþ زى أيهþ

*****يتم سؤال الطفل عن الأوهام التالية:**

- هل حدث فى أى وقت أنك شعرت إن فى شخص ما عايز يؤذيك þ مينþ ليهþ
- هل حدث فى أى وقت فكرت إنك شخص مهم أو عظيمþ
- لما بتكون مع ناس لا تعرفهم هل بتفتكر إنهم بيتكلموا عليكþ
- هل كان فى أى وقت شعرت فيه إن فى حاجة بتحصل لجسمكþ مثلاً هل كنت تعتقد إنه بيتعفن من الداخل أو أن فى حاجة غلط فيهþ
- هل حدث فى أى وقت حسيت بإقترابك إن العالم أنتهىþ
- قد أيه بتفكر فى ....þ

اضطـــراب الهلـــع

- هل حدث فى أى وقت كان عندك مشاعر خفية جداً حصلت فجأة من غير سبب معينþ أحكى لنا عنها.
- أول مرة حدثت لك نوبة زى دى Ü تفتكر أيه اللى جابها þ هل الأحساس جاء من غير سببþ
- كان شكله أيهþ أستمر قد أيهþ
- بعد ماحدث ذلك فى المرة الأولى Ü هل قلقت أنها ممكن تحصل تانىþ

***** fاł ĺاŊ اللا f اŢÚ اŕ ار اللصة لم ŊŬÚ تلšŀ Ţند وصف النوǾ ll ÚǼŝǾ ان ÚŢا f ار التالية:***

<u>ŢاŕاĊ f مصاŀǾة : ŢĠ5 ىف التنفƧ Û دŀ5 ll قلب سريعةÛ ألام فى الصدرÛ ƺŀøĸ Ûانøŝ ÛøلÛ ونةƺ ÛتناƺƧ5Û وÛ كساǾ Ƨ اƺŀƧ5Û دوار Û تنميل فى الأيدǰ وÛ الاذمين Û ورŢø5Û ƺæƷlbÛ ارƾة وÛ ǰĵĸƳ فى تغيير فى الاǾ Ƨساŀ Ƨ الłƒlll والإĊsÛ ƺ وف من الموا Û ll ƺالىف تفقد التŀحم.</u>

اضطراب قلـــق الأنفصـــال

Č - الƺوف من مصيبةĠ ƃسبب الأنفصال:

- هل حدث ł فى أى وقت قلقت إن فى حاجة سيئة هتحصلك بحيł إن عمرك ما هتشوف والديك تانىþ مثلاً إنك تتوهþتتخطفÜ تقتل أو يحصلك حادثةþ
- قلقت قد أيه من كدهþ

č - الƺوف من ǰǰاƺ 5Ɵ ĺǰŀƿŀƧ Ţلى الرŢاية :

- هل حدث ł فى أى وقت قلقت إن فى حاجة سيئة هتحصل لوالديك þ زى أيه þ هل كنت خايف أن يحصلهم حادثة أو يموتوا þ
- هل كنت خايف أنهم ممكن يتركوك ولا يرجعون þ قلقت قد أيه من كدهþ

Ď - رفǯ f لƺǰǰاب Ƨلى المدرسة :

- هل حدث ł فى أى وقت أنك أجبرت على الذهاب إلى المدرسة þ هل كان عندك مخاوف إنك تـذهب إلى المدرسةþ أحكى لى عن هذه المشاعر .
- أيه اللى كنت خايف منهþ هل كنت تذهب إلى المدرسة كم مرة لم تذهب إلى المدرسـة أو تركـت المدرسة بدرىþ

ď - الƺوف من النوم وƟيداŀ أو النوم ƺارƺ ł المنÜŖ :

- هل حدث ł فى أى وقت بعد ما تميت أربع سنين كنت خايف إنك تنام لوحدكþ هل تشعر بمشاعر مخيفة إذا أضطريت تنام بعيد عن البيت من غير ما يكون والديك معكþ

Đ - الƺوف من الĠŀƷƀ بالمنÜŖ وƟيداŀ :

- هل حدث ł فى أى وقت بعد ما تميت أربع سنين كنت متعود تتبع والدتك فى أى مكان تذهب إليه þ
- هل كنت بتتضايق لما بتكون م ţ موجودة فى نفس الحجرة þ
- هل بتلزق لوالدتكþ هل تتأكد كثيراً من وجود والدتك þ هل داماً بتكون عايز تعرف هى راحت فين þ
- قد أيه كنت خايف þ

أضطراب التجنب / الرهاب الأجتماعى

Č - يتعد Ƴن الأتصال بالغير:

أ- كثير من الأطفال يخجلون أو بعض من الأطفال تجاوزوا ذلك (أكثر من كده) ولا يشعرون بالدفء أو الراحة مع ناس من خارج نطاق العائلة.

- هل كنت زى كده فى أى وقت þ هل كنت دائماً ما تشعر بعدم الراحة أو العصبية مع المدرس أو الأطفال الآخرين فى المدرسة þ أو أطفال الجيران þ

ب- بعض الأطفال يشعرون بالخجل الشديد فى وجود ناس لا يعرفونهم لدرجة لا يستطيعون قول أى شئ .

- هل كنت زى كده فى أى وقت þ بتحتاج وقت قد أيه فى العادة لتندمج معهم

ت- هل كان من الصعب عليك أن تتحدث مع شخص لا تعرفه أو حتى لو كان طفل þ هل بتكون خائف جداً لدرجة إنك تقول كلمة واحدة þ هل ده بيحصل معظم الوقت þ

č - الخوف من المواقف الأجتماعية :

- بعض الأطفال يكرهون فعلاً الأجابة عن الأسئلة فى الفصل أو التحدث أمام الفصل أو التحدث إلى الكبار أو أطفال آخرين أو الأكل أمام أطفال آخرين .... (أسأل عن كل المواقف المذكورة).
- هل ضايقك فعلاً أى شئ من هذه الأشياء þ أكثر من الأطفال الآخرين فى فصلك þ
- أيه اللى ضايقك فيه. (مثلاً خايف تقول حاجة غبية أو الخوف أو يكون منظرك محرج أو الخوف من الرعشة أو الأختناق..........þ)
- هل .... ضايقك كثيراً أو قليلاً þ هل ....جعلك تشعر حقيقة بالعصبية أو الرعب þ
- هل جعلك تبكى þ هل جعلك تفضل البقاء لوحدك þ

Ď - الأندماج الأجتماعى مع الأسرة والمعارف:

- هل تحب أن تكون مع عائلتك والناس اللى بتعرفهم þ عامل أيه مع والدتك/ والدك þ مع أخوك/ أختك þ
- هل عندك صديق مقرب أو واحد أو أثنين من الأطفال تحب أن تقضى الوقت معهم þ
- هل تشعر بالخوف أو العصبية فى وجود ....þأيه نوع الحاجات اللى تحبوا تعملوها سوى þ
- بعض الأطفال لا يحبون فعلاً أن يتواجدوا مع ناس آخرين . ناس لا يعرفوهم جيداً ولا حتى أطفال آخرين . هل أنت زى كده þ هل فى أى حد تحب إنك تكون معه أو تتمنى لو تقدر تشعر بالراحة فى وجوده.

<u>ď - المدة :</u>

حدد الأوقات : (٦ شهور أو أكثر)

<u>Đ - درجة الأعاقة :</u>

أ- اجتماعياً (مع الأصدقاء)

ب- مع العائلة

ج- فى المدرسة

د- قلق شديد /بكاء / نوبات غضب

هـ - الأجتناب

đ - الدليل على وجود مسبب (حدد)

رهاب الساحة والرهاب الخاص

سللا ƙƨť الرزااب اڵ٩ د

Č- المعانا ٧ :

- **رزااب ƫ lφ :**
  - هل حد ƫ فى أى وقت إنك كنت مرعوب من الزحام Ů إنك تكون وحيداً فى الخارللا فوق كوبرى Ů أو السفر فى أتوبيسŮ قطار أو سيارةþ
  - هل حد ƫ فى اى وقت إنك كنت خايف فعلاً من الكلاب Ů الخيـول Ů الحشـرات Ů المرتفعات Ů المصاعد Ů الأنفاق Ů الظلامþ (أسθل عن كل المواقف المذكورة)
  - هل كنت خايف من أى شئ ٱخرþ
- **رزااب الساθة :**
  - أيه اللى بيحصل لما بتكون فى مكان مزدحم Ů أو تخرللا وحيداً فى مكان عام þ
  - هل حد ƫ مرة أنك كنت خايف إنك تذهب الى السوق أو أى أ/اكن أخرى þ
  - أيه الى بيحصل لما بتكون على كوبرى أو مسافر فى سيارة Ů أŮ أتوبيس أو قطارþ
  - قد أيه ....بيخوفك þ هل معدتك بتتعبþ أŮ دقات قلبك تكون سريعةþ
  - قد أيه ....بتستمرþ
  - هل أنت بتخاف من .... أكثر من أصدقائكþ

Č- التللنب :

- هل حد ƫ فى أى وقت إن خوفك من ....منعك من إنك تعمل أى شئþ
- هل حاولت تتجنب............þ
- هل هناك أوقات قدرت تتغلب فيها على ....þ
- لو كان فى حد معاك هل تقدر تتغلب على ....þ

*** θدد ٱƙlر الرزااب ٩د٧**

*** θدد رزااب ٱφر**

اضطراب القلق العام / القلق المفرط

Č- ƽƪ ƺير θƨيى ٧ن المستƨƠü :

- هل حد ƫ فى أى وقت قلقت على الأشياء قبل حدوثها þ
- أنت بتقلق أكثر من الأطفال اللى فى نفس سنكþ ممكـن تعطينـى بعـض الأمثلـة ....
- هل فى أى حد قال إنك قلوق þ
- هل تعرف ليه قالوا كدهþ

č- ٩ اا وǌ للسدية :

- هل حد ƫ فى أى وقت كنت فيه مريض بشدة þ

- هل امتنعت كثيراً عن الذهاب الى المدرسة ممارسة الرياضة أو أى أنشطة أخـرى لأنك تشعر إنك لست بحالة طيبة ؟
- هل كان فى أى وقت عند ك أوجاع فى رجلك أو ظهرك وآلام كثيرة ؟
- هل حدث لك صداع أو آلام فى المعدة أو أوجاع فى رجلك أو فى ظهرك؟
- هل فى أنواع أخرى من المشاكل ؟ كل يوم ؟مرة كل فترة؟
- أمتى حصل لك .....؟ فى الصباح أ فى المساء؟ عطلات نهاية الأسبوع أ فى أيام الدراسة فقط؟

د- أعراض هلع / فزع :

- بعض الأطفال بينشغلوا بشدة برأى الناس فيهم؟هل أنت كده ؟
- هل كان فى أى وقت فكرت فى أيه اللى ها تقوله قبل ما تقوله ؟
- هل قلقت إن الناس تفتكر إنك غبى أو عملت أشياء مضحكة ؟

هـ- أعراض وساوس متوتر / عدم القدرة على الاسترخاء :

- هل كان فى وقت شعرت إنك مشدود او متوتر بشدة ؟ مثلاً : لا تستطيع الأسترخاء حتى وأنت متعب ؟
- هل بتكون عصبى بشدة لدرجة إنك لا تستطيع الجلوس ساكناً ؟
- هل غالباً ما تشعر إنك متحفز؟

اضطراب الوسواس القهرى

أ- أفكار وسواسية:

- هل حدث فى أى وقت إنك وجدت نفسك مضطر إنك تكرر مرات ومرات أشـياء أ تبـدو سخيفة ؟
- أو أشياء لا تستطيع مقاومة أعادتها مثلاً: تلمس الأشياء أ أو العد أ أو تغسل اليدين أ مرات كثيرة أ أو تأكد على الأقفال أو أشياء أخرى ؟
- هل كان فى أشياء تشعر دائماً إنك لازم تعملها بنفس الطريقة بالضبط أو بطريقة معينة؟
- هل حدث فى أى وقت كان عندك مشكلة فى إنك تخلص الواجب المدرسى لأنك مضطر تقرأ أجزاء من الواجب أكثر من مرة أو لأنكنت بتكتب وتعيد كتابة الواجب المنزلى أكثر من مرة تانية ؟
- هل حدث فى أى وقت كان عندك مشكلة فى أنك توصل للمدرسة فى الميعاد لأنكبتأخذ وقت طويل للاستعداد فى الصباح؟
- لو عملت غلطة فى الواجب المدرسى هل لازم تأكد على الأشياء مرات عديدة قبل ما تروح تنام؟
- هل لازم ترتب الأشياء فى حجرتك بطريقة معينة ؟
- هل حدث إن حد علق على العادات دى؟

ب- الوساوس:

- هل حدث فى أى وقت كنت متضايق من أفكار أ صور أو كلمات كانت بتيجى فى دماغك من غير سبب ومش قادر توقفها أو تتخلص منها؟

- هل حد ‡ فى أى وقت قلقت بشدة أ٣ يكون فى قذارة أو ميكروبات على يديكþ
- هل حد ‡ أن قلقت إنك ممكن تمرض من القذارة أوالميكروبات þ
- هل حد فى أى وقت قلقت عمل الأشياء مضبوطة أو ترتب الأشياء بطريقة زوجية أو طريـق معينة þ
- ماذا عن الأفكار إن فى حاجة سيئة ممكن تحصل٣ أو أنك عمات شئ فظيعþعلى الـرغم إنـك عارف إن ده مţ صحيþ٥
- هل فى أى أنواٝ اخرى من الأفكار بتيجى فى دماغك باستمرار þ
- ماذا عن الأفكار أو الكلمات أو الأرقام السخيفة اللى مţ عايزة تروθ من دماغكþ
- قد أيه بتفكر فيهمþ تفتكر إن همه مţ عايزين يروحوا زى الزغطة اللى بتتكرر كثيرþ
- هل بتزعجك هذه الأفكار þ
- هل يبدو كأنهم ليس لهم معنى þ
- هل تشوشر هذه الأفكار عليك أو تمنعك من عمل الأشياءþ

التبـــول اللاأرادى

č- تارار التٶون :

- أحياناً أطفال كثيرين يبللوا الفراţ ليلاً أثناء النوم هل حد ‡ لك فى أى وقت مثل هذاþ
- هل حد ‡ فى أى وقت لك ذلك أثناء النهار þ أيه اللى بيحصل لو ضحكت أو عطست فعلاً بشدةþ

أ- فى الليل:

- قد أيه بيحد ‡ ذلك بالليل
- حدد ------------------------------

ب- فى النهار :

- قد أيه بيحد ‡ هذا فى النهار
- حدد: --------------------

ﷲ- المجموٝ

- حدد معدل حدوثهما بالليل والنهار معاً
- حدد: --------------------

č- المعاناۃ

- أيه اللى بتعمله فى العادة ما بيحد ‡ لك هذاþ
- هل تخبر والدتك þمدرسكþبيعملوا أيهþ
- هل يعرف الأطفال بالمدرسة إنك فى بعض الأحيان يحد ‡ لك هذاþ
- قد أيه بتتضايق لما يحد ‡ لك هذاþ

درﷲة الٳٝاقة : (المنژڷ Û المدرسة Û الٲصدقاء)

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المدۃ : θدد :

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التبـــرز اللاأرادى

Č- تارار التRǴر :

- أحياناً أطفال كثيرين بيتبرزوا فى الفرا ţ ليلاً أثناء النوم هل حد ǂ لك فى أى وقت مثل هذاþ
- هل حد ǂ فى أى وقت أنك تبرزت على نفسك ودخلت الحمام وبنطلونك كانفيه براز أثناء النهار þ
- هل ده حصل لما خفت فعلاً أو عندما لا تستطيع أو اى حاجة منعتك من دخول الحمام وقت ما كنت محتااا þ
- أيه نوŸ المشاكل اللى حصلت þ رقم واحد ولا رقم اثنينþ

أ- فى الليل:

- قد أيه بيحد ǂ ذلك بالليل
- حدد -----------------------------

ب- فى النهار :

- قد أيه بيحد ǂ هذا فى النهار
- حدد: ---------------------

اا- المجموŸ

- حدد معدل حدوثهما بالليل والنهار معاً
- حدد: ----------------------

Č- المعاناŸ

- ماذاتفعل عادة عندما يحد ǂ لك هذا þ هل تخبر والدتكþمدرستكþ بيعملوا أيهþ
- هل الأطفال بالمدرسة بيعرفوا إنك فى بعض الأحيان يحد ǂ لك هذاþ

قد أيه بتتضايق عندما يحد ǂ لك هذاþ

درااة الاŸǓاة : (المنRü Û المدرسة Û الأصدbl5ا)

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المدŸ : θدد :

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فقدان الشهية العصبى

- هل تعتقد أنك بدين جداً þ
- هل كان فى أى وقت تمنيت إنك تكون أنحف þ
- هل كنت على أى نظام غذائى
- كان وزنك أد أيه þ
- كم أردت أن أن يكون وزنكþ
- إذا وصلت إلى هذا الوزن Û تفتفكر أيه إلإختلاف اللى حهيحصل فى حياتكþ

Č- الąوف من السمنة :

- هل حد ǂ فى أى وقت كنت خايف إنك تصبŨ بديناً þ

- هل أعتقدت إنك بدين þ
- هل فى أى وقت كنت فعلاً زائد فى الوزن þ
- هل تراقب ما أكلته وتفكر فى ما أكلته طول الوقتþ
- هل كنت خايف تأكل أطعمة معينة علشان كنت خايف إنك تتخن þ أيه الأطعمة دى þ
- قد أيه من الوقت بتقضيه فى التفكير فى الأكل والقلق من أن تصبƠ بديناًþ
- أذا رأيت إنك زدت كيلو أو أثنين هل تغير من عاداتك فى الأكلþ تصوم لمدة يوم أو تفعل شئ Ơخرþ

č- الǊǆƦü:

** الوزن مقابل لأقل من الوزن المثالى للطول.

الشره العصبى

Č- طرƽ ǈſǆł ţ الوƦن :

- هل حد I فى أى وقت إنك أستخدمت حبوب التخسيس لتحافظ على وزنكþ
- ماذا عن الملينات أو مدرات البول لتفقد وزنكþ
- هل بتخلى نفسك ترجع فى بعض الأحيان þ
- هل مارست الرياضة أكثر من المعتاد بالنسبة لك علشان تفقد وزنþقد أيه þكام ساعة فى اليومþ
- هل كان فى فترة على الأقل أسبوعاً أثنائها لم تكن تشرب شئ سوى السوائل عديمـة السعرات الحرارية (الشاى –صودا الرجيم –قهوة –ماء)þ

č-نوƓl I ǈǊمƛ اǓü:

- هل حد I فى أى وقت كان عندك نهم أو أى نوبات أكلþ
- أيه أكثر كمية أكلتها فى وقت واحدþ
- هل حد I فى اى وقت إنك أكلت كثير لدرجة إنكشعرت بالغثيانþ كم مرة حصل دهþ
- أيه اللى بيدفعك للنهمþ
- أيه اللى عادة لما تأكله يجيلك الرغبة فى النهمþ
- هل حد I فى أى وقت رجعت بعد نوبة النهمþ بماذا تشعر بعد النهمþ
- هل عادة ما تأكل بشراهة لوحدك أو مع الناس الƕخرينþ
- هل يعرف الƕخرون إن عندك نهمþ

اضطراب فرط الحركة ونقص الأنتباه

** ملاحظة: من عند ليزا ان .....مع الة أ

- هل كان مشكلة من الحضانة؟ السنة الأولى ؟ هل بدأت المشكلة قبل كده؟

ج- الصعوبة في استرداد الانتباه المستمر أو متابعة اللعب:

- هل حد لاحظ فى أى وقت عندك صعوبة فى الأنتباه فى المدرسة ؟
- هل أثر ذلك على الواجب المدرسى ؟
- هل وقعت فى مشاكل بسبب كده؟
- عندما كنت تعمل فى الواجب المدرسى بالمنزل، هل كان عقلك شارد؟
- أيه اللى بيحصل أثناء اللعب ؟
- هل نسيت لما جاء عليك الدور؟

د- سهولة التشتت :

- هل حد لاحظ فى أى وقت أن التشتت البسيط يخلي من الصعب على عقلك أن يستمر فيما تعمله ؟مثلاً إذا سأل طفل آخر فى المدرسة سؤال منا أثناء ما الفصل يعمل فى هدوء، هل كان من الصعب عليك يضل عقلك مركزاً فى عملك؟
- عندما يكون فى مقاطعة ، مثلاً عندما يرن جرس التليفون ، هل كان من الصعب إنك ترجع تانى لما كنت تعمله قبل المقاطعة؟
- هل كان فى أى وقت يستطيع عقلك الأستمرار فيما تفعل ، ولا تضايقك الأشياء أو الضوضاء البسيطة ؟
- قد أيه كانت المشكلة؟

هـ- صعوبة الانتظار للسؤال :

- هل حد لاحظ فى أى وقت إنك تقوم من مقعدك كثيراً فى المدرسة ؟
- هل وقعت فى المتاعب بسبب ذلك؟
- هل كان من الصعب البقاء فى مقعدك فى المدرسة ؟
- ماذا عن وقت العشاء؟

و- اندفاعية :

- هل بتتصرف باندفاعية من قبل ما تفكر أو هل تفكر قبل ما تتصرف؟
- هل حد لاحظ فى أى وقت إن التصرفات من النوع ده سببت لك المشاكل ؟ أعطى بعض الأمثلة.

إضطراب العناد الشارد

Č - ǆدان اŬYصاب :

- هل حد Ł فى أى وقت أتضايقت بسهولة أو فقدت أعصابك þ
- هل تحتاŪ إلى وقت علشان تغضبþ
- قد أيه ما تغب فعلاً أو تتضايق أو تفقد اعصابكþ
- إزاى بيكون شكلك لما تحصلك نوبة غضبþوبتعمل أيه þ

č - المŪادلة اŭيراً مŴ اĿار :

- هل حد Ł فى أى وقت إنك جادلت كثيراً مع الكبار þ والديك أو مدرسيكþ
- أيه هى الحاجات التى تجادلهم عليهاþهل تجادلهم كثيراً
- أيه أسوء حاجة حصلت من كدهþ
- هل دخلت فى مجادلات معهمþ

Ď - Yدم اتĿاŬ الŪواYد ƃارkĿر:

- هل حد Ł فى أى وقت إنك وقعت فى المتاعب فى البيت أو فى المدرسة لعدم اتباعك القواعدþ
- هل حد Ł فى أى وقت متاعب مع مدرسيك فى المدرسة þعلشان أيهþ
- هل يغضب منك والديك لعدم أشتراكك فى الأنشطة أو رفضك إتباY القواعد المنزلية þ
- قد أيه ما يحد Ł ذلك þ
- قد أيه ما تنجو من هذه الأشياء دون الوقوY فى مشاكل أو دون أن يتم ضبطك þ

إضطراب الجناح

Č - ĿŀþيƂ

- هل حد Ł فى أى وقت إنك كذبت على أصدقائك þ مدرستك þوالديكþ
- هل حد Ł فى أى وقت أطلق عليك الناس إنك كذاب þ ليهþ
- احكى لى عن الأكاذيب اللى قلتها Ūأيه أسوء كذبة قلتها فى حياتكþ
- هل تكذب لتجعل الǓخرين يقومون بعمل أشياء لكþ
- هل تكذب علشان تهرب من رد فلوسŪ أو من رد معروف للناسþ
- هل حد Ł فى أى وقت حد أطلق عليك إنك نصاب þ
- هل حد Ł فى أى حد أشتكى إنك بتخاف وعودك كثيراً þ قد أيه كذبتþ

č - اŴŪروب من المدرسة

- هل حد Ł فى أى وقت إنك لعبت فيه الكرة وضيعت يوم كامل من الدراسة þ أين ذهبت þ
- هل حد Ł فى أى وقت إنكذهبت إلى المدرسة وتركتها بدرى عندما كن من المفترض ألا تفعل ذلكþ
- ماذا عن الذهاب إلى المدرسة متأخراً þ
- هل حد Ł فى أى وقت يفوتك بعض الحصƒ فى الصباƟ þ قد أيهþ

Ď- bdǴ مƪ اlllاl l للسدية :

- هل حد ŀ فى أى وقت إنك دخلت فى خناقات بالأيدى þ
- مين عادة يبدأ الخناقةþ
- ما أسوأ خناقة دخلت فيهاþ هل فى حد أتأذى þ
- من عادةً اللى تتخانق معاهþ
- هل حد ŀ أنك ضربت مدرسþأحد أبويكþحد تانى كبيرþ قد أيه بتتخانقþ
- هل حد ŀ أنك حاولت أو أردت أنك تقتل شخ ƭ ماþ
- هل أنت أو أحد من أصحابك عضو فى عصابة (الأسد المرعب.........)þ

ď- lllطاǴ Ûالة ǸǷ اديدا l l Û ƈرزااب lلǾqرين :

- هل حد ŀ فى أى وقت عندما تسب فعلاً أى طفل فى نرفزتكþ
- هل حد ŀ فى أى وقت أن تفعل أشياء لتنتقم منهم þ مثل ماذاþ
- هل بتطلق عليهم أسماء þتهدد بضربهم þتدفعهمþتبعدهمþتوقع كتبهم من أيديهمþتأتى من ورائهم وتصفعه باليد على وجوهمþ
- قد أيه ما تفعل هذه الأشياء þ

Đ- سرƸة Ʒير ƳدوانƳية:

- فى السنة الماضية Ü هل سرقت أى حاجةþ
- أيه أغلى شئ سرقتهþ
- ما هى الحاجات الأخرى اللى سرقتهاþ من مين þمن þ أى محلات þ
- هل سرقت لعبة من محلþ
- هل سرقت فلوس من والدتكþأى شئ أخرþ قد أيه بتسرق أشياءþ

اضطرا ب اللوازم

Č- لواƦم Ɵرايةƈ :

- هل حد ŀ فى أى وقت أنك لاحظت إن عضلاتك بتتحرك بطريقة لم تكن تريدها أو لا تتوقعهاþ مثلاً ترفع حواجبكþ(وضƠ له) Ü تبربƫ بعينك كثر (وضƠ له) Üتكرمƫ مناخيرك Ü ترفع كتفيك (وضƠ له) أو تحرك رأسك هكذا (وضƠ له) þ
- هل حد ŀ أنك بربشت كثير أو جامد ولم تستطع أن توقفهاþ حوالى قد أيه حصل كدهþ

č- لواƦم صوتية

- هل حد ŀ فى أى وقت إنك عملت أصوات مزعجة لم تكن تريدها أن تعملها Ü أو كررت أصوات أو كلمات لم تكن تريد أن تقولهاþمثل الأستنشاق (الشن) Ü الكحة Ü أو تتنحƠ وأنت معندكƫ برد þ تعمل أصوات حيوانات أو حتى تكرر الأشياء اللى قولتها إنت أو الناس الآخرينþ

استخدام السجاير / التبغ:

١ - الأستخدام :

أ- حد أنه دخن ب- حد أنه مضغ التبغ

٢- كمية السجائر المستخدمة :

أ- الأستخدام الحالى (عدد السجائر / اليوم) ب- أكبر كمية استخدمتها (عدد السجائر / اليوم)

٣- السن ----------

- السن عند بدء التدخين بانتظام (سيجارة أو أكثر فى اليوم)

٤- حد أنه يحاول يمتنع

٥- حد انه امتنع

٦- اذا أجاب بنعم لآ سجل أطول مدة من الشهور

سوء أستخدام الكحول

** هالة :

١- عمرك كان أد أيه لما شربت خمر أول مرة ؟

٢- ما هى الحاجة المفضلة لك فى الشرب ؟

٣- هل لديك مجموعه من الأصدقاء عادة ما تشرب معهم ؟ أو عادة ما تشرب وحدك؟

٤- أين تشرب عادة ؟ فى البيت؟فى الحفلات ؟فى منزل صديق ؟ فى الشارع؟فى البارات؟

٥- هل فى أوقات معينة تشرب فيها أكثر من غيرها؟ حفلات مدرسية؟أى حفلات أخرى؟

٦- كان عمرك أد أيه لما بدأت تشرب بأنتظام؟ قول كأسين أو أكثر فى الأسبوع؟فى الستة شهور الماضية؟

٧- هل حد أن كان فى على الأقل أسبوع واحد شربت فيه كأسين على الأقل ؟

١ - الأستخدام :

أ- السن – عند بداية الأستخدام المنتظم ب- تكرر شرب كأسين فى أسبوع ٤ مرات أو أكثر

٢- الكمية :

- أيه أكبر كمية شربتها فى يوم واحد فى حياتك؟
- متى كان ذلك ؟ماذا عن الستة شهور الماضية ؟
- أيه أكبر كمية شربتها فى اليوم؟

٣- المعدل:

- أيه أكثر عدد الأيام فى السبوع التى شربت فيها شئ؟
- هل عادة ما تشرب فى ليلة الخميس والجمعه؟
- هل فى وسط الأسبوع أيضاً؟

١- الأهتمام من الآخرين بسبب الشرب:

-هل حد أن حد أشتكى من شربك ؟الأصدقاء؟والديك؟المدرسين ؟ هل حد أن إنك قلقت بسببها مطلقاً؟

استخدام المواد

Č- استخدام العقاقير

- خليني أعرف إذا كنت قبل كده أحد العقاقير الموجودة فى القائمة حتى لو كنت جربتها مرة واحدة Þ
- أيه الحاجات اللى استخدمتها Þ

أ- حشيشة (ماريولنا- بانجو- جوانات)
ب- المنشطات (سبيد –أمفيتامين- حبوب التخسيس- ماكستون فورت- ريتالين- أيس)
ﻟﻟ- المهدئات ﻟ المنومات ﻟ مضادات القلق (زانكس ﻟ فاليوم ﻟاليبرم ﻟ كوميتال ﻟ أتيفان ﻟ أبو ذمبة(ريفوتريل ﻟ أبو صليبة)
د- كوكايين (حقن وريد – كراك – سبيبول- ينورتنل)
ه- أفيون (هيريون- مورفين – كودايين – كودافيين)
و- عقاقير هلوسة : (أسيد (إل سى دى – طوابع –بذور -)
ز- المواد المستنشقة : الغراء – الكلة – الصمغ- التنر- بنزين)
Θ – مواد أخرى (أدوية موصوفة من الطبيب)
حدد :----------

سوء استخدام العقاقير

١- معدل الأستخدام : فى الستة شهور الماضية ﻟ أيه أكثر حاجة أستخدمتها----------Þ
كل يوم أو تقريباً كل يوم لمدة أسبوع على الأقل Þ أو أكثر Þ هل كان فى وقت عندما أستخدمتها أكثر.....Þ

أ- حشيشة
ب- منشطات
ﻟﻟ – المهدئات / مضادات القلق
د- كوكايين
ه- أفيون
و- عقاقير هلوسة
ز- المواد المستنشقة
Θ- مواد أخرى
ط- أكثر من عقار

إضطراب كرب ما بعد الصدمة

Č- الθوادʞ الصادمة :

