

The effect of hyperactivity with attention deficit on the academic performance of primary school children.

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Abstract:

The aim of this study is to investigate the effect of hyperactivity with attention deficit on academic achievement in a sample of 100 students from the second and third years of primary school, purposively selected. A descriptive analysis method was used, applying the CONNERS scale (1996), which is aimed at teachers and based on the students' scores for the first and second semester. To verify the hypothesis, simple regression analysis was used to assess the validity of the test model, calculating the adjusted R-squared and one-way ANOVA for simple regression analysis. The results indicated that there is no effect of hyperactivity accompanied by attention deficit on academic achievement among second and third grade students.

Keywords: Hyperactivity, Attention deficit, Academic achievement.

Introduction:

Attention deficit is one of the disorders often associated with hyperactivity, which is a common problem in children, especially in primary school. Any dysfunction in attention has a significant impact on cognitive processes. Symptoms of hyperactivity with attention deficit manifest themselves at home and at school, making them easily noticeable to those around the student. This disorder can lead to a variety of problems due to the inability to concentrate and pay attention, including academic problems such as learning difficulties, which can hinder the child's educational progress and affect the student's academic career. From this point of view, the present field study aims to determine the impact of hyperactivity accompanied by attention deficit on the academic performance of second and third grade primary school students.

1. Problem Statement:

The disorder related to hyperactivity accompanied by attention deficit has become a source of concern for many educators and those who interact with this group within the family and school, especially in cases of neglect of early diagnosis and therapeutic intervention. According to Omar and Hussein (2008), it can lead to a wide range of academic, behavioural, emotional and social problems. This disorder affects children's interactions with their parents and makes them more defiant of instructions and commands given to them due to their excessive movements and instability in the classroom (Omar and Hussein, 2008).

The age range of 6-12 years is a period of independence from parents and a transition from family life to a wider social life as the child moves from the family world to the social environment, meeting peers and forming relationships within the school environment. The school becomes the child's second home and the teacher acts as a substitute mother.

According to Yubi (2014), this stage is very important and sensitive as it serves as the foundation for the child's personality development, where they acquire academic skills, develop intelligence and deepen their insight. There is significant growth and change in all aspects, whether sensory, cognitive, emotional or social. These changes can have a positive or negative impact on the child's behaviour (Nabila Youbi, 2014).

In the same context, Qamash and Al-Ma'aita (2007) noted that some children with attention deficit and hyperactivity have educational problems resulting in poor academic performance. Therapists and educators have observed that children with this disorder differ from typically developing children in their educational performance (Qamash and Al-Ma'aita, 2007).

A number of studies have been conducted, including one by Ibrahim Al-Samadouni (1990), referred to in Youbi (2014), which aimed to understand the characteristics of attention in hyperactive children and how these characteristics are reflected in vigilance and visual tasks. The study concluded that attention deficit hyperactivity disorder (ADHD) has negative effects that extend beyond the child to everyone around them, including the family and school, as it causes concern and disruption for parents, teachers, and anyone dealing with the child suffering from attention deficit and hyperactivity, whether academically, behaviourally, or socially (cited in: Youbi Nabila, 2014).

Attention deficit combined with hyperactivity means that students are unable to follow instructions or control their actions. They have great difficulty in paying attention, integrating into the classroom, learning with their teachers, and even greater difficulty in concentrating and completing their schoolwork, often disregarding classroom rules.

Malakawi (2003) states that attention is one of the cognitive processes that play an important role in a child's life in terms of their ability to relate to their environment, which is reflected in their selection of appropriate sensory stimuli and their responses in a way that allows them to adapt to their internal and external environment. As attention is a developmental cognitive process, it is observed that children have difficulty in sustaining

their attention or organising their mental activity around a specific task over a prolonged period of time. They also find it difficult to disengage from external factors that distract their attention (Malakawi, 2003).

The severity of this problem, coupled with attention deficit, is linked to a decline in academic performance where the student exhibits emotional behaviours that are among the most common childhood problems. These problems pose significant risks and impact on the child, both physically and psychologically, as well as academically. Failure to recognise this is considered a failure. According to Amina Belaïd (2015), if this disorder is not properly identified and managed, it can lead to long-term psychological complications for the child (Amina Belaïd, 2015).

