

Attention deficit and hyperactivity and its relationship with learning difficulties among university students

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Abstract: Attention deficit combined with hyperactivity is considered one of the most significant challenges faced by children and adolescents in the educational environment. This condition is characterized by three main symptoms: difficulty in concentration, excessive movement, and impulsivity. These symptoms directly impact the student's ability to learn and comprehend, leading to multiple learning difficulties. Difficulty in concentration makes it challenging for the student to follow lessons, pay attention to details, and complete school tasks. The student may easily forget instructions or lose necessary items for assignments and activities. Excessive movement is manifested in the inability to sit quietly, constant fidgeting, and wandering around the classroom without a clear reason. This behavior can distract others and hinder the collective learning process. Impulsivity is evident in acting without thinking, interrupting others, and having difficulty waiting for one's turn. The student may talk excessively or answer questions before they are fully posed. These behaviors negatively affect relationships with teachers and peers, leading to social and psychological challenges. The relationship between attention deficit, hyperactivity, and learning difficulties is strong and interconnected. Students experiencing these symptoms are more susceptible to issues such as dyslexia, dysgraphia, and dyscalculia. These difficulties exacerbate the challenges faced by the student, potentially leading to decreased self-confidence and feelings of frustration. Early intervention and accurate diagnosis play a crucial role in assisting these students. This includes collaboration between parents, teachers, and specialists to develop individualized educational plans that cater to the student's needs. Effective educational strategies include providing a supportive learning environment, using multi-sensory teaching methods, and offering clear and specific instructions. Psychological support and behavioral therapy may be necessary to enhance self-regulation skills and social adaptation. Additionally, community awareness and education about this condition help reduce the social stigma associated with it, enabling students to receive the necessary support. Through joint efforts and understanding, students suffering from attention deficit and hyperactivity can be empowered to achieve their academic and personal potential, overcoming the challenges they face in their educational journey.

Keywords: *Attention deficit, ADHD disorder, Academic performance, Hyperactivity, Learning difficulties.*

1. Introduction

Concentration and attention in the classroom are among the most important aspects that teachers must consider while imparting information. Attention deficit is one of the common disorders among students, affecting approximately 10% of children worldwide. Attention represents one of the fundamental cognitive processes crucial for cognitive mental activity, as attention disorders stand as primary causes behind learning difficulties.

It is noted that students who suffer from learning difficulties and attention deficit with excessive hyperactivity fail to maintain attention on prolonged tasks and exhibit a decline and deterioration in performance over time, leading to a loss of task engagement.

The vast majority of parents and teachers either lack information about this disorder or possess insufficient knowledge about it. Consequently, they describe children with this disorder as rebellious and overly active, and they perceive them as having learning difficulties or academic delays.

1.1. Research Problem

Attention deficit is among the behaviors that weaken communication, hinder interaction with others, and represent a real obstacle to effectiveness. How can we find innovative and modern solutions that help improve the educational level of those with hyperactive behavior? Addressing the topic of attention as an educational problem has become an urgent matter, as it is clear that the learning and acquisition process requires focused and effective voluntary attention from students at all stages. In my personal opinion, attention does not mean that the student must remain seated without moving, but rather that the teacher can find alternative educational sensory methods.

1.2. Research Objectives

1. Attention is regarded as one of the fundamental factors influencing learning, and it is impossible for learning to occur without attention.
2. Attention is the key to learning, thinking, and memory. In order for an individual to learn anything, they must pay attention to it and comprehend it through their senses and mind, thereby enabling them to achieve their highest objectives.
3. Attention is considered to focus one's feelings on a specific object or idea.

1.3. Definition of Attention and Learning Difficulties

The process of attention is one of the most important cognitive processes that play a significant role in an individual's cognitive growth. Despite this, an individual cannot pay attention to all stimuli; the individual's limited capacity plays a major role in representing information and how it is formed and processed, whether automatically or in a controlled manner. A general term that describes the challenges students face within the learning process. Although some of them may have psychological or physical disabilities, many are typically healthy. Nevertheless, they exhibit difficulties in certain learning-related processes such as understanding, thinking, perception, and attention. Attention is considered one of the most important cognitive processes that play a significant role in an individual's cognitive development. Through various sensory stimuli that help in acquiring skills and forming correct behavioral habits, it enables adaptation to the surrounding environment. Attention is divided based on its source of reception into auditory, visual, olfactory, tactile, and gustatory attention. More than one sense can participate in the process of attention to a specific stimulus.

For example, when an individual watches a football match, there is a visual attention process to the movement of the ball and the players, as well as auditory attention to the commentator's commentary on the match.

