



AGGRESSION AND CRIMINALITY IN ADULTS WITH ADHD



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ABSTRACT

Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental condition commonly diagnosed in childhood, but which persists in about 2.5% of adults. This disorder is associated with a higher risk of developing mood disorders, anxiety, substance use, and personality disorders. Impulsivity, a central feature of ADHD, contributes to difficulty in self-control, which can lead to aggressive behaviors. Studies show that individuals with ADHD are more likely to be involved in criminal activities, and impulsivity and lack of emotional control are key factors in this relationship. Difficulties in emotional regulation and personal organization also negatively affect the interpersonal relationships and professional lives of these individuals, increasing the risk of marital separations, divorces, and problems at work. When driving, adults with ADHD are at greater risk of accidents, due to inattention and difficulties in maintaining control of the vehicle. Specific interventions, such as the appropriate use of medications and driving techniques, are recommended to mitigate these risks. Early diagnosis and treatment of ADHD, especially in adults who exhibit aggressive behaviors, are crucial. Treatment programs that combine medication with psychosocial approaches can significantly improve social functioning and reduce crime rates in this population, highlighting the importance of integrated and personalized interventions.

Keywords: ADHD. Aggressiveness. Criminality. Adults. Mental Health.

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INTRODUCTION

Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder that involves impairments in attention, hyperactivity, and impulsivity, and is the most common psychiatric condition in children (Sayal et al., 2018). It was previously believed that this disorder decreased considerably with age, however several studies in recent decades have already verified a high prevalence of ADHD in adults - with about 2.5% of adults having this disorder (Song et al., 2021).

The most common comorbidities in children with ADHD are conduct disorder, oppositional defiant disorder, anxiety disorders, and mood disorders. In adults with ADHD, the most prevalent comorbidities are mood disorders, anxiety disorders, substance use disorders, and personality disorders, especially emotionally unstable and antisocial disorders (Knecht et al., 2015).

The association between ADHD and criminal actions is notably recognized, being considered a situation of great social concern. Several studies conducted in various centers reveal a large number of ADHD diagnoses among adolescents and adults in socio-educational measures or prisons - with incidences reaching 45% of adolescents and 24% of adults with a history of childhood ADHD diagnosis (Young; Thome, 2011).

ADHD increases the risk of developing antisocial personality and substance use disorder in adolescence, which in turn increases the risk of aggressive and criminal behavior in adolescence and adulthood. A history of ADHD in childhood and the persistence of symptoms in adulthood are pointed out as a risk factor for the appearance of various situations such as involvement with trafficking, fires, sexual offenses and damage to property (Knecht et al., 2015). The persistence of ADHD symptoms has been described in some places as the most important predictor of juvenile delinquency, even greater than substance use disorder (Young; Thome, 2011).

The theories that explain this strong association of ADHD with criminal behavior generally point to the characteristics of impulsivity, mood instability, and low self-control common in ADHD. But other environmental and developmental issues of children with ADHD are also very relevant, such as a history of being victims of aggression and suffering among their peers (as victims of bullying), situations that are also common in children with ADHD, making it difficult to make a direct relationship between ADHD and this type of behavior (Knecht et al., 2015).

Most adults with ADHD will never engage in criminal activity, however the relationship between ADHD and criminal behavior is already well established. Although this relationship is relevant and clear, it is difficult to adequately explain a possible causality,



since many situations act as complicating factors, such as the occurrence of other psychiatric disorders and various factors during the individual's growth and development (Young; Cocallis, 2021).

This study offers a narrative review of the existing literature on the prevalent relationship between aggressive and criminal behavior in adults with ADHD, with the aim of exploring and discussing the relationship between these situations, highlighting the risk factors, the underlying mechanisms and the implications for diagnosis and treatment, seeking to deepen the understanding of this complex relationship, contributing to the dissemination of the importance of proper diagnosis and more effective interventions that can mitigate the negative impacts associated with adult individuals with ADHD.

DEVELOPMENT

Impulsivity is a central feature of ADHD, manifesting as a tendency to immature responses in search of immediate satisfaction in the face of external stimuli, which often leads to undesired outcomes (Robbins et al., 2012). This behavior can be broken down into four main areas: failure to drive motor inhibition, difficulty making decisions, trouble delaying immediate gratification, and difficulty storing information for future decisions. Thus, in people with ADHD, impulsivity is reflected in difficulty waiting, inability to postpone immediate satisfaction, and difficulty controlling motor responses. Impulsivity may be a factor that partly explains the greater aggressiveness in individuals with ADHD.