In this context, Halwani (2006) referred to a study by Barry, Layman & Klinger (2002) on the decline in academic performance in a group of students with attention deficit hyperactivity disorder (ADHD). They found that academic performance declined as the severity of behavioural symptoms of the disorder increased. However, it remains scientifically unproven whether the academic decline that typically accompanies attention deficit hyperactivity disorder is more influenced by the accompanying behavioural symptoms or by the cognitive deficits that are also associated with this disorder.

Halwani (2006) mentions that there are studies, such as Barry's (2002), which suggest that behavioural symptoms are a cause of poor performance in mathematics. Others attribute this to cognitive weaknesses, such as the study by Lauren and Barkley (1996) mentioned in Halwani (2006), which pointed out that the cognitive aspect of this disorder has been overlooked by the American Psychiatric Association. The focus has been on the behavioural, motor and aggressive aspects associated with the disorder (Halwani, 2006).

From the above studies, it is clear that as behavioural symptoms increase in students with ADHD, their academic performance declines; however, this is also related to the cognitive weaknesses that need to be investigated.

The prevalence of attention deficit hyperactivity disorder (ADHD) is one of the most common disorders in children. According to a report by the Jordanian National Health Institute (1988), it is estimated that between 3% and 5% of schoolchildren are affected by this disorder, with a prevalence rate of up to 20% in families with low economic status (cited in: Salem Salsalem Kamal, 2011).

In the same context, Salim (2011) mentioned that attention deficit hyperactivity disorder is one of the main factors leading to poor academic performance among these students. Statistics show that 80% of students with ADHD have problems with academic performance, grade retention, referral to special education classes or dropping out of school (Salem Kamal, 2011, p. 35). This means that attention deficit combined with hyperactivity leads to a decline in academic performance for this group of students.

Al-Hakimi (2008) reported that many children with attention deficit and hyperactivity disorder experience educational difficulties and exhibit undesirable educational

behaviours. The difficulties they face include low test scores, difficulties in completing tests, an increased number of years spent in school, and low ratings in teacher evaluations (Al-Hakimi Ibrahim Al-Hassan, 2008). This suggests that students with excessive hyperactivity have difficulties and weaknesses in their academic performance.

The results of the study by Riad Al-Asimi (2008), cited in Nabila Akbir (2012), showed a clear and statistically significant decline in academic performance, depression and personal and social adjustment in children with hyperactivity compared to their peers. These children with hyperactivity show high rates of inattention and difficulty in completing required tasks at school, which generally weakens their academic performance.

The study by Barbour et al. (1987), referred to in Ali Kamel (2008), found that children with attention problems have characteristics that set them apart from others in the classroom. This group struggles to concentrate, has problems sustaining and maintaining attention, and finds it difficult to concentrate for long periods of time. They have difficulty organising and completing tasks and are often distractible and impulsive, requiring external control and supervision (Mohamed Ali Kamel, 2008). This is attributed to a deficiency in one of the basic processes involved in attention and focus.

According to Hassan (2009), the study by Miller and colleagues (1996) examined the cognitive abilities of a sample of children with attention and hyperactivity disorders compared to normal peers. One of the key findings was that children with attention and hyperactivity disorders showed significant deficits in attention, working memory, visual memory, comprehension and thinking skills. This indicates a serious deficiency in their cognitive abilities, contributing to lower academic performance and intelligence levels compared to their normal peers (cited in: Hassan, 2009).

Given the prevalence of this disorder in the school environment and the challenges faced by educators and parents due to the declining academic performance of their children, where these behavioural and psychological problems are interrelated and vary in severity from child to child, this study aims to investigate the effect of hyperactivity accompanied by attention deficit on the academic performance of second and third grade primary school students. Therefore, the following question is posed

- Does hyperactivity accompanied by attention deficit affect the academic achievement of second and third graders?

2. Study hypothesis: Hyperactivity combined with attention deficit affects the academic performance of primary school children.

3. Aims of the study: This study aims to investigate the impact of hyperactivity accompanied by attention deficit at its different levels (low, medium, high) on the academic achievement of second and third grade primary school students. It also aims to shed light on this group in need of care, in addition to enriching the educational field with information on this topic, given the seriousness of its prevalence in Algerian society in particular, and to help parents and teachers in the early detection and awareness of the problems involved.