***ﻣﻼ** : سوف ﻧﺴﺄﻟﻚ ﻋﻦ ﺑﻌﺾ ﺍﻷﺣﺪﺍﺙ التى قد ما ﺗﻜﻮﻥ ﺣﺪﺛﺖ ﻟﻚ ﻭﺍﻟﺘﻰ ﻳﻤﻜﻦ ﺃﻥ ﺗﻜﻮﻥ ﺳﻴﺌﺔ ﺃﻭ ﻣﻀﺎﻳﻘﺔ ﻟﻚ ، ﻭﺃﺭﻳﺪ ﻣﻨﻚ ﺃﻥ ﺗﺨﺒﺮﻧﻰ ﻟﻮ ﻛﺎﻥ ﺃﻯ ﻣﻦ ﻫﺬﻩ ﺍﻷﺣﺪﺍﺙ ﻗﺪ ﺣﺪﺙ ﻟﻚ ، ﺣﺘﻰ ﻟﻮ ﺣﺪﺙ ﺫﻟﻚ ﻣﺮﺓ ﻭﺍﺣﺪﺓ ﻓﻘﻂ*

أ-حادʈ سيارة :

- هل حدʈ لك فى أى وقت حادʈ سيارة سئþ ماذا حدʈ þ هل أصبت þ هل أصيب أحد تانى بالسيارةþ

ب- حوادʈ أخرى :

- هل حدʈ لك فى أى وقت أى نوﻉ آخر من الحوادʈ السيئة þ
- ماذا عن حادʈ موتوسيكلþ حوادʈ أخرى þ ماذا حدʈþ هل أصبت þ

ﺝ- الحريق :

- هل حدʈ لك فى أى وقت حريق خطيرþ
- هل حدʈ فى أى وقت حريق فى منزلك أو فى المدرسةþ
- هل حدʈ فى أى وقت إنك أشعلت نار ولم تستطع السيطرة عليها þ
- ماذا حدʈ هل أصيب أحد þهل حدʈ خسائر كبيرةþ

د - مشاهدة كارثة :

- هل حدʈ فى أى وقت إنك فعلاً تعرضت لعاصفة شديدة مثل إعصار أو زوبعة عنيفة þ
- هل حدʈ لك فى أى وقت إنك حوصرت فى فيضان والمياه كانت عميقة لدرجة عدم القدرة على العومþ

هـ - مشاهدة جريمة عنيفة

- هل حدʈ فى أى وقت إنك شوفت حد بيسرق حد بالاكراه أو بيطلق النار عليه þ يسرق من محلþ أخذ أحد رهينةþ ماذا حدʈþ أين كنت عندما حدʈ ذلكþ هل أصيب أحد þ

و- ضحية لجريمة عنيفة :

- هل حدʈ إن أعتدى عليك أو هاجمك أحد بأى طريقة þ ماذا حدʈ þ هل أصبتþ

ز- سماﻉ أخبار صادمة :

- هل حدʈ فى أى وقت إنك سمعت بعذ الأخبار السيئة فعلاً والتى لم تكن تتوقعها þ مثلاً أن شخʃ تحبه توفى حالاً أو مرض ولن يتحسن أبداًþ

θ – مشاهدة العنف لمنزلى :

بعض الأباء يحدʈ بينهم مشاجرات فظيعة Ù مثلاً يسبون بعضهم يرموا بعض الأشياء Ù يهددوا بعض بعمل أشياء سيئة أو فى بعض الأحيان فعلاً يؤذون بعضهم البعض:

- هل حدʈ فى أى وقت إن والديك دخوا فى مشاجرة فعلاً سيئةþ
- أحكى لى عن أسوأ خناقة تتذكرها حدثتت بين والديك þ ماذا حدʈ þ

ط- العنف البدنى :

- هل يضربك والديك إذا غضبوا منك þ
- هل حدʈ فى أى وقت أنك إنضربت لدرجة كان عنك كدمات أو علامات فى جسمكþأو أصيبت بطريقة ماþ
- ماذا حدʈ þ

ى – الأعتداء الجنسى :
- هل حد ا فى اى وقت حد لمس أعضائك الحساسة وقت ما كان أنه من المفروض ميعملا ش كده ؟ ماذا حد ا ؟
هل حد ا فى أى وقت إن فيه حد لم يكن من المفترض أن يجعلك تخلع ملابسك ؟ لمس بين ساقيك ؟ أجبرك على النوم معاه / معاها فى السرير وجعلك تلعب فى أعضائه الحساسة؟
ك- مشاكل أخرى :
- هل فى حاجة ثانية حدثت لك كانت فعلاً سيئة ؟ أو أى شئ ش خر رأيته وكان فعلاً مخيف؟ وتريد أن تحكى لى عنه؟

إضطراب كرب ما بعد الصدمة (تكملة)

تستا ا اف الYرا ش :

Č- ش ار وصور متارر ا Y ن الKدا:

- هل حد ا فى أى وقت إنك فضلت تشوف----------كل شوية؟ قد أيه يحد ا ذلك ؟
- هل اللى حصل ده بيفضل ييجى فى عقلك ؟ هل تفكر فيه كثيراً ؟

č- مداولا ا لتلالنب الش ار والما Yر المصاش ة للصدمة :

- أيه هى الحاجات اللى بتعملها علشان تبعد التفكير فى ---------- ؟ علشان التخل ش من الأفكار السيئة ؟ بعض الأطفال يقرأون ؟ يشغلون أنفسهم ؟ أو يناموا .
- هل حد ا فى أى وقت إنك عملت أحد هذه الأشياء أو أشياء أخرى لكى تبعد عن هذه الأفكار أو المشاعر السيئة ؟

Ď- الاواش يد ش :

- هل حد ا فى أى وقت أن كان عندك كوابيس كثيرة ؟
- هل حد ا فى أى وقت أنك حلمت بها---؟قد أيه ؟
- كنت بتشعر بأيه لما تصحى من أحد كوابيسك ؟

d- الآر ش :

- بعد حدو ا ----------؟ هل كان عندك مشاكل فى إنك تبتدى تنام أو تفضل نايم ؟
- قد أيه بتأخد وقت علشان تبتدى تنام ؟
- هل بتصحى فى ن ش الليل ؟

Đ- التوتر ؟ و نوبا ا من الش ب :

- بعد حدو ا ---------- ؟ هل شعرت إنك مهموم أو منكد كثراً
- هل كان عندك كثراً من نوبات الغضب؟

اضطراب ما بعد الصدمة : أسئلة إضافية

Č- لعب متارر متعلا ش ا Kدا / Yادا الفعلا

- إذا لعبت هل أحياناً ما تمثل ب-----؟
- إذا لعبت بعروسة هل أحياناً ما عملت----------؟ كم مرة عملت كده فى عروستك؟-----؟

č - نوĜا ا ĭنĉ ĺاتية –ĸدĽا ا -ĳاللاوو Ƨ

أ- نوبات أنشقاقية:

- هل يقول عنك الناس إنك بتسرϴ كثيرþ مع ţ معهم þ هل تفقد إحساسك بالوقت كثيراً þ
- هل مر عليك وقت وأنت م ţ مركز أيه اللى عملته أثناء هذا الوقت þ

ب – خداعات

- هل حد ŀ فى أى وقت شعرت إن --------كأنه بيحصل تانى þ كنت فين لما ده حصلك þ
- هل المشاعر كانت قوية لدرجة أنه كان من اصعب عليك تقول أنه حصل تانى ولا لأ þ
- هل حد ŀ فى أى وقت أنك شوفت أو سمعت أشياء تعرف أنها لم تكن موجودة فعلاً وفكرت بما حد ŀ þ شوفت أيه þ

Ш – هلاووس

- منذ حدو ŀ ---------- هل حد ŀ فى أى وقت أى تجارب شوفت فيها حاجات لم يستطع النـاس الآخرون رďيتها أو سمعت أشياء لم يستطع الآخرون سماعهاþسمعت أو رأيت أيه þ
- هل شوفت أى عفاريت þ هل سمعت (المعتدى) يتحد ŀ أليك þ شعرت أن (المعتدى) يلمسكþ

Ď - معاناƔ ا ƝƜƛر ا Ĝالتعر f اĕ لى مƊرا ا ĭة ا ĜĹ ĉو ترم Ʀ اĕ لى اĸدϴK:

- هل حد ŀ فى أى وقت أنك تألمت فيه عندما كنت فى مكان ما ذكرك بما حد ŀ þ
- هل حد ŀ فى بعض الأحيان شوفت ناس فى الشارƔ فكـروك بـ----------þعنـدما شـوفت شخ f ما فكرك بـ------ هل بيخليك تشعر كأنه بيحصل تانى þ
- هل فى أشياء أخرى بتخليك تشعر زى ما يكون بيحصل تانى þ أيام معينة أو أوقات فى اليوم بتفكرك بـ------- وتخليك تشعر زى ما يكون بيحصل تانىþ

ď - مϴاولا ا لتللنب الĭ ƛطة ĉو المواčف التى تعيد ƥةا ر اĸدϴK :

- أنت قولت قبل كده إن ------- فى بعض الأحيان بيفكرك بما حد ŀ þ
- هل حاولت تجنب -------þ

Đ-Ɣدم القدرƔ ƛ لى ƥةا ر ƙلمƜلƥ ĳ زاما من الصدمة:

- هل تذكر كل شئ حصلك أو هل يبدو كأن بعض أجزاء نسيتها þ
- هل فيه بعض أجزاء أو تفاصيل م ţ قادر تفتكرهاþ

đ - ƙn ţ اĭ ĳ ĉزالتمامƛ ĭ ĕ ĉƛطة :

- منذ حدو ŀ ----------- هل شعرت كثيراً بالزهقþ
- هل الأشياء لمتعد مسلية زى الأول þ

Ē-مĭ ĹƔ ر الانفصال ĉو الاستƐراب :

- هل من الصعب عليك أنك تثق فى الناس الآخرين þ
- هل تشعر بالوحدة أكثر من الأول þ مثلاً حالياً لا تحب أن تكون مع الناس اللى كنت بتحب تكون معاهمن من قبل كده þ هل تشعر بالوحدة حتى لما بتكون مع ناس ĉخرين þ

ē - وللادان مثيد :

- هل فى بعض الأحيان تشعر أنك مثل الأنسان الآلى þ
- هل من الصعب عليك إنك تقول أنك حاسس بأيه þ
- عندما يحدث شئ محزن þ هل تشعر بالحزن þ
- عندما يحدث شئ كويس هل تشعر بالسعادة þ سعيد زى الأول ولا أقلþ

Ĕ - اليأس من المستقبل :

- تعتقد أن الأمور هاتبقى أزاى بالنسبة لك لما تكبرþ
- هل تفتكر أنك هاتكبر þ
- هل من الصعب عليك أنك تتخيل أنك هاتكبر فى العمرþ

Čċ - صعوبة التركيز :

- هل عندك مشكلة فى أنك تركز فيما تفعله þ
- هل من الصعب عليك أن تعمل الواجب المنزلى أو تقرأ منذ حدوث --------þ

ČČ - اليقظة الزائدة :

- منذ حدوث ------------ هل أنت أكثر حرصاً þ
- هل تشعر أنك دائماً ما تراقب ما يحدث من حولك þ
- هل تتأكد على الأبواب أو الشبابيك أكثر من مرة لتتأكد أنهم مقفولين þ

Čč - المبالغة فى استجابة الفزع :

- منذ حدوث ----------- هل أنت بتتفزع أكثر þ
- هل الدوشة البيسطة بترعبكþ

ČĐ - رد الفعل الفسيولوجى عند التعرض لأحداث التى ترمز إلى الحدث الصادم :

- عندما تكون فى مكان بيفكرك بال--------بتحس بأيه þ
- هل بيدق قلبك جامد قوى أو تشعر أنك هاترجع þ

Čď - درجة الإعاقة : (المنزل – المدرسة – الأصدقاء)

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ČĐ - المدة : (بالأسابيع) حدد :

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ملحق الأكتئاب

Č- درجة رد الفعل المزاج المكتئب أو المتوتر للأحداث الإيجابية :

- لو فى حد حاول يبسطك – هل فى أى شئ كويس حصلك منذ بدأت تشعر بـ------ þ
- لو نعم – كان أيه þ لو لأ – هل أنت متأكد þ فى حاجة تانية كويسة شويةþ
- هل هذا الشئ الكويس بيخليك تشعر أنك أحسن þ لو نعم – قد أيه بتشعر أنك كويس þ
- هل شعرت بالسعادةþ هل فى حاجة ضحكتكþ
- عندما كنت فى أسوأ حالاتك – هل حدث فى أى وقت إن الشعور ده أختفى þ
- عندما تشغل دماغك فى أشياء أخرى أو إذا حدث شئ كويس – هل أختفى هذا الشعور فى أى وقت þ هل أختفى كله þ
- أيه اللى بيخليه يختفى þ(مثلاً عندما كنت تلعب مع الأطفال الآخرين)

- قد أيه أستمر الشعور الكويس ÞÞ دقائق ÞÞ ساعات طول اليومÞ
- هل تشعر بالضيق مهما حصلÞ

ج- نوعية السر المختلفة عن الأسى :

- هل هذا الشعور مختلف عن ما شعرت به عندما عزل صديقك أو عندما سافر والديك خارجالمدينة لفترةÞ
- هل هذا مثل أفتقاد شخ ما أو هو شعور بالوحدة ÞÞ قد أيه مختلفÞ
- هل فى أى حد قريب منك ماتÞحيوان أليفÞ
- هل الشعور اللى عندك دلوقتى (إنك حزين أو مهموم) مختلف عن ماشعرت به بعد وفاة ----Þ--

د- التغير اليومى للمزاج :

- هل تشعر بـ------ أكثر فى الصباح لما بتصحى من النوم أو فى الظهر أو فى المساء ÞÞ أسوأ أكثر أو أقل سوءÞ قد أيهÞ
- هل هذا يحدث حتى لما بترجع إلى البيت من المدرسة أو بعد العشاء ÞÞ متى تبدأ تشعر إنك أحسن ÞÞ قد أيه أسوأÞ
عندما تشعر بالضيق ÞÞ هل هو شعور مختلف أو مجرد نفس الشعور بيزيدÞ

هـ- اضطرابات النوم:

أ- أرق أول الليل

- هل عندك مشكلة فى النوم ÞÞ قد أيه بتأخذ من الوقت علشان تبدأ تنامÞ

ب – أرق منتصف الليل :

- هل بتصحى من نص الليل ÞÞ كام مرةÞ
- قد أيه بتأخذ من الوقت علشان ترجع تنام تانىÞ

ج- أرق آخر الليل

- عندما تشعر بالحزن ÞÞ بتصحى الساعة كام فى الصباحÞ
- هل بتصحى بدرى عن اللى أتعودت عليهÞ

د- إنعكاس الأيقاع اليومى

- عندما تشعر بالهم ÞÞ هل تنام فى مواعيد مختلفة عن المعتاد Þ
- مثلاً هل فى بعض الأحيان تفضل صاحى لمتأخر لحد الرابعة صباحاً ثم تنام فى اليوم التالى لحد بعد الظهرÞ

هـ - نوم غير منشط:

- هل بتشعر إنك أرتحت بعد ما تصحى Þ

و- فرط النوم :

- هل بتنام أكثر من المعتاد Þ
- هل بتروح تنام بعد ما تصحى فى الصباحÞ
- أمتى بدأت تنام أكثر من المعتاد Þ
- هل كنت متعود أنك تأخذ غفوة من قبل Þ أمتى بدأت تغفل
- كم عدد الساعات اللى كنت متعود تنامها قبل ما بدأت تشعر بالحزن Þ

ز- الأجهاد – فقد الحيوية ÞÞ التعب:

- هل شعرت إنك مجهد ؟ قد أيه؟
- هل شعرت بالأجهاد طول الوقت ؟ معظم الوقت ؟بعض الوقت ؟ من حين لآخر ؟
- امتى بدأت تشعر بالتعب؟
- هل كان بعد ما بدأت تشعر بال--------؟
- هل تغفل لأنك مجهد ؟ قد أيه ؟
- هل لازم ترتاح ؟
- هل حاسس إن رجليك ثقيلة؟
- من الصعب أنك تقوم تخرلل؟
- هل من الصعب أنك تحرك رجليك ؟
- هل تشعر بهذا طول الوقت؟

د- الاضطرابات المعرفية :

أ- التركيز ؟ عدم الأنتباه ؟ التفكير البطئ:

- هل تعرف معنى أنك تركز ؟
- الأطفال فى بعض الأحيان يكون عندهم مشاكل كثيرة فى التركيز ؟ مثلاً هـ م لازم يقـرأوا صفحة من كتاب ولا يستطيعون التركيز فيها علشان كده بياخدو وقت أطول علشان يقرأها أو أو لهذا لا يستطيعون قراءاتها أو لا يستطيعون الأنتباه ؟
- هل عندك النوع ده من المشاكل ؟ أبتدت أمتى ؟
- هل أصبح تفكيرك بطئ؟ لو ضغت عل نفسك جامد هل تستتطيع التركيز؟
- هل بتأخذ وقت أطول علشان تعمل واجبك المنزلى؟
- عندما تحاول التركيز فى شئ ما هل يشت عقلك إلى أفكار أخرى ؟
- هل تستطيع الأنتباه فى المدرسة ؟ هل تستطيع الأنتباه عندما تريد أن تعمل شئ تحبه ؟
- هل بتنسى أكثر من الأول ؟ أيه الحاجات اللى بتقدر تنتبه إليها؟
- هل ده لأنك تقدر تركز ؟ أو لأنك غير مهتم أو لا تبالى؟
- هل كان عندك النوع ده من المشاكل من قبل ؟ متى بدأت؟

ب- التردد فى إتخاذ القرار:

- عندما شعرت بالحزن ؟ هل كان من الصعب عليك أتخاذ القرارت ؟ مثلاً تلاقى الوقت مر قبل ما تأخذ القرار اللى انت عايزه ؟

هـ- الحالة المزاجية / الوجدان :

أ- نقص الشهية :

- ماذا عن شهيتك ؟ هل تشعر بالجوع غالباً؟
- هل تأكل أكثر أو أقل من الأول ؟
- هل لا تكمل طبقك ؟
- أمتى بدأت تفقد شهيتك ؟
- هل فى بعض الأحيان تجبر نفسك علشان تأكل؟
- أمتى آخر مرة شعرت فيها بالجوع ؟
- هل تتبع نظام تخسيس؟
- أيه نوع نظام التخسيس؟

ب- فقدان الوزن :
- هل فقدت أى وزن منذ أن بدأت تشعر بالحزن þ عرفت أزاىþ
- هل وجدت ملابسك أوسع الأن þ
- أمتى آخر مرة أتوزنت فيها þ
- كان وزنك قد أيه وقتهاþ
- ماذا عن وزنك الآن þ(إوزنه)þ

جـ- زيادة الشهية :
- هل بتأكل أكثر من الأول þمن أمتى þ
- هل تشعر كإنك جوعان طول الوقت þ
- هل تشعر بذلك كل يوم þ
- هل تأكل أقل مما تريد أن تأكله þ ليهþ
- هل عندك لهفة للحلويات þ
- أيه اللى بتأكل منه كثيرþ

د – زيادة الوزن :
- هل زدت فى الوزن منذ أن بدأت تشعر بالحزن þ
- عرفت أزاى þ
- هل أضطريت تشترى ملابس جديدة علشان ملابسك القديمة لم تعد تناسبك þ
- وزنك الأخير كان قد أيه þ
- أمتى آخر مرة أتوزنت فيها þ

ē-Ţǎ الاضطرابات النفسحركية :

أ- توتر حركى :
- منذ أن شعرت بالحزن ، هل كان فى أوقات لا تستطيع الجلوس ساكناً أو كنت لازم تفضل تتحرك þ ولا تستطيع أن تتوقفþ
- هل بتفضل تطلع تنزل þ
- هل تشبك أيديك þ(وضح)þ
- هل بتشد أو بتحك ملابسك ، شعرك أو جلدك أو أى أشياء أخرى þ
- هل يطلب منك الناس ألا تتكلم كثيراً þ
- هل عملت كده قبل ما بدأت تشعر بالحزنþ
- عندما عملت هذه الأشياء، هل كنت تشعر بالحزن أو تشعر إنك مبسوط أو عظيمþ
- لو كان فى حد صورك فيديو وانت بتأكل فطورك وتكلم والدتك وأخذ هذه الأفلام قبل ما تشعر بالكآبة ومرة تانية وأنت تشعر بالكآبة ، هل أقدر أشوف الفرق þهل هايكون أيه الفرق þ هاتشوف أيه þ

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- أطول قليلاً þ أطول أكثر þ
- لو أنا شوفت شريط فيديو أو سمعت شريط تسجيل لطفلك فى المنزل وهو /هـى كـان مكتئب وواحد آخر وهو/هى غير مكتئب . هل تستطيع أن أقول الفرقþ لو نعم ، أيه الفرق اللى أنا هاشوفه أو أسمعه مختلفþ

ب- بطئ النشاط النفسحركى :

- منذ أن بدأت تشعر بالحزن ؟ هل لاحظت إنك تستطيع الحركة بسرعة زى الأول ؟
- هل كنت بتجد صعوبة لتبدأ الكلام ؟
- هل حديثك أصبO بطيئاً ؟
- هل بتتكلم أقل من الأول بكثير؟
- منذ أن بدأت تشعر بالحزن ؟ هل شعرت كأنك ماشى بالحركة البطيئة ؟
- هل لاحظ الآخرون ذلك؟
- لو أنا حد ما صورك فيديو وأنت بتأكل الفطار أو بتكلم والدتك وأخذ هذه الأفلام قبل ما تشـعر بالكآبة ومرة أخرى وأنا مكتئب ؟ هل أستطيع أنا أن أشوف الأختلاف ؟
- هايكون أيه؟هأشوف أيه؟هاأسمع أيه ؟
- ** مجس: هل بتأخذ وقت أطول قبل ولا بعد ما شعرت بالاكتئاب ؟أطول قليلاً ؟أطول كثيراً؟
- لو رأيت شريط فيديو أو سمعت شريط تسجيل لطفلك فى المنزل وهو/هى مكتئب وئخر عندما كان غير مكتئب هل أستطيع أن أقول الفرق ؟ لو نعم ؟ أيه اللى أنا هأشوفه أو أسمعه مختلف؟

Ě- ةدراp ا!?ا :

أ- إنعدام القيمة ؟ صورة الذات السلبية :

- بتشعر بأيه تجاه نفسك ؟
- هل بتحب نفسك ؟ ليه ؟أو ليه لأ؟
- هل حد ا فى أى وقت إنك أفتكرت نفسك جميل أو وحـ ؟
- هل تفتكر إنك زكى ولا غبى؟

هل بتحب شخصيتك ؟ ولا كنت تتمنى أنها تكون مختلفة؟

قد أيه بتشعر بهذا تجاه نفسك؟

ب – شعور بالذنب زائد أو غير مناسب :

- عندما يقول الناس أو يفعلوا أشياء حسنة عادة ما يشعرون أنهم سعداء وعندما يقولوا أو يفعلوا أشياء سيئة يشعرون بالضيق بسببها . هل تشعر بالضيق عن أى شئ عملته؟أيه هو؟ قد أيه بتفكر فيه ؟ أمتى عملت كده ؟معناه أيه أنى أقول أنى أشعر بالذنب علشان حاجة ؟ قد أيه مـن الوقـت تشعر بذلك؟
- معظم الوقت ؟ كثيراً من الوقت ؟ قليلاً من الوقت ؟ ابداً ؟
- ما هى الأشياء التى تشعر بالذنب تجاها ؟
- هل تشعر بالذنب من أشياء لم تفعلها ؟أو فعلاً ماكنت ؟ غاطئك ؟
- هل تشعر بالذنب من أشياء عملها والديك أو الآخرين؟
- هل تشعر إنك السبب فى حدو ا أشياء سيئة؟
- تفتكر إنك لازم تتعاقب بسبب ذلك؟
- أيه نوY العقاب اللى بتشعر إنك تستهله ؟
- هل تحب إنك تتعاقب ؟
- إزاى يعاقبك والديك عادة؟ تفتكر ده كفاية؟

- لمعظم الأطفال أنه من المفضل أن تعطيهم مثال عيانى مثلا: سوف أحكى لك عـن ٣ أطفـال وأخبرنى أيهم زيك .
- الطفل الأول بيعمل حاجة غلط ويشعر بالضيق تجاهه فيعتذر للشخ f اللى قبل اعتذاراه ونسى الموضوٍY ده بعدها.
- الطفل الثانى زى الأول ولكن رغم ان إلاعتذار أتقبل مقدرشى ينسى اللى عمله وفضل متضايق بعدها لأسبوY أو أثنين .
- الطفل الثالۡ ɫ معملۡ ʈ غلط يستاهل ورغم كده يشعر بالذنب لكل الحاجات اللى ماكانتۡ ʈ غلطته : أنت مين فى الثلاثةÞ

Čč- ﯕدان الǙمنٌ Ǘ الǚعور ǜالعلƦ Ǘ ٢دم التǚلايǙ Ǘ التǚ۱ǚم:

- تفتكر أيه اللى هيحصلك Þ تفتكر إنك هتتحسن Þ أى تحسنÞ
- تفتكر إن فى حد يقدر يساعدك Þ مينÞ إزاى Þ
- عايز تعمل أيه أو تبقى لما تكبر Þ
- هل حد ɫ فى اى وقت شعرت فيه إن نهاية العالم قربتÞ
- هل تشعر إنك هاتستمر تعانى لǚبد Þ
- قد أيه تشعر بهذا Þ
- هل أنت متأكد إن مفيۡ ʈ أمل بالنسبة لك Þ عرفت أزاى Þ هل ممكن يكون فيه أمل قليـل بالنسبة لكÞ

ČČ- ƟساسيةǙ الǚعاد :

- هل تشعر بالضيق عندما يقول صاحبك أنه / هيتصل ولا يفعلÞ
- قد أيه تشعر بالحزن لذلكÞ
- إذا أتخانقت أنت ووالدتك وأفتكرت أنها غاضبة منكǙ هل فعلاً تشـعر أن معنوياتـك فـى الحضيضÞ
- قد أيه يستمر هذا الشعور Þ قد أيه بيكون ده سئÞ
- هل فى أوقات يتجاهلك أصدقائك أو شخ f ما من العائلة ولا يسألوا فيك Þ أيه اللى حصل Þ
- هل سببت لك ضيقÞ

معايير ǚǚرƞǈ :

١- دليل وجود مسبب (حدد)
٢- أعراض تحد ɫ أو تسوء مع الدورة الشهرية : (للبنات البالغات)

– هل لاحظت أى علاقة بين الدورة الشهرية ومزاجكÞ
– هل بتكونى فعلاً مكتئبة كل شهر قبل أو بعد الدورةÞ

٣- الǚYǙة :

أ- أجتماعياً (مع الأصدقاء)
ب- مع العائلة
ت- فى المدرسة

ملحق أسئلة الهوس

Č- العلامة Û ٍعور ة]م الhا :

- منذ أن بدأت تشعر إنك سعيد وفعلاً كويس ، هل شعرت إنك واثق من بنفسك أكثـر من المعتاد ؟
- هل تعتقد أنك عندك أى مواهب خاصة؟
- هل شعرت أنك أحسن من الآخرين ؟
- هل شعرت إنك أذكى ؟
- هل شعرت أنك أقوى ؟ ليه؟
- هل كسبت أى جوائز أو تكريم لل-------- ؟
- هل شعرت إنك فعلاً شخص مهم؟

č- ديK مـ]ؤط:

- منذ أن بدأت تشعر بـ------------- ، هل فى أوقات تتحدث فيها بسرعة جداً أو بتتكلم على طول ولا تستطيع أن تتوقف؟
- هل قال عنك الناس أنك تتكلم بسرعة جداً أو بتتكلم كثير جداً؟
- هل كان عند الناس صعوبة فى فهمك؟

Ď-]عف تمييR:

- هل حدث فى أى وقت أنك عملت شئ ما سبب لك أو لعائلتك أو أصدقائك مشكلة؟
- هل تفعل أشياء أنت عادة لا تفعلها، مثل : البقاء خارج البيت طول الليـل، صـرف فلوس كثير، القيام برحلات غير متوقعه ، أو تفعل شئ خطير فعلاً لمجرد التسلية؟
- (للمراهقين) : ماذا عن التورط فى علاقات سرية أو علاقات جنسية لمدة يوم ، أو فعل أشياء أخرى خطيرة مثل السواقة المتهورة؟
- (مرحلة ما قبل المراهقة) : ماذا عن القفز من مرتفعات عالية، الذهاب فـى رحلـة طويلة بالعجلة ، أو لعب ألعاب خطيرة فى المدرسة ؟

ď- التIة I :

- منذ أن بدأت تشعر ب------ ، هل تجد مشكلة فى أنـك تفضـل تعمـل الـى المفروض تعمله؟
- هل تبدأ فى عمل أشياء لا تنتهى منها؟
- هل تتشتت بسهولة؟
- هل عندك مشكلة فى الأنتباه فى الفصل؟

Đ- Yدم الاستقرار الحركى :

- عندما تشعر بالسعادة ، هل كان فى وقت لا تستطيع فيه الجلوس ساكناً أو لازم تفضل تتحرك ولا تستطيع التوقف؟
- هل تشعر كأنك محتاج أنك تفضل تمشى رايح جاى ؟
- هل حدث فى أى وقت أنك شبكت أيديك ؟ (وضح)

ط- تغيير العادات والنوم :

- هل شعرت بذلك أو فعلت هذه الأشياء فقط وأنت شارب خمر أو واخد أدوية أو عقاقير ؟نوعها أيه؟قد أيه ؟
- فى أوقات أخرى فقط ؟ مين اللى بيحصل الأول العقار أو السعادة؟
- هل تشرب كثيراً من القهوة أو المشروبات التى تحتوى على كافيين ؟قد أيه بتشرب ؟
- هل حد ث فى أى وقت أنك شعرت بالسعادة كما وصفت سابقاً من غير ما تكون شارب كميـة كبيرة من الكافيين؟

ى- مدى الخلل المنزلى أو المدرسى المتوتر أو الراجع إلى المصاحبة :

ك- الإعاقة :

أ- أجتماعياً (مع الأصدقاء)
ب- مع العائلة
ج- فى المدرسة
د- المستشفى (للهوس)
ه- آخرين

ملحق أسئلة إضطراب الهلع

الآن سوف أسألك عن الأوقات اللى انت حسيت فيها بالخوف أو القلق فجأة مرة واحدة عندما كنت:

أ- ضيق أو صعوبة فى التنفس (سرعة التنفس)

- شعرت كأنك م ش قادر تتنفس؟ أو كان من الصعب عليك أنك تحصل على هواء كافى؟

ب- دوخة (دوار / إغماء):

- شعرت بالدوخة وكأن الأشياء بتلف من حولك ؟ شعرت كأنـك هـاتقع أو تفقـد توازنك؟
- شعرت بالضعف كأن هيغمى عليم أو تفقد الوعى ؟تقع ؟

ج- الخفقان :

- هل كان قلبك بيدق جامد قوى ؟ بسرعة ؟ قدرت تشعر بدقه؟

د- الرعشة أو الإهتزاز :

- هل كنت كاك بتترع ش أو تهتز ش مثلاً م ش بتقدر تشيل كباية ميه؟

هـ- العرق:

- هل بتعرق ؟ هل بتشعر أن كفيك أو وجهك أو رقبتك مبلولة؟

و- الخنقة:

- هل بتشعر كأنك بتتخنق؟
- هل أن فى حاجة حولين رقبتك منعه دخول الهواء ؟

ز- الغثيان :