We can make a didactic separation of aggressive behavior into two subtypes: proactive aggression and reactive aggression. Proactive aggression is a regulated, organized, commonly premeditated response when the person intentionally acts aggressively. Reactive aggression is an uncontrolled emotional response, when the person performs an aggressive act impulsively (Jakobi et al., 2022).

Individuals with ADHD often have a deficit in emotional regulation, and this lack of control can profoundly impact the functionality of everyday activities. People with ADHD often exhibit reactive aggressive behavior, leading to harm against themselves and others, associated with low tolerance for frustrations and their own impulsivity (Jakobi et al., 2022). This reactive violence often presents itself spontaneously as a response to a provocation or conflict situation, of short duration, and its realization causes a decrease in the individual's tension or agitation (Retz, 2021).

Several alterations in various brain structures can be associated with both aggressive behavior and ADHD. The right insula, hippocampus, and middle and upper frontal areas are related to high rates of reactive aggression behavior in individuals with

ADHD. Studies based on functional neuroimaging have revealed alterations in the activities of the limbic circuit and prefrontal area. It is suggested that changes in the limbic system are related to symptoms of hyperactivity/impulsivity, which can intensify emotional lack of control and cause an increase in reactive aggression (Jakobi et al., 2022).

Individuals with ADHD tend to have greater impulsivity, impatience, a tendency to interrupt others or meddle in other conversations and actions, avoid long-term mental efforts, and difficulty integrating into slower-paced activities (considered more boring). Many of these symptoms signal that people with ADHD have a difficulty with self-control (Schoepfer et al., 2018).

The presence of ADHD is related to an earlier onset of criminal behaviors - something that can intensify even more if associated with substance use disorder (Retz, 2021). Compared to individuals without ADHD, people with this diagnosis are more likely to have contact with the police, a higher risk of imprisonment, and multiple stints in the judicial system (Young; Cocallis, 2021).

The relationship between ADHD and crime is something peculiar and deserves further study. One of the theories about criminal activities is that they have as a causal factor the lack of self-control. Individuals with this difficulty in self-control would have difficulties resisting the urge to commit some criminal act that could lead to immediate satisfaction (Schoepfer et al., 2018).

It is suggested that one of the greatest environmental risks for criminal behavior in individuals with ADHD is low education, doubling the chances of this type of behavior. The correlation exists, but the causal factor is difficult to be clearly defined precisely because young people with ADHD already have a higher risk of educational difficulties, especially if they have other comorbid disorders or even substance use (Young; Cocallis, 2021).

The relationship between ADHD and the risk of crime seems to vary throughout the course of life, but the presence of a diagnosis of ADHD seems to be a predictor of the individual's higher risk of engaging in antisocial behavior early in life and maintaining this criminal activity throughout life (McKay; Halperin, 2001). This is an important contrast to the group of individuals without ADHD, whose criminal behavior is more likely to be performed predominantly during adolescence and early adulthood and then to be interrupted (Young; Cocallis, 2021).

Some conditions are capable of altering the capacity for self-control, such as sleep deprivation, prior effort, feeling of shame, moral values, and the practice of self-control exercises (Schoepfer et al., 2018).



Due to a greater difficulty in personal organization and emotional regulation, individuals with ADHD also have greater impairment in interpersonal relationships. Compared to the general population, adults with ADHD have a higher rate of marital separations and divorces. In addition, reports of many difficulties in the work environment and a higher risk of being involved in rule violations in general are common (Retz, 2021).

People with ADHD often manifest higher libido, earlier onset of sexual activity, and lower sexual satisfaction compared to the rest of the population. In this context, people with ADHD who have sexual fantasies and are paraphiliac are risk factors for the increase in sexual crimes (Retz, 2021).

A noteworthy point in adults with ADHD is driving motor vehicles. Several motor and cognitive skills are necessary for proper driving, skills that can be compromised in drivers with ADHD, compromising their safety and the safety of those around them. Studies show a higher probability of death from car accidents and more serious accidents in drivers with ADHD compared to drivers without ADHD (Aduen et al., 2019).