4. Importance of the study: The importance of this study stems from several theoretical and practical justifications, which indicate that hyperactivity accompanied by attention deficit is a behavioural disorder that affects the life of the child suffering from it, especially their academic life, as it poses difficulties that hinder their academic and professional future. Highlighting the seriousness of this disorder, particularly in primary school - the child's critical learning period - will help to identify the types of behaviour and methods that will enable educators, both parents and teachers, to reduce the severity of hyperactivity and attention deficit and mitigate its escalation.

5. Definition of study concepts:

5.1. Hyperactivity with attention deficit:

Terminology:

Definition from Kaufman (2005): Hyperactivity with Attention Deficit Disorder is a developmental disorder of attention and activity that manifests itself in early childhood, particularly before the age of 7 or 8 years. This disorder can persist throughout an individual's life and is related to both academic and social skills and is often associated with other disorders (cited in: Nayef bin Abed Al-Zari, 2007, p. 15).

Definition from Mohamed Al-Nouri Al-Qamish (2007): Hyperactivity associated with attention deficit refers to excessive activity characterised by excessive body movements that the child cannot control. There is a close relationship between hyperactivity and attention deficit; the presence of one implies the presence of the other. Hyperactivity is considered to be the cause of attention deficit (Mohamed Al-Nouri Al-Qamish and Khalil Abdul Rahman, 2007).

Operationally: Hyperactivity associated with attention deficit refers to non-goal-directed physical activity among students in the second and third grades of primary education in Tizi Ouzou, manifested in behaviours that show instability, inability to concentrate and pay attention, impulsiveness in problem solving, and difficulties in communicating and forming successful social relationships. This is assessed using the scale developed by Conners (1996) for primary school teachers, which includes low, medium and high levels of hyperactivity, as applied by the researcher Mzeiani Hasina (2014).

5.2 - Academic achievement:

Terminology:

- **Definition by Chaplin:** "It is a specific level of achievement or competence in school work determined by teachers or through standardised tests" (Chaplin, 1968). This definition emphasises the aspect of competence and achievement measured through two types of assessment: either through non-standardised subjective tests or through standardised objective tests.

- **Definition by Nasrallah (2004):** Academic achievement is the level reached by an individual in the acquisition of academic subjects, as measured by the achievement tests

administered at the end of the academic year, expressed as the total score of the individual in all subjects (Nasrallah, 2004).

Operational: Academic achievement refers to the results obtained by students in the second and third grades of primary education in all subjects during the first and second terms, typically for children aged 7-8 years.

6. Methodology of the study:

The descriptive methodology was used, which allows the revelation of facts as they exist in reality through objective means. This involved collecting both qualitative and quantitative data on hyperactivity with attention deficit and academic performance in order to analyse and draw conclusions and find explanations that can be generalised.

7. Exploratory study:

The aim is to gather information on the practical feasibility of conducting the study on the effect of ADHD on academic achievement in second and third grade primary school children and to verify the characteristics of the sample. It also seeks to understand how well the sample members respond to the measurement tool and to identify the difficulties associated with the data collection process.

An interview was conducted with second and third grade teachers in the above-mentioned institutions (see Table 1), which included the identification of the following indicators:

- Who are the pupils who show symptoms of hyperactivity?
- Does the hyperactive pupil have learning difficulties?
- Does the pupil have movements that indicate hyperactivity?

The purpose of this exploratory study is to assess the validity and reliability of the research tool represented by the Conners Scale (1996) for Hyperactivity with Attention Deficit Disorder.

The scale was administered at the beginning of October to an exploratory sample of 60 students in the primary schools listed in the table below:

Table 01: Distribution of pupils by primary school

| Institution | Number of hyperactive students | Percentage |
|------------------------------|--------------------------------|------------|
| Belhousin Mohammed Akli 26 | 15 | 25% |
| Houchine Mohand Ouamar 30 | 13 | 21.67% |
| Amzian Mohand Lamouloud 25 | 10 | 16.67% |
| Abotit Ahmed 28 | 12 | 20% |

| | | |
|--------------------|----|--------|
| La Citadelle 10 | 10 | 16.66% |
| Total | 60 | 100% |

From Table 01 it can be seen that the percentage of hyperactive pupils with attention deficit was fairly consistent across the primary schools, ranging from 25% to 16.66%. The exploratory sample size in the current study was 60 students.