- هل بطنك بتوجعك؟ تشعر كأنك هترجع؟

ē- تغير في الإحساس أو الواقع:
- هل تشعر كأن الأشياء من حولك حقيقية أو كأنك عايش فيلم؟ هل تشعر كأنك فى حلم؟أو كأنك خرجت بره جسمك؟

Ĕ- الخدر / التنميل:
- هل تشعر بالخدر أو التنميل فى يديك أو قدميك؟ كأن فيهم إبر أو دبابيس ؟ هل تشعر أنك مش حاسس بيهم؟

Čċ- الشعور بالسخونة أو البرودة:
- هل تشعر بالسخونة فجأة أو تشعر ببرودة حقيقية؟

ČČ- الألم في الصدر :
- هل صدرك بيوجعك ؟ هل تشعر بأن شئ ثقيل عليه ؟

Čč- الخوف من الموت :
- لما بيكون عندك هذه النوبات لا هل بتخاف من انك تموت؟

ČĎ- الخوف من فقدان السيطرة :
- هل كنت خايف أنك تتجنن أو أنك تعمل حاجة مجنونة أو تعمل حاجة أنت مش عايز تعملها؟

Čď- عدد مرات الحدوث:
- هل تحدث النوبات فقط فى موقف/ مواقف معينة أو محددة؟ أيه هى؟

ČĐ- نوبة غير متوقعة:
- لما بيكون عندك نوبة يا ترى فى حاجة بتسببها ولا بتحصل من غير سبب على الأطلاق؟
- كنت بتعمل أيه أول مرة جاتلك نوبة زى دى ؟

Čđ- معايير عدد الحد الأدنى للأعراض في النوبة:
- هل كل المشاعر المختلفة التى وصفتها لى حدثت فى نوبة واحدة؟
- هل حدث لك نوبة واحدة كان عندك فيها كل المشاعر المختلفة التى وصفتها لى (أذكر الأعراض التى أظهرها الطفل)؟ يا ترى ده حصل فى النوبة الأولى ؟

ČĒ- تكرار النوبات :
- أيه أكتر عدد من النوبات حصلك فى اى شهر ؟ قد أيه بتتكرر عليك المشاعر المرعبة؟

Čē- الخوف من تكرار نوبة أخرى :
- بعد حدوث ذلك لا هل كنت قلقان أو خايف أنها ممكن تحصل ثانى؟
- قد أيه بتفكر فيها؟ بتفكر لمدة قد أيه (أيام أسابيع لا شهور)؟

ČĔ- بداية النوبات :
- قد أيه من الوقت بيمر من ساعة ما تبتدى النوبة لحد ما توصل لأشد مشاعر مرعبة فيها؟(أذكر الأعراض إيجابية)
- كم دقيقة عادة ؟

Čċ- أسلوب الحياة :
- منذ بدأت هذه النوبات لا هل بقيت تقعد فى البيت أكثر ؟
- هل أصبحت تتجنب الزحام أو الخروج وحيداً لا أو السفر ؟

- هل بدأت تفز٢ من هذه الأشياء علشان أنت خايف إن أحدى هذه النوبات ممكن تحصل Þ
- لما بتخرللا هل بتشعر فعلاً بالرعب من التفكير فى أيه اللى ممكن يحصل لو أنت جالك هذه النوبات Þ

ČČ- الأماكن:

أ- أجتماعياً (مع الأصدقاء)
ب- مع العائلة
للا- فى المدرسة

ملحق أسئلة إضطراب قلق الأنفصال

Č- الوائية :

- هل بيجيلك كوابيس كثير Þ أحلام عن أنك بعيد عن والديك Þ أنك أتخطفت Þ
- أن والديك سافروا أو أصيبوا Þ كثيراً Þ أحياناً Þ

č- رفض الذهاب للمدرسة أو أيام المدرسة الأنفصالية:

- هل بتشعر بالغثيان أو بترجع كثير Þ عندك صداع Þ أمتى فى الصباح Ü بالليل Ü فى المدرسة Þ ماذا عن عطلات الأسبوع Þ

٣- معاناة الضيق فى حالة الأنفصال:

- هل تتضايق أو تغضب جداً لما والدك أو والدتك يخرللا من غيرك Þ
- هل تتضايق عندما تستعد للذهاب إلى المدرسة Þ كثيراً أحياناً Þ بتعمل أيه Þ

d'- معاناة الضيق فى حالة الأنفصال:

- - هل بتتضايق أو تغضب جداً لما بتكون والدتك أو والدك بره Þ
- هل بتتضايق لما بتفضل مع الدادة كثيراً Þ بتعمل أيه Þ
- بتحتاللا قد أيه وقت علشان تهدأ Þ
- هل بتبقى كويس بعد دقائق قليلة Þ

Đ- مدة الأضطراب :

- لمدة قد أيه شعرت بالضيق لما بتكون م ţ مع والديك Þ

đ- الأماكن :

أ- أجتماعياً (مع الأصدقاء)
ب- مع العائلة
للا- فى المدرسة

Ē- وللاود مستاب :

حدد ----------

ملحق أسئلة إضطرب الرهاب

النوبة الهالية :

- لما كنت بتتكلم فى الأول قلت أنك خايف فعلاً من ---------
- هل أنت خايف من أى شئ من هذه الأشياء الأخرى أيضاً؟

Č- مخاوف الأماكن أو مواقف معينة:

أ- المرتفعات
ب- الظلام
ت- الدم
ث- الكلاب
ج- حيوانات أخرى
ح- حشرات
خ- البقاء وحيداً بالمنزل
د- الزحام
ذ- الأماكن المفتوحة (الخروج وحيداً بعد سن العاشرة)
ر- السفر (الأتوبيس أو النفق)
ز- المصاعد
س- المحلات أو الأماكن المغلقة غير المصاعد
ش- يعدى كوبرى ومن خلال نفق
ص- أشياء أخرى (حدد)

Ď- معرفة عن الموقف الذى :

- هل تعرف قد ايه انت مرعوب من --------؟
- هل تفتكر الأطفال الآخرين يشعرون بالرعب أو العصبية زيك من ----؟
- هل فى بعض الأحيان تتمنى إنك لا تشعر بهذا الرعب للدرجة دى؟
- هل تفتكر أنك أحياناً تشعر بالعرب أكثر من المفروض لطفل فى مثل عمرك؟

đ- المدة : (حدد) ---------

Đ- الاستجابة :

د- أجتماعياً (مع الأصدقاء)
ه- مع العائلة
و- فى المدرسة

ملحق أسئلة إضطراب القلق العام / القلق الزائد

Č- الأنشطة المعتادة المستمرة السوء الساعة

- هل بتفكر كثير فى الحاجات اللى حصلت فعلاً ؟ مثل: أنك تكون جاويت صح فى المدرسة ؟
- بعد مانتكلم مع أصدقائك ؟ هل تفضل تتسءل إذا كنت قولت الحاجات الصح ؟

č- الأنزعاج الزائد فى المواقف المختلفة :

- هل فعلاً مهم بالنسبة اك إنك تكون كويس فى كل حاجة ؟
- هل بتتضايق لو مجاوبتش على بعض الأسئلة فى الأمتحان حتى لو جبت درجة كويسة؟
- هل بتقلق كثير على قد أيه أنت بتلعب رياضة كويس أو تفعل أشياء أخرى كويس؟
- هل بتفكر كثير فى كل غلطة عملتها ؟

٣- الأنتباه الزائد للطمأنينة:

- هل غالباً ما تسأل والديك أو مدرستك إذا كان اللى بتعمله كويس؟

d- صعوبة السيطرة على الأكل:

- عارف الحاجات اللى قلت بتقلق منها(مثلاً أذكر العناصر اللى أجاب عليها بنعم) ؟
- تقدر تبعد المخاوف دى والقلق عن دماغك لو حاولت ؟ لمدة قد أيه تقدر تخلى نفسك تنسى هذا القلق؟

Đ- أعراض أخرى مرتبطة بالقلق العام :

- هل أنت متضايق هذه الأيام أكثر من الأول ب--------: ؟
أ- شد عضلى أو أوجاع الام
ب- عدم الأستقرار الحركى
لا - التعب بسرعة
د- عدم الأستقرار أو التحفز أو النرفزة
ه- الصعوبة فى التركيز أو عقلك فاضى بسبب القلق
و- الصعوبة فى بدء النوم أو البقاء نائماً
ز- التوتر

đ- المدة : (عدد)----------

Ē- الدليل على الأعاقة أو المعاناة :

أ- أجتماعياً (مع الأصدقاء)
ب- مع العائلة
لا- فى المدرسة

ē- دليل على واود مستاب(عدد)

ملحق أسئلة إضطراب الوسواس القهرى

أفعال قهرية :

من ÜĜ5 لما انا ĜinillM 15ا لى ¢piا Ĝtiدرš Σ تمنا ÜinI نفعا pusi من ÜmY IPI- - - - - ÜIj ¢Tyi ƪ تفعا ÜIJ-
- - -

Č- انواع الأÜŽعا الاŊŊرية

- اللمس
- العد
- الغسل / النظافة
- التأكد (مثلاً لا تĐذى الآخرين Üالاشى سـيحد ł إذا لم تفعل أخطاء)
- التجمع / إدخار
- الترتيب / تنظيم الأشياء
- عمل جدولة للأنشطة
- الأعادة / التكرار (مثل: مهام النشاط مثل المـرور من الباب أÜ القيام والجلوس على الكرسى)

Č- الŊدف من الأÜŽعا الاŊŊرية :

- ليه بتعمل كذاþأيه اللى أنت خايف يحصل لو مقدرتş تعمل كذا þ

٣- ادراŊ الأÜŽعا الاŊŊرية :

- تفتكر أنك بتعمل - - - - - - - - - - - أكثر من المفروض تعملهþ
- هل تتمنى أنك تقدر توقف عمل- - - - - - - - - -þ

ď- ¢استالŊ الوĮ I :

- قد أيه من الوقت بتقضيه - - - - - - - - þ
- هل بتعمل - - - - - - - - مرة واحدة فى اليوم ولا أكثر من مرة þ
- قبل ما تذهب للمدرسة فى الصباθ þ فى المدرسة þ فى البيتþ فى ı ƒ الليلþ

Đ- الدليü الى الأĮlYة ¢و المعاناŊ :

أ- أجتماعياً (مع الأصدقاء)

ب- مع العائلة

ا- فى المدرسة / العمل

د- معاناة شديدة

الوساوس

من ÜĜ5 لما انا ĜinillM 15ا لى ¢piا متدرš Σ تمنا ÜinI نفعا pusi من التفاير ŽØم- - - - - - - - - ÜØIj
Ypi ¢ŽIIر Yu - - -

Č- مθتوnjا الوساوƨ :

- التلوł Ü وساوس جسدية (النظافة / الميكروبات / الأمان)
- أفكار عدوانية (خاصة بالنفس – أو الآخرين)
- افكار عديمة أو مرضية
- الحاجة إلى التناسق أو الأتقان (التأكد Ü الدقة Ü النظام)
- جمل دون معنى / أصوات /صور
- وساوس جنسية

- التخزين / الأدخار
- دينية
- حاجات أخرى (حدد)

č- ƺاار متطفلة دون معنى :

- هل بتتضايق إن الأفكار دى بتفضل فى دماغك þ
- هل تمثل هذه الأفكار أى معنى بالنسبة لك ولا تبدو سخيفةþ
- ماذا عن أول مرة بدأت هذه الأفكار þ

٣- الكمƲ :

- لما كان عندك هذه الأفكار هل حاولت توقفهاǗ أو حاولت تطردها من دماغكþ عملت أيه þ
- هل حد ƚ فى أى وقت أنك حاولت تفكر فى أشياء أخرى أو ذهبت لعمل أشياء أخرى لتبعـدهم عن دماغكþ
- هل بتسيطر عليك هذه الأفكار ولا الأفكار هيه اللى بتسيطر عليكþ

ď- مصدر اǓƺاار :

- تفتكر الأفكار دى جت منين þ
- هل جاءت من دماغك ولا وضعها الناس اǓخرين فى دماغكþ

Đ- تسǆǊǃǘ الوƽ ǃ :

- قد أيه من الوقت بتقضيه فى التفكير فى ---------þ
- هل بتفكر فى ---------- فى المدرسة þ أثناء الأجازات þ
- لما بتكون فى البيت þ فى العشاءþ أيه هيه الأشاƔ ء الى مبتقدر ţ تعملها بسبب هذه الأفكارþ

đ- اǗƳǕƽة :

أ- أجتماعياً (مع الأصدقاء)
ب- مع العائلة
ت- فى المدرسة / العمل
ƚ - معاناة شديدة

ملحق أسئلة اضطراب فرط الحركة و نقص الأنتباه

Č- يقوم بالعديد من الأخطاء الناتجة عن الأهمال فى المدرسة :

- هل تفعل الكثير من الأخطاء الناتجة عن الأهمال فى المدرسة þ
- هل غالباً ما تجاوب على الأسئلة غلط فى الأمتحان لأنك لم تقرأ التعليمات بصورة صحيحةþ
- هل تترك بدون قصد بعض اسئلة بدون إجابةþ
- هل تنسى أن تحل المسائل على جانبى صفحة الواجبþالى أى مدى تحصل هذه الأشياءþ
- هل قال لك مدرسك فى أى وقت من الأوقات أنك لازم تنتبه أكثر للتفاصيلþ

č- لا ينصت :

- هل من الصعب عليك أن تتذكر ما يقوله لك أبويك أو مدرسيك þ
- هل يشكو أبويك أو مدرسيك من أنك لا تنصت لهم وقت كلامهم معكþ
- هل لا تهتم بالناس من حولك þ
- هل حصل لك مشاكل بسبب عدم الأنصات þ

٣- صعوبة تنظيم التعليمات :

- هل يشتكى مدرسيك من عدم إتباعك للتعليمات þ
- هل من الصعب أحياناً تذكر شئ ما طلبه منك عمله أهلك أو مدرسك þ هل سبب لك هذا متاعب þ
- هل بتفقد درجات لأنك لا تتبع الأرشادات أو لا تكمل العملþ
- هل تنسى عمل أو إحضار الواجب المنزلى þ
- هل حصل لك مشاكل فى البيت بسبب عدم أنهاء أنشطتك أو أى أشياء أخرى طلب والديك منك عملهاþ
- قد أيه بيحصل ده þ

ď- صعوبة تنظيم المهام :

- هل يوجد فوضى فوق مكتبك أو فى دولابك فى المدرسة þ
- هل الفوضى دى تجعل فيه صعوبة إنك تلاقى الأشياء التى تحتاجها þ
- هل الفوضى دى تجعل فى صعوبة أو تلاقى الأشياء التى تحتاجهاþ
- هل يشتكى المدرسين أن واجباتك ملخبطة أو غير منظمةþ
- هل عادة ما تحل الأسئلة من الأول للآخر بالترتيب ولا بتحل من غير ترتيب þ
- هل غالباً ما تسيب أسئلة þ هل تجد صعوبة فى الأستعداد للمدرسة فى الصباحþ

Đ- يمارس أو يتجنب المهام التى تحتاج إلى تنظيم:

- هل هناك بعض الواجبات المدرسيÖ التى تكرها أكثر من غيرها þما هىþلماذاþ
- هل حاولت التخلÍ من عمل واجب.....þ
- هل تظاهرت بنسيانك واجب ----------المنزلى للتخلÍ من عمله þ
- كم عدد المرات التى لا تعمل فيها الواجب تقريباً ------- خلال أسبوعÝþ

đ- يفقد الأشياء :

- هل كثيراً ما تفقد الأشياء þأقلامك فى المدرسةþ واجباتك المنزليةþ أشياء حول بيتكþ
- تقريباً كم عدد مرات حدوÍ ذلكþ

Ē- نسيان الأنشطة اليومية:

- هل غالباً ما تترك الواجب المنزلى فى المنزل أو تترك كتبك ومعاطفك (جاكتك) فى الأتوبيس؟
- هل تترك أشياء فى الخارج بدون قصد ؟
- كم عدد المرات حدث هذه الأشياء ؟
- هل أشتكى أحد فى أى وقت من الأوقات من أنك كثير النسيان ؟

ē- التململ:

- هل الناس غالباً بيطلبوا منك تقعد ساكن أو تبطل حركة أو تبطل فرك على كرسيك؟ أبويك ؟ مدرسيك؟
- هل أحياناً ما يحصل لك مشاكل من الفرك على كرسيك أو اللعب فى أشياء صغيرة على مكتبك ؟
- هل تجد صعوبة أنك تثبت يديك أو رجليك ؟ قد أيه بيحصل ده ؟

Ĕ- يغادر مقعده في الفصل:

- هل حصلك مشكلة من جريك فى حوش المدرسة؟
- هل غالباً ما تذكرك أمك أنك تمشى وتبطل تجرى لما بتكون خارج معاها ؟
- هل يشتكى أبويك أو المدرسين من أنك تتسلق الحاجات بينما لا يجب أن تفعل ؟
- ماأنواع هذه الأشياء ؟ قد أيه بيحصل ده ؟

(للمراهقين):

- هل تشعر كثيراً بعد الأستقرار الحركى ؟
- هل تشعر أنك بتتحرك كثير فى المكان وأن صعب عليك أن تقعد فى مكان واحد ؟

Čċ- التعلق / التصرف كأن موتور يحركه:

- هل من الصعب عليك أن تبطئ ؟ هل تستطيع البقاء فى مكان واحد مدة طويلة ولا أنت دائماً مستعجل؟
- قد أيه تقدر تقعد وتشاهد التليفزيون أو تلعب لعبة ؟
- هل كثيراً ما يطلب منك الناس الأبطاء؟

Čč- صعوبة اللعب بهدوء:

- هل غالباً ما يطلب منك أبويك أو مدرسيك أن تهدأ أثناء اللعب ؟
- هل تجد صعوبة فى أنك تلعب بهدوء؟

Čč- التسرع في الإجابة :

- فى المدرسة هل أحياناً ما تقول الأجابة قبل ماحد يسألك ؟
- هل تتكلم فى غير دورك ؟
- فى البيت تجاوب على الأسئلة التى يوجهها أبويك لأخوتك ؟قد أيه بيحصل ده؟

ČĎ- صعوبة انتظار الدور :

- هل من الصعب عليك انتظار دورك فى اللعب ؟
- ماذا عن انتظارك فى طابور الكافيتريا أو عند حنفية الميه ؟

Čď- يقاطع أو يتطفل :

- هل يحدث لك مشاكل من الكلام فى غير دورك فى المدرسة ؟

- هل يشتكى أبويك أو مدرسيك أو أى من الأطفال الذيت تعرفهم أنك تقـاطعهم لمـا بيتكلموا؟
- هل يشتكى الأطفال أنك بتبوظ عليهم لعبهم ؟ هل يحدا هذا كثيراً؟

ČĐ- يتكير الأنشطة :

- حين تلعب أو تفعل شئ هل غالباً ما تتوقف عن فعله لأنك تفكر فى شئ مـا تخـر هتعمله؟ ؟
- هل عندك مشكلة في الأستمرار فى نشاط واحد ؟ (مثل تحضير المائـدة الشـنطة الواجب المدرسى ألعاب فيديو)
- هل يقول الآخرين أنـك عنـدك مشـكلة فـى الأسـتمرار فـى نشـاط واحـد ؟ مدرسيك؟والديك؟

Čđ- يتالم كالأر :

- هل يقول الناس أنك تتكلم كثيراً ؟
- هل يحدا لك مشاكل فى المدرسة بسبب الكلام فى وقت مـا مفروض تتكلم فيه؟
- هل يشتكى أفراد أسرتك من كثرة كلامك؟

ČĒ- يأارض فى نشاطة الطيران للسديا :

- هل أحياناً ما تعدى فى لاشارع من غير ما تبص حوليك ؟
- هل بتنسى تاخذ بالك من أشارة المرور واذت راكب العجلة ؟
- هل تعمل حاجات أخرى يظن والديك انها خطيرة؟

Čē- المدى :

- لمدة قد أيه حصل لك مشاكل ؟ (أذكر الاعراض التى أجاب عليها بنعم)

ČĔ- العمر عند بداية المرض :

- كم كان عمرك عندما بدأت تحصل مشاكل (أذكر الأعراض)؟
- هل حصل لك هذه المشاكل فى الحضانة ؟ فى السنة الأولى؟

حدد :----------

Čċ- الإصابة :

أ- أجتماعياً (مع الأصدقاء)
ب- مع العائلة
لا- فى المدرسة / العمل
د- معاناة شديدة

ملحق أسئلة اضطراب العناد الشارد

Č - سüŊ المƮايǼة والƸƮب :

- هل الناس بيغظوك ويضغطوا عليك كثيراً على أعصابكþ
- ما هى الأشياء التى تثيرك þ
- هل بيضايقك فعلاً إن أبويك بيطلبوا منك متعمل ţ الحاجة اللى أنت عايز تعملهاþزى أيهþ
- ما هى الأشياء الأخرى التى تنرفزكþ
- كيف تتصرف عندما تشعر بأنك متضايق þأو متغاظþ
- قد أيه تقدر تقول إن ده بيحصلþ

č - الƸƮب وǼ̈ياƮ bǼ̈ƠǼ̈رnj :

- هل كثر ما تغضب أو تنفعل مع أبويك þماذا عن مدرسيكþأخوتكþمع أصدقائكþ
- هل يقول لك الناس الآخرين إنك بتنفعل كثيراً þ مين þقد أيه ده حصلþ

Ď - الƸüŊ والأنتƸام :

- عندما يفعل شخ ƒ ما حاجة ظالمة لك هل تحاول إنك تأخذ حقك þأعطنى بعض الأمثلةþ
- ماذا لو أخوك أو صديقك عملك شئ سبب لك مشكلة أو جعلك تخرللا عن شعورك ----هـ ل ستعمل شئ لتنال منهم þ هل حد ŀ هذا من قبل þ قد أيهþ
- هل هناك أوقات الناس تعمل فيك حاجة وأنت تفوتها لهمþ هل يحد ŀ ذلك كثيراً þ

ď - ǼستƠدام لƸة سيƏة :

- هل تسب وتلعن كثيراً þهل يشتكى أبويك أو مدرسيك من لسانك þ قد أيه بتلعن þ

Đ - يƮايƧ الناƧ Ƴن Ƴمد :

- لما ماما بتطلب منك حاجة بتعملها عادة þزى لما تقول لك بطل لعبÜ بتعمل كده ولا بتفضل تلعب وتتظاهر أنك مسمعتها ţ þ
- هل الناس بتقول أنك تتعمد أشياء تضايقهم وتغيظهم þأبويكþ ومدرسيك þأخوتكþ
- ما هى الأشياء التى يشتكون منهاþ
- هل تفتكر إن ده صحيƠ þ

đ - يلوم ƠǑƠرين Ƴن ƠƐƏاƐƏ Lj :

- عند حدو ŀ مشاكل لكÜ هل من السهل عليك تحمل مسئولية ما فعلته þ
- هل هى عادة غلطتك أو غلطة حد تانىþ
- كم عدد المرات التى كنت فيها مسئول عن مافعلته þ
- هل تظن أن معظم مشاكلك þ سببها ناس ƠخرȄين أو أنها نتيجة غلطتك أنت þ

Ē - المدƔ : لمدة قد أيه حصل مشاكل بسب مزاجك (أو اعراض أخرى)

ē - ǓƔƐƏا :

أ- أجتماعياً (مع الأصدقاء)

ب- مع العائلة

ﻠﻟ- فى المدرسة / العمل

Ĕ - دليü Ƴلى وللاود مسƠب (Ƴدد)---------------

ملحق أسئلة اضطراب تصور الجسم

Č- اضطراب تصور الجسم :

- هل تشعر بأنك بدين على الرغم من أن كل الآخرين يقولون عكس ذلك؟
- هل تتمنى أن تكون أنحف؟
- هل هناك أى أجزاء بالذات فى جسمك تشعر أنها بدينة ؟
- ما أنت متضايق لأنك فقدت كثير من وزنك ومع ذلك لازلت تشعر أنك بدين ؟
- هل تعتقد أن الآخرين يعتقدون ذلك وهم مخطئون ؟أزاى هم مخطئون؟

č- فقدان الشهية :

- عمرك كان قد أيه لما بدت الدورة الشهرية ؟
- كل قد أيه بتجيلك الدورة؟
- آخر دور جتلك من كام أسبوع ؟

ملحق أسئلة اضطراب الجناح

Č- التهريب :

- هل حدث فى أى وقت أنك تعمدت تكسر حاجات الآخرين؟ مثل تكسير زجاج الشبابيك ؟ تهشيم سيارات؟أى شئ آخر ؟
- ما هو أغلى شئ تعمدت تكسيره أو تلخبطه أو تحطمه ؟
- أيه اللى بيحصل لما تشعر فعلاً بالغضب ؟تقريباً كم عدد المرات التى تعمدت فيها تكسير أو تحطيم حاجات الناس؟

č- التدمير والاقتحام :

- فى الشهور الستة الماضية هل حصل أنك أو أى من أصحابك أقتحمت أى سيارة ؟بيوت؟ أى محلات؟مخازن؟مبانى أخرى؟
- تقريباً كم مرة أقتحمت بيت سيارة محل مبنى؟

٣- السرقة الاقتحام :

- فى الشهور الستة الماضية هل حدث أنك أو أى من أصدقائك سرقوا بالأكراه أى شخص ؟ خطف المحافظ؟احتجزت أشخاص ؟ هددتهم ؟ قد أيه حصل ده ؟

d- الحريق العمد :

- فى الشهور الستة الماضية هل أشعلت أى حرائق ؟ لماذا ؟
- هل كنت تلعب الكبريت وبدأ الحريق بالصدفة ؟أو أنك فعلتها متعمداً ؟
- هل كنت غاضباً ؟ هل كنت تحاول تسبيب الكثير من الخسائر أو تنتقم من شخص ما؟
- ما هى أكثر الخسائر التى تسببت فيها بالحريق؟
- تقريباً كم عدد الحرائق التى أشعلتها؟

Ð- الخروج ما بعد المنزل ليلاً :

- ما هو الوقت المفروض أن تعود فيه للمنزل عند المساء؟
- هل غالباً ما تظل بالخارج بعد آخر موعد محدد لك ؟
- ما هو أقصى وقت تأخرت فيه خارج المنزل ؟ كم عدد المرات التى عملت فيها كده؟
- هل بقيت خارج المنزل طول الليل فى أى من الأوقات؟

Đ- الاضطراب طوال الليل :

- فى الشهور الستة الماضية ،هل هربت من البيت؟لماذا؟
- هل حدث شئ ما فى المنزل جعلك تحاول الهرب منه؟
- ما هى المدة التى قعدت فيها بالخارج؟
- كم عدد المرات التى عملت فيها ده؟

Ē- إستخدام السلاح :

- هل تحمل مطواة أو مسدس؟
- هل فى أى وقت من الأوقات أستخدمت ضد شخص ما سلاح مثل قالب طوب، إزاز مكسور أوأى شئ آخر؟حتى لو من أجل الدفاع عن النفس؟
- هل فى أى وقت من الأوقات هددت بأستخدام أيهم لتنال من شخص ما؟

ē- إساءة الجسدية الخطيرة :

- ما هى أسوأ حاجة أذيت بيها حد فى حياتك؟
- هل فى أى وقت ضربت شخص ما ضرب مبرح بدون سبب؟ ولا بس علشان لقيته خيخه(ساذج)أيه اللى حصل؟ هل تأذوا؟

Ĕ- الإتصال الجنسى :

- هل فى أى وقت أجبرت أى شخص ليمارس الجنس معك؟
- هل تمادیت أكثر مما أرادوه؟
- هل فى أى وقت حد قال أنك فعلت كده؟قالوا أيه اللى حصل؟
- كم عدد مرات حدوث هذا؟

Ċċ- إساءة للحيوانات :

- بعض الأطفال يحبوا إيذاء اوتعذيب الحيوانات، فى الشهور الستة الماضية، هل أذيت عن عمد أو حاولت إيذاء حيوان؟
- هل نشنت على أحدهم ببندقية ،؟تسمم حيوان؟أشياء أخرى؟
- ماذا فعلت؟ تقريباً كم مرة أذيت حيوان عن عمد فى الشهور الستة الماضية؟

ČČ- الإصابة :

أ- أجتماعياً (مع الأصدقاء)
ب- مع العائلة
ج- فى المدرسة / العمل

Čč- المدى :

- لمدة قد أيه عملت كده (أذكر أعراض الجناح التى أجاب عنها بنعم)

ČĎ- نوع السلوك :

- هل من المعتاد فعل (أذكر اعراض الجناح التى أجاب عنها نعم) مع أصدقائك؟ أطفال آخرين؟

Čď- نمط إدوانى منفرد :

- هل من المعتاد فعل (أعراض الجناح التى أجاب عنها بنعم) وحدك بنفسك؟

ČĐ- نمط غير مميز :

- هل عملت بعض الأشياء التى تكلمنا عنها مع أصدقائك وأخرى مع نفسك؟

ČđK- نمط ينادئ چى الطفولة :

- كم كان عمرك عندما بدأت (أعراض الجناθ التى أجاب عنها بنعم)þ

ČĒK- نمط ينادئ چى المرازائة :

- هل لم يحد ł منك أى هذه الأشياء قبل سن العاشرة þ

استمارة مقابلة

		ċ	Č	č	Ď
F1	هل والدك ووالدتك على قيد الحياة þ	نعم	الوالد متوفى	الوالدة متوفية	كلاهما توفاهم Ÿl
F2	هل والدك ووالدتك أقارب þ	لا	نعم أقارب من الدرجة الثانية	نعم أقارب من الدرجة الثالثة	نعم أقارب من نسل بعيد
F3	هل كان والدك ووالدتك دائمى الخلاف أو الشجار þ	لا	نعم		
F4	هل كان والدك عنيفاً مع والدتك أو أحد أفراد أسرتك þ	لا	نعم		
F5	هل كان ذلك يصل الى الضرب المبرθ þ	لا	نعم		
F6	هل انفصل والدك ووالدتك þ	لا	نعم		
F7	هل كان هذا الأنفصال نتيجة		طلاق	وفاة أحديهما	أسباب أخرى
F8	كم عدد أخوتك وأخواتك þ		ما هو ترتيبك بين أخوتك þ		
F9	هل العلاقة بين أفراد أسرتك كانت	حميمة	باردة	خناق مستمر	انتقاد مستمر

		ċ	Č
D 1	هل تعلم أو قال لك أحد أفراد عائلتك أن ولادتك كانت صعبة þ	لا	نعم
D 2	هل تعلم أو قال لك أحد أفراد عائلتك أن ولادتك كانت قيصرية أو باستخدام ؟لات þ	لا	نعم
D 3	هل تعلم أو قال لك أحد أفراد عائلتك أنك تعبت أو أزرقيت لأو سخينت بعد ولادتك þ	لا	نعم
D 4	هل تعلم أو قال لك أحد أفراد عائلتك أنك لتاخرت فى المشى أو الكلام þ	لا	نعم
D 5	هل تعلم أو قال لك أحد أفراد عائلتك أنك لتاخرت فى التحكم فى البول أو جالك تبول لا ارادى þ	لا	نعم
D 6	هل تعلم أو قال لك أحد أفراد عائلتك أنك تتهته أو تتلعثم فى الكلام وأنت صغير þ	لا	نعم

Č	ċ		
نعم	لا	هل أحد أفراد عائلتك التى تربطك بهم صلة قرابة دم من الدرجة الأولى أو الثانية يعانى من أمراض نفسية او عصبية Þ	H 1
نعم	لا	هل أحد أفراد عائلتك التى تربطك بهم صلة قرابة دم من الدرجة الأولى أو الثانية يعانى من حركة زائدة أو عدم تركيز Þ	H 2
نعم	لا	اذا كانت إجابتك نعم هل أحتالا الى علاجاً طبياً Þ	H 3
نعم	لا	اذا كانت إجابتك نعم هل أحتالا هذا الشخ f الى دخول مستشفى أمراض نفسية او عصبيةÞ	H 4
نعم	لا	هل هناك أكثر من فرد من افراد عائلتك التى تربطك بهم صلة قرابة دم من الدرجة الأولى أو الثانية يعانى من أمراض نفسية أو عصبية أو أحتالا الى علالا طبى أو دخول مستشفى لل̃مراض النفسية Þ	H 5

č	Č	Mb	č	Č	Ma	č	Č	M	
نعم	لا	هل تأخـذ لـه دواءÞ	نعم	لا	هل شخصك طبيب بهذا المرض Þ	نعم	لا	هل تعانى من أية امراض فى القلب Þ	M1
نعم	لا	هل تأخـذ لـه دواءÞ	نعم	لا	هل شخصك طبيب بهذا المرض Þ	نعم	لا	هل تعانى من أية امراض فى الصدرÞ	M2
نعم	لا	هل تأخـذ لـه دواءÞ	نعم	لا	هل شخصك طبيب بهذا المرض Þ	نعم	لا	هل تعانى من أية امراض فى الكبدÞ	M3
نعم	لا	هل تأخـذ لـه دواءÞ	نعم	لا	هل شخصك طبيب بهذا المرضÞ	نعم	لا	هل تعانى من أية امراض فى الكلى Þ	M4
نعم	لا	هل تأخـذ لـه دواءÞ	نعم	لا	هل شخصك طبيب بهذا المرضÞ	نعم	لا	هل تعانى من أية امراض فى المفاصل Þ	M5
نعم	لا	هل تأخـذ لـه دواءÞ	نعم	لا	هل شخصك طبيب بهذا المرضÞ	نعم	لا	هل تعانى من أية امراض نفسية أو عصبيةÞ	M6
نعم	لا	هل تأخـذ لـه دواءÞ	نعم	لا	هل شخصك طبيب بهذا المرضÞ	نعم	لا	هل تعانى من مرض الصرY Þ	M7
نعم	لا	هل تركت أيـة تأثيرÞ	نعم	لا	هل فقد الوعى بعدهاÞ	نعم	لا	هلسبق أن حد ا لك تشنجاتÞ	M8
نعم	لا	هل تركت أيـة تأثيرÞ	نعم	لا	هل فقد الوعى بعدهاÞ	نعم	لا	هل سبق أن أصبت أصابة شديد بالدماƷ Þ	M9
نعم	لا	هـل أخـذت علالاÞ	نعم	لا	هل كتب لك علالاÞ	نعم	لا	هل سبق أن عرضت على طبيب نفسىÞ	M10

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Limitation and Implication

These results must be interpreted in the light of methodological strengths and limitation of the study.

