



Case Study Analysis: ADHD, ASD, and Hearing Impairment

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Abstract

The current case study provides a detailed examination of an 18-year-old boy who has been diagnosed with Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), and hearing loss. In spite of having normal cognitive skills, the person shows distinct behavioural and emotional issues, such as repetitive speech, social anxiety, irritability, and isolation. Having been diagnosed with ADHD at age 11 and ASD at 15, his clinical profile highlights the difficulties in managing comorbid neurodevelopmental conditions. This research is focused on examining his behaviour patterns, investigating underlying factors, and suggesting therapeutic interventions to improve his well-being and alleviate his symptoms.

Keywords: *ADHD, Autism Spectrum Disorder, Hearing Impairment*

Introduction

ASD is defined by challenges in social interaction, communication, and repetitive behaviours. It can appear in different levels, creating a distinct experience for each person. Common challenges include difficulties in understanding social cues, sensory sensitivities, and non-verbal communication. ADHD is a condition characterized by inattention, hyperactivity, and impulsivity as a neurodevelopmental disorder. People with ADHD frequently have difficulties with concentration, planning, and self-control, impacting their ability to succeed in school and maintain healthy social interactions. Impaired hearing affects a person's capability to understand sound, leading to challenges in communication, language acquisition, and education. Individuals may choose to communicate using hearing aids or sign language depending on their level of hearing loss.

Recently, there has been a growing focus in the field of developmental psychology on the comorbidity of Autism Spectrum Disorder (ASD) and Attention Deficit Hyperactivity Disorder (ADHD) in individuals. Research indicates that a significant portion, between 30-50%, of people diagnosed with ASD also qualify for a diagnosis of ADHD, leading to challenges in managing symptoms and developing effective treatments. The particular combination of autism spectrum disorder, attention deficit hyperactivity disorder, and hearing impairment in this situation poses specific obstacles. This case study examines the behavioural symptoms, stressors, and interventions that are most appropriate for this adolescent, with a focus on reducing irritability, sleep disturbances, and social discomfort.

Background of the Case

The individual, an 18-year-old male, received a diagnosis of ADHD when he was 11 years old and was diagnosed with ASD around two and a half years ago. He does not have any cognitive deficits and shows normal intellectual capacities, but he faces challenges in social situations, has repetitive speech, and feels high levels of anxiety when around unfamiliar people. Present manifestations consist of irritability, insomnia, self-harming actions (such as hitting walls), being alone often. The person sometimes displays peculiar mouth movements and laughs by himself, which may suggest self-regulation of senses or isolation from social interactions.

Research Objectives

1. To examine how ASD, ADHD, and hearing impairment manifest in the individual's behaviour.
2. To discover potential strategies to reduce irritability, sleep disruptions, and stress.
3. To propose a framework that supports enhancing social and emotional well-being by considering sensory needs.

Literature Review

Meguid et al. (2023) conducted a study to examine the frequency of autism in comparison to other disabilities in children receiving special needs services at the clinic, as well as investigate potential co-occurring disorders among Egyptian individuals with ASD. The findings showed that 3555 people were directed to the clinic. 22.5% of children were found to have been diagnosed with

ASD. The typical comorbidities linked to ASD were deficits in language and intellect. The lowest occurrence was found in hearing loss.

Ramanathan et al. (2023) conducted a study aimed to assess the frequency of Attention-Deficit/Hyperactivity Disorder diagnosis in children with normal hearing (NH) and hearing loss (HL), both with and without other health conditions. The findings showed that the percentage of children with ADHD who also have HL is greater than the percentage of AD/HD in NH children, in line with earlier research. Following the exclusion of patients with coexisting conditions and the adjustment for variables, the rates of ADHD are comparable between HL and NH patients. Due to the prevalence of comorbidities and ADHD in children with hearing loss, as well as the increased possibility of developmental challenges, clinicians should consider referring these children for neurocognitive testing if they exhibit any of the comorbidities mentioned in the study.