8. Study population:

The original population of the study consists of second and third grade students, both male and female, studying in different primary schools: “Belhousin Mohammed Akli, Houchine Mohand Ouamar, Amzian Mohand Lamouloud, Abotit Ahmed, La Citadelle” in the province of Tizi Ouzou, for a total of 119 students.

9. Sample selection and characteristics:

The main sample of the study consisted of 100 male and female students, represented by 100 teachers who answered the scale through interviews from different primary schools in the city of Tizi Ouzou, purposefully selected.

10. Study tools:

- Conners Scale (1996) for Hyperactivity with Attention Deficit Disorder (ADHD):

- Description of the scale: Conners developed in 1996 several subscales for parents, teachers and children to measure the severity of hyperactivity accompanied by attention deficit. The analysis measures several levels: attention, hyperactive activity, learning and impulsivity.

- Scale Scoring: The scale is designed to assess the condition of a child with low, moderate or high hyperactivity. It is scored using the Likert method, with points awarded as follows

- Never: 1 point
- Rarely: 2 points
- Sometimes: 3 points
- Often: 4 points

Finally, the items are summed. If the sum is greater than the mean, the response indicates the severity of the hyperactivity disorder; if it is less than the mean, it means that the child does not suffer from this disorder.

For the teacher-administered scale:

- If the total is between 0-26 points, the child is considered to have low activity.
- If the total is between 27-52 points, the child is considered to have moderate activity.
- If the total is between 53-104 points, the child is considered to be highly active.

The overall average for the first and second term was calculated for the second and third grade students.

- Academic achievement dimensions:

- Below 4.99: Low academic achievement.
- From 5-6.99: Moderate academic achievement.
- From 7-10: High academic achievement.

4.2 Psychometric properties of the scale:

The reliability of the Conners Scale (1996) was calculated by the students in the previous study (Boumarah Hasina and Aliq Ghanima, 2014) as follows: The reliability of the scale was calculated using the “Pearson” correlation coefficient. For the teachers, when calculating the Pearson coefficient, the adjusted value was found to be (0.79), which is the reliability coefficient of the scale. This value was also calculated in the current study using the “Spearman-Brown” formula, resulting in (0.88), which indicates high reliability.

As for the validity of the Conners Scale (1996), it was calculated using the “Pearson” correlation coefficient, giving a validity coefficient of (0.93), which indicates high validity.

5. Statistical methods:

After entering the data, the following statistical methods were applied using the Statistical Package for Social Sciences (SPSS):

- Regression analysis: One-way ANOVA for simple regression analysis.

11. Presentation, analysis and discussion of hypothesis results:

Hyperactivity with attention deficit affects the academic performance of second and third graders.

To test this hypothesis, simple regression analysis was used to check the validity of the test model by calculating the adjusted R-squared value and performing one-way ANOVA for simple regression analysis and model parameters.

Table (02): Coefficient of Determination (R^2)

| Model | R (Correlation Coefficient) | R^2 (Coefficient of Determination) | Adjusted R^2 | Standard Error of Estimate |
|-------|-----------------------------|--------------------------------------|----------------|----------------------------|
| 1 | 0,13 ^a | 0,01 | 0,00 | 1,74 |

Table (02) shows that the correlation between ADHD and academic achievement is weak (0.13). In addition, the adjusted R^2 value is zero ($R^2 = 0.00$), which means that the independent variable (hyperactivity accompanied by attention deficit) explains (0%) of the variance in the dependent variable (academic achievement) among second and third graders. This indicates a lack of explanatory power, suggesting that the variation in academic achievement is not due to ADHD, but rather to other factors in addition to random error.