The strength includes:

- Use of community respondents survey in a school based cross sectional survey that included both genders and different types of schools.
- The use of a comprehensive assessment battery that includes the use of the Gold standard semistructured clinical interview (K-SADS:PL) for the clinical diagnosis of ADHD.
- On the other hand, strengths of Conners Wells adolescent self report scale-short form as a screener are the clarity of language and ease of administration.
- Additionally, the use of Conners Wells adolescent self report scale long form for the ADHD cases gives us a better understanding of several problems as cognitive, anger control and emotional problems to help in covering the whole aspects surrounding the ADHD cases.

However, some limitations in our study must be acknowledged and taken into account in interpreting the results:

- A more detailed comprehensive epidemiological study could have included:
  - ★ Larger sample size from a variety of locations and different educational systems.
  - ★ Deriving the information from different sources as the parents, school teachers and peers, in two settings not only in a school setting.
  - ★ Identifying and assessing further degree of social functioning.
  - ★ Using more brief instruments not to put heavy demand on both the researcher and the subjects.
- It may be argued that collecting these data may need many field researchers, collaboration of multiple centres and sites to overcome these limitations.

RECOMMENDATIONS

Research recommendation

Research in the area of adolescent psychiatry, especially ADHD disorder in adolescence is still scarce and has been neglected. Therefore further research efforts are still needed. We recommend the following for the future research in this area:

- **Replication of this study on a larger sample of adolescents:**
  - In different geographical areas (villages and rural areas) with comparison with urban areas.
  - Different cultures (Arab countries)
  - Different age groups (secondary school students).
  - Different types of schools (Azahric-Technical and Commercial Schools).
- We are in need for continuous supply for utilizing shorter versions, and brief instruments for screening of ADHD among adolescents.
- Conducting further studies using different tools to assess ADHD symptoms by teachers, parents and peers opinion with proper validation and translation.
- Further studies are needed to assess the emotional, social functioning and degree of impairment.
- Further studies are needed to assess executive function in ADHD subjects.

- More studies are needed to be supplemented by neuropsychological assessment to increase the validity and broaden the domains of assessment.

Clinical recommendations

Increasing awareness about ADHD is extremely important to target intervention programs for prevention and early recognition of ADHD disorders for those with little or no education who are considered as high risk groups.

This may be achieved by:

- **Mental health care professionals:**
  - Ensuring early diagnosis so the effect on the adolescent life is minimized.
  - Ensuring proper evaluation of executive function in ADHD patients.
  - Providing effective treatment to mange debilitating symptoms and comorbid diagnosis.
  - Construction of specific adolescent ADHD clinics is of utmost importance to target this neglected group of population.

- **General practitioners:**
  - Training of general practitioners for screening of ADHD disorder in adolescents and raising their clinical attention and surveillance for more early and rapid referral for psychiatric assessment and treatment.
  - Collaboration between psychiatrists and general practionners aiming to develop comprehensive management including early prevention, or intervention, diagnosis and treatment.

- **Schools:**
  - Reconsideration of school mental health programs by increasing availability of psychiatric service and awareness of ADHD.
  - Educational program on adolescent mental health should be provided to students, teachers and parents for early detection of risk factors, ADHD symptoms and associated comorbidities.
  - Collaborative system should be built between school teachers, parents and school mental health professionals for better detection, assessment and referral of ADHD cases.
  - Extensive substance abuse educational programs are required for better evaluation of associated comorbidity with ADHD among adolescents.

- **Parents:**
  - Increasing acceptance, awareness and understanding of ADHD so people with the disorder have the necessary care, service and support to manage their problems.

We must work as a team for a better outcome for those who suffer from ADHD and its associated difficulties.

CHAPTER (I)
Clinical Picture and Diagnosis

Attention-deficit hyperactivity disorder (ADHD) is the most prominent and prevalent mental disorder in children and adolescents ***(Olfson, 1992; Smalley, 2007)***. Despite a great deal of research, this disorder remains one of the most difficult child mental disorders to categorize as evidenced by the frequent changes in its criteria in the revisions of DSM ***(American Psychiatric Association, 1994; Wolraich et al., 1996)***.

ADHD has had a checkered history where a great deal of myth and misconception has guided both the diagnosis and the management of the disorder. The disorder has been known earlier by other names such as “brain damaged syndrome”, “minimal brain dysfunction”, “hyper kinetic impulsive disorder” and “attention deficit disorder”. The changes in terminology have generally reflected an increase in the understanding of etiology, identification and management in more recent years ***(Rickel and Brown, 2007)***.

Attention deficit hyperactivity disorder (ADHD) is composed of developmentally inappropriate degrees of inattention, impulsivity, and overactivity that arise in early childhood and are believed to be relatively chronic for most children with the disorder. The disorder occurs in approximately 3% to 5% of the childhood population ***(Conners, 2002)***, with boys being almost three times more likely to manifest the

disorder than girls ***(Barkley, 1990; Sayal, 2007; Szatmari et al., 1989)***. ADHD children and adolescents frequently have a higher risk for other childhood disorders, including aggression, or oppositional defiant disorder, and conduct disorder ***(Barkley et al., 1990a)***. School underachievement is rampant in this population, and as many as 20% to 30% may have a coexisting primary learning disability as well ***(Barkley et al., 1990a; Lambert and Sandoval, 1980; Tannock and Brown, 2000)***. Social interaction problems, with their family members have been consistently documented ***(Barkley, 1990)***, and over half of all ADHD subjects have serious problems in their relations with peers ***(Milich and Landau, 1982; Barkley et al., 1991; Spencer et al., 2007)***.

The bulk of research on attention-deficit hyperactivity disorder (ADHD) ***(American Psychiatric Association, 1987)*** has been conducted on boys aged 6 to 11 years. Although this group is representative of the population sector most commonly referred for the disorder, this practice has resulted in limited knowledge of the disorder in other sectors of the population, particularly females and persons at other developmental levels. Historically it was thought that children "grew out of ADHD" at puberty, but longitudinal research now suggests that these problems continue into adolescence and beyond ***(Hechtman, 1991; Klein and Mannuzza, 1991; Schaughency et al., 1994; Barkley et al., 2005)***. Little is known about ADHD in adolescence and adulthood, and what we do know comes primarily from follow-up studies of childhood hyperactivity. The

generalizability of these studies to adolescent referred ADHD is potentially limited ***(Barkley et al., 1991; Barkley et al., 2005)***.

Of the 34 million prevalent cases of ADHD in the USA, Europe and Japan, it was estimated that 31% were adults (age > 19 years). Thus, for some, ADHD may be a lifetime disorder ***(Sergeant, 2003)***.

A research done indicates that as adolescents, children previously diagnosed as ADHD or hyperactive are at higher risk for defiance, aggression, antisocial behavior, and substance abuse relative to normal or control children followed concurrently ***(Gittelman et al., 1985; Lambert et al., 1987; Spencer et al., 2007)***. From 50% to 80% meet the criteria for ADHD in adolescence ***(Barkley et al., 1990b)***. Many continue to experience difficulties with academic achievement ***(Ackerman et al., 1977)***; whereas up to 58% may have been retained in grade ***(Barkley et al., 1990b; Brown and Borden, 1986)***, up to 40% have been in special educational services ***(Barkley et al., 1990b)***, and as many as 35% may have failed to finish high school ***(Weiss and Hechtman, 1986)***. The general picture then is one of continuing problems with inattention, impulsivity, and restlessness as well as antisocial behavior and academic failure in adolescence for many children diagnosed as ADHD in childhood ***(Barkley et al., 2005)***.

Their age or developmental level, and across a variety of situations that tax their capacity to pay attention, restrain their

movement, inhibit their impulses, and regulate their own behavior relative to rules, time and the future.

A) Inattention

By definition, children and adolescents, who have ADHD, particularly ADHD-C, are said to display difficulties with attention relative to non-disabled ones or other control groups of the same age and gender. Parents and teachers often describe these attention problems in terms such as “Doesn't seem to listen,” “Fails to finish assigned tasks,” “Daydreams,” “Often loses things,” “Can't concentrate,” “Easily distracted,” “Can't work independently of supervision,” “Requires more redirection,” “Shifts from one uncompleted activity to another,” and “Confused or seems to be in a fog” ***(Barkley, DuPaul, and McMurray, 1990)***.

The construct of attention in neuropsychology is multidimensional and can refer to alertness, arousal, selectivity or focus-execution, encoding, sustained attention, distractibility, or span of apprehension, among others ***(Barkley, 1994; Strauss et al., 2000)***. The number of distinct components identified in neuropsychological batteries remains unclear, however ***(Strauss et al., 2000)***. Research shows that those with ADHD do not have significant difficulties with automatic orienting to visual information, which may be mediated by posterior brain attention circuits ***(Huang-Pollock and Nigg, 2003)***. Instead, they have their greatest difficulties with aspects of attention related to persistence of effort, or sustaining their attention (responding) to tasks; this is sometimes called "vigilance" ***(Newcorn et al., 2001;***

Swaab-Barneveld et al., 2000) and is believed to be mediated through frontal brain attention circuits ***(Huang-Pollack and Nigg, 2003)***. These difficulties with persistence are sometimes apparent in free-play settings, as evidenced by shorter durations of play with each toy and frequent shifts in play across various toys ***(Zentall, 1985)***. However, they are seen most dramatically in situations requiring them to sustain attention to dull, boring, repetitive tasks as school work ***(Barkley, DuPaul, and McMurray, 1990; Fischer et al., 2004)***.

There is another dimension of inattention symptoms that exist among ADHD children and adolescents and possible adults. This subset is described as having **Sluggish Cognitive Tempo (S.C.T)** and are rated by parents and teachers as being more sluggish, passive, hypoactive, daydreamy, slow-moving, staring, confused, and "in a fog" than are these with no disability or with ADHD-C ***(Milich et al., 2001; McBurnett, Pfiffner, and Frick, 2001)***. Some of these symptoms are the very antithesis of ADHD (e.g., hypoactivity). This subset accounts for approximately 30-50% of subjects now diagnosed as having predominantly inattentive type of ADHD ***(Barkley, 2006)***.

This subset of children and adolescents with ADHD manifestly SCT (e.g., hypoactivity, lethargy, daydreaming), may be qualitatively different from those with ADHDC (and from others with ADHD in many important aspects ***(McBurnett et al., 2001)***, as having fewer externalizing symptoms; more internalizing symptoms of unhappiness, anxiety, depression, and social withdrawal; and more information-processing deficits than

children with ADHD-C ***(Carlson and Mann, 2000)***. Such differences have led some to argue that the SCT subtype of ADHD may constitute a distinct disorder from ADHD, or at least a qualitatively distinct subtype of ADHD ***(Barkley, 2001a; Hinshaw, 2001; Lahey, 2001; McBurnett et al., 2001)***. Lab studies suggest that subjects with SCT may manifest significantly more errors with information processing, set shifting, focused attention, and possibly memory retrieval that are not evident in ADHD-C ***(Milich et al., 2001)***.

Distractibility is another problem, where the child or adolescent responds to the occurrence of extraneous event unrelated to the task. It is more than likely that the problem with distractibility depends on the cognitive loading or difficulty of the task (demands for working memory) and its demands for the protection of executive actions (thinking) through interference control. And the salience of the distracting events will also determine the extent to which extraneous events disrupt the task. ***Lawrence et al. (2002)*** observed children with ADHD while they were playing a video game of varying cognitive load and distracting information, and also observed them at a local zoo while they were required to accomplish certain instructions in that setting. The children with ADHD had significantly more difficulties inhibiting responses to distracting events, both in the game and at the zoo, and therefore took more time to complete their assignments than did control children.

Children or adolescents with ADHD spend much more time engaged in off-task behavior instead of attending to their assigned tasks ***(Sawyer et al., 2001)***, which could give others the

impression that they are distractible when they are merely unable to persist as well as others ***(Hoza et al., 2001)***.

Clinical picture in older adolescents and adults

Some new findings from direct behavioral observations of inattention in adolescents and adults with ADHD now parallel the previously cited research in children in finding greater off-task behavior during task performance, including driving ***(Fischer et al., 2004)***. Most studies document greater difficulties with attention on continuous-performance tests (CPT:s) or vigilance tests ***(Murphy et al., 2001; Seidman et al., 1997).*** The Holdnack et al. study found adults with ADHD to have slower reaction times, which previously have been interpreted by others as reflecting lapses in attention to the task ***(Barkley, 1988)***.

Adolescents and adults with ADHD are highly likely to self-report many of the same symptoms of inattention from the DSM symptom list that are reported by parents of children with ADHD. One study ***(Murphy and Barkley, 1996a)*** found that 83% of adults diagnosed with ADHD reported having difficulties with sustaining attention (vs. 68% of a clinical control group and 10% of a nondisabled sample); 94% reported being easily distracted (vs. 86% and 19%, respectively); 90% claimed that they often did not listen to others (vs. 57% and 6%, respectively); 91% reported that they often failed to follow through on tasks or activities (vs. 78% and 6%, respectively); and 86% reported that they frequently shifted from one uncompleted activity to another (vs. 75% and 12%, respectively). These self-reports were corroborated by others who knew the subjects well, such as

spouses or parents, as was the recall by these adults of similar symptoms during their childhood years (r=.74 with parent reports) ***(Murphy and Barkley, 1996a)***. Thus adults with ADHD suffer from many of the same attention problems as do children who have the disorder ***(Wilens and Dodson, 2004)***.

B) Impulsivity and hyperactivity (*behavioral disinhibition)*

Patients with ADHD are often noted to respond quickly to situations without waiting for instructions to be completed or adequately appreciating what is required in the setting. Heedless or careless errors are often the results. They may fail to consider the potentially negative, destructive, or even dangerous consequences that may be associated with particular situations or behaviors. Thus they seem to engage in frequent, unnecessary risk taking. Accidental poisonings and injuries are not uncommon in children with ADHD. They may carelessly damage or destroy others' property considerably more frequently than do those without ADHD ***(Barkley, 2006)***.

Waiting for their turn in a game or in a group lineup before going to an activity is often problematic for children and adolescents with ADHD. Waiting in general may be problematic for all ages of the disorder. When faced with tasks or situations in which they are encouraged to delay seeking gratification and to work toward a longer-term goal and larger reward, they often opt for the immediate, smaller reward that requires less work to achieve ***(Burns et al., 2001)***.

Situations or games that involve sharing, cooperation, and restraint with peers are particularly problematic for them. Verbally, they often say things indiscreetly, without regard for the feelings of others or for the social consequences to themselves. Blurting out answers to questions prematurely and interrupting the conversations of others are commonplace ***(Barkley, 2006)***.

ADHD symptoms in adolescents and adults include verbal impulsivity which may form a separate dimension of impulse control by adulthood ***(Murphy and Barkley, 1996a)***.

Impulsivity

Impulsivity is multidimensional in nature ***(Kindlon, et al., 1995; Nigg, 2001)***. These often involve constructs of executive control, delay of gratification, effort, and compliance ***(Olson et al., 1999)***. Others reorganize inhibition into executive (volitional), motivational (precipitated by fear or anxiety), and automatic attentional inhibitory processes ***(Nigg, 2000)***. Those forms of impulsivity often associated with ADHD involve the undercontrol of behavior (poor executive functioning), poor sustained inhibition, the inability to delay a response or defer gratification, or the inability to inhibit dominant or prepotent responses ***(Neef, Bicard, and Endo, 2001; Newcorn et al., 2001; Scheres et al., 2004)***. There is evidence that subjects with ADHD have an equal or greater problem with delay aversion ***(Solanto et al., 2001)***.

Symptoms in older adolescents and adults

A recent meta-analysis of studies using CPTs demonstrated more errors of commission or impulsiveness in adolescents and adults with ADHD than in control groups ***(Hervey, Epstein, and Curry, 2004)***. Adults diagnosed with ADHD, in comparison to clinical and non-disabled control groups, often self-report symptoms of poor impulse control, such as difficulty awaiting turns (67% vs. 39% of a control group and 18% of a nondisabled sample), blurting out answers (57% vs. 46% vs. 16% respectively), and interrupting or intruding on others (57% vs. 39% vs. 9%, respectively) ***(Murphy and Barkley, 1996a)***. They are also highly likely to report difficulties with their driving associated with poor impulse control (e.g., excessive speeding) and to make more impulsive errors on a driving simulator ***(Barkley, 2004a)***, impulsive comments to others, difficulties in inhibiting the impulsive spending of money, and poor inhibition in their emotional reactions to others ***(Goodman, 2007)***.

Hyperactivity

Symptoms of excessive or developmentally inappropriate levels of activity, whether motor or vocal are associated with ADHD. Restlessness, fidgeting, and generally unnecessary gross bodily movements are commonplace, both in the complaints received from parents and teachers and in objective measures ***(Dane, Schachar, and Tannock, 2000)***.

These movements are often irrelevant to the task or situation, and at times seem purposeless. A parent often describes them as "always up and on the go," "acts as if driven by a motor," "climbs excessively," "can't sit still," "talks excessively," "often

hums or makes odd noises," and "is squirmy" ***(DuPaul et al., 1998)***. Observations of such children and adolescents at school or while working on independent tasks find them out of their seats, moving around the classroom without permission, restlessly moving their arms and legs while working, playing with objects not related to the task, talking out of turn to others, and making unusual vocal noises ***(Fischer et al., 1990)***. The restlessness is likely to be more problematic in boring or low stimulation situations than in ones where greater stimulation is available ***(Antrop et al., 2000)***. Making running commentaries on the activities around them or about others' behavior and excessive speech is not unusual ***(Berk and Potts, 1991)***.

Some research suggests that the pervasiveness of the hyperactivity across settings (home and school) may be what separates ADHD from other diagnostic categories ***(Taylor, 1986)***.

Studies that factor-analyze behavioral ratings often find that items of restlessness or other types of over-activity load on a factor constituting impulsive or disinhibited behavior ***(DuPaul et al., 1998; Lahey et al., 1994)***. Objective measures of inhibition are also likely to be related to measures of hyperactivity ***(Berlin and Bohlin, 2002)***. These findings mean that over-activity is not a separate dimension of behavioral impairment.

In older adolescents and adults with ADHD, symptoms of hyperactive or restless behavior are often present but appear to involve more difficulties with fidgeting, a more subjective sense

of restlessness, and excessive speech than the more gross motor overactivity characteristic of young children with ADHD ***(Moss et al., 2007)***. ***Murphy and Barkley, 1996a*** found that nearly 74% of adults with ADHD reported often fidgeting with their hands or feet, versus 57% of a clinical control group and only 20% of a nondisabled sample of adults. Nearly 66% of adults clinically diagnosed with ADHD complained of often having difficulties remaining seated, versus 32% of the clinical control group and only 6% of the nondisabled sample. Adults with the disorder often verbalize more than others, with nearly 60% complaining that they often talked excessively. Although this complaint did not distinguish them from the clinical control group (60% of whom also reported excessive speech), both of these groups reported speaking more often than did the nondisabled sample of adults (only 22% of whom reported such a difficulty).

Consensus diagnostic criteria for ADHD

At present, the primary characteristics of ADHD and the diagnostic criteria officially developed for clinical use are set forth in the fourth edition of the DSM ***(DSM-IV; American Psychiatric Association, 1994)*** and its text revision ***(DSM-IV-TR; American Psychiatric Association, 2000)***. The DSM definition is similar, though not identical, to the definition of the disorder in the 10th revision of the International Classification of Diseases ***(ICD-10; World Health Organization, 1994)***, which is used mainly in Europe. Table (A1) presents the DSM-IV-TR criteria.

The DSM-IV(-TR) criteria stipulate that individuals must have had their symptoms of ADHD for at least 6 months, that these symptoms must occur to a degree that is developmentally deviant, and that symptoms producing impairment must have developed by 7 years of age. From the inattention item list, six of nine items must be endorsed as developmentally inappropriate. From the combined hyperactivity and impulsivity item lists, six of nine items must be endorsed as deviant. The type of ADHD to be diagnosed depends on whether criteria are met for inattention, hyperactivity-impulsivity, or both: the Predominantly Inattentive Type (ADHD-PI), the Predominantly Hyperactive-Impulsive Type (ADHD-PHI), or the Combined Type (ADHD-C).

Table(A1)

ICD-10

In the tenth edition of the International Statistical Classification of Diseases and Related Health Problems (ICD-10) the symptoms of ADHD are given the “Hyperkinetic disorders”. The disorder is classified as “Disturbance of Activity and Attention”. When a conduct disorder is present, the condition is referred to as “Hyperkinetic conduct disorder”. Other subtypes of the “Hyperkinetic disorders” include “Other Hyperkinetic Disorders” or “Hyperkinetic Disorders, Unspecified”. According to the ICD-10 a person must be hyperactive in order to be diagnosed with a Hyperkinetic disorder.

ADHD throughout development

Although ADHD can be diagnosed at virtually any age, different expressions (some subtle, some pronounced) of the disorder are associated with different age periods ***(Conners et al., 2000; Polanczyk and Rohde, 2008)***.

Infancy

Although ADHD is not formally diagnosed during infancy, there are a number of behaviors that parents tend to remember being present while the child was very young (birth-two years). Excessive crying, difficulty being soothed, sleep and feeding problems (poor sucking and problematic interactive behaviors seem to have occurred in these young children who later receive the diagnosis of ADHD ***(Conners et al., 2000)***.

Pre-School

Children three to four years of age often display behaviors that can be described as restless, inattentive, impulsive, and distractible. Because of this it is often very difficult to differentiate between a youngster with ADHD and a normal active child. The degree of disruption caused by the behaviors and the duration of them often help in making a diagnosis. Significant behaviors to watch for are motor restlessness, insatiable curiosity, overly vigorous play, low levels of compliance, difficulty with sleep, delays in language development, and overly demanding of parental attention ***(Conners et al., 2000; Spencer et al., 2007)***.

Middle childhood

Between the ages of 6-12 years is the most likely time for a diagnosis of ADHD to be made. Children are faced with the increased demands of school, a more active and demanding schedule, and increased demands for maturity. What teachers and parents often report is that the ADHD child is easily distracted, restless, impulsive, unable to sustain attention to detail, “clowns around” in class, and has increasing difficulty with peers. Usually the children demonstrate two kinds of global problems: behavior (as noted above) and cognitive impulsivity by making frequent and unnecessary mistakes ***(Conners et al., 2000)***.

Adolescence

Many of the more glaring motor behaviors associated with ADHD begin to diminish during adolescence, although the distractibility and impulsivity remain as problems. The continued

frustrations and difficulty experienced during the pre-adolescent years often gives rise to depression and anxiety during this period. There are also increases in discipline problems and family conflicts (above those expected for this age), drug and alcohol use, as well as lethargy, and academic difficulties ***(Conners et al., 2000)***.

For many, the overt symptoms of ADHD lessen by adolescence. Students in high school report greater ability to concentrate and attend. However, the many years of frustration and academic difficulty often lead to continued delays in academic achievement, depression, anxiety, and other mental health problems ***(Conners et al., 2000; Spencer, Biederman and Mick, 2007)***.

This change from difficult child to more apparently sedate and focused teenager hides some potentially very significant issues. With the diminution of the more overt symptoms of ADHD what is increasingly evident is extreme frustration with school, continued poor academic achievement, and significant lowered self-esteem. The ADHD teenagers are at greater risk for drug and alcohol abuse, school dropout, and other anti-social behaviors ***(Conners et al., 2000)***.

The persistence of ADHD appears, again, to be associated with conduct problems or oppositional hostile behavior, poor family relations and specially conflict in parent-child, as well as maternal depression. These predictors have also been associated with the development and persistence of oppositional and

conduct disorder into this age range (12-17 years) ***(Barkley, 2004)***.

Adult ADHD

ADHD symptoms of impulsivity, restlessness and inattention often persist into adulthood. The proportion affected in adulthood reported in the studies vary greatly, the differences in prevalence rates are probably due to the different methods used for identifying adult ADHD. Research shows that the symptoms of ADHD decline with age, yet that a minority of individuals continue to have problems into early adulthood. Whilst this may be true, it may also be the case that the real instances of adult ADHD are being missed because researchers are using diagnostic criteria originally developed for children, such as the DSM-IV. These might miss the subtler impairments in executive function experienced by ADHD adults. Adults with ADHD may have become adept in different degrees at masking their symptoms in order to cope with day-to-day life. Some may also seek out environments that suit their behavior. Thus, more sophisticated methods of recognizing adult ADHD need to be developed ***(Brassett, 2004)***.

Problems have also been reported with social skills, emotional difficulties and low self-esteem. These may have had an impact on the unsatisfactory relationships that were also often experienced by adult "survivors" of childhood ADHD, who become parents earlier, have smaller gaps between child-bearing, and suffer marital discord and frequent relationship breakdown. When followed up in adulthood, individuals with childhood ADHD have been reported to be more likely to experience academic underachievement and fewer years completed schooling ***(Barkley, 2002; Goodman, 2007)***.

Language and literacy problems have also been reported ***(Rasmussen and Gillberg, 2000)***. This may in part explain why those with childhood ADHD have been found to be more likely as adults to be in lower-ranking occupations and possess a lower social class than control groups ***(Barkley, 2002)***.

Finally, some follow-ups have shown that adults who had childhood ADHD were more likely to have problems driving or to have experienced more road traffic accidents ***(Barkley, 2002)***. Possible explanations have been invoked such as symptoms of inattention, low tolerance of frustration, and impulsivity. Interestingly one study of those who received medication during childhood for their ADHD had fewer car accidents as adults than those who went untreated ***(Hechtman et al., 1984)***.

Gender difference

Boys are three times more likely to have ADHD than girls ***Gershon (2002)*** found that girls with ADHD had lower ratings of hyperactive, inattentive and impulsive symptoms; had lower levels of other externalizing behaviors (aggression, delinquency); and experienced greater intellectual impairment. They manifested more internalizing symptoms (anxiety, depression) than did boys with ADHD, hyperactive girls had lower Verbal IQ scores, were more likely to have language disabilities, had a greater prevalence of problems with mood and enuresis, and had a lower prevalence of conduct problems ***(Gershon, 2002)***. These studies may have been biased toward finding greater cognitive and developmental problems in their samples because of the source of referrals. Girls with ADHD also received lower ratings on core

symptoms and made fewer errors on CPTs than boys with ADHD ***(Newcorn et al., 2001)***. Whereas boys report higher mean scores on rating scales ***(Lee et al., 2008)***.

In terms of their risk for comorbid psychiatric disorders, the girls with ADHD showed elevated rates of Major Depressive Disorder (17%), anxiety disorders (32%), and Bipolar Disorder (10%) the rates of ODD and CD, were found to be about half the rates found in boys with ADHD. Approximately 33% of the girls with ADHD had ODD, and 10% had CD ***(Biederman, 1997; Biederman, Mick et al., 2002)***.

Regarding the subtype of ADHD: Girls were more likely to have ADHD-inattentive subtype; were less likely to have learning disabilities; were less likely to manifest problems in school or in their spare time; and were less at risk for CD and ODD than were boys with ADHD, boys were more likely to develop substance abuse disorders ***(Biederman et al., 2002)***.

As to the treatment response, no gender differences were noted in the effects of stimulant medication on these interactions or in the clinical response of girls to stimulants ***(Sharp et al., 1997)***.

As to their classroom behavior, girls with ADHD engaged in less rule breaking, less social interference, less gross motor activity and lower levels of externalizing behavior than boys with ADHD ***(Abikoff et al., 2002)***.

They had fewer mutual friends and were more likely to be friendless. They also had higher level of conflict and relational aggression than did comparison girls and were less able to sustain relationships over time ***(Zalecki and Hinshaw, 2004)***.

Associated developmental impairments

Children and adolescents with ADHD often demonstrate deficiencies in many other motor, sensory and cognitive abilities ***(Daley, 2004)***. Among these, are difficulties with: Motor delay and sensory problems, physical fitness, gross and fine motor coordination, and motor sequencing, speech and language development, delayed internalization of language, verbal and nonverbal working memory and mental computation, story recall, planning and anticipation, deficient rule governed behavior, verbal fluency and confrontational communication, effort allocation, impaired persistence of effort, response perseveration and motivational difficulties. Developing, applying and self-monitoring organizational strategies, great variability of task performance, problems with arousal and sleep problems, adhering to restrictive instructions, creativity, self-regulation of emotion and self awareness ***(Barkley, 2004)***.