2. Types of Attention

1. **Voluntary Attention:** Voluntary attention occurs when we deliberately deepen our attention to something through our will. This type of attention requires mental effort, such as when an attentive person focuses on a lecture or a dry speech that induces boredom. In this case, they feel the effort they are exerting to maintain attention, an effort resulting from the individual's attempt to overcome their boredom or mental wandering. They must pay attention out of necessity or urgency.

Students usually cannot manage this type of attention, as they lack the willpower and patience to exert the necessary effort.

2. **Involuntary (Forced) Attention:** In this, attention is directed to the stimulus despite the individual's will. For example, paying attention to a gunshot, a flashing light, or a sudden pain in some parts of the body. Here, the stimulus imposes itself, forcing us to choose it over other stimuli.

3. **Automatic (Normal) Attention:** This is the individual's attention to something they are interested in and inclined towards. It is attention that the individual does not exert effort for but flows naturally and easily.

2.1. Factors Affecting Attention

Physical Factors: Mental wandering may be due to fatigue, physical exhaustion, insufficient sleep, irregular meal consumption, poor nutrition, or hormonal secretion disorders. These factors can reduce an individual's vitality and weaken their ability to resist, thereby scattering their attention.

Psychological Factors: Attention deficit is often due to psychological factors, such as a student's lack of interest in a subject, resulting in no attention to it, or their thoughts being preoccupied with other matters like sports, social, family issues, excessive self-reflection, or rumination of troubles and pains. It is important to distinguish between mental wandering concerning a specific academic subject or topic and general wandering regardless of the attention subject.

Cognitive Factors: These include the difficulty of the subject, lack of readiness, and lack of mastery of the basic requirements of the presented topic or targeted task, or the ambiguity and complexity of ideas.

Social Factors: Mental wandering may be due to social factors such as intangible problems, ongoing conflicts between parents, financial difficulties, or various family troubles, causing the individual to resort to daydreaming as an escape from this painful reality. It is noticeable that the psychological impact of these social factors varies depending on people's ability to endure and persevere.

Environmental Factors: These include inadequate lighting or poor distribution of lighting that worsens visibility, poor ventilation, high temperature and humidity, poor treatment by others towards the individual, inability to wait, and the type of work in which the individual is engaged.

2.2. Problem of Attention Deficit in Students at School and Its Residual Effect at Home

Some parents at home and teachers at school complain about their children's attention wandering to varying degrees during work, conversation, or reading. The children are unable to concentrate for a few minutes before their attention shifts to something else, and they find it difficult to refocus their attention again. Many students who suffer from attention deficit and excessive hyperactivity mention that hyperactivity was the main factor behind their repeated academic delays and setbacks. Attention deficit hyperactivity disorder is associated with important brain regions and functional areas, particularly those responsible for essential psychological processes involved in executive functions.

Additionally, working memory is considered a fundamental component of human memory systems and plays an important role in performing cognitive tasks. Many recent studies agree that working memory is related to attention deficit.

2.3. Causes of Attention Deficit

1. **Weak Attention:** This is manifested in the difficulty of maintaining attention and concentration. Often, the child does not listen to the person speaking to them, struggles with tasks that require continuous mental effort, usually ignores details, is easily distracted, and frequently forgets things.
2. **Impulsivity:** The child often acts and speaks without thinking, interrupts others, or speaks over them, has little patience, and may have psychological reasons such as feeling inferior and not receiving full rights.
3. **Excessive Movement:** The child exhibits excessive physical activity, which can disrupt the learning environment and make it difficult for them to stay seated or engage appropriately in classroom activities.

Additionally, there are emerging and urgent causes that affect students negatively due to their surrounding environment, leading to hyperactive behavior as a result of certain factors and reasons that must be addressed both at school and at home. These include constant criticism of the student, which may lead them to use excessive activity to forget their psychological state, exhaustion from continuous tasks, overburdening them with duties they cannot handle, feelings of inferiority in front of their peers,

and physical punishment either in front of others or alone, which may cause deep psychological disturbances affecting them and making them engage in actions to alleviate their intense thoughts about the problem.

2.4. Solutions to the Problem

Here, the role of the student counselor, teacher, and parents at home comes into play as a triangle to find innovative solutions and continuous cooperation to achieve the desired goal of the student's comprehension and ability to learn correctly. It is essential to have active participation through the Learning Difficulties Committee, monitoring the student's progress inside the classroom and in the resource room, convincing the guardian of the importance and necessity of involving the child in the program, guiding and directing students with learning difficulties in all academic, psychological, and social aspects, and participating in referring students to the resource room according to the model prepared for that purpose and providing necessary information to teachers of students with learning difficulties for each student referred to the program.