Szymanski et al. (2012) conducted a study to assess the rate of children having autism spectrum disorder with hearing impairment. Findings show that 1 out of 59 8-year-old children with hearing impairment received autism services in the 2009-2010 school year, which is significantly more than the reported national rates of 1 in 91 (Kogan et al. 2009) and 1 in 110 (CDC 2007) for children without hearing impairment. A higher number of children with severe hearing loss were also diagnosed with autism compared to those with less severe hearing loss.

Methodology

A qualitative method was employed, which included observations, evaluations of behaviour, and interviews with caregivers and therapists. The research aimed to pinpoint behaviour patterns,

particular triggers, and coping mechanisms utilized by the individual. Recordings were made for two months, focusing on both natural actions and reactions to planned interventions.

1. ***Period of observation:*** Two months of consistent monitoring, which involves weekly documentation of behavioural trends.
2. ***Data collection:*** Behavioural evaluations occurred every two weeks, and interviews with family members were conducted to gain insight into emotional triggers or stressors.
3. ***Tools utilized:*** Autism Behaviour Checklist (ABC) and the Conners' Parent Rating Scale were used to assess ASD and ADHD symptoms respectively.

Result

The gathered information provided a lucid understanding of the individual's behavioural and emotional difficulties. The individual showed higher levels of irritability and aggression, especially when experiencing sensory overload or unfamiliar social situations. Many of these episodes were characterized by punching walls and vocalizing feelings of frustration. The subject frequently avoided social gatherings, particularly with strangers, which led to noticeable social anxiety and isolation. In these circumstances, fear became a dominant emotion, causing more isolation. Furthermore, the individual showed a liking for being alone, frequently laughing by themselves and exhibiting peculiar mouth movements that could serve as self-comforting actions. Moreover, the subject experienced increased irritability and stress throughout the day due to persistent insomnia, adding to their emotional struggles.

Discussion

The individual's behaviour matches the characteristics of Autism Spectrum Disorder (ASD) and Attention-Deficit/Hyperactivity Disorder (ADHD), which are made more complex by the difficulties caused by hearing loss. His repeated talking and reluctance to engage seem to be tactics for dealing with feelings of discomfort in sensory and social situations. While his cognitive skills are still functional, his emotional and social requirements pose major obstacles to his everyday activities. The impulsiveness linked to ADHD worsens his isolation from social interactions, raising the chance of being irritable in stressful moments. Furthermore, his hearing loss probably restricts his exposure to vital social and auditory signals, making it harder for him to be present in social environments and adding to his unease around unfamiliar people. His anger and irritability are mainly caused by sensory overload and changes to his routine, with social situations, especially those with unfamiliar people, heightening his stress reactions.

The subject needs a comprehensive approach to intervention to address their challenges effectively. Cognitive-Behavioural Therapy (CBT) can help with anxiety and social coping skills, while Sensory Integration Therapy (SIT) can address sensory sensitivities. Using sensory tools and structured CBT sessions can reduce repetitive behaviours and emotional regulation. Social skills training in a controlled environment can increase confidence in social interactions. Establishing sleep hygiene practices, such as a consistent bedtime routine and reducing screen time, can improve insomnia and reduce irritability. Supportive communication strategies, like sign language, can enhance understanding and reduce communication frustration. Overall, a combination of these interventions can help the subject in managing their difficulties effectively.

The limitation of this study involves concentrating on just one case, potentially missing out on a wider spectrum of experiences in adolescents with comparable diagnoses. Furthermore, the information is largely based on observations and may not be completely objective.

Conclusion

This case study shows how challenging it can be to handle ASD, ADHD, and hearing loss in a teenager with normal cognitive skills. His daily functioning is influenced by social anxiety, sensory sensitivities, and self-regulatory behaviours as reflected in his behavioural profile. By focusing on specific treatments such as behavioural therapy, sensory integration, and social skills training, there is a chance to enhance his overall well-being and reduce the symptoms causing his feelings of isolation and irritability. This research adds to our knowledge of coexisting neurodevelopmental conditions and highlights the importance of personalized treatment plans for addressing specific behavioural and sensory requirements.

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