The latter difficulties with emotional control may be especially salient in adolescents having ADHD with comorbid oppositional defiant disorder (ODD). Several studies have also demonstrated that ADHD may be associated with less mature or diminished moral development. Many of these cognitive difficulties appear to be specific to ADHD and are not a function of its commonly comorbid disorders, such as learning disabilities, depression, anxiety, or oppositional/conduct disorder ***(Barkley, 2006)***.

Situational and temporal variation in ADHD

All the primary symptoms of ADHD show significant fluctuations across various settings and caregivers ***(Barkley, 1981; Zentall, 1985)***. Significant fluctuations in activity are evident across these different contexts for both subjects with ADHD and non-disabled subjects, with the differences between them becoming most evident during school classes in reading and math. Despite these situational fluctuations, adolescents with ADHD appear to be more deviant in their primary symptoms than typical ones in most settings; yet these differences can be exaggerated greatly as a function of several factors related to the settings and the tasks they are given to perform in them ***(Luk, 1985; Zentall, 1988)***.

The more complicated a task, and hence its greater demands for planning, organization, and executive regulation of behavior, the greater the likelihood that subjects with ADHD will perform more poorly on the task than non-disabled ones ***(Lawrence et al., 2002; Marzocchi et al., 2002)***. The symptoms of ADHD are most disabling when the demands of the environment or task exceed or adolescents capacity to sustain attention, resist distractions, regulate activity, and restrain impulses. In environments that place little or no demands on these behavioral faculties, subjects with ADHD will appear less deviant and less troublesome.

Subjects with ADHD display fewer behavioral problems in novel or unfamiliar surroundings or when tasks are unusually novel, but increase their level of deviant behavior as familiarity with the setting increases ***(Zentall, 1985)***.

The degree of stimulation in the task also seems to be a factor in their performance. Research suggests that colorful or

highly stimulating educational materials are more likely to improve their attention than relatively low-stimulation or uncolored materials ***(Lawrence et al., 2002)***.

Gender of parents also affect the picture of ADHD. Adolescents with ADHD are compliant and less disruptive with their fathers than with their mothers. They are certainly rated routinely as manifesting lower levels of symptoms by their fathers than by their mothers ***(DuPaul et al., 1998)***.

Settings or tasks that involve a high rate of immediate reinforcement or punishment for compliance to instructions result in significant reductions in attention deficits ***(Barkley, 1997b)***. When children and adolescents with ADHD are engaged in highly reinforcing activities, they may perform at levels close to those of typical ones. Indeed, they seem to prefer immediate to delayed rewards ***(Barkley et al., 2001; Neef et al., 2001)***. However, when the schedule and magnitude of reinforcement are decreased, the behavior of these children may become readily distinguishable from that of typical children ***(Barkley et al., 1980)***.

Also fatigue or time of day (or both) may have an impact on the degree of deviance of ADHD symptoms. ***Zagar and Bowers (1983)*** studied subjects with ADHD in their classrooms and found them to perform significantly better on various problem-solving tasks in the mornings, whereas their classroom behavior was significantly worse in the afternoons.

Hence, ADHD is considered a clinical syndrome based on the co-variation among its symptoms from other mental disorders.

ADHD is a valid mental disorder that is differentiated in its major symptoms both from the absence of disability and from other psychiatric disorders.

CHAPTER (II)
Epidemiology of ADHD

Prevalence of ADHD

According to recent research, ADHD is reported to be the most frequently occurring neuro behavioral disorder of childhood. It accounts for most mental health referrals of children ***(Spencer et al., 2007)***.

The incidence of this condition has been estimated in from 1 to 10% of all school age children and adolescents. While some research estimates it as high as 20% of school age children and adolescents ***(Dufaul, 1991)***.

However, when using the DSM III-R and DSM IV criteria, the condition is estimated to occur in 3 to 5 percent of all school age children ***(APA, 1987)***. The current consensus of expert opinion is that approximately 3-7% of the childhood population has ADHD ***(American Psychiatric Association, 2001)***.

A recent review of prevalence in school aged children indicates rates varying from 4-12% and best studies average that to 3-5% ***(Conners, 2002)***.

The figures chosen for prevalence depend greatly, however, on the methods chosen to define and measure ADHD; the population studied; the geographic locale of the survey; and even the degree of agreement required between parents, teachers, and professionals in the diagnosis itself ***(Polanczyk and Jensen, 2008)***.

In the following prevalence of ADHD will be displayed according to:

A- Clinical diagnostic criteria and variation in prevalence

Given the use of more complete clinical diagnostic criteria, studies give us a closer approximation to the true prevalence of the disorder than other studies which merely use rating scales ***(Barkley, 2006)***.

The prevalence of ADHD ranges from 2.2% to 12.0% of U.S. children when DSM-III criteria are utilized, with a mean of approximately 5%. When DSM-III-R criteria are utilized, the U.S. prevalence ranges from 1.4% to 13.3% with an average of 6.7% based on adult reports (and presence of impairment). Only one study used self-reports (with a considerably older adolescent and young adult sample), and it found a prevalence of 1.5%. This is in contrast to the 7.6% rate found by **Peterson, Pine, Cohen, and Brook (2001)**, using combined parent and child interviews with 11-to 22-year-olds. One of the highest prevalence rates (12.2%) was obtained in a study by **Jensen et al. (1995)**, employing subjects of military personnel. **Peterson et al. (2001)** also found a rate of 12% among early adolescents (mean age 13.7 years, range 9-20 years), using DSM-III-R criteria and parent/child interviews. The study by Velez, **Johnson, and Cohen (1989)** of children and adolescents in USA found a higher-than-average prevalence rate of 13.3%. Only two studies to date have reported U.S. prevalence rates when DSM-IV criteria are used, and these found figures of 7.4-9.9%. The fact

that these figures are higher than the average for DSM-III-R studies is probably due to the inclusion of the new ADHD-PI and ADHD-PHI types of ADHD not recognized in DSM-III-R.

Two Canadian studies used DSM-III-R criteria and found very similar results when parent report and an impairment criterion were used (3.3% and 4.0%; mean = 3.65%). The use of teacher reports resulted in a higher prevalence (8.9%), while the use of self-reports once again resulted in a lower prevalence (0.63.3%) ***(Breton et al., 1999)***.

One study reported the prevalence of ADHD in Australia; it used DSM-IV criteria and a diagnostic interview, and its prevalence estimate of 7.5% (6.8% with impairment required) ***(Graetz et al., 2001)***.

Three studies have been reported from New Zealand, all of older children or adolescents (ages 11 and 15). Two used 15-year-olds, with the one using DSM-III finding a prevalence of 2% ***(Mc Gee et al., 1990)*** and that using DSM-III-R finding 3 %. The study of adolescents, age 11 years, used DSM-III criteria and found a 6.7% prevalence ***(Anderson et al., 1987)***. Lower figures would be expected for teenagers than for children, given the decline in the symptoms of the disorder with age. The average prevalence across studies would be 3.9%.

One study in New Zealand found a prevalence rate of 0.5% in ages from 15 to 18 years using DSM-III criteria of ADHD and self report scales ***(Schaughency, 1994)***.

Two studies were conducted with Dutch children; one used DSM-III-R with teenagers (ages 13-18) and yielded a prevalence

of 1.8% ***(Verhulust et al., 1997)***, while the other used DSM-IV with children (ages 6-8) and found 3.8%. Again, using DSM-IV relative to DSM-III-R would be expected to yield a higher prevalence, as would the use of children relative to teens. Even so, the figure for children is approximately half rate found in the U.S. studies using DSM-IV criteria (7.4%). One study in Germany, using the ICD-9 criteria, found a prevalence 4.2% for 8-year-old children ***(Esser et al., 1990)***.

The figures for China are considerably higher than the averages for other countries in studies using comparable DSMs- for DSM-III, the Chinese rate was 6.1%, and for DSM-III-R, it was 8.9%. This could have resulted from problems with translation and meaning of the criteria, differences in cultural norms for disruptive behavior or differences in etiological factors known to be associated with ADHD (prenatal care, child medical care and disease prevention, exposure to toxins ***(Leung et al., 1996)***.

Another study was conducted in Brazil, to investigate the prevalence of ADHD in first grade pupils using DSM-IV criteria, the prevalence was 18% using DSM-IV criteria and 3.5% when neuropsychological criteria was used ***(Guardiola et al., 2000)***.

The major outlier among international studies is the extraordinarily high rate of disorder (29%) found in the oldest age group (11- to 12-year-olds) in the study of Indian children and adolescents by Bhatia, **Nigam, Bohra, and Malik (1991)**, using DSM-III criteria. As with the Chinese study, whether this reflects a true difference in prevalence (perhaps owing to socioeconomic and medical factors that differ significantly from

those in Western countries), or a problem with translation and meaning of the DSM criteria in a different language, is not clear from the results.

Another study examined the prevalence of ADHD using DSM-IV criteria in a community sample of 1.083 preschool age children in Mashhad, North East of Iran showed a prevalence rate of 12.3% which is higher than some others studies in united States that showed 2 to 5% prevalence in preschool children ***(Hebrani et al., 2007)***.

Prevalence in relation to DSM and ICD-10 diagnosis

Another important issue regarding differences in ADHD prevalence is the diagnostic method used in studies worldwide. After 20-30 years of different operational definitions DSM-IV and ICD-10 in their recent versions, conclude in an almost identical symptomatology of the disorder. However, they still use different names for the disorder, i.e., ADHD according to DSM-IV and hyperkinetic disorder (HKD) according to ICD-10, and there are major differences in the diagnosis of the disorder, potentially leading in considerable prevalence discrepancies ***(Skounti et al., 2007)***.

The main differences between DSM-IV and ICD-10 are related to the concomitance of the three domains (inattention, hyperactivity and impulsivity), the exclusion of comorbidity and the degree of pervasiveness. ICD- 10 criteria require a full set of symptoms in all three domains, while DSM-IV recognizes three subtypes of the disorder, in the case symptoms are from one domain. A diagnosis of HKD is, thus, most congruent with a DSM-IV diagnosis of ADHD combined type without the

presence of comorbidity. In contrast to DSM-IV, ICD-10 uses the presence or absence of conduct disorders as the basis of the main subdivision of HKD. Furthermore, in their study **Swanson et al. (1998)** suggested that ADHD prevalence according to DSM is 5-10% in the general population whereas this frequency is 1-2% with ICD tradition, which restricts diagnosis to the syndrome with limited comorbidity ***(Skounti et al., 2007)***.

Table (A2)

B- Age and variation in prevalence

The prevalence is also affected by age, with adolescent samples being likely to have lower prevalence rates than younger ones ***(Barkley, 2006; Polanczyk and Rohde, 2007)***.

The influence of age on prevalence of ADHD was strongly supported by the findings of several studies. In the study of **Cohen et al. 1993** a clear decline in prevalence was confirmed as age advanced. This study evaluated the frequency of psychiatric disorders in the same cohort of children during an 8 years follow-up. The prevalence of ADHD was 12.8%, 9.0% and 6.0% for children-adolescents aged 10-13, 14-16, and 17-20 years, respectively ***(Skounti et al., 2007)***. In **Spain**, prevalence rates 14.4%, 5.3% and 3.0% were reported for three separate samples of children aged 8, 11 and 15 years, respectively. Similar findings were reported in Canada, with prevalence rates of 5.5%, 4.0% and 2.5% for children aged 6-8, 9-11, and 12-14 years, respectively, and in the **USA**, with prevalence rates 18.2%, 15.9% and 14.8% for children aged 3-5, 5-12 and 12-18 years, respectively ***(Skounti et al., 2007)***.

Another study conducted in **Colombia** using DSM-IV diagnosis showed that the highest relative prevalence of clean ADHD occurs in 6 to 11 years old children (13.8%) followed by adolescents 12 to 17 years old (12.9%). The youngest group of 4 to 5 year old children showed the lowest prevalence for ADHD (7.7%) ***(Pinda, 2003)***.

In **India**, it was found that the prevalence of ADHD increase with age; the prevalence at the age of three to four years was 5.2% and at age of (11-12) years, it was 29% ***(Bhatia et al., 1991)***.

In a study done among primary school children in the Arabian society of Qatar, the estimated prevalence among 6-12 years age group children was 9.4% using Conner's teacher rating scale and with regard to the age group, more children in the age group of 6 to 9 were having a high score for ADHD symptoms compared to the age group of 10 to 12, and the difference was statistically significant. This is in line with the study findings of **Sharma, Newcorn, Schultz, and Halperin (2003)** that the prevalence of ADHD is declining by age ***(Bener et al., 2006)***.

Nolan et al. (2001), using teacher reports, found a screening prevalence of 18.2% for ADHD (all types) among preschool children. The figure fell to 15.9% for elementary age children and to 14.8% for secondary-age children. Among preschoolers, the percentage was 21.5% for males versus 13.6% for females. In elementary-age children, these figures were 23.1% and 8.2%, while among secondary-age children, the percentages were 20.1% and 8.8%, respectively.

Hunt (1997) estimated that 1.5% to 2% of the adult population has ADHD. This is consistent with **Weiss and Heclitman (1993)**, who found that approximately 50% of patients in clinical samples continue to manifest disabling symptoms into adulthood.

Some studies show a dramatic reduction of ADHD symptoms in late adolescence and early adulthood. **Mannuzza et al. (1998)** reported that only 4% of their clinical sample retained the ADHD diagnosis into adulthood.

Hill and Schoener (1996) reviewed nine prospective studies of subjects with ADHD. They reported data showing an exponential decline in ADHD over time. Estimates from these

studies predict a much lower prevalence in adults that is consistent with **Shaffer's (1994)** estimate that 0.3% of adults have ADHD.

Murphy and Barkley (1996) reported an ADHD prevalence of 4.7% in a sample of adult licensed drivers.

Existing community studies of adolescents report a prevalence of between 2% and 6% ***(Verhulst et al, 1997)***. **Cohen et al. (1993)** reported ADHD in 6% of their sample of 17 to 20-year-olds and found no gender difference in ADHD prevalence.

Liu et al. (2000) reported results from a Chinese population (2, 9, 36) ranging in age from 6 to 11 years using teacher version of CBCL, found a prevalence of 7.8% of boys and 2.8% of girls, in a later study by **Liu et al. (2001)** using the same report form (CBCL) with 1.649 adolescents (12-16 years), the prevalence was 3.9% by parents reports and 1.1% by teacher reports, reflecting a decline in the prevalence from childhood to adolescents.

Prevalence of adult ADHD

Five studies were done to determine the prevalence of ADHD in an adult sample. The first **(Murphy and Barkley, 1996b)** surveyed a sample of 720 adults and used a rating scale of DSM-IV symptoms and found a prevalence of 4.7% for all subtypes of ADHD. The subtype prevalence rates were 0.9% for ADHD-C, 2.5% for ADHD-HI, and 1.3% for ADHD-PI. In a sample of 700 college students from three geographically diverse sites around the United States, **DuPaul, Weyandt, Schaughency, and Ota (1997)** found almost precisely these

same prevalence rates, using DSM-IV symptom lists and diagnostic thresholds: 0.6% for ADHD-C, 2.6% for ADHD-HI, and 1.3% for ADHD-PI. **Heiligenstein et al. (1997)** collected self-reports of DSM-IV symptoms from 468 college students and reported a 4% prevalence for all subtypes, with a subtype prevalence of 0.9% for ADHD-C, 0.9% for ADHD-HI, and 2.2% for ADHD-PI. **Weyandt et al. (1995)** also reported a study of college students in which 4% reported significantly elevated symptoms on an adult rating scale using DSM-III-R items ***(Barkely, 2006)***.

C- Gender differences and variation in prevalence

The prevalence of ADHD is also known to vary significantly as a function of gender of the subjects being studied. The proportion of males versus females manifesting the disorder varies considerably across studies, from 2:1 to 10:1 ***(Ross and Ross, 1982)***, with an average of 6:1 most often cited for clinic-referred samples of children and adolescents. Epidemiological studies, find the proportion ranging from 2.5:1 to 5.1:1, with an average of approximately 3.4:1 among non-clinic-referred ones. Males remain more likely to manifest ADHD than girls even in community-based samples, suggesting that there may be some gender-linked mechanism involved in the expression of the disorder.

Both community and clinical samples clearly suggested higher ADHD prevalence in boys. In community sample, male to-female ratio ranged from 1:1 to 3:1. Among subjects referred for clinical evolution, the boy-to- girl ratio increased to values up to 9:1 ***(Skounti et al., 2007)***.

In a study done to estimate prevalence of ADHD in Iran, showed a prevalence rate of 18.1% in boys versus 6.7% in girls (Table A3) ***(Hebrani et al., 2007)***.

Another study conducted in Qatar to show prevalence of ADHD among school aged children, it was found that ADHD is more often in boys (14.1%) than girls (4.4%), with a ratio of 3:1 ***(Bener et al., 2006)***.

Bu-Haroonet al. (1999), using the Conners Teacher Rating Scale, reported results for 31,764 subjects in the United Arab Emirates. The prevalence rates were 18.3% of males versus 11.4% of females.

Another study showing prevalence of ADHD in a community sample of older adolescents from 7^{th} to 9^{th} grade showed a prevalence in males approximately 3 times higher than in females with a sex ratio that remains roughly similar to that found in younger children ***(Cuffe et al., 2001)***.

D- ADHD subtypes and variation in prevalence

The majority of the studies have suggested that the predominantly inattentive type (ADHD-I) is the more common form of ADHD, followed by combined (ADHD-C) and hyperactive-impulsive type (ADHD-HI) ***(Skounti et al., 2007)***. The proportion of girls with ADHD-I symptoms is higher than in other ADHD subtypes. ADHD is more prevalent among males in all three subtypes. **Nolan et al. (2001)** found that the prevalence of ADHD-HI symptoms decreased after the preschool years, whereas the ADHD-I type symptoms increased dramatically.

In Japan, **Kanbayashi et al. (1994)** employed parent ratings of DSM-III-R symptoms of ADHD with 1,022 children

and adolescents ages 4-16 and found a prevalence of 7.7%. Approximately 7-17% of children and adolescents between 4 and 16 years of age are likely to have ADHD if only rating scales are used to establish prevalence. If ADHD-I is considered separately, the rates of ADHD for the two remaining subtypes are roughly 4-10%. The prevalence of ADHD-I appears to be between 5% and 9% when rating scales of inattentive symptoms are employed ***(Barkely, 2006)***.

Gadow and Sprafkin (1997), studying samples of children from New York, Missouri, and Wisconsin and using DSM-IV items and recommended symptom thresholds, reported a prevalence of 7.7% for ADHD-II, 2% for ADHD-HI, and 2.9% for ADHD-C. These results are all quite similar to those of the much smaller community survey using DSM-III-R symptoms conducted by ***DuPaul (1991)***. **Wolraich et al. (1996)** also examined teacher ratings of the DSM-IV symptom list and found a prevalence of 6% when ADHD-PI was excluded.

Wolraich, et al. (1998) evaluated 4,323 subjects in the same school district one year later, and found a prevalence of 2.6% for ADHD-HI and 4.7% for ADHD-C. The rate for ADHD-PI ranged from 5.4% to 8.8% in these studies ***(Wolralch et al., 1998)***.

E- Source of information and variation in prevalence

ADHD prevalence seemed to vary depending on who was being asked to report symptoms. Parents and teachers are the most common sources, but they are not always congruent ***(Zuddas et al., 2006)***. **Magnusson et al. (1999)** reported ADHD

prevalence in Iceland at the level of 4.7% when parents were asked, but 5.8% when teachers were asked.

In a study of DSM-IV symptoms as rated by parents and teachers in an Australian sample 1,275 (ages 5-11 years), **Gomez et al. (1999)** found prevalence rates of 1.6% for ADHD-I, 0.2% for ADHD-HI, and 0.6% for ADHD-C when parent and teacher agreement on symptoms was required for diagnosis. By parent reports only, the rates were 4.2%, 2.7%, and 2.9%, respectively (9.9% for all types); by teacher reports, these figures were 5.8%, 0.9%, and 2.1% (8.8% for all types). Boys were two to seven times more likely to receive the diagnosis than girls.

Liu et al. (2000) reported results for a Chinese population (2,936) ranging in age from 6 to 11 years in Shandong Province. Using the teacher version of the CBCL, these researchers found 7.8% of boys and 2.8% of girls to manifest clinical significant levels of attention problems on this scale. In a later study by **Liu et al. (2001)** using this same report form (CBCL) with 1,649 adolescents (12-16 years), the prevalence was 3.9% by parent reports and 1.1% by teacher reports.

Little research has been conducted evaluating self-reported symptoms of ADHD in adolescence or adulthood ***(Barkley, 1990)***. **Barkley and colleagues (1991)** found that adolescent-referred teenagers with ADHD reported less serious adjustment difficulties relative to parents' and teachers' ratings and concluded that clinicians should not rely heavily on the self-reports of adolescents, Agreeing that adolescents may underreport symptoms, Dulcan (1986) reached a different

conclusion that when adolescents endorsed symptoms, they were likely to be clinically significant ***(Dulcan, 1986)***.

The shift in weighting of informants parallels the shift in referral agent over development. Children and adolescents are brought to the clinic by their parents; in adulthood, clients are self-referred. Because the referral agent influences who does and does not seek treatment, additional research is needed that examines self-report of ADHD symptoms in adolescence and adulthood for clinical as well as methodological reasons ***(Schaughency et al., 1994)***.

The fact that children or adolescents behave differently in different situations and with different adults can be a major factor contributing to this lack of agreement. The often subjective judgments required in determining whether a child's or adolescent behavior occurs "often" or is "deviant" can be another. The fleeting or ephemeral nature of behavior, as well as the constant stream of their new behaviors or actions, can create further confusion as to which of these actions should be considered in the judgment. Finally, the use of adult opinions to determine a diagnosis of hyperactivity/ADHD in a child or adolescent will always be somewhat confounded by the characteristics and mental status of the adult informant, in addition to the child's or adolescent's actual behavior. Psychological distress, depression, family discord, and social biases can affect the judgments adults make about children, and can therefore add to the lack of agreement among adults about the presence and degree of a subjects ADHD ***(Barkley, 2006)***.

F- Psychosocial, geographical differences and variation in prevalence of ADHD

Information on demographic distribution of ADHD is generally limited. Higher prevalence rates have been associated with lower socioeconomic status and among urban as compared to rural residence, but no significant differences were observed regarding the place of residence in other studies ***(Skounti et al., 2007)***.

In Qatar the study of prevalence of ADHD showed a significant correlation between a higher score of ADHD symptoms and presence of multiple marriages in case of one or both parents. There was no statistically significant difference between the score and the those raised by single or both parents ***(Bener et al., 2006)***.

This interprets the fact that subjects whose parents are divorced or parents have several marriages simultaneously do not get proper attention and care from their parents, and this leads to a greater incidence of ADHD symptoms ***(Bener et al., 2006)***.

In the study of **Cuffe et al. (2001)** on older adolescents for prevalence of ADHD, significant associations are found in baseline undesirable life events and having fewer than two parents at baseline. Family cohesion is inversely associated with ADHD.

Szatmari et al. 1989 found that psychosocial variables, such as low SES, were no longer associated with rates of ADHD when other comorbid conditions, such as CD, were controlled. Health problems, developmental impairment, young age, and urban living remained significantly associated with the occurrence of the disorder. When differences in prevalence rates are found across SES levels, they may be artifacts of the source used to define the disorder or of the comorbidity of ADHD with other disorders known to be related to SES, such as aggression and CD ***(Barkley, 2006)***.

Boyle and Lipman (2002) also found that family and neighborhood factors (in that order) affected rates of disorder in Ontario. Others found similar conditions associated with the risk for ADHD ***(Velez et al., 1989)***.

More recently, **Boyle and Lipman (2002)** also found that SES had a low but significant inverse relationship with rates of hyperactivity in a Canadian sample. Being male, coming from a single-parent family, and being in a disadvantaged neighborhood all significantly increased the likelihood of hyperactivity.

As regards to geographical differences, **Faraone et al (2003)** suggest that the prevalence of ADHD is at least as high in many non-US children as in US children. Certain populations may have a lower prevalence of ADHD symptoms (e.g., Iceland, Australia, Italy, and Sweden), but this cannot be concluded on the basis of the available data in their study. Direct comparisons between different populations are required to truly assess the relative prevalence of ADHD symptoms in different cultures and

countries. **Gadow et al. (2000)** reported the prevalence of ADHD symptoms in a sample of 600 Ukrainian children (aged 10-12). The Ukrainian children and adolescents were a sample of those living within 30 km of the Chernobyl nuclear power plant who were evacuated to Kyiv and remained living there 10 years later. This study reported a prevalence of ADHD symptoms of 19.8% for Ukrainian children and adolescents compared with 9.7%, for the US sample ***(Faraone et al., 2003)***.

G- Race and variation in prevalence

Prevalence variations between different racial and ethnic groups have not been adequately examined. The study of **Rowland et al. (2001)** suggested little difference between black and white subjects, and more racial differences in medication treatment. Several studies have suggested higher prevalence rates in black than white adolescents. **Ford et al. (2003)** suggested that Asian subjects (Indian, Pakistani, Bangladeshi and Chinese) might have a lower prevalence of ADHD compared with white ones. In the study of **Cuffe et al. (2005)**, hispanic children and adolescents were significantly less likely to be diagnosed with ADHD than their white peers. In this study, male ADHD prevalence by race was 3.06% for hispanics, 4.33% for white and 5.6% for blacks. Student ethnicity has been suggested to affect the rating of ADHD symptoms and **Epstein and colleagues (1998)** pointed that teachers tended to rate black ones higher than white.

H- Culture difference and prevalence variation

ADHD prevalence may be culture dependent, ***(Biederman and Faraone et al., 2005; Sergent, 2005)*** as what is considering abnormal in one culture may be more acceptable in another, and culture may affect the report by informants (parent and teachers) or clinicians. **Mann et al. (1992)** investigated the differences among mental health professionals in China, Indonesia, Japan and USA differed in rating of ADHD and found that Chinese and Indonesian clinicians gave significantly higher scores for hyperactivity than Japanese and American colleagues did.

I- One-Setting and two-setting evaluation and prevalence variation

School-based studies commonly focused on a single setting. Out of the 39 studies, only 10 were based on information from two settings and reported prevalence rates from 2.2 to 16.1 %. Four of these studies used DSM-III-R criteria and the remaining six used DSM-IV criteria. All DSM-III-R studies and four of the DSM-IV studies reported prevalence rates from 2.2-8.9%. The two remaining DSM-IV studies reported high prevalence rates of 11.3% and 16.1% ***(Skounti et al., 2007)***. (see table A4)

An important mutation of most school-based studies is that they limit observations to a child's or adolescents behavior in only 1 setting. ADHD prevalence estimates are particularly sensitive to methodological nuances including who is being asked to report symptoms **(Stanger, Lewis, 1993)** and how discrepant information from parents, teachers, or children is combined ***(Cohen et al., 1994)***. Because parent and teacher report often disagree, the DSM-IV requires evidence of symptoms and impairment in 2 settings ***(Rowland et al., 2001)***. Using multiple information has become an essential epidemiologic tool for assessing childhood psychopathology ***(Cantwell, 1996)***. Teachers are particularly valuable informants because they daily observe many children and adolescents at the same developmental level and thus have a reference frame-work for spotting deficiencies in attention or behaviors that are not age-appropriate. Parent and teacher reports are important

components of the clinical diagnostic workup of ADHD ***(Goldman et al., 1998)***. Using both parent and teacher report may be optimal when screening for externalizing behaviors like ADHD. Nevertheless, only a few of the ADHD prevalence studies have combined teacher and parent reports ***(Breton, 1999; Rowland et al., 2001)***.

J- Clinical impairment and variation in prevalence

Assessment of clinical impairment may well contribute to variations in prevalence rates. **Wolraich et al. (1998)** reported ADHD prevalence rate of 16.1% in a school population in the USA by using DSM-IV criteria, but if the diagnosis of ADHD included symptoms count and poor classroom functioning as a measure of impairment, the prevalence of ADHD would have fell to 6.8%. Similarly, in the studies by **Shaffer et al. (1996) and Graetz et al. (2001)** when clinical impairment was taken into account, the prevalence of ADHD dropped from 6.5% to 5.1% and from 7.5% to 6.8%, respectively.

Table(A4)

CHAPTER (III)
Biological Factors in ADHD

Considerable research has accumulated on various etiologies for ADHD. Although multiple etiologies may lead to ADHD, evidence points to neurological and genetic factors as the greatest contributors to the disorder ***(Barkley, 2006)***.

Neurochemical abnormalities that may underlie ADHD have still proven extremely difficult to document with any certainty, though some inferences about them are possible from some research results and from the medications that appear to be of most benefit to the disorder ***(Rowland et al., 2002; Barkley, 2006)***.

In the past decade, no credible social-environmental theory even hypothesis concerning causation in ADHD has been developed. Yet, evidence suggests only some role for the social environment in the onset, course, and severity of those comorbid conditions ***(Barkley, 2006)***.

It's challenging to consider all of the phenomena believed to contribute to the development of the disorder, primarily due to the fact that pathways to the ADHD are largely believed to be heterogeneous. For some individuals, the development of the disorder appears to be heritable. For others, external factors or specific environmental factors may contribute to the presenting symptoms of the disorder. For others, ADHD is likely to develop from a combination of genetic and environmental factors ***(Rickel, Brown, 2007)***.

I- Biological factors in ADHD

Genetic factors

Current research is being conducted to identify specific genetic contributions to ADHD. Molecular genetic studies and research investigating twins and adopted children suggest that genes predispose individuals to ADHD. **Faraone (2004)** has hypothesized that it is the combined effects of multiple genes, yet to be identified ***(Rickel, Brown, 2007)***.

A- Family aggregation studies

Research shows that between 10% and 35% of the immediate family members of children with ADHD are also likely to have the disorder, with the risk to siblings of these children being approximately 32% ***(Biederman et al., 1992; Levy and Hay, 2001)***.

Higher-than-expected rates of family aggregation of the disorder have been found in African American families, similar to rates reported in families of European American children ***(Samuel et al., 1997)***. And these higher rates are as evident in the families of girls as of boys with ADHD ***(Faraone and Doyle, 2001)***. Even more striking is the finding that if a parent has ADHD, the risk to the offspring is 57% ***(Biederman et al., 1995)***. Further evidence for the familial clustering of ADHD in families of affected children came from a study by **Smalley et al. (2000)**, in which they identified families having at least two affected children with ADHD (n = 132). They then assessed the 256 parents in these families for various psychiatric disorders and

found that 55% of the families had at least one parent with a lifetime diagnosis of ADHD.

Genetic relatives of individuals with ADHD are more likely to have the disorder when compared to nongenetic relatives. In addition, genetic relatives of individuals affected by ADHD are more likely to have symptoms of the disorder than individuals from Psychiatric samples or the general population ***(Cook, 2000)***.

However, there have been numerous criticisms and obvious limitations of these studies. Family studies must often depend upon reliable recall by participants and most of these cases may be biased with regard to selectivity factors. More severe cases of ADHD may come to medical centers where these studies are conducted ***(Flick, 1998)***.

B- Twin studies

Large-scale twin studies are quite consistent with the findings that symptoms of ADHD are greater in MZ than DZ twines ***(Levy and Hay, 2001; Thapar, et al., 1999)***. **Gilger et al., 1992** found that if one twin was diagnosed as having ADHD, the concordance for the disorder was 81% in MZ twins and 29% in DZ twins. **Sherman et al. (1997)** found that the concordance for MZ twins having ADHD (mother-identified) was 67%, versus 0% for DZ twins.