Individuals with ADHD generally have a lower ability to maintain stability in vehicle control and impairment in defensive driving. In addition, they present, in their behavior, more frequent lane changes in traffic, sudden accelerations and decelerations of the vehicle, and a higher frequency of speeding (Aduen et al., 2019).

It is believed that the main reason for this driving difficulty is inattention, causing a greater probability of individuals being distracted by the car's environment, as well as being less focused on long distances or in adverse conditions - frequent in traffic (Aduen et al., 2019).

Due to this relationship, it is important that measures are thought out and established to reduce the risk that drivers with ADHD will be involved in an accident or traffic violation.

Aduen et al. (2019) suggest some actions:

1. Appropriate use of psychostimulant medications. Depending on the intensity of the symptoms, drivers must organize themselves to drive under the influence of the medications.
2. Avoid using the autopilot mechanism that allows the vehicle to travel at a pre-defined speed (aka "cruise control"), since this technology promotes little brain stimulation, facilitating greater distraction.
3. Use a sequential and repetitive procedure of actions while driving. An example would be the driver practicing a sequence like the example: look ahead, look at mirrors, check the traffic on the sides of the car, look ahead, look at the speedometer and look ahead. Training and applying a sequence like this can



train the driver with ADHD and thus avoid losing relevant information during the journey.

4. Turn off the cell phone while driving, or at least in airplane mode. It would not be enough for the cell phone to stay away, since any sound signal from the device can awaken a deviation of attention. The use of cell phones increases accident and near-miss rates even when hands-free technologies (such as voice control) are used.
5. Limit the number of people inside the car, as the other crew members also serve as distracting factors.

Some studies point out that people with ADHD have 3 to 4 years of delay in neural development, which can significantly interfere with planning, impulse control, and behavior orientation. Because of this, some experts recommend that individuals with ADHD do the procedure of getting a driver's license and starting to drive later (3 to 4 years after the minimum age), and with a properly developed brain, a lower risk of accidents and near misses is expected (Aduen et al., 2019).

Diagnosing ADHD in individuals with aggressive and criminal behavior is a task naturally made difficult by the high frequency of comorbidities that can even mask the diagnosis of the disorder, since symptoms such as impulsivity, irritability, and tendency to opposition can be considered bad behavior from a moral point of view, and not a possible ADHD. However, despite the difficulties, it is important to keep in mind the possibility of this diagnosis, since the prognosis can change in a very relevant way (Young; Cocallis, 2021).

Treatment programs can be very effective in improving the social functioning of adults with ADHD. Medication is recommended as the first line of treatment, but always accompanied by a program that encompasses both psychological and behavioral, educational, and occupational needs (Knecht et al., 2015). Studies show that crime rates decreased significantly in both men and women during periods when they used ADHD medication (Lichtenstein et al., 2012).

The first-line medications are psychostimulants, but their use should be thought of with caution due to the risk of potential abuse, especially if you have a comorbid substance use disorder. Short-acting stimulants should be avoided, giving preference to longer-acting psychostimulants, or other non-stimulant medications, such as atomoxetine. Antipsychotics should also be considered when disruptive behavior is present, and studies show that risperidone and aripiprazole have had good results (Knecht et al., 2015).

The clinical protocol of the Brazilian Ministry of Health records the clinical guidelines for the treatment of ADHD. This document describes a multimodal understanding to deal



with the complexity of this neurodivergence, based on the adoption of non-pharmacological, psychosocial strategies to improve the symptomatology, executive control, and social functioning of the person diagnosed with ADHD, regardless of the age group in which they are (Brasil, 2022).

On the psychosocial level, cognitive-behavioral therapy stands out as a psychotherapeutic model capable of enhancing self-knowledge, self-regulation, development of social skills and self-efficacy of people with ADHD. The life cycle in which the person with this condition finds himself should be contextualized, so that the techniques used favor adherence and effectiveness of treatment (Brasil, 2022).

On the biopsychosocial level, the Brazilian protocol also emphasizes the need for lifestyle changes, such as nutritional control (balanced diet) and routine physical exercise, in addition to psychoeducation (individual, family and social) and environmental management (activities of daily living, family, work, etc.) to promote the quality of life of people with ADHD (Brazil, 2022).

The frequent lack of diagnosis and treatment in this subpopulation of individuals with ADHD who exhibit aggressive (and sometimes criminal) behavior is something that should always be brought to light due to the great personal and community impact. The sooner diagnoses and interventions are made, the greater the judicial, public health and society in general gains.