3. Case Study

3.1. Introduction

This study aims to analyze the case of a second-year university student, referred to by the initials (M.S.), who suffers from attention deficit hyperactivity disorder (ADHD) and associated learning difficulties. The study highlights the impact of the disorder on the student's academic and social performance, as well as the strategies employed to overcome the challenges faced.

3.2. Personal and Academic Background

(M.S.) is a 20-year-old student enrolled in the College of Sciences at a prestigious university. Since entering university, he has begun to face difficulties in concentrating during lectures, managing his time, and completing academic tasks. His academic performance in high school was average, with observations from his teachers regarding his attention deficit and excessive movement. However, he did not receive an official diagnosis at that time.

3.3. Current Symptoms and Problems

3.3.1. Attention Deficit

- Difficulty concentrating during lectures, especially those that last for extended periods.
- Forgetting deadlines for submitting assignments and tasks.
- Easily distracted by external stimuli or internal thoughts.

3.3.2. Hyperactivity

- Feeling anxious and the constant need for movement.
- Fidgeting during lectures or in the library.
- Engaging in multiple activities without completing any of them fully.

3.3.3. Impulsivity

- Making quick decisions without considering the consequences.
- Interrupting others during discussions or lectures.
- Difficulty waiting for his turn in group activities.

3.3.4. Learning Difficulties

- Problems organizing thoughts when writing reports or essays.
- Difficulty following sequential steps in solving scientific problems.
- Lower performance in written exams compared to oral ones.

3.3.5. *Diagnosis*

After noticing a decline in his academic performance and increased psychological pressures, (M.S.) decided to consult the university's psychological counseling center. A comprehensive evaluation using recognized psychological measures was conducted, leading to a diagnosis of attention deficit hyperactivity disorder (ADHD) of the combined type, in addition to specific learning difficulties in areas of written organization and information processing.

3.4. *Impact of the Condition on Academic Performance*

3.4.1. *Decrease in GPA*

- His cumulative GPA dropped from 3.0 to 2.5 during the first year.

3.4.2. *Failure in Two Core Subjects*

- Failed two essential subjects due to not submitting final projects.

3.4.3. *Delay in Submitting Tasks*

- Frequently missed deadlines, resulting in grade deductions.
- Submitted incomplete or poorly executed work due to distraction.

3.4.4. *Decline in Class Participation*

- Limited interaction with lecturers and peers.
- Feelings of frustration and isolation within the university environment.

3.5. *Interventions and Strategies Implemented*

3.5.1. *Individual Psychological Counseling*

- Weekly sessions with a psychologist to discuss challenges and develop coping strategies.
- Application of Cognitive Behavioral Therapy techniques to improve concentration and organizational skills.

3.5.2. *Awareness of the Disorder*

- Providing information about ADHD and its impact on learning.
- Discussing the disorder with family members to enhance home support.

3.5.3. *Academic Adjustments*

- Coordinating with the Student Support Office to obtain accommodations such as extra time for exams.
- Allowing lecture recordings for later review.

3.5.4. *Use of Assistive Technologies*

- Utilizing task management and reminder applications, such as digital planners and reminder apps.
- Implementing text-to-speech and speech-to-text programs.

3.5.5. *Educational Support*

- Hiring private tutors for challenging subjects.
- Participating in small study groups to enhance understanding and engagement.

3.5.6. *Medication Therapy*

- After consulting a specialized psychiatrist, he began taking stimulant medications to improve focus and reduce impulsivity.

3.6. Results of the Intervention

3.6.1. Improvement in Academic Performance

- His cumulative GPA increased to 2.8 in the following semester.
- Completed and submitted all tasks on time.

3.6.2. Increased Participation and Interaction

- More effective participation in lectures and class discussions.
- Formed positive relationships with peers and engaged in student activities.

3.6.3. Improvement in Psychological State

- Reduced levels of anxiety and frustration.
- Increased self-confidence and satisfaction with personal performance.

3.7. Ongoing Challenges:

3.7.1. Managing Academic Pressures

- Continual need to develop skills for handling stress, especially during exam periods.

3.7.2. Adherence to Treatment Plans

- Necessity of regular follow-ups with the psychologist and psychiatrist to ensure the effectiveness and continuity of treatment.

3.7.3. Adapting to Changes

- New challenges may arise as he progresses through academic stages, requiring adjustments to the strategies employed.

3.7.4. Summary

The case of (M.S.) underscores the importance of early diagnosis and integrated intervention for university students suffering from attention deficit hyperactivity disorder and learning difficulties. By utilizing available services and receiving academic and psychological support, (M.S.) was able to improve his academic performance and enhance his personal and social skills. This study recommends the necessity of providing specialized support programs within universities and increasing awareness among faculty members about the characteristics and needs of students with ADHD to ensure they achieve their maximum academic and professional potential.