Numerous large-scale twin studies subsequently conducted have been remarkably consistent with this conclusion, demonstrating that the majority of variance (70-95%) in the traits of ADHD is a result of genetic factors (averaging approximately

80%+) ***(Banerjee et al., 2007)***, and that such a genetic contribution may increase as the scores along this trait become more extreme, although this latter point is debatable ***(Coolidge et al., 2000)***. **Nadder et al., 2002**, this remains so even when just attention problems are rated in twin studies by parents **(Reitveld et al., 2004)** or teachers ***(Groot et al., 2004)***.

It is important to note that some of these studies may be affected by rater biases, gender bias and developmental bias ***(Hudziak, 2000)***. The current categorical diagnostic system of the DSM-IV-TR provides only a dichotomous determination of the disorder's presence. Most twin studies of ADHD use a quantitative approach to address symptoms of inattention and hyperactivity rather than employing the categorical approach of the current psychiatric nomenclature employed by the American Psychiatric Association. Researchers ***(Rickel and Brown, 2007)***

C- Adoption studies

Cantwell (1975) and Morrison and Stewart (1973) both reported higher rate of hyperactivity in the biological parents of hyperactive children than in the adoptive parents of such children. Both studies suggest that hyperactive children are more likely to resemble their biological parents than the adopted parents in their level of hyperactivity ***(Pauls, 1991)***.

A recent study by **Sprich et al. (2000)** compared the rates of ADHD in the first-degree adoptive relatives of 25 adopted children with ADHD, compared to the relatives of non-adopted children with ADHD and to those of non-adopted control children with ADHD. They found that 6% of the relatives of the adopted children with ADHD had ADHD suggesting that the

children's ADHD did not arise from family environmental transmission ***(Banerjee et al., 2007)***.

Adoption studies reflect a selectivity bias in that adoptive parents are often screened out for psychopathology, and with adopted children there may be unknown factors associated with poor prenatal care, low birth weight, diet, and others ***(Flick, 1998)***.

D- Molecular genetic research

Early quantitative genetic analyses of the large sample of families studied in Boston by Biederman and his colleagues suggested that a single gene may account for the expression of the disorder ***(Faraone et al., 1992)***. Later research suggests that more than one gene is highly likely to be involved in the expression of the disorder. Research has focused much attention on dopamine-regulating genes, given the positive response of ADHD cases to dopamine agonists and reuptake inhibitors, as well as the large role of dopamine in the striatum and frontal cortex (two regions implicated in ADHD ***(Barkley, 2006; Spencer et al., 2007)***.

Research was based on findings of increased association of DRD_2 gene (gene for D_2 dopamine receptor) with alcoholism, Tourette syndrome, and ADHD ***(Blum et al., 1996)***. But later many others failed to replicate this association of ADHD with DRD_2 ***(Fisher et al., 2002)***.

Another gene related to dopamine receptor sensitivity is the gene for the D4 receptor, or DRD4, ***(Kuntsi et al., 2006)*** particularly in its 48-bp form and with 7 or more repeats of it. The number of repeats in humans ranges from 2 to 10 ***(Barr,***

2001). The 7-repeat version of this polymorphism was initially found to be overrepresented in children with ADHD ***(LaHoste et al., 1996)***.

This gene was previously associated with the personality trait of high novelty-seeking behavior. It also affects pharmacological responsiveness, and the gene's impact on postsynaptic sensitivity is primarily found in the frontal and prefrontal cortical regions believed to be associated with executive functions and attention ***(Barr, 2001; Bellgrove and Mattingley, 2008)***.

Also, this 7-repeat form of the gene has recently been related to greater impulsivity on laboratory measures, as well as higher measured activity levels, in children with ADHD who possessed this form of the gene than in those who did not ***(Langley et al., 2004)***.

Approximately 29% of the samples with ADHD seem to have the 7-repeat allele, which may serve as a marker for a more homogeneous phenotype within this population ***(DiMaio et al., 2003)***. **Grady and colleagues (2003)** have recently shown that it may be novel variation (allelic heterogeneity) in the DRD4 7-repeat alleles that contributes to risk for ADHD, rather than the risk arising from just one particular sequence of this allele.

One study suggests that D5 dopamine receptor gene DRD5 may have some association with ADHD ***(Fisher et al., 2002)***.

It also suggested that the 13p16 region on chromosome 16 may contain a gene or genes associated with ADHD, a finding that continued to hold up when the sample size of affected sibling pairs was increased from 126 to 203 pairs ***(Smalley et al., 2002)***.

The dopamine transporter gene (DAT1) also has been implicated in a number of studies of ADHD children ***(Daly et al., 1999; Waldman et al., 1998; Bellgrove and Mattingley, 2008).*** One study found that a 10-repeat form of this gene may be related to poorer response to methylphenidate ***(Winsberg and Comings, 1999)***. That study also found that the DRD2 and DRD4 alleles were not related to drug response.

Molecular genetics have identified genes of the dopamine receptor system as candidate genes for the development of ADHD, with a smaller number of studies addressing genetic risk related to norepinephrine receptors ***(HudziaK, 2000; Rickel and Brown, 2007)***.

More recently, the long polymorphism of the DBH (dopamine-beta-hydroxylase) gene (Taq I) has also been implicated in Milwaukee longitudinal study of hyperactive children followed to adulthood ***(Mueller et al., 2003)***.

While there is not necessarily a clear genotype for the disorder and the specific genetic mechanism of the disorder remains unknown, it is clear that ADHD is a disorder that does occur in families. There is emerging research related to pharmacogenetics whereby some subtypes of children and adolescents with specific genetic predispositions have been found to respond positively to specific pharmacotherapies and adversely to others. Thus, the interface of genetics and ADHD is a field that is very fertile for future research efforts ***(Rickel and Brown, 2007)***.

II- Neurological factors in ADHD

Research findings pertaining to neurological integrity in ADHD have increasingly supported the view of a neurodevelopmental origin for the disorder via studies using psychophysiological measures of nervous system ***(Barkley, 2006)***.

Recent research point to impaired right prefrontal mechanisms underlying response inhibition ***(Seidman et al., 2005; Pliszka et al., 2000)***. There is some evidence of reduced neuro-metabolite activity in the right frontal region ***(Yeo et al., 2003)***, with the degree of this activity being associated with degree of attention problems on a continuous-performance test.

Finding EEG and ERP

The most consistent pattern for EEG research is increased slow-wave or theta activity, particularly in the frontal lobe, and decreased beta activity ***(Loo and Barkley, in press; Monastra et al., 2001)***.

Subjects with ADHD have been found to have smaller amplitudes in the late positive components of their ERPs, which are believed to be a function of the prefrontal regions of the brain and are related to poorer performances on vigilance tests, and are corrected by stimulant medication ***(Johnstone et al., 2001; Pliszka et al., 2000)***.

Studies using SPECT (single photon emission computed tomography) in ADHD subjects have shown decreased blood flow to the prefrontal regions (particularly in the right frontal area) and pathways connecting these regions to the limbic system via the striatum specifically, its anterior region known as the caudate-and to the cerebellum ***(Sieg, et al., 1995)***. That has been

correlated with behavioral severity of the disorder and with reduced EEG activity ***(Rosen and Cederblad, 2000)***.

Studies using PET to assess cerebral glucose metabolism have found diminished metabolism in adults with ADHD, particularly in the frontal region ***(Schweitzer et al., 2000)*** but have been far less consistent with teens and children ***(Tannock, 1998)***. Using a radioactive tracer that indicates dopamine activity, has shown abnormal dopamine activity in the right midbrain region of children and adolescents with ADHD; the severity of symptoms was correlated with the degree of this abnormality ***(Ernst et al. 2003)***.

Findings in MRI, fMRI

Children and adolescents with ADHD were found to have smaller right hemisphere plana temporal than the control group ***(Hynd, 1990)***.

Those with ADHD were also found to have a smaller callosum, particularly in the area of the genu and splenium and that region just anterior to the splenium ***(Hynd et al., 1991)***.

Later studies have indicated significantly smaller anterior right frontal regions, smaller size of the caudate nucleus, possibly reversed asymmetry in the size of the head of the striaturn (caudate), and smaller globus pallidus regions in children and adolescents with ADHD compared to control subjects ***(Castellanos et al., 2002; Hendren et al., 2000; Bush et al., 2005)***. This has been correlated with the degree of impairment in inhibition and attention in children and adolescents with ADHD ***(Semrud-Clikeman et al., 2000)***.

Numerous studies ***(Castellanos et al., 2001, 2002; Durston et al., 2004)*** have also found smaller cerebellar volume in those with ADHD, especially in the vermis. This would be consistent with the view that the cerebellum plays a major role in executive functioning and the motor-presetting aspects of sensory perception that derive from planning and other executive actions ***(Diamond, 2000)***, and that these functions may be deficient in subjects with ADHD.

Studies using fMRI find children and adolescents with ADHD and nondisabled ones to have differing patterns of activation during attention and inhibition tasks, particularly in the right prefrontal region, the basal ganglia (striatum, globus pallidus, and putamen), and the cerebellum ***(Teicher et al., 2000)***. The demonstrated linkage of brain structure and function with psychological measures of ADHD symptoms and executive deficits is exceptionally important, to permit causal inferences to be made about the role of these brain abnormalities in the cognitive and behavioral deficits constituting ADHD ***(Yeo et al., 2003)***.

III- Neurotransmitter deficiencies in ADHD

Possible neurotransmitter dysfunction or imbalances have been proposed, resting chiefly on the responses of subjects with ADHD to dopamine and norepinephrine reuptake inhibitors and agonists ***(Pliszka, McCracken, and Maas, 1996; Spencer et al., 2007)***.

Evidence from studies of cerebral and adolescents spinal fluid indicates decreased brain dopamine in subjects with ADHD compared to non-disabled ones ***(Halperin et al., 1997)***. Evidence

from other studies using blood and urinary metabolites of brain neurotransmitters have proven conflicting in their results ***(Shaywitz et al., 1986)***.

Dopamine does affect attentional processing, and pharmacotherapies that have affinity to specific transmission of dopamine at the synapses have been effective in assuaging ADHD symptoms ***(Brown, 2000; Rickel and Brown, 2007)***.

Sagvolden, et al. have recently proposed a dynamic neuro-developmental theory of ADHD (Combined and Predominantly Hyperactive-Impulsive Types) based on altered dopamine function, that can arise from hypo-functioning in one of three dopamine branches identified in the brain. Low functioning in a mesolimbic pathway in the brain produces an altered sensitivity to reinforcement and deficient extinction of previously reinforced behavior, which could give rise to the delay aversion, hyperactivity, impulsivity, and poor sustained attention. Low functioning in the mesocortical dopamine pathway could also give rise to deficient attention toward a target, as well as to poor planning and executive functioning. Finally, low functioning in the nigral-striatal dopamine pathway results in impaired modulation of motor behavior and deficient learning and memory, which could give rise to the motor delay, clumsiness, and poor motor inhibition seen in ADHD. Predispositions to low functioning in these dopamine pathways are hypothesized to interact with each other and with surrounding environmental factors to amplify or alter these initial predispositions ***(Sagvolden, et al. 2007)***. Further studies are needed to clarify the dopaminergic function in the pathophysiology of ADHD ***(Spencer, 2007)***.

IV- Other factors affecting the etiology of ADHD

- **Pregnancy and Birth Complications**

Pregnancy and birth complications are of interest to researchers in ADHD because they can have a detrimental effect on brain development ***(Barkley, DuPaul, and McMurray, 1990; Spencer, Mick et al., 2007)***. **Claycomb et al. 2004** found that mother's age at delivery (younger), educational level (lower), time between onset of labor and birth (longer), and presence of delivery complications accounted for 42% of the variance in ADHD. The study, however, did not control for maternal ADHD symptoms, which may have resulted in the younger age at delivery and lower educational level of the mothers.

Other research demonstrates a relation between low birth weight and the development of ADHD ***(Knopik et al., 2005)***.

Sharp et al. (2003) studied possible environmental contributions to ADHD by identifying monozygotic (MZ) twins in which only one twin was affected by ADHD. He found that the affected twin was smaller at birth and more likely to have experienced a breech delivery.

Stress during pregnancy was found to have a modest contribution of stress to ADHD symptoms in offsprings of these pregnancies ***(Linnet et al., 2003)***.

Van den Bergh and Marcoen (2004) evaluated mothers and their firstborn children and found that maternal state of anxiety during pregnancy explained 22% of the variance in symptoms of ADHD in the offspring of the pregnancy, with anxiety during the 12th to 22nd week being specifically

implicated. Such stress may result in some programming effect on the fetal brain. Yet; no attempt was made to control for maternal ADHD and its genetic contribution to level of child ADHD.

One study found that the season of a child's birth was significantly associated with risk for ADHD ***(Mick et al., 1996; Mick et al., 2002)***. Birth in September was overrepresented in these children. The season of birth may serve as a proxy for the timing of seasonally mediated viral infections to which these mothers and fetuses may have been exposed.

- **Environmental toxins**

Elevated body lead burden has been shown to have a small but consistent and statistically significant relationship to the symptoms constituting ADHD ***(Needleman et al., 1990)***.

Studies that have controlled for potentially confounding factors in this relationship have found the association between body lead (in blood or dentition) and symptoms of ADHD to be .10-.19; the more factors controlled, the more likely the relationship is to fall below 10 ***(Silva et al., 1988; Thomson et al., 1989)***. This finding suggests that no more than 4% (at best) of the variance in the expression of these symptoms in children and adolescents with elevated lead is explained by their lead levels.

- **Smoking, substance and alcohol abuse**

The relationship between maternal smoking during pregnancy and ADHD remains significant even after symptoms of ADHD in the mother are controlled for ***(Mick et al., 2002)***.

Knopik et al. (2005) have identified an association between maternal alcohol consumption during pregnancy and the development of ADHD. Fetal alcohol syndrome (FAS) and fetal alcohol effects (FAE) increase the likelihood of ADHD symptoms ***(Knopik et al., 2005)***.

Studies of substance abuse during pregnancy are distressing. As many as 50% of the babies of mothers who used crack cocaine during pregnancy show evidence of learning disabilities, ADHD, and impulse problems as they grow up ***(Brown, 2000)***.

Some clinical evidence suggests that methylxanthines, such as theophylline (a medication often used in treating asthma) and caffeine, may cause side effects as inattention and hyperactivity. They may sufficiently predispose a child on these medications to be somewhat poorer at paying attention in school, or they may exacerbate the symptoms of a child who already has ADHD. A metaanalysis of the research literature. **(Stein et al., 1996)** found no evidence of significant deleterious effects of either theophylline or caffeine on behavioral or cognitive functioning.

Recently, elevated levels of phenylalanine in mothers with phenylketonuria have been associated with higher levels of hyperactive-impulsive symptoms in their offspring and

symptoms of inattention in children with PKU ***(Antshel and Waisbren, 2003)***.

- **Streptococcal infection**

Peterson et al. (2000) examined 105 individuals having OCD, chronic tic disorder, or ADHD, and 37 controls without any disorder. Levels of anti-streptococcal antibody titers in blood were measured, as was the integrity of the basal ganglia (via MRI). Results indicated that ADHD was significantly related to such antibodies, even after the effects of OCD and tic disorders were controlled for, and that those antibodies were related to basal ganglia volume.

- **Side effects of medications**

Some evidence indicates that the medications used to treat seizure disorders, particularly phenobarbital and phenytoin, are likely to result in increased problems with inattention and hyperactivity in subjects taking these medications ***(Committee on Drugs, 1985)***.

- **Psychosocial and environmental factors**

A number of environmental factors contribute to the ADHD phenotype. While these agents do not necessarily cause the disorder, they are associated or may exacerbate a constitutional predisposition to the disorder. Theoretical perspectives with environmental components address attachment disorders, levels of familial conflict, caregiver warmth and support, caregiver educational achievement, caregiver substance use, and child abuse trauma ***(St. Sauver et al., 2004)***.

The actual severity of the symptoms, their continuity over development, the types of secondary symptoms, and the outcome of the disorder are related in varying degrees to environmental factors ***(Milberger et al., 1997)***. Yet, care must be taken in interpreting these findings as evidence of a pure environmental contribution to ADHD, because many measures of family functioning and adversity also show that there is a strong heritable contribution to them, largely owing to the presence of symptoms and disorders in the parents similar to those evident in the children ***(Pike and Plomin, 1996)***. Psychosocial adversity can be considered as triggers or modifiers of the course of illness ***(Spencer et al., 2007)***.

Sauver et al. (2004) observed an inverse association between parental education levels and risk for ADHD. Other psychologists have contributed an attachment perspective to conceptualizations of ADHD ***(Stiefel, 1997)***. **Erdman (1998)** suggests that parent-child attachment patterns contribute to ADHD.

Rickel and Becker-Lausen (1997) provide a visual depiction of the reciprocal interactions between nurturant versus restrictive child rearing practices, other environmental influences, and behavioral outcomes that also include ADHD. This model is important as it demonstrates the many pathways through which diverse environmental components affect child and adolescent outcomes.

Several researches have demonstrated that family dysfunction influences the development of ADHD. **Knopik et al. (2005)** found that both maternal and paternal alcohol dependency

increased the likelihood that children would receive an ADHD diagnosis. Parent-child conflict increases susceptibility for comorbid disorders in childhood and adolescence that include ADHD ***(Burt et al., 2003)***.

Others have found results from difficulties in parent's over stimulating approach to caring for and managing adolescents as well as from parental psychological problems ***(Carlson et al., 1995)***. But these theories have not been clear in articulating just how the deficits in behavioral inhibition and other cognitive deficits commonly associated with clinically diagnosed ADHD.

Studies investigating parent-child interaction found that the medications resulted in significant improvements in children's and adolescents symptoms and compliance which lead to a corresponding reduction in mothers' use of commands, direction, and negative behavior when they were on medication, indicating that much of the negative behavior of the mothers appeared to be in response to the difficult behavior of these children and adolescents. **Barkley et al. (1985)** suggesting that disrupted parenting is likely to not only be a reaction to the subject's behavioral control problems, but may also arise from the parents' own ADHD and the higher likelihood that the parents may experience other psychological disorders, such as depression, anxiety, antisocial behaviors or Antisocial Personality Disorder, and substance dependence or abuse ***(Barkley, 2006)***.

Studies have shown that the continuation of hyperactive behavior over development, and especially the maintenance of

oppositional behavior in these children and adolescents, are related in part to parents' use of commands, criticism, and an over-controlling and intrusive style of management ***(Barkley et al., 1991)***. This suggests that comorbid ODD/CD when seen in ADHD may in part be a function of parental management practices; it does not mean that a subject's ADHD is a result of those practices and as a shared genetic liability ***(Nadder et al., 2002)***.

Child abuse sequelae may include the development of ADHD. **Ford et al. (2000)** reviewed data from 165 consecutive child psychiatric outpatient admissions, and found that ADHD was related to physical or sexual maltreatment. It remains unclear whether violence exposure in childhood is a risk factor for ADHD ***(Yehuda, 2000)***.

Block (1977) proposed that an increase in "cultural tempo" in modern Western civilization may account for the prevalence of hyperactivity in these countries. Yet, evidence was presented to suggest that either less developed cultures or Eastern cultures have less hyperactivity than do more developed or Western cultures ***(Barkley, 2006)***.

One psychosocial factor that has received recent attention in the popular media is the degree of children's and adolescents exposure to television.

Christakis et al. (2004) used data from the National Longitudinal Survey of Youth to examine the relationship between hours of television viewed at ages 1 and 3 years with attention problems at age 7 years, they found that hours of

television exposure at ages 1 and 3 years was significantly associated with being classified as having attention problems at age 7 years. The analyses statistically controlled for a number of other variables as covariates, including gestational age, maternal tobacco and alcohol exposure during this pregnancy, number of children at home, single-parent versus two-parent household, emotional support, cognitive stimulation, maternal depression and self-esteem, and others.

A critism to this study, is that the causal inference may be that attention problems may cause children or adolescents to watch more TV (rather than doing things that require sustained attention). Also their correlation probably results from some other, unstudied variable, and the chief candidate is shared family genetics for attention problems ***(Reitveld et al., 2004; Barkley, 2006)***.

Biederman et al. (1995) concluded that psychosocial adversity significantly influences the expression of ADHD symptoms. In this study they found that while no one particular psychosocial stressor increased poor outcome of ADHD, the additive effect of multiple stressors (e.g., low socioeconomic class, large family size, parental psychopathology, foster placement) had a significant impact on the level of impairment ***(Brown, 2000)***.

Interaction between psychosocial factors and genetics

Across the twin studies conducted to date, the results have been reasonably consistent in demonstrating that the shared environment contributes little explanation to individual differences in the traits underlying ADHD (hyperactive-

impulsive-inattentive); it accounts for typically 0-13% of the variance among individuals, which is not statistically significant ***(Levy and Hay, 2001)***.

Such shared environmental factors include socioeconomic status and family educational/occupational status, the general home environment, family nutrition, toxins that may be present in the home environment (especially lead), parental and child-rearing characteristics that are common or shared across ADHD subjects in the family, and other such non-genetic factors that are common to the twins under investigation in these studies. In their totality, such shared environmental factors seem to account for 0-6% of individual differences on average in the behavioral trait(s) related to ADHD ***(Pike and Plomin, 1996; Barkley, 2006)***.

Other twin studies have suggested that approximately 9-20% of the variance in hyperactive-impulsive-inattentive behaviors or ADHD symptoms can be attributed to non-shared environmental (non-genetic) factors ***(Levy and Hay, 2001)***.

Chapter IV
ADHD and Psychiatric Comorbidity

There is no doubt that a diagnosis of ADHD conveys a significant risk for other coexisting psychiatric disorders ***(Spencer, 2007)***.

An understanding of ADHD comorbid conditions is essential to establish the diagnosis ***(Sergent, 2003)***. One study using a large community sample showed that up to 44% of subjects with ADHD had at least one other psychiatric disorder, 32% had two others, and 11% had at least three other disorders ***(Szatmari, Offord, and Boyle, 1989)***.

Figure (A1)

As a group adolescents with ADHD are rated as having more symptoms of disruptive behavior (oppositional and conduct problems), anxiety, depression or dysthymia, and low self-esteem than either non-disabled ones or those with learning disabilities (LDs) who do not have ADHD ***(Brown, 2000a)***.

1- ADHD and mood disorders

Depressive disorders:

Symptoms of depression are often elevated among clinical samples of adolescents with ADHD ***(Treuting and Hinshaw, 2001)***, with the highest levels occurring among those having comorbid aggression (or ODD/CD).

A review of the literature on the comorbidity of Major Depressive Disorder (MDD) or Dysthymic Disorder ADHD cases found a range between 15% and 75% ***(Spencer et al., 2000; Pierce, 2003)***.

Biederman et al. (1993), found that rate of MDD in adults with ADHD vs adults in control group is 31% versus 5%.

The inverse relationship is less clear, but the weight of evidence suggests some elevated risk of ADHD among youth diagnosed with depression ***(Spencer et al., 2000)***. A study of depressed boys found that rates of ADHD were not significantly elevated but that levels of other disruptive behavior, such as oppositional and conduct problems, were so ***(Jensen et al., 1988)***.

A study by **Fischer et al. (2002)**, showed that the association of ADHD with depression was greatly reduced when the investigators controlled for comorbidity of ADHD with

ODD/CD and with anxiety. In other words, the relationship of ADHD and depression may be an epiphenomenon ***(Angold et al., 1999)*** that arises only because of the association of ADHD with ODD/CD and ADHD with anxiety.

MDD demonstrate a familial linkage with ADHD, such that risk for one disorder predisposes to risk for the other disorder not only in these children and adolescents, but also among family members of the comorbid subjects ***(Biederman and Faraone, 1997)***. Thus ADHD and MDD may share underlying familial etiological factors ***(Spencer et al., 2000)***.

On the other hand, the observation of comorbidity between ADHD and affective disorders has led some authors to speculate that the diagnosis of hyperactivity/ADHD may be a misdiagnosis of an underlying depressive disorder ***(Brumback, 1988; Furman et al., 2005)***. Others suggested that depressive symptoms in hyperactive subjects with ADHD may be secondary to chronic failure and demoralization associated with ADHD ***(Weiss et al., 1986; Brown, 2000)***.

Bipolar I disorder and ADHD

Bipolar I Disorder (BPD) occurs in approximately 1% of children **(Lewinsohn et al., 1995)**, and fewer than 0.4% of adults with BPD may have had the onset of the disorder in childhood ***(Spencer et al., 2000)***.

For children and adolescents, episodes of mania are not required for a diagnosis of BPD; severely irritable mood can be substituted. Also, rather than the typical episodic expression of manic-depression as it often occurs in adults, BPD in children may be chronic ***(Carlson, 1998)***. These changes to the diagnostic criteria when applied to children and adolescents create an obvious overlap between the diagnosis of BPD and that of severe ODD when it coexists with ADHD, in which irritability often exists as part of the symptom complex for ODD ***(Barkley, 2006)***.

Many features of ADHD appearing on the symptom list for mania create further diagnostic confusion and overlap that is merely an artifact of symptoms lists ***(Spencer et al., 2000)***. The irritability seen in BPD may be markedly more severe than in ODD, in that it is characterized by "affective storms" involving prolonged and highly aggressive and destructive behavior, whereas that of ODD is often milder, episodic, and likely to be provoked by parental commands. The thinking disorder seen in BPD may be more than just excessive speech and illogical thought, which characterize ADHD; those with BPD show evidence of thought disorder that may be more bizarre or psychotic-like ***(Spencer et al., 2000)***.

However, **Geller et al. (1998)** found that hyperactivity or distractibility did not differ between BPD and ADHD suggesting that these symptoms are not helpful to differential diagnosis.

Wilens et al. (2002) reported rates of comorbidity in their clinic-referred samples; they found that 26% of preschool children with ADHD and 18% of school-age children and adolescents qualified for a diagnosis of BPD. Children and adolescents with both BPD and ADHD also appeared to experience an earlier onset to their BPD than did those without ADHD ***(Faraone et al., 1997)***, with the average age of onset for BPD being between 2.6 and 3.0 years of age when it coexisted with ADHD ***(Wilens et al., 2002)***. In study of adults with BPD, **Sachs et al. (2000)** also found that BPD had an earlier age of onset when it was comorbid with ADHD (12 years vs. 20 years). Those with this comorbidity often have a greater likelihood of comorbidity with other disorders (depression, psychosis, ODD/CD) than do those with ADHD alone ***(Spencer et al., 2000)***, and may show a poorer response to acute lithium therapy than those with mania alone ***(Strober et al., 1998)***.

Faraone, et al. (1997) suggest that ADHD with BPD constitutes a distinct familial subtype of ADHD. When subjects with ADHD are subdivided into those who do or do not have BPD, both groups demonstrate a higher rate of ADHD among their relatives. Only that the subgroup with both ADHD and BPD have a higher rate of BPD (36% vs. 6%) among their relatives ***(Faraone, et al., 2001; Spencer et al., 2000)***. Thus children and adolescents with ADHD appear to have a small but significant risk for BPD (6-27%), whereas those with childhood-onset BPD have a very high probability of having ADHD (91-98%) ***(Spencer et al., 2000)***. Yet adolescents with BPD have a substantially lower rate of ADHD (11%) ***(Lewinsohn et al., 1995)***.

2- ADHD and anxiety disorders

Anxiety disorders are commonly comorbid with ADHD ***(Pierce, 2003)***.

In their study of both preschool and school-age samples of clinically referred children and adolescents with ADHD, **Wilens et al. (2002)** found that 28% of preschoolers and 33% of school-age children and adolescents had at least two or more anxiety disorders (one of which was typically a phobia), with the age at onset of the anxiety disorders being 2.6 to 3.0 years.

Conversely, about 15-30% of adolescents diagnosed clinically with anxiety disorders were likely to have ADHD ***(Tannock, 2000)***.

Though not always consistent, research seems to suggest that the presence of anxiety alters the clinical presentation of ADHD more in the direction of greater inattention and poorer working memory but less impulsive behavior, and possibly more in girls ***(Barkley, 2006)***.

Yet some few studies find that anxiety symptoms with ADHD does not differ in the clinical picture ***(Tannock, 2000)***.

The MTA suggests that anxiety in ADHD-C may be more closely related to ODD and generally disruptive behavior than to fearfulness ***(March et al., 2000)***.

Anxiety was associated with a significantly reduced level of impulsivity below that seen in those with ADHD but without anxiety in some studies, though the latter remained more impulsive than nondisabled ones ***(Epstein et al., 1997; Tannock, 2000)***.

The MTA studied 499 clinic referred children and adolescents with ADHD-C and found that those with associated anxiety disorders demonstrated significantly greater levels of inattention than impulsivity relative to those children not having an anxiety disorder. Girls with comorbid ADHD and anxiety disorders made significantly fewer impulsive errors on a continuous-performance test (CPT) than did girls having only ADHD. Yet the presence of anxiety may also increase problems in performing cognitively complex tasks, such as those involving working memory. And hence those anxious subjects with ADHD will have more impairment on working memory tasks than will nonanxious ones with ADHD but less impairment on reaction time tasks ***(Tannock, 2000; Pierce, 2003)***.

Finally, adolescents with comorbid ADHD and anxiety disorders have been, found to exhibit greater impairments in adaptive functioning in school, spare-time activities, peer relations, and home life than children with ADHD only ***(Biederman et al., 1993b)***.

Implication of comorbid anxiety disorder on ADHD medication

Research suggested that the presence of anxiety with ADHD might reduce the likelihood of a positive response to stimulant medications ***(Jensen et al., 1997; Tannock, 2000)***.

Some studies found no impact on stimulant responding ***(March et al., 2000)***. **Antshel and Remer (2003)** also found that adolescents having ADHD and elevated anxiety were more likely

to respond to a social skills training program than were those with ADHD alone.

And hence coexistence of anxiety disorders with ADHD may affect the clinical presentation, course, and response to treatment.

Table (A5)

3- ADHD and correlation with PTSD

Some studies found that there was no meaningful association of ADHD with trauma or PTSD. Approximately 12% of ADHD children and adolescents had been exposed to some type of traumatic event, compared to 7% of the control group ***(Wozniak et al., 1999)***.

The converse relationship between these disorders may be somewhat different. Children and adolescents with PTSD appear to have a higher-than-expected comorbidity with ADHD, ranging from 14% to 46% ***(Weinstein et al., 2000)***.

4- ADHD and comorbid tic, Tourette disorder

Tics are a common occurrence in childhood, occurring in between 4% and 18% of children and adolescents, and having a high probability of remission by adolescence. Tourette syndrome (TS) is a rarer and more severe tic disorder, occurring at rates of 1-5 cases in 1,000 individuals ***(Peterson et al., 2001)***.

The tic disorders also showed a high probability of remission. The presence of a tic disorder did not appear to alter the clinical presentation or course of ADHD, in terms of the ADHD's severity or effects on global functioning. Such disorders have little impact on ADHD course, impairment and general global functioning.

As to Tourette disorder, no evidence appears to point to a higher than-normal frequency of TS among those with ADHD ***(Peterson et al., 2001; Geller et al., 2002)***.

Spencer et al. (2001) found a modestly elevated rate of lifetime tic disorders among clinically referred adults diagnosed with ADHD (12%), compared to their control group (4%).