CONCLUSION

The relationship between ADHD and aggressive and criminal behavior is very complex, and the importance of early diagnosis and appropriate interventions should be highlighted. The presence of ADHD, especially when associated with other comorbidities, can significantly increase the risk of engaging in illicit activities and socially disruptive behaviors. However, this association should not be seen as deterministic, but rather as a risk factor that, if left untreated, can contribute to life trajectories with greater relational problems and with the law. Multidisciplinary interventions that include both medication management and psychological and educational support are crucial to reduce these risks.

In addition, it is essential that health professionals, educators, and society at large are aware of the implications of untreated ADHD in adult life, especially in contexts where impulsivity and difficulty in self-control can lead to legal consequences. The recognition, understanding, and adequate management of this condition can not only improve the quality of life of individuals with ADHD, but also contribute to the reduction of risk behaviors, promoting a more positive integration of these individuals into society.



REFERENCES

1. Aduen, P. A., et al. (2019). Expert recommendations for improving driving safety for teens and adult drivers with ADHD. *ADHD Report, 27*(4), 8-14. <https://doi.org/10.1521/adhd.2019.27.4.8>
2. Boomsma, D. I., et al. (2010). Genetic epidemiology of attention deficit hyperactivity disorder (ADHD index) in adults. *PLoS ONE, 5*(5), e10621. <https://doi.org/10.1371/journal.pone.0010621>
3. Brasil. Ministério da Saúde. (2022). Portaria Conjunta nº 14, de 2022: Protocolo Clínico e Diretrizes Terapêuticas para Transtorno do Déficit de Atenção com Hiperatividade (TDAH). Brasília, DF: Ministério da Saúde. Disponível em: <<https://www.gov.br/saude/pt-br/assuntos/pcdt/arquivos/2022/portaria-conjunta-no-14-pcdt-transtorno-do-deficite-de-atencao-com-hiperatividade.pdf>>
4. Jakobi, B., et al. (2022). Neural correlates of reactive aggression in adult attention-deficit/hyperactivity disorder. *Frontiers in Psychiatry, 13*, e840095. <https://doi.org/10.3389/fpsy.2022.840095>
5. Knecht, C., et al. (2015). Attention-deficit hyperactivity disorder (ADHD), substance use disorders, and criminality: A difficult problem with complex solutions. *International Journal of Adolescent Medicine and Health, 27*(2). <https://doi.org/10.1515/ijamh-2015-5007>
6. Lichtenstein, P., et al. (2012). Medication for attention deficit-hyperactivity disorder and criminality. *New England Journal of Medicine, 367*, 2006-2014.
7. McKay, K., & Halperin, J. M. (2001). ADHD, aggression, and antisocial behavior across the lifespan: Interactions with neurochemical and cognitive function. *Annals of the New York Academy of Sciences, 931*(1), 84-96.
8. Retz, W. (2021). Attention-deficit/hyperactivity disorder (ADHD), antisociality, and delinquent behavior over the lifespan. *Neuroscience & Biobehavioral Reviews, 120*, 236-248.
9. Robbins, T. W., et al. (2012). Neurocognitive endophenotypes of impulsivity and compulsivity: Towards dimensional psychiatry. *Trends in Cognitive Sciences, 16*(1), 81-91.
10. Sayal, K., et al. (2018). ADHD in children and young people: Prevalence, care pathways, and service provision. *Lancet Psychiatry, 5*, 175-186. [https://doi.org/10.1016/S2215-0366\(17\)30167-0](https://doi.org/10.1016/S2215-0366(17)30167-0)
11. Schoepfer, A., et al. (2018). Low self-control and ADHD: Similar yet different concepts in the study of crime. *Journal of Crime and Justice*. <https://doi.org/10.1080/0735648X.2018.1535994>
12. Song, P., et al. (2021). The prevalence of adult attention-deficit hyperactivity disorder: A global systematic review and meta-analysis. *Journal of Global Health, 11*, e04009. <https://doi.org/10.7189/jogh.11.04009>



13. Young, S., & Thome, J. (2011). ADHD and offenders. *World Journal of Biological Psychiatry, 12*(Suppl 1), 124-128.
14. Young, S., & Cocallis, K. (2021). ADHD and offending. *Journal of Neural Transmission*. <https://doi.org/10.1007/s00702-021-02308-0>