4. Conclusion

In conclusion, it is essential to train school teachers to recognize the symptoms of attention deficit, hyperactivity, and learning difficulties. Preparing training courses for teachers and special courses to educate parents about this disorder and how to handle it from an early age is crucial. This will enable them to address the problem before it escalates, understand the methods of treatment, and know how to interact with students without segregating them from others, as such segregation can exacerbate their hyperactivity.

5. Results

The study yielded additional findings that highlight the complex relationship between attention, hyperactivity, and learning difficulties among students:

5.1. Gender Differences in the Prevalence and Impact of the Disorder

- **Higher Prevalence Among Males:** The results showed that males are more likely to be diagnosed with attention deficit hyperactivity disorder (ADHD) compared to females, which may be attributed to biological and social differences.

- **Symptoms in Females:** Although females are diagnosed less frequently, they experience attention deficit symptoms more prominently, which may be less obvious and harder to diagnose, leading to delays in receiving appropriate support.

5.1.1. Comorbidity

- **Co-occurring Psychological Disorders:** It was found that students with ADHD often have other disorders such as anxiety, depression, and behavioral disorders.
- **Impact of Comorbid Disorders:** These additional disorders complicate the condition, affecting both academic and social performance, and necessitating multidisciplinary therapeutic strategies.

5.1.2. Impact of Family and Social Environment

- **Family Support:** Students who receive positive support from their families show improvement in managing symptoms and academic challenges.
- **Socioeconomic Status:** Lower economic levels may reduce opportunities for early diagnosis and appropriate treatment, thereby increasing the disorder's impact on academic achievement.

5.1.3. Effectiveness of Technological Interventions

- **Use of Applications and Digital Tools:** Modern technologies such as educational apps and time management tools have proven effective in helping students improve concentration and manage tasks.
- **E-Learning:** Remote learning provides flexibility, which can be beneficial for students who struggle in traditional classroom settings.

5.1.4. Role of Physical Activity and Proper Nutrition

- **Regular Physical Activity:** Results indicated that regular exercise helps reduce hyperactivity symptoms and improve concentration and attention.
- **Balanced Nutrition:** Proper nutrition positively affects brain functions, with certain nutrients aiding in improving attention and reducing distraction.

5.1.5. Impact of Academic and Environmental Stress

- **Academic Pressure:** Increased academic demands and pressure to achieve high grades can exacerbate symptoms in affected students.
- **Classroom Environment:** A supportive educational environment that caters to individual student needs contributes to improved academic performance and reduced stress.

5.1.6. Importance of Training Executive Skills

- **Developing Organizational Skills:** Training students in skills such as time management, task planning, and prioritization helps them cope with learning difficulties associated with ADHD.
- **Cognitive Behavioral Interventions:** Cognitive Behavioral Therapy (CBT) methods assist students in developing strategies to handle distraction and impulsivity.

5.1.7. Awareness and Reduction of Social Stigma

- **Raising Awareness:** Increasing awareness about ADHD and learning difficulties helps reduce associated stigma, encouraging students to seek help.
- **Professional Training for Teachers:** Equipping teachers with the knowledge and tools to recognize and effectively manage symptoms within the classroom.

5.1.8. *Impact of Sleep and Healthy Lifestyle*

- **Importance of Adequate Sleep:** Insufficient or irregular sleep negatively affects concentration and attention, increasing learning challenges.
- **Healthy Lifestyle:** Adopting healthy habits such as regular exercise and good nutrition contributes to improving symptoms and cognitive abilities.

5.1.9. *Impact of Alternative and Complementary Therapeutic Interventions*

- **Mindfulness Training:** Some studies have shown that mindfulness techniques help improve concentration and reduce distraction.
- **Art Therapy:** Using arts as an expressive medium can help students manage stress and improve social integration.

5.1.10. *Challenges During the Transition Between Educational Stages*

- **Transition to University Level:** Students face additional challenges when moving to higher educational stages, which require more independence and advanced executive skills.
- **Support During Transitional Periods:** Providing additional guidance and support during these periods is crucial to ensure continued academic success.

5.1.11. *Role of Peers in Support*

- **Study Groups:** Engaging in study groups or group activities can enhance the sense of belonging and help in exchanging successful strategies.
- **Role Models:** Having peers who face similar challenges and have successfully overcome them can serve as a source of inspiration and motivation.

These additional results deepen our understanding of the multifaceted impacts of attention deficit hyperactivity disorder (ADHD) and learning difficulties on students. They also emphasize the necessity of adopting a comprehensive approach that includes educational, psychological, and social interventions to effectively support these students. Through collaboration among schools, families, and the community, a supportive educational environment can be provided, enabling students to overcome challenges and achieve their full potential.

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