In contrast, as severity of tic disorders increases, the likelihood of these disorders' being comorbid with ADHD also increases, such that between 25% and 85% of those with TS have comorbid ADHD ***(Comings, 2000)***. In his study of 361 individuals with TS, **Comings (2000)** reported a prevalence of 61.5% having ADHD, so patients with ADHD appear to have little elevated risk for TS, while patients with TS have a strikingly high risk for having comorbid ADHD.

Cause of comorbidity

First, the prevalence of TaqIA$_1$, allele of the dopamine D_2 receptor gene was very similar in both tourette syndrome and ADHD subjects and is involved in both disorders.

Also, the genes for dopamine β-hydroxylase (DBH) and the dopamine transporter gene played a significant role in both disorders ***(Brown, 2000)***.

A second hypothesis for the cause of both disorders **(Comings, 1990b)** is that of a defect in serotonine metabolism. There is a genetic defect in typtophan 2, 3 dioxygenase gene (TDo2), this supports a genetic base for both disorders.

5- ADHD and OCD

OCD is often found in 1.8-5.5% of adolescents and approximately 3.3% of young adults ***(Peterson et al., 2001)***.

Peterson et al. (2001) suggests some relationship between

childhood ADHD and adult OCD, but clearly most of their children with ADHD did not develop OCD or tic disorders, and vice versa. Moreover, this relationship of ADHD to later OCD has not been borne out by longitudinal studies of large samples of children with ADHD followed to adulthood ***(Fischer et al., 2002)***, where no significant elevation in OCD among those with ADHD has been evident in comparison to community control groups. Hence, the risk of having OCD among children and adolescents with ADHD may be 3-5%. The inverse relationship may be different. Studies suggest that 6-33% of those with OCD may have ADHD **(Brown, 2000b)**, and that when these disorders are found together, they represent true comorbidity rather than the OCD symptoms' merely being a phenotypic equivalent of ADHD ***(Geller et al., 2002)***.

6- ADHD and comorbid oppositional defiant and conduct disorders

Adolescents with ADHD display a greater degree of difficulties with oppositional and defiant behavior, aggressiveness and conduct problems, and even antisocial behavior than typical children do. Over 65% of clinic-referred samples may show significant problems with stubbornness, defiance or refusal to obey, temper tantrums, and verbal hostility toward others ***(Loney and Millich, 1982; Thapar et al., 2006)***.

The meta-analysis by **Angold et al. (1999)** of 21 different community studies reported a median odds ratio of 10.7 between ADHD and CD/ODD, making it the most likely comorbidity between ADHD and any other set of disorders. Whereas ODD may occur by itself in the absence of CD, CD rarely occurs alone with ADHD, almost always being seen in the context of ODD. The most common types of conduct problems found are lying, stealing, truancy, and physical aggression ***(Barkley, 2006)***.

Adolescents with comorbid ADHD and CD/ ODD appear to have higher levels of impulsivity those with only ADHD or with ADHD and an anxiety disorder ***(Lynam, 1998)***. They also have more impulsive behavior than hyperactive behavior, and committed more impulsive errors on a CPT than those with ADHD and an anxiety disorder in one study ***(Newcorn et al., 2001)***. This implies that the presence of comorbid ODD/CD in ADHD augurs for a more severe form of ADHD. When children and adolescents have both disorders, they often display the mixture of cognitive and attention/inhibitory deficits typical of

ADHD, as well as a greater likelihood of factors associated with social adversity, family psychiatric problems, and family conflict ***(Newcorn and Halperin, 2000)***. They are also more likely to have an earlier onset of their antisocial activities, greater persistence of those activities, more school disciplinary consequences, greater substance use and abuse, more traffic offenses and vehicular crashes, and generally a worse overall outcome than are those children with ADHD but without CD ***(Barkley et al., 1991; Jensen et al., 1997; Thapar et al., 2006)***.

Are ADHD, ODD, and CD distinct psychiatric conditions or different aspects of the same general phenomenon?

Careful examination of the diagnostic criteria for ADHD, ODD, and CD indicates that there is very little overlap in the symptoms used to define these disorders. However, the frequent co-occurrence of inattention, hyperactivity, impulsivity, oppositionality, and aggression within individuals suggests that these symptom domains are very closely related, which makes them difficult to disentangle both heuristically and in clinical practice ***(Brown, 2000; Furman, 2005)***.

In contrast, other studies have indicated that it is possible to distinguish symptoms of ADHD from those of aggression by using a variety of descriptive, psychosocial, developmental, and laboratory measures ***(Brown, 2000)***.

Neurobiological differences between the two disorders may also be found. They support a role of the serotonergic system in aggression but not in ADHD, while dopaminergic

mechanisms seem more likely in ADHD than in aggression ***(Newcorn and Halperin, 2000)***.

Studies using objective laboratory measures as CPT (continuous performance tests graphs) **Teicher et al. (1996)** have also shown that individuals who have ADHD without comorbidity can be distinguished from those who have ODD or CD without ADHD ***(Halperin et al., 1993)***. The subjects with ADHD in the **Halperin et al. (1993)** study made significantly more inattention and impulsivity errors on the CPT measures than did the children with ODD and/or CD.

Does the comorbid configuration of ADHD and CD represent a distinct subtype?

Comorbidity of ADHD and CD has the most data substantiating its consideration as a distinct subtype. These data include:

- Results of family studies, which indicate that transmission of the comorbid condition has a strong familial component ***(Angold et al., 1999)***.
- Results of longitudinal studies, which suggest that children with ADHD and comorbid CD are at increased risk for poor outcome, including the development of antisocial behavior and substance abuse in adolescence and adulthood ***(Brown, 2000)***.
- Findings from studies using peripheral and central measures of neurotransmitter function, as well as response to pharmacological challenge, which point to differences in the

neurobiological basis of ADHD with and without aggression ***(Brown, 2000)***.

ADHD + CD combination represents a unique disorder or subtype of ADHD. That is, the disorders do not just coexist additively, but represent a unique combination or even unique disorder from ADHD alone ***(Brown, 2000)***.

It is a more severe subtype of ADHD in which the outcomes are often worse than is seen in ADHD alone ***(Barkley and Fletcher, 2004)***.

Hence adolescents with ADHD who present with early aggression and comorbid conduct disorder should receive the most intensive intervention, because they are at highest risk of poor outcome ***(Brown, 2000)***.

7- ADHD and comorbid learning disorders

Despite the prevalence of both ADHD and learning disorders, there is still widespread confusion over the differentiation of these two clinical entities ***(Brown, 2000)***.

The confusion may be due to the overlap of academic and attention problems associated with both conditions, the inconsistencies in definitions, the heterogeneity of definitional criteria for both conditions, and the frequent clinical presentation of both disorders within the same child ***(Pliszka, 2000)***.

Also, due to the inevitable delay in the dissemination of recent advances in the conceptualization, definition, and classification of learning disorders and ADHD ***(Shaywitz et al. 1994)***.

About 20%-25% of children and adolescents with ADHD are likely to present with specific learning disorders, ***(Pliszka, 2000).*** Conversely, studies of non-referred with learning disorders indicate that about 17% of them meet the criteria for a diagnosis of ADHD ***(Shaywitz et al., 1994)***.

Substantial evidence from epidemiological, cognitive, neurobiological, and genetic linkage studies suggests that ADHD and learning disorders particularly reading disabilities, are not alternative names for the same set of problems. ADHD and learning disorders exist independently of each other in the majority of cases ***(DuPaul and Stoner, 2003)***.

As to neurophysiological difference, evidence suggesting that deficits in central executive control functions, particularly in the ability to inhibit or delay a response, characterize ADHD but not reading disorder ***(Oosterlaan et al., 1998)***.

In contrast, neuropsychological studies indicate that phonological processing deficits are characteristic of reading disorder but not ADHD ***(Adams, 1990)***.

Changes in clinical picture of ADHD and comorbid learning disorders

Subjects with comorbid ADHD and learning disorders appear “spacey”, and fidgety rather than "driven" and overactive. They exhibit great difficulty following the conversation, particularly when there are more than two people involved and the conversation passes rapidly from one to another, with frequent use of puns, idioms, and metaphors. When talking, they use many nonspecific terms, have difficulty finding the right word, mispronounce words (e.g., "aminals" instead of "animals"), and fall to use specific temporal or causal markers (e.g., words like first, next, finally, because). As a result, it is often very difficult to understand what the child is trying to say ***(Brown, 2000)***.

They frequently look puzzled and at a loss as to how to proceed when given instructions. Their response is often characterized by inaction and hesitation rather than by acting before thinking. They are often unable to repeat or provide only part of the instructions, or may have completely misunderstood. Many are unaware of basic routine information (days, months, the current date, numbers). They are unable to list in correct sequence or may have to start from the beginning of the sequence each time to know. They exhibit marked slowness with copying from a book or from the blackboard (e.g. they misalign numbers

or decimal points, omit words, or copy incorrectly); their handwriting is messy, illegible, and poorly spaced, with many words misspelled. Most will exhibit great reluctance when asked to express their ideas in writing and produce only one or two sentences, with little elaboration of ideas but numerous mistakes in capitalization, punctuation, or grammar. Thus, the performance of subjects with comorbid ADHD and learning disorder tends to be slow and inaccurate rather than fast and inaccurate ***(Brown, 2000)***.

Motor problems and interpersonal and social difficulties are common among individuals with comorbid ADHD and learning disorders ***(Brown, 2000)***.

Also, they do not respond to conventional nonverbal social cues for opening or closing conversation (e.g., body stance, gesture, facial expression, looking at watch or at another person). Jokes, puns, or other forms of humor may pass without any response ***(Brown, 2000)***.

Specific comorbidities with learning disorders

a- ADHD and reading disorders

Epidemiological and clinical studies suggest a comorbidity rate of 15%-30% ***(Semrud-Clikeman et al. 1992)***. There is no consistent evidence to date that the presence of comorbid reading disorder systematically alters the behavioral profile of ADHD **(Pennington et al., 1993)**, although reading disorder may be more, commonly associated with attention deficit disorder without hyperactivity ***(Hynd et al., 1991)***.

Korkman and Pesonen (1994) found that the group with comorbid ADHD and learning disorders had more pervasive

attention problems and more visuomotor problem than the group with ADHD or learning disorder only.

b- ADHD with mathematics disorder

Children and adolescents with ADHD are particularly vulnerable to math difficulties as well as specific mathematical disabilities ***(Zentall et al., 1994)***. The overlap between ADHD and mathematics disorder ranges from 10-60% ***(Semrud-Clikeman et al., 1992)***.

Comorbid mathematics disorder occur more frequently in those with predominantly inattentive and combined subtypes of ADHD ***(Faraone et al., 1998)***.

Studies by **Benedetto and Tannock, 1999** suggest that memory-retrieval problems may underlie both reading disorder (retrieval of phonological codes) and mathematics disorder (retrieval of basic math facts) in subjects with ADHD and account for the high rates of overlap. They also exhibit procedural deficits, particularly in subtraction that involves regrouping.

c- ADHD and disorder of written expression

Few systematic studies of this comorbidity underachievement in reading, written spelling, written sentence construction written spelling and writing fluency ***(Elbert, 1993)***.

d- ADHD and developmental coordination disorder (motor skills disorder)

Many children and adolescents with ADHD have concomitant visuomotor problems **(Nigg et al., 1998)**, and many

of those with clumsiness also have attention disorders and behavior problems ***(Losse et al., 1991)***. A pattern of deficits in attention, motor control and perception (DAMP) is common in middle childhood ***(Hellgren et al., 1994)***.

A study found that speech/language difficulties, clumsiness, accidents leading to fractures, and depressive disorders were all more common in those with both attention-deficit disorders and motor/perceptual deficits. Also, complex reaction times were significantly longer in the group with both attention-deficit disorders and motor/perceptual deficits than in the other clinical and comparison groups ***(Hellgren et al., 1994)***. In general, the outcome for the group with motor/perceptual deficits only was considerably worse than that for the group with attention-deficit disorders only.

e- ADHD and communication disorders

Estimates of the overlap varies from a low of 8% to a high of 90%, depending on the precise definitions of speech and language impairments, the nature of the communication problems, the source and type of sample, and the type of methods used to diagnose ADHD ***(Brown, 2000)***.

The onset of language may be delayed in ADHD, although findings are inconsistent **(Ornoy et al., 1993)**. Also, problems in both receptive and expressive language abilities have been reported in children with expressive language being particularly impaired ***(Oram et al. 1999)***.

Children and adolescents with ADHD are likely to exhibit word retrieval problems when asked to name pictures or to describe events that require highly specific vocabulary ***(Tannock***

et al., 1995a). These problems are manifested by the use of nonspecific words and circumlocutions (e.g., "the thing you hit with"). Also, they may have problems formulating precise sentences and more complex sentences ***(Oram et al., 1999)***.

f- ADHD with central auditory processing disorder (CAPD)

Studies suggest that the rate of comorbidity between ADHD and CAPD ranges from 45% to 75% ***(Riccio et al., 1994)***.

Good diagnosis, assessment and treatment of comorbid learning disorders and other psychiatric disorders is important to avoid secondary “life disabilities” as emotional social and family problems in multiple domains of the adolescent life ***(Brown, 2000)***.

Chapter V
Assessment of ADHD

Assessment of ADHD can present many challenges. Frequently, individuals with ADHD have limited awareness of their difficulties. They may be either unable to consider their own behavior as abnormal, or may exaggerate symptoms. Often different informants whom the clinician may interview disagree, and they are likely to bring their own biases to the assessment setting ***(Mickel and Brown, 2007)***.

A thorough assessment of differential and comorbid conditions is also necessary. Though early diagnosis may increase the likelihood of effective intervention, misdiagnosis may represent a failure to note difficulties with emotional functioning, anxiety, depression, or child abuse ***(Mickel and Brown, 2007)***.

Assessment goals

A major goal of assessment is the determination of the presence or absence of ADHD, as well as the differential diagnosis of ADHD from other psychiatric disorder and taking in consideration individual's ethnic variation ***(Mash and Barkley, 2003)***.

A second purpose of the evaluation is to begin delineating the types of interventions needed to address the psychiatric disorders and psychological, academic, and social impairments identified in the course of assessment ***(Mash and Barkley, 2003)***.

Another important purpose of the evaluation is to determine conditions that often coexist with ADHD and the manner in which these conditions may affect prognosis or treatment decision making ***(Barkley, 2006)***.

A further objective of the evaluation is to identify the pattern of the adolescent's psychological strengths and weaknesses and how they may be useful in treatment planning.

Table (A6)

Assessment procedures

An ADHD assessment includes the following components: An interview, rating scales, checklists completed by multiple informants for the purpose of capturing a broad perspective with regard to behaviors that may be associated with ADHD across settings, an evaluation of concurrent psychiatric diagnoses, a childhood behavioral and medical history, and neuropsychological testing. While neuropsychological testing does not identify ADHD, it is useful for identifying other comorbidities such as specific learning disabilities. The assessment procedure should be structured according to the age of the client ***(Mickel and Brown, 2007)***.

I- Interviewing procedures

A- Parental interview

Parental interview is the core of the assessment process ***(American Academy of Child and Adolescent Psychiatry, 1997)***.

An interview with highly specific questions about symptoms of psycho-pathology, history, course, and periodicity that have been empirically demonstrated to have a high degree of association with particular diseases enhances diagnostic reliability ***(Kentgen et al., 1997; Sergeant, 2003)***.

Areas of importance in the interview include:

- **Demographic information**

The routine demographic data concerning the adolescent and family (e.g., ages of adolescents and family members; date of birth; parents' names, addresses, employers, and occupations; and the school, teachers, and physician) should be obtained at the outset of the appointment ***(Barkley, 2006)***.

- **Major parental concerns**

The interview proceeds to the major referral concerns of the parents and what prompted the referral at this time, current family circumstance related to the problem severity and parental motivation for treatment ***(Barkley and Murphy, 2006)***.

- **Review of major developmental domains**

The examiner should review with the parents potential problems that might exist in the developmental domains of motor, language, intellectual, academic, emotional, and social

functioning. It aids in the differential diagnosis of the child's problems ***(Barkley, 2006)***.

- **School, family, and treatment histories**

The family history must include a discussion of potential psychiatric difficulties or disorders in the parents and siblings; marital/couple difficulties; and any family problems centered around chronic medical conditions, employment problems, or other potential stress events within the family and information about prior treatments received by the child or adolescent and his or her family for these presenting problems ***(Barkley, 2006)***.

Asking about the siblings, questions about parents' consanguinity, the overall stability of marriage, physical and psychiatric troubles of the parents and if any of them has learning disability ***(Barkley and Murphy, 2006)***.

Gathering a reliable school history is important for evidence of symptoms of ADHD and impairment of the child academic functioning ***(Barkley, 2006)***.

- **Review of other associated psychiatric disorders**

The symptoms of the major psychiatric disorders likely to be seen in ADHD patient must be covered in parental interview ***(Barkley, 2006)***.

- **Psychosocial functioning**

It involves peer relationships recreational activities, compliance and functioning at and school. Evidence of impairment is important in the clinical diagnosis of ADHD.

B- Child and adolescents interview

The length of this Interview depends on the client age, intellectual level, and language abilities. An important aspect of the interview is its function as a mental status exam-the opportunity for the clinician to observe the language skills, interpersonal skills, eye contact, and thought processing ***(Spencer, 2007)***.

For a preschool child, the interview may also serve as a time to become acquainted with the child, noting his or her appearance, behavior, developmental characteristic and general demeanor.

For an older child or adolescent, clinician inquire about the child's or adolescents views of the reasons for the referral and evaluation, views of the family's functioning, perceptions of any additional problems he or she may have, school performance, degree of acceptance by peers and classmates recreational activities, family relation, and any changes in the family the child believes might make life happier at home.

The client can be inquired about potential rewards and reinforcers; which are useful in contingency management programs ***(Fisher, 1993; Barkley, 2006)***.

C- Teacher interview

Contact with the adolescent's teachers may be helpful to further clarify the nature of his problems.

It provides a second ecologically valid source of indispensable information about his psychological adjustment in the school setting ***(Barkley, 2006)***.

The medical interview

Thorough review of the genetic background, pre – and perinatal events, and developmental and medical history, as well as the patient's current health, nutritional status, and gross sensory-motor development ***(Barkley, 2006)***.

A. The main purpose of the medical interview is to focus on differential diagnosis of ADHD from other medical conditions. In rare cases, the ADHD may have arisen secondary to a clear biologically compromising event, such as recovery from severer reye syndrome, a hypoxic-anoxic event such as near-drowning or severe smoke inhalation, significant head trauma, or a central nervous system infection, or a cerebrovascular disease. It is also necessary to determine whether the adolescent conduct or learning problems are related to the emergence of a seizure disorder or are secondary to the medication being used to treat the disorder ***(Barkley, 2006)***.

B. A second purpose of the medical exam is to thoroughly evaluate any coexisting conditions that may require medical management. Motor incoordination, enuresis, encopresis, allergies, otitis media, and greater somatic complaints in general. Asking about accidental injuries is very important as ADHD subjects are more prone to accidents ***(Barkley, 2001)***.

C. A third purpose of the medical history is to determine whether physical conditions exist that are contraindications for treatment with medication.

A history of high blood pressure or cardiac difficulties warrants careful consideration about a trial on a stimulant drug or atomoxetine given the known pressor effects of these drugs on the cardiovascular system. Some adolescents may have a personal or family history of Tourette syndrome or other tic disorders, which would dictate caution in prescribing stimulants

Pediatric medical examination

It includes height, weight, and head circumference measurement and comparison to standardized graphs. Hearing and vision, as well as blood pressure and heart rate, should be screened. Findings suggestive of hyper- or hypotension, hyper- or hypothyroidism, lead poisoning anemia, or other chronic illness clearly need to be, documented and further workup should be pursued. Neurological examination should be done and specially covering the following areas: motor coordination, visual perceptual skills, language skills, and cognitive functioning. Hearing and visual deficit should be ruled out ***(Barkley, 2006)***.

As regards to laboratory tests: None of the laboratory measures are of value in the diagnostic process yet quantitative EEG (QEEG) is showing some promise in accurately distinguishing subjects with ADHD from nondisabled ones ***(Loo and Barkley, 2005)***.

Only when the medical and developmental history or physical exam suggests that a treatable medical problem (such as a seizure disorder) exists, or that a genetic syndrome is a possibility, should the laboratory procedures be recommended ***(Barkley, 2006)***.

Routine liver function studies need to be done at baseline and again periodically during the use of pemoline in treatment.

Baseline routine electrocardiogram should be done and then repeated several weeks after beginning TCA as medication due to drug treatment, it their cardiotoxic effect ***Barkley, 2006)***.

II- Interview instruments

Structured and semistructured interviews for patient with ADHD allow the clinician to cover a broad range of issues that are easily overlooked with patients. Structured clinical interviews allow researchers to make reliable diagnoses to include children or adolescents in a study protocol, as well as to provide a standardized means of making diagnoses in large-scale epidemiological studies ***(Brown, 2000)***.

These interviews fall into two categories.

A- In the highly structured format

Lists of symptoms are presented to the informant who simply states whether or not the symptom is present or absent. No clinician need to be present. The Diagnostic Interview Schedule for Children **(DISC; Schwab-Stone et al., 1996; Shaffer et al., 1996)** and the Diagnostic Interview for Children and Adolescents **(DICA; Welner et al., 1987)** all fall into this category. The DISC has a parent and youth version (to children more than 12 years).

B- A semistructured interview

The Schedule for Affective Disorders and Schizophrenia for School Age Children-Present and Lifetime Version (K-SADS-PL, or "Kiddie-SADS"; **Kaufman et al., 1997)** which is designed for use by clinicians. The informant is asked by the clinician about a symptom, and the clinician uses his or her own judgment to rate the severity of the symptom on a scale ***(Pilizika et al., 1999)***.

The K-SADS-PL, can generate up to 32 DSM-IV childhood diagnoses and can only be administered by clinicians. After a 10- to 15 minute introductory interview, there are 82 screen questions divided into 20 diagnostic areas. If a child meets the threshold criteria for a disorder during the screen interview, the interviewer then goes on to ask the full range of questions about the disorder. If the screen interview is negative for that diagnosis, then the full interview for that category is skipped. The complete questions are contained in diagnostic supplements, of which there are five: **(1)** affective disorders; **(2)** psychotic disorders; **(3)** anxiety disorders; **(4)** behavioral disorders; and **(5)** substance abuse, eating, and tic disorders. The items in the supplements are rated by the clinician on a 0-3 rating scale, with 0 indicating no information, 1 meaning the symptom is not present, 2 indicating subthreshold level of the symptoms, and 3 meaning that the symptom is definitely present. First the parent is interviewed alone, and then the child is interviewed. The final ratings are a synthesis of the parent report and the child report. Generally, greater weight is given to parental report of disruptive behaviors, while the child is relied upon for reports of his/her own subjective feelings (depression, anxiety). Each clinician, however, is free to use his/her own clinical judgment in integrating parent and child data. Test-Retest reliability data on the K-SADS-PL, appear quite good, ranging from .9 for depression to .63 for ADHD ***(Kaufman et al., 1997)***. Each site where the K-SADS-PL, is used must ascertain that different clinicians are administering the interview in a consistent manner.

C- Other interview instruments specific to ADHD

- The Barkely Interview for ADHD ***(Barkley et al., 1998)*** is a structured interview covering numerous sign and symptoms of ADHD (from DSM-III-R) and severity of the disorder ***(Brown, 2000)***.
- The Brown ADD Diagnostic Form **(Brown, 1996b)** is a semistructured interview for the assessment of adolescents; and adults suspected of attention-deficit disorder. The form provides probes for eliciting presenting symptoms, school and work history, developmental history, health issues, familial patterns, leisure time, and treatment (Specified in DSM-IV) ***(Brown, 2000)***.

III- Rating scales in ADHD

Behavior checklists and rating scales have become essential elements in the evaluation and diagnosis of children and adolescents with behavior problems ***(Sergeant, 2003; Barkley, 2006)***.

Importance of rating scales

They help **(1)** to screen children and adolescents for disorders in preparation for the clinical interview, **(2)** to establish a baseline of symptoms against which the success of treatment can be measured, and **(3)** to identify specific areas of impairment that are the focus of psychosocial interventions ***(Pliszka et al., 1999; Sergeant, 2003)***.

Types of rating scales

Rating scales fall into two general types: general, or broad-spectrum scales to cover major dimensions of child psychopathology and ADHD-specific scales ***(Klein et al. 1994)***. The ADHD-specific scales include a broad variety of scales for self-report, for parent and teacher report, and, in adults, for reports from the spouse or significant other ***(Brown, 2000)***.

A. Broad spectrum rating scales

Three broad-spectrum rating scales in wide use are **1)** Achenbach's Child Behavior Checklist, with the accompanying self-report form, the Youth Self-Report **(Achenbach, 1991, 2001)**. **2)** Behavior Assessment System for Children (BASC) + (BASC2) **(Reynolds and Kamphaus, 2004)** and **3)** Child Symptom Inventories **(Gadow and Sprafkin, 1997)**. All of them have parents and teacher version and have statistically normative information ***(Barkley, 2006)***.

B. Rating scales specific to ADHD

Forms for children, adolescents and adults exist with different emphases, different levels of symptom representation, and different levels of research documentation. Rating scales cannot provide the information for a definitive diagnosis. Scales form the beginning of the diagnostic process and allow systematic collection of information from multiple sources that may not be readily available in diagnostic interviews ***(Brown, 2000)***. A number of rating scales are available for use with patient, parent, and teacher.

The Conners Rating Scales-Revised includes the Conners Teacher Rating Scales-Revised, the Conner Parent Rating Scales-Revised, and the Conners-Wells Adolescent Self-Report Scale. The Conners Rating Scales-Revised cover ages 3 to 17 years and are well-normed to provide useful assessment data regarding ADHD and related problems. They are available in both long and short forms ***(Conners, 2001)***.

The Conners Adolescent Self Report Scale contains 87 items on the following subscale: Family Problems, Anger

Control Problems, DSM-IV Symptoms Subscale, Emotional Problems, Conduct Problems, Cognitive Problems, Hyperactive-Impulsive, and the ADHD Index. A 27-item short form contains only the last four scales. This scale is very useful as symptoms clearly change with age and self report becomes more accurate as the child gets older. Also, co-morbid problems develop and become more consistent with age ***(Flick, 1998)***.

Barkley and Murphy 1998, 2006, published the Disruptive Behavior Rating Scale the Home Situations Questionnaire (HSQ), and the School Situations Questionnaire (SSQ) for assessment of children and adolescents. The HSQ requires parents to rate their child's behavioral problems across 16 different home and public situations. The SSQ similarly obtains teacher reports of problems in 12 different school situations ***(Barkley and Murphy, 2006)***.

- The Brown Attention Deficit Disorder Scales **(Brown 1996a)** is a set of rating scales that focuses on symptoms of inattention. One form is available for adolescents (ages 12-18 years), and another for adults.
- The Academic Performance Rating Scale **(Barkley, 1990)** to provide a means of screening quickly for this domain of school functioning. It is a teacher rating scale of academic productivity and accuracy in major subjects areas ***(DuPaul et al., 1991)***.
- The Spadafore-ADHD-Rating Scale is designed for use by teachers for children and adolescents ages 5 to 19. It was reportedly intended not only to detect ADHD, but also to indicate the severity of problem behaviors ***(Flick, 1998)***.
- The ADHD comprehensive Teacher Rating Scale (ACTeRS) employs 24 items and 4 scales: Attention, Hyperactivity, Social Skills, and Oppositional Behavior. This rating scale provides separate norms for girls and boys (equivalent to ages 5 through 13). This scale is medication sensitive, and it appears helpful in distinguishing between ADHD with and without hyperactivity. A parent form is available with similar scales, as well as an additional scale focusing on early childhood behavior ***(Flick, 1998)***. Since teacher ratings may be prone to halo and/or practice effect, some have recommended that two questionnaires be completed for a baseline measure as ratings often improve between the first and second administration without any intervention ***(Flick, 1998)***.

- There are also several adult rating scales that have developed to assess ADHD in adults. This includes Wender Utah Rating Scale for adult ADHD identification ***(Ward et al., 1993; Brown, 2000)***.
- Also Conners has developed a scale for adults, the Conners Adult Attention Rating Scale ***(Conners et al., 1999)***. The scale consists of items written for adults with ADHD, including a number of items directed at attention and affect.
- Other rating scales that can be used to assess different areas in children and adolescents with ADHD and their parents include:
    - ***Adaptive behavior scales and inventories as:*** Vineland Adaptive Behavior Inventory-II ***(Sparrow et al., 2005)*** which is the most commonly used measure for assessing adaptive functioning.
    - ***Peer relationship measures as:*** the Matson Evaluation of Social Skills with Youngsters ***(Matson et al., 1983)***, the Taxonomy of Problem Social Situation for Children ***(Dodge et al., 1985)***, and the Social Skills Rating System ***(Gresham and Elliott, 1990)***.
    - ***Parental ADHD and ODD as:*** Adult ADHD Rating Scales ***(Conners et al., 2000)***, which have norms on a much larger sample of adults from numerous geographic regions.
    - ***Marital and couple disorder as:*** the Locke-Wallace Marital Adjustment Scale ***(Locke and Wallace, 1959)***.
- ***Parental depression and general psychological distress and parental stress as:*** The Beck Depression Inventory-II ***(Beck,***

Steer and Brown, 1996) for parental depression, symptom checklist 90-revised ***(Derogatis, 1995)*** that assess adult psychopathology and distress, the adult self report version of CBCL, and the parenting stress index ***(PSI; Abidin, 1995)*** to assess the parental stress.

IV- Psychological and neuropsychological assessment

Psychological testing is an additional component and can supply valuable information regarding the severity of comorbid conditions and of child's and adolescent's pathology ***(Mickel and Brown, 2007)***. It may also have value in predicting outcome (e.g., drug response), ascertaining a cognitive process (e.g., working memory), or confirming a diagnosis in unique population or age group (e.g., mental retardation) ***(Fisher, et al., 1995)***. Yet, there is no one specific test for diagnosing ADHD.

Components of the neuropsychological assessment

1- Assessment of cognitive abilities

The "gold standard" for assessment of abilities is the Wechsler Intelligence Scale for Children-III (ages 6 to 16 years, 11 months). It provides verbal, performance and full scale IQ scores ***(Flick, 1998)***.

Factor scores are: 1- Verbal Comprehension, 2- Perceptual Organization, 3- Freedom for distractibility, 4- Processing Speed.

While some clinicians do look at the factor scores for problems with attention and concentration on the Freedom From Distractibility Factor score, others find much inconsistency and not believe that this score, provides a reliable and valid measure of attentional processes. Most clinicians do look for consistent patterns across various tests and will include this factor score as one measure to look at ***(Klee and Garfinkel, 1983)***.

Kaufman Brief Intelligence Test (KBIT) is available as a quick measure for the child ability in short screening evaluation ***(Flick, 1998)***.

2- Assessment of achievement

The Wechsler Individual Achievement Test (WIAT) was co-normed with the WISC-III, thus allowing for meaningful analysis of ability achievement discrepancies important in the diagnosis of learning disabilities ***(Flick, 1998)***.

Another comprehensive achievement test is the Woodcock-Johnson Psycho-educational Battery Revised (WJ-R). Additional screeners for achievement include the Wide Range

Achievement Test-Revised and the Boder Test of Reading/Spelling Patterns ***(Flick, 1998)***.