Table (03): ANOVA for Simple Regression Analysing the Effect of ADHD on Academic Achievement

| Model | Sum of squares | Degrees of freedom | Mean square | F value | Significance (p) |
|------------------|----------------|--------------------|-------------|---------|-------------------|
| Regression | 3,05 | 1 | 3,05 | 0,99 | 0,32 ^b |
| Residual (error) | 177,21 | 58 | 3,05 | | |
| Total | 180,26 | 59 | | | |

Table (03) shows that $F(1,58) = 0.99$, with $P > 0.05$, which is not statistically significant. This means that the simple regression model is not statistically significant. The model that determines the effect of hyperactivity with attention deficit is therefore not statistically significant. Consequently, hyperactivity accompanied by attention deficit does not affect the academic achievement of students in grades 2 and 3.

Table (04): Results of significance tests for simple regression coefficients

| Model | Coefficient (B) | Standard Error | Beta (β) | t Value | Significance (p) |
|-----------------------------------|-----------------|----------------|------------------|---------|------------------|
| Constant | 6,91 | 1,14 | -0,13 | 6,01 | 0,00 |
| Hyperactivity Accompanied by ADHD | -0,41 | 0,41 | | -1,00 | 0,32 |

From Table (04) we can see that the probability value for the constant (0.00) is greater than 0.05, indicating that the constant is statistically significant in the regression model. However, the probability value for hyperactivity with attention deficit (0.32) is less than the significance level of 0.05. Therefore, the regression coefficient in the regression model is not statistically significant. Therefore, the independent variable (hyperactivity accompanied by attention deficit) in the regression model does not affect the academic performance of students in grades 2 and 3.

The estimated regression model can be expressed by the following equation:

$$[Y = 6.912 + (-0.411) X]$$

or

$$\text{Academic Achievement} = 6.912 + (-0.411) \text{Hyperactivity Accompanied by Attention Deficit.}$$

Therefore, the hypothesis that hyperactivity combined with attention deficit would affect the academic performance of second and third graders was not supported.

These findings are consistent with the study by Barry and Lehman (1997), who found a negative correlation between hyperactivity symptoms and academic achievement in students. Similarly, the results of the current study are consistent with those of Sayyid Ali Sayyid Ahmed (2004), who also found a negative relationship between hyperactivity and academic achievement.

The negative relationship found in the previous studies between hyperactivity with attention deficit and academic achievement among students with this disorder can be explained by the inability of the students to follow the teacher's explanations in class. This is due to their lack of concentration and quick distraction by external stimuli, as well as their tendency to forget what the teacher is asking for due to excessive movement and preoccupation with unimportant things. All this, in turn, affects their oral and written responses in examinations, leading to lower academic performance.

In the same context, Barry (2002) pointed out that as the severity of the students' disorder increases, so does the deficit in academic performance. In addition, Shaiyouth (1991) highlighted a strong association between attention deficit hyperactivity disorder and lower academic achievement, although the exact nature of this relationship remains unclear. This finding may be due to other factors related to living conditions, whether economic or social, or to cognitive factors and intellectual abilities.

On the other hand, the results of the present study contradict those of Kaufman (1985), who pointed out that hyperactive pupils tend to be high achievers and socially competent, seeing their excessive activity as a sign of the child's vitality and energy.

Conclusion:

This study showed that hyperactivity with attention deficit does not affect the academic performance of second and third graders. This disorder is one of the most common disorders in primary schools, and this group of students suffers from a lack of concentration and an inability to complete the required homework, along with impulsivity, which negatively affects their academic performance.

In the light of the results obtained, a number of suggestions are made, summarised below:

For parents:

- It is essential to raise awareness among parents and provide them with skills to manage their children, offered by mental health professionals, including
 - Encouraging the child to engage in play activities to channel their energy and help them focus and pay attention.
 - Offering behavioural reinforcers or responses that counteract excessive hyperactive behaviour in exchange for completing academic tasks.
 - Organising the environment around the student to be more harmonious, orderly and cohesive to reduce the student's anxiety.

For educators:

- Teachers should work with mental health professionals to find the necessary solutions to help children with ADHD by teaching them essential skills, such as
 - Correcting misconceptions that teachers may have about hyperactivity associated with attention deficit, viewing it as a condition that can improve once the underlying causes are addressed, and avoiding blaming or punishing students.
 - Continually monitoring pupils to ensure that they complete their work in class, making it easier for the teacher to manage them and seat them in the front rows, while boosting their morale by praising them when they successfully complete their homework.

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