3- Assessment of executive function:

These are measures of frontal lobe functions. They include the trail Making Test, the Stroop Color Word Test, and the Wisconsin Card Sorting test. The Trail Making Test primarily assesses motor speed and mental flexibility ***(Reitan and Wolfson, 1985)***. The Stroop Color Word Test requires that the child inhibit competing information before making a response ***(Stroop, 1935)***. The Wisconsin Card Sorting Test require again mental flexibility and conceptual problem solving ***(Lezak, 1995)***.

4- Assessment of visual motor skills

The Bender-Gestalt Test has been the choice of clinicians for many years yet, it has limitations in use with children. Most children are able to complete the task by age 8 years. Older children and adolescents may thus not be identified when their visual-motor problems are more subtle and therefore not detected by this test.

Another test is the Minnesota Perception-Diagnostic test which measures both visual perception and visual motor skills ***(Flick, 1998)***.

5- Assessment of motor-skills

In most neuropsychological test batteries, motor speed is assessed by the Finger Tapping or the Finger Oscillation Test. Also Barkley has suggested the Hand Movement Test, a subtest from the Kaufman Assessment Battery for Children ***(Kaufman***

and Kaufman, 1983). It is based on tasks reflecting frontal lobe functions in adults.

Another motor test is the Strength of Grip Test. It provides an estimate of motor strength in ADHD subjects. Other measures of motor functions can be found in the SOMPA Physical Dexterity Tasks (for children 5 to 12 years old) and the Comprehensive Movement Assessment Battery for children ages 4 through 12 years ***(Flick, 1998)***.

6- Assessment of memory functions

The Wide Range Assessment of Memory and Learning (WRAML) is used the WRAML incorporates measures of both visual and verbal memory, some of which are very sensitive to attentional problems and is appropriate for children ages 5 to 17 years. The Sentence Memory and Number Letter Memory along with Design Memory and the Fingers Windows visual memory subtests are especially sensitive ***(Flick, 1998)***.

Another is the Test of Memory and Learning (TOMAL) used to evaluate children and adolescents ages 5 through 19 years. It features verbal and nonverbal memory scores, as well as supplemental composite scores of an Attention and Concentration Index and a Learning Index ***(Flick, 1998)***.

7- Assessment of attentional skills

Continuous-performance tests

The most popular and widely studied form of testing for use in ADHD evaluations is based on a paradigm called the CPT ***(Rosvold et al., 1956)***. The CPT has been administered with many variations (e.g., visual, auditory, numbers, and characters),

A wide ranging literature has shown it to be the most reliable of psychological tests discriminating groups of subjects with ADHD from non-disabled ones ***(Corkum and Siegel, 1993)***.

CPT is the only psychological measure that seems to directly assess the core symptoms of the disorder namely, impulsivity and inattention ***(Barkley, 2006)***.

The CPT serves as the paradigm for several commercially available performance measures, including the Conners CPT **(Conners, 1995)** and Conners CPT II **(Conners and MHS Staff, 2000)**; the Gordon Diagnostic System **(GDS; Gordon, 1983)**; the Test of Variables of Attention **(Greenberg and Kindschi, 1996)**; and the Intermediate Visual and Auditory Continuous Performance Test ***(Sandford et al., 1995)***.

8- Assessment of visual-spatial skills:

The Minnesota Percepto-Diagnostic Test (ages 5 to 14 years) may be used for assessment of both visual-perception and visual motor skills ***(Flick, 1998)***. The Motor Free Visual Perception Test Revised (MVPT-R) test provides analysis of visuospatial skills ***(Mickel and Brown, 2007)***.

The Jordan Left-Right Test-Revised (1990) has been helpful in evaluating a child's tendency to persist in reversing letters and number either individually or in word or sentence context ***(Flick, 1998)***.

Rey-Osterrieth Complex Figure Drawing **(Lezak, 1995)** is a paper and pencil task requiring planning and visual spatial constructional abilities, and is sensitive to deficits from frontal lobe injuries. Studies found that ADHD subjects perform this test more poorly than controls ***(Frazier et al., 2004)***.

9- Assessment of language skills

A comprehensive language evaluation may be provided by the Test of Language Development-Primary (TOLD-P:3) for ages 4 through 8 years, 11 months or the Test of Language Development-intermediate (TOLD-I:3) for ages 8 through 12 years, 11 months. The Peabody Picture Vocabulary Test-III, Third Edition (PPVT-III) it is also helpful in assessment co-normed with the Expressive Vocabulary Test (EVT) ***(Flick, 1998)***.

10- Assessment of self-concept/self-esteem

The information obtained in this area of assessment comes from clinical observation and report, as well as projective test data as figure drawings, kinetic family drawing, sentence completion, and other similar projective test measures, there is some difference between ADHD from non disabled ones ***(Cotungo, 1995)***. Also the Multidimensions Self-Concept Scale (MSCS) assess global self-concept and provides information on six areas of psychosocial functioning. The Self Esteem Index is another instrument to assess this skill ***(Flick, 1998)***.

11- Assessment of social skills

Information is obtained clinically and from direct observation. Also, there are some instruments that may be helpful in assessing social skills as social skill rating system, the Problem Behavior Scale, The Academic Competence Scale and the Walker-McConnell Scale of social competence and school adjustment ***(Flick, 1998)***.

Clinicians should evaluate all of the information they gather during the assessment process to determine whether there is consistent evidence that a client in fact meets the criteria for a diagnosis of ADHD. An important consideration is that the symptoms are cross- situational (e.g., they occur both at home and at school) and that they are verified across all settings (e.g., home and school) ***(Mickel and Brown, 2007)***.

The evaluation process gives the clinician an overall picture of the adolescent strengths and weakness which are incorporated into the individualized treatment program of behavior management and other clinical procedures. This multimodel individualized treatment program will have behavioral modification components; it may or may not include a medication regimen, and it will include mechanisms to monitor and evaluate progress ***(Flick, 1998)***.

Figure (A2)

CHAPTER (VI)
Management of ADHD

While ADHD is a chronic neurodevelopment disorder that often carries a somewhat guarded prognosis ***(Barkley et al., 2005)***, there are several well-researched treatment approaches for the disorder, many of which are evidenced-based. Because of the heterogeneity of symptoms and needs among those with the disorder, it is likely that different treatment plans will be appropriate for different patients. In addition, recent research suggests that specific therapies work best for ADHD when it is comorbid with other psychiatric disorders. When choosing a treatment plan, it is often helpful for parents, teachers, and families to pinpoint specific behaviors and challenges to address. Once these goals are identified, it is easier to assess whether specific interventions are effective. Treatment methods may include stimulant medication, psycho-educational interventions, behavioral therapies and a combination of two or more of these approaches ***(Rickel and Brown, 2007)***.

I- Stimulant medication

Stimulants are one of the most frequently prescribed and researched psycho-tropics in the field of child and adolescent psychiatry. Before discussing specific stimulant medications with

clients and their families, it is important to address their understanding and expectations regarding stimulants and their effects, and to provide psycho-education about the benefits as well as the potential adverse side effects of these agents ***(Rickel and Brown, 2007)***.

There has been considerable research to demonstrate that stimulant medications exert positive effects on the core symptoms of ADHD, particularly attention. Research has demonstrated that individuals make fewer errors on the CPT when treated with methylphenidate ***(Quinlan, 2000)***. While stimulants appear to improve social functioning, these effects, albeit statistically significant, have not always been clinically significant ***(Tannock and Brown, 2000)***.

Unfortunately, stimulants do not enhance all of the functional outcomes associated with the ADHD disorder, including problems with social behavior and academic performance. With some of the newer stimulants, research has generally suggested that approximately 90% of children and adolescents respond to the stimulants ***(American Academy of Pediatrics, 2000)***, although other classes of psychotropics may prove more effective for ADHD when it is comorbid with anxiety disorder or depression. Also, stimulants may be contraindicated in some adolescents (e.g., in families' in which there is a member with a substance abuse disorder).

Research has evaluated the effectiveness of stimulant medication for ADHD when there are comorbid diagnoses including mood disorders and anxiety disorders. The findings of these investigations have generally suggested that response to stimulant medications are compromised ***(Spencer, Wilens et al.,***

2000). Two studies **(Gammon and Brown, 1993; Findling, 1996)** suggest that combining specific serotonin reuptake inhibitors (SSR1s) and stimulant medications is safe and effective; however, other reports caution that SSRIs may not be effective for ADHD ***(Wilens et al., 2000b)***. For clients with substance abuse disorders, stimulant medication can reduce cravings for substances **(Riggs et al., 1996)**, although stimulants should be used with caution when treating patients who have a history of substance abuse. Contrary to popular opinion, the use of' stimulant medication during childhood has been shown to reduce the risk for substance abuse in adulthood ***(Barkley et al., 2005; Biederman et al., 1999)***.

Medication in preschoolers

For preschoolers, there has been considerable debate regarding the potential safety and efficacy of stimulant medications for preschoolers. Frequently, children under the age of five years experience a host of adverse effects associated with stimulants ***(Rickel and Brown, 2007)***.

Since the prefrontal cortex is not fully developed in young children, and stimulants generally exert their effects in this region of the brain, it is unclear if they are helpful for this young patient population given that organs that metabolize stimulants are also immature, Also the physiological systems responsible for metabolizing and secreting stimulants are under developed at that age ***(Barkely, 1989)***. Furthermore, a primary target behavior in prescribing the stimulants is to improve school performance by increasing attention and concentration. Because preschool children are not in a traditional classroom setting, use of

medication may not be necessary for the purpose of enhancing functional outcomes in this age group, including attention and concentration ***(Shepard et al., 2000)***.

Most commonly used stimulant medication includes:

- ***Methylphenidate (Ritalin)*** comes in 5, 10, and 20 mg tablets, and lasts between three and four hours. The effects of the medication are usually observed in about half an hour. The medication should be started at a low dose, and increased slowly over a four to five week period. Methylphenidate also is available in a sustained release preparation in 20 mg tablets. Some reports indicate that the sustained release medication may be less effective; however, many patients have been reported to perform well on the longer-acting medication, particularly when evaluated with behavioral ratings ***(Greydanus et al., 2007)***.
- ***Dextroamphetamine (Dexedrine)*** comes in 5 mg tablets, which roughly corresponds to 10 mg of methylphenidate. The beneficial effects of dextroamphetamine generally, last approximately four hours. The medication should he introduced at a low dose, and the dosage should be increased over a four week period, Dexedrine is available in a timed release form known as the Dexedrine Spansule. This preparation lasts approximately eight to ten hours, and may be useful for clients where multiple doses throughout the day may pose difficulties or where adherence to medication is uncertain ***(Greydanus et al., 2007)***.
- ***Adderall*** is a compound of dextroamphetamine and amphetamine. It is available in tablets of 5, 10, 20, and 30 mg,

and its effects last between six to eight hours. The mixture, which includes salt compounds, prolongs the effectiveness of the drug. Some reports indicates that Adderall may be appropriate for clients who are unresponsive to other drug therapy for ADHD ***(Pliszka et al., 1997; Greydanus et al., 2007)***.

- ***Pemoline (Cylert)*** is available in 37.5 mg tablets, and may also be an option for clients who are not responsive to methylphenidate or dextroamphetamine. There may be an association between pemoline and liver failure, as cases have been reported in children and adults ***(Safer et al., 2001)***.
- ***Atomoxetine (Strattera)*** has been used for the management of ADHD. Atomoxetine affects the transmitters of norepinephrine and is not classified as a stimulant, although it does have stimulant effects. It is usually taken either once or twice daily. It is the only medication that has received approval from the FDA to treat adult ADHD ***(Spencer, 2004)***.
- ***Modafinil (Provigil)*** which is a cognitive enhancement agent primarily used to promote wakefulness. Modafinil differs structurally from other drugs for ADHD, and selectively targets the cerebral cortex ***(Biederman et al., 2005)***. It has been prescribed as an off-label treatment for ADHD ***(Rugino and Samsock, 2003)***. Modafinil is usually administered once daily, with dosage levels of approximately 170-425 mg ***(Greydanus et al., 2007)***.
- ***Tricyclic antidepressants (TCAs),*** including imipramine (Tofranil), nortryptaline (Pamelor), and desipramine (Norpramine) ***(Greydanus et al., 2007)***.

- ***Other*** drugs are used as bupropion (Wellbutrin) or clonidine (Catapres).

For patients with comorbid diagnoses, particularly comorbidity of the internalizing disorders (e.g., anxiety disorders or depression) or for those few individuals who do not respond to stimulant medications, other psychotropic medications are often prescribed. These may include medications that target depression, anxiety, or mood lability.

Studies that have examined the effects of stimulant medications have generally shown that there are no differences between the various agents and that if an individuals fails to respond to one of the stimulant agents, he or she will likely respond to another stimulant ***(Brown and Sammons, 2003; Benner and Heaton, 2008)***.

Medication decision and preparation

For subjects with ADHD, medication decisions should be reached through collaboration between parents, teachers, and medical personnel. Before anyone begins a medication regimen, one should undergo a physical evaluation that assesses height, weight, pulse, and blood pressure in order to determine whether there are any pre-existing medical conditions ***(Greydanus et al., 2007)***.

If a physician is considering prescribing Cylert, a baseline of liver functioning should be done, since Cylert is associated with impaired hepatic function. When patients begin taking

medications for ADHD, they should begin with a small dose of the drug (typically 5 mg), and gradually increase the dose. Though the doses for medication tablets usually last four hours, this may vary among patients, and may range from 2.5-4 hours. Based on each person's specific response to the medication, patients and health professionals can determine the dose that is best suited to the patient for the specific target symptoms being addressed ***(Rickel and Brown, 2007)***.

Monitoring of medication

Individual response to stimulant medication are variable and health professionals and patients should evaluate and monitor patients' responses to these medication ***(Brown, 2000)***. Stimulants should be carefully and gradually titrated so that an optimal dose is reached, i.e., one which manages specific target behaviors (e.g., teacher ratings of inattention) while still resulting in the fewest adverse effects. The dose is at an appropriate level when maximum benefits can be observed, and adverse side effects are at a minimum ***(Wilens et al., 2000)***.

During the titration period, the medication should be used for seven days, so that changes can be observed across a range of environments. During this period, patients and family members should attempt to observe the effects of medication throughout each day, and compare these observations with the structure of environmental demands. In addition, ingesting stimulants with meals or snacks can help alleviate some common side effects, such as gastrointestinal inflammation ***(Wilens et al., 2000; Rickel and Brown, 2007)***.

Common side effect of stimulants

Adverse side effect from stimulant medication may include decreased appetite, motor tics, sleep problems, headaches, stomach pain, nausea, fatigue, and irritability. Many side effects associated with stimulants may abate after a short period, or may disappear if the dosage or timing of administration is adjusted ***(McMaster University Evidence-Based Practice Center Group, 1999)***.

Importance of drug holiday

At least once a year, patients should attempt to take a drug holiday to reevaluate the need for medication and to inhibit the development of tolerance to stimulants. Drug holidays are generally taken during the summer months, and the child or adolescent is encouraged to return to school in September without medication. This provides the opportunity for parents and practitioners to obtain a baseline of behavior prior to read ministering the medication at the beginning of the school year. Drug holidays are contraindicated if patients are in the midst of stressful circumstances, or if discontinuation of the medication could precipitate dangers such as accidents or abuse ***(Weiss et al., 1999)***.

It is also important that the child's and adolescent's privacy and confidentiality be protected when they require the administration of ADHD medications during school hours. Frequently multiple dosing of medication during the school hours is difficult and many children, and especially adolescents may find this to be stigmatizing. Hence those preparations of

stimulants that are made for longer duration of action may be most appropriate for these children and adolescents ***(Rickel and Brown, 2007)***.

Specific medications for ADHD carry potential health risks:

- ***Pemoline*** is associated with hepatic failure, it is no longer recommended as a viable treatment for ADHD.
- ***Adderall*** was taken off of the market for several months in 2005 in Canada following isolated reports of strokes and deaths in those taking the medication yet, it was returned to the market because of the lack of any compelling evidence that it was dangerous or that it was associated with any more adverse side effects than any other stimulant medication ***(Rickel and Brown, 2007)***.
- ***Atomoxetine (Strattera)*** has many potential adverse side effects, including vomiting, gastrointestinal disturbances, dizziness, headaches, mood swings, weight loss, sexual dysfunction, violent behavior, irritability, fatigue, constipation, painful menstruation, fever, chills, hot flashes, sweating, and muscle pain ***(National Institute of Health, 2006)***. In addition, some studies have reported an association between administration of atomoxetine and an increased risk of suicide. Manufacturers of the drug now identify this risk on the label, and this potential risk should be taken into consideration by those prescribing medications for individuals with ADHD ***(National Institute of Health, 2006)***.

- ***Tricyclic antidepressants (TCAs)*** adverse side effects includ fatigue, weight gain, constipation, dry mouth, and sexual dysfunction. There have been reports of sudden death in children treated with desipramine ***(Biederman et al., 1995)***.

Research has demonstrated a connection between TCA treatment and small yet significant increases in heart rate and cardiac conduction in adults and children ***(Wilens, Biederman, Geller et al., 1996)***, and there have been reports of sudden deaths associated with the cardiac effects from TCAs ***(Riddle et al., 1991)***.

Wilens et al. (2000b) recommend electrocardiographic measurements at baseline, during TCA treatment, and following cessation of TCAs to monitor the extent of impact on cardiac activity.

Ma, Lee, and Stafford (2005) note that antidepressants are often prescribed to children and adolescents even when if a specific drug has not been approved by the FDA. The only SSRI that has been approved for children under the age of 18 years is fluoxetinc (Prozac). Furthermore, antidepressant medications produce an increased risk for suicidality in both children and adolescents ***(Healy and Aldred, 2005)***. This potential mandates that utmost caution be used in prescribing and carefully monitoring the effects of these agents when prescribed to children and adolescents.

II- Importance of psychotherapy

- Because many individuals with ADHD also have other psychological symptoms that may include depression or

aggression, therapy can address aspects of functioning that may not be responsive to stimulant medication.

- Therapy can also target issues common with ADHD such as low self esteem and self efficacy and ability to maintain friendships and partner relationship.
- It can also address the marital and family conflict often associated with adults who have ADHD and emphasize psychoeducational approaches.
- Psychotherapy may also address specific difficulties at school or work ***(Wilens, 2002)***.

Behavioral management

Behavior management techniques are often helpful, ***(Brown, 2000)***, and have been demonstrated to be the therapy of choice in the management of symptoms of ADHD as well as associated functional impairments ***(Swanson et al., 2000)***.

Methods of behavior therapy include:

Management skills for parents and teacher, contingency management (such as "time outs" and positive reinforcement), and training that targets social skills and problem-solving. Consistency and follow-up are important components of successful treatment with behavior therapy ***(Rieff and Tippins, 2004)***.

Tightly controlled behavioral management are equivalent to low to moderate doses of stimulant medication ***(Pelham and***

Wasenbusch, 1999) and they mediate long term outcomes ***(Rickel and Brown, 2007; Brown, Antanuccis et al., 2008)***.

Table (A7)

This includes compliance with parental requests, rule following, defiant and aggressive behavior. It has great effect on functional outcome rather than ADHD symptoms and greatest in the presences of comorbid conditions ***(Hartman et al., 2003; Lundahl et al., 2006)***.

School based intervention

A number of techniques are available for classroom use including the Daily Report Cards (DRC), as well as token and point systems. Classroom behavioral interventions studies have typically targeted symptoms associated with ADHD as well as functional impairments such as disobeying classroom rules, disruptive behavior, failing to comply with teacher requests, and not getting along with other classmates.

Similarly, a number of studies have focused on academic interventions in classrooms that have included target behaviors such as seatwork productivity and accuracy of academic outcomes ***(DuPaul and Eckert, 1997; Brown et al., 2007)***, These studies have focused on specific daily classroom functioning that is conducive to academic success rather than academic achievement that has been assessed over the course of time. Academic strategies may result in behavior change that is consistent with contingency management where target symptoms are more specific to behavioral functioning ***(DuPaul and Eckert, 1997; Sergeant et al., 2003)***.

Teacher training

Managing students with ADHD is often challenging for teachers and schools. ADHD symptoms can affect attention, comprehension, assignment completion, and group dynamics within the classroom setting. The frustration students experience as a result of ADHD may be associated with additional behavior problems such as aggression, emotional lability, or tantrums. Teachers may benefit from introducing the most difficult material at the beginning of the day, by clarifying the steps needed to complete tasks, by minimizing multitasking requirements, by varying methods of instruction, and by alleviating potentially distracting elements from the students' environments ***(Sergeant et al., 2003; Rickel and Brown, 2007)***.

Teachers can also maximize the effectiveness of interactions with students with ADHD by giving clear and concise instructions, maintaining eye contact with the student, remaining calm, and by establishing and following clear and consistent classroom rules. Teachers should endeavor to respond with sensitivity and cultivate self-esteem in individuals with ADHD. Rewards are likely to be more effective than punishments, and teachers can assist in identifying methods of encouraging each student in negotiating many of the challenges associated with ADHD ***(Rickel and Brwon, 2007)***.

Peer- interventions

Peer interventions have generally focused on teaching social skills, social problem-solving, enhancing behavioral

competencies, and decreasing aggression as well as other undesirable social behaviors ***(Pelham, Fabiano et al., 2005)***.

Combined intervention of pharmacotherapy and psychotherapy has been proved to have the maximum efficacy ***(Pelham, Burrows-Maclean et al., 2005)***.

III- Alternative treatment

Reiff and Tippins (2004) believe a variety of ADHD symptoms and disorders may be managed through diet. People are concerned about the sugar content, artificial ingredients and food additives. Some claim that megavitamins could help ADHD individuals ***(Weiss et al., 1999)***. Others suggest that sugar either causes or exacerbate ADHD. Yet research doesn't support this hypothesis ***(Wolraich et al., 1994)***.

Proponents of popular approaches to treating ADHD have promoted other dietary supplements, including antioxidants, nootropics ("smart drugs"), and herbs. Other over-the-counter ADHD remedies include deanol (DMAE), lecithin, and phosphatylserine ***(Rieff and Tippins, 2004)***. Other substances are melatonin (an antioxidant used to ameliorate difficulties with sleep cycles), pycnogenol (an antioxidant gathered from pine bark), and gingko biloba. There are also herbs marketed for ADHD such as chamomile, valerian, lemon balm, hops, passion flower, and kava.

Many other treatments that have been suggested for ADHD, which include massage, meditation, vestibular stimulation, iron supplementation, magnesium supplementation, Chinese herbals, EEG biofeedback, mirror feedback, and channel-specific perceptual training. Though some of these are

supported by prospective pilot data, others are not well-researched ***(Arnold, 2001)***.

It is extremely important that patients, or the parents notify their physicians when attempting to use alternative remedies in addition to allopathic ones. It is possible that some alternative substances may harm individuals when those substances are combined with other treatments. Gingko biloba is dangerous when combined with aspirin, antidepressants, or anticoagulants, and other herbs may be harmful when combined with sedative medications through compound effects ***(Rieff and Tippins 2004)***. There is clearly no available evidence for the efficacy of alternative therapies in the management of ADHD, and given the potential deleterious effects of these agents either alone in combination with other medications, these agents should be used with extreme caution ***(Sergeant et al., 2003)***.

IV- Treatment of comorbid conditions

A- ADHD and comorbid mood disorders:

There are few controlled clinical trials that have examined pharmacologic interventions for adolescents who have comorbid mood disorders and ADHD ***(Spencer et al., 2000)***. Individuals with comorbid mood disorders may be less likely to respond to stimulant treatment for ADHD ***(DuPaul et al., 1994)***.

Spencer et al. (2000) have recommended a treatment program that includes stimulants and antidepressant medications. They identify the classes of antidepressants that may target both conditions effectively. These include TCAs, MAOIs, and atypical antidepressants, including buproprion. There is some

evidence that individuals with both mania and ADHD may not respond well to lithium ***(McElroy et al., 1992; Pliszka, 2005)***.

Two clinical trials **(Findling, 1996; Gammon and Brown, 1993)** reported beneficial results from combined stimulant and SSRI pharmacologic interventions in individuals with comorbid depression and ADHD. In an investigation that evaluated the effects of desipramine on children and adolescents with ADHD, **Biederman, et al. (1993)** determined that there were no differences in response for those who had comorbid depression, anxiety, or conduct disorders and those who had ADHD alone. **Spencer et al. (1995)** noted positive responses to methylphenidate in adults with ADHD, and observed that these effects were independent of lifetime depression or family psychiatric histories. Individuals with ADHD and depressive symptoms are likely to benefit from psychotherapy that addresses all of their depressive symptoms, including those that interact or result from ADHD.

B- ADHD and substance use disorders

When individuals with ADHD also have substance use disorders, health care professionals need to initially prioritize treatment of the substance use disorder ***(Wilens et al., 2000a)***. If the substance use disorder is very serious, patients may need hospitalization in an inpatient facility. Eventually, treatment should address both disorders and the ways that they may interact. Each disorder may exacerbate the other ***(Wilens et al., 2000a)***. ADHD clearly seems to increase the risk for the development of substance use disorders. When children and adolescents with ADHD are treated with psychostimulant

medication, they are less likely than untreated ones to have alcohol or drug disorders later in life ***(Wilens, Faraone, Biederman, and Gunawardene, 2003)***. Antidepressants such as buproprion or tricyclics are often recommended for adolescents or adults with comorbid ADHD and substance use disorders ***(Solholkhah et al., 2005; Riggs, 1998)***, given the addictive potential of the stimulants. Both antidepressant and stimulant medication appear to lessen substance use or cravings ***(Riggs et al., 1996)***. Among adults with ADHD and cocaine addiction. **Levin et al. (1999)** found that methylphenidate diminished significantly cravings for cocaine.

Current research does not suggest any association between stimulant medication use and an increased propensity for substance use disorders. However, caution is needed when prescribing the stimulant medication for adolescents and adults and for children when there is a substance-abusing parent or sibling at home ***(Hall et al., 2005)***.

Wilens et al. (2000a) note that there is less likelihood that methylphenidate will be abused than will the amphetamine or methamphetamine.

C- ADHD and comorbid tic disorders

Comings (2000) recommend clonidine for the management of comorbid ADHD and tics, and reports that prescribing both stimulant medication and clonidine can be beneficial for this population. In addition, the tricyclic antidepressants such as imipramine and desipramine may be helpful for individuals with ADHD who have comorbid

Tourette's disorder. These antidepressants do not pose risks of precipitating or exacerbating Tourette's disorder, unlike stimulants that can trigger or worsen tics in individuals with ADHD and Tourette's syndrome ***(Robertson and Eapen, 1992)***. However, it should be noted that other studies have suggested that higher doses of methylphenidate may reduce tics ***(Gadow, Nolan, and Sverd, 1992)***, although much more research is needed prior to routine administration of methylphenidate for individuals with Tourette's ***(Pliszka, 2005)***.

D- ADHD and comorbid obsessive compulsive disorders (OCD)

Brown (2000) notes that most investigations of pharmacologic treatments for adolescents with obsessive-compulsive disorder have demonstrated the effectiveness of the selective serotonin reuptake inhibitors (SSR1s), although the SSRIs have not been shown to produce benefits for cognitive impairments associated with ADHD. Conversely, the stimulant medications that have demonstrated the most improvements for the cognitive impairments associated with ADHD are not particularly helpful in treating OCD. Though combining SSRIs and stimulant treatment for the purpose of targeting both ADHD and OCD symptoms appear to be appropriate, there are no controlled studies that have evaluated this combination of medications' for individuals affected by both OCD and ADHD ***(Brown, 2000)***.

E- ADHD and comorbid anxiety disorders

Stimulant medication may not be beneficial for children and adolescents with ADHD and comorbid anxiety disorders ***(Tannock and Brown, 2000)***. Research regarding specific domains related to ADHD underscores the attenuation of pharmacologic benefits for children with concurrent anxiety. One study indicates that methylphenidate increased working memory performance for individuals with ADHD without anxiety disorders, but that it did not ameliorate working memory for those with both ADHD and an anxiety disorder.

Individuals with both ADHD and anxiety disorders may experience more adverse side effects from stimulant medications ***(Ickowicz et al., 1992)***. However, the literature has been equivocal with regard to the use of stimulants for those with ADHD and comorbid anxiety disorders ***(Pliszka, 2005)***.

Tannock and Brown (2000) state that because of its physical properties, clonidine may be helpful for individuals with comorbid anxiety disorders and ADHD. A combination of pharmacotherapy and psychotherapy seems to be the most appropriate treatment of choice ***(Tannock and Brown, 2000)***.

F- ADHD and comorbid learning disorders

Individuals with comorbid ADHD and learning disorders are best treated with a comprehensive approach and several therapies, including potentially psychotropic medication and psychoeducational treatments.

Medication is commonly used in ADHD and comorbid learning disorders. Stimulant medication has been shown to increase academic productivity ***(Elia et al., 1993; Pelham, 1993)***. However, the mechanisms through which stimulant medications may target the cognitive processes thought to

underlie learning disorders are unclear. Stimulants may increase computational productivity, information retrieval, or word recognition. It seems that stimulant medications provide a generalized enhancement of cognitive processing ***(Tannock and Brown, 2000)***, although their specific effects on academic achievement have yet to be demonstrated.

Also, school modifications should be supplemented with interventions outside of school as audio or videotaped books or lessons, computer instruction, parent tutoring, supervision for studying, assignment completion, and organization, and counseling.

Murphy (2005) further recommends personal digital assistants that can include daily planners, to-do lists, and alerts for reminders of different tasks and activities.

Students who have comorbid learning disorders and ADHD often face difficulties with self-esteem and serious stress that result from their challenges in meeting academic demands. They may experience conflicts with parents, teachers, or peers who do not understand these conditions. Psychotherapy is useful in order to address the interpersonal and intrapersonal issues and help students and parents develop reasonable expectations and coping methods ***(Tannock and Brown, 2000)***.

G- ADHD and comorbid ODD and conduct disorder

Adolescents who have both conditions may respond well to stimulant medication or antidepressants. Psychosocial treatments may target aspects of impulsivity that relate to both disorders and can provide helpful behavioral goals and alternatives. Many of them with these conditions have both

externalizing and internalizing problems; therefore, therapists should attempt to ensure that treatment addresses a range of possible symptoms ***(Newcorn and Halperin, 2000)***.

Stimulant treatment with methylphenidate appears to be efficacious for adolescents with ADHD and comorbid aggression **(Klorman et al., 1998; *Pliszka, 2005)***, as in those who have ADHD alone. In addition, stimulant medication may reduce aggressive behaviors ***(Kaplan et al., 1990)***. Some research suggest that individuals with ADHD and ODD may benefit from a combination of fluoxetine (Prozac) and methylphenidate ***(Gammon and Brown, 1993)***. Other research **(Constantino et al., 1997)**, has suggested that the SSRIs may exacerbate difficult behaviors with aggression. Although researchers have examined the effects of lithium on children's and adolescents aggression, there are no data to support the efficacy of this pharmacotherapy for comorbid ADHD and aggression ***(Newcorn and Halperin, 2000)***.

There is little research that has specifically addressed the efficacy of therapeutic treatments for children and adolescents with both conditions. Treatment involves parent training, daily observation, self-monitoring and cognitive behavioral techniques.