

A PSA for Our Times: Adderall and Delta-8

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Consider this article a public service announcement based on the emergence of an alarming trend we're seeing at the Lawyer Assistance Program: an increase in cases of drug-induced delusion and psychosis, not only in lawyers, but in children of lawyers. This article explains why. One case is too many—in a lawyer or their child. Our hope is to reduce these occurrences in lawyers and their children with education about this trend.

Unfortunately, detoxification and cessation of the drugs that caused the psychosis do not guarantee that the psychosis will ever abate. Yes, you read that right: *ever*. The implications are chilling, particularly for those of us in a profession that values our cognitive ability and whose success in the profession is entirely dependent upon intellectual acuity.

In today's US healthcare system, disorders often become widely diagnosed only after medications have been developed to treat them. For example, erectile dysfunction was not widely diagnosed until Viagra, originally being developed as a cardiovascular medication, was shown to also be effective in the treatment of erectile dysfunction. Similarly, Adderall has transformed the landscape of attention deficit hyperactivity disorder (ADHD).

According to the CDC, approximately six million children in the US were diagnosed with ADHD from 2016 to 2019,¹ approximately 60% of whom are receiving medication as a primary form of treatment.² The most commonly prescribed medications are Adderall and Ritalin.

There are also many adults using Adderall for academic and job performance who have no history of ADHD. The number of Adderall prescriptions for adults surged during COVID.³ The surge is a result of quick-to-prescribe online platforms flooding social media with advertisements on how to easily obtain it. US demand for the drug is so high, it has resulted in a long-term, nationwide, "demand-driven" shortage of the drug,⁴

which began in the fall of 2022.⁵

Adderall use is prevalent in the legal profession, and it is one of the most commonly used and abused prescription medications. It is easy to see why. It is an amphetamine. All stimulants, to varying degrees, can give one a sense of euphoria and well-being. But most lawyers start taking Adderall to enhance academic and, later, job performance. It should be noted that sometimes lawyers start using Adderall (with or without a prescription) to counteract the residual effects of long-term use of alcohol, marijuana, or benzodiazepines they may be taking for anxiety. Upon taking it, one feels more alert, awake, focused, organized, and motivated. Behind LAP's closed doors, we hear about law firms making unmarked bottles of Adderall available in the restroom for general use when pushing towards an all-hands-on-deck-round-the-clock deadline. Adderall abuse is so well-known and mainstream, it even shows up in sitcom TV shows like *Silicon Valley*.⁶ If you want to laugh at a sad commentary of just how easy it is to get a prescription for Adderall, *or anything else for that matter*, watch John Mulaney's current Netflix comedy special, *Baby J - A Wide-Ranging Conversation*. With so much acceptance in mainstream pop culture, one might be inclined to think that a legitimate prescription of an FDA-approved medication is safe, right?

Enter epigenetics.

Epigenetics is the study of how behaviors and environment can cause changes that affect the way our DNA/genes work or how our DNA/genes "express" themselves (i.e., show up as traits or health conditions, both good and bad). Epigenetics first gained real traction and visibility in research for conditions like cancer, Alzheimer's Disease, Multiple Sclerosis, and other autoimmune diseases. So, to the question, is it nurture or nature? Epigenetics is finding that the answer is both. Our DNA loads the gun, but the environment pulls the trigger. At least that's what epi-



geneticists are discovering for a host of conditions. Our DNA alone is not the problem, but it can set us up to have a problem if we are exposed to certain environmental stressors (like carcinogens, neurotoxins, or other chemicals we might ingest in the food supply or in medications we take).

For example, it is well known in recovery circles that someone can be genetically predisposed to alcoholism. For a majority of recovering alcoholics, alcohol had a different effect on them than casual drinkers—right out of the gate. But take someone who comes from a long family line of alcoholics throughout the generations. While that individual may be genetically predisposed, they will not become alcoholic if they never take a drink of alcohol. The trigger of that particular gun never gets pulled—for them. But the gun is still loaded for their children, genetically speaking.

Many parents in the 12-step fellowship of Al-Anon—for friends and family of alcoholics—come in dismayed and confused because, although they've never had any alcohol themselves (by choice due to growing up with alcoholic parents), their teen or young adult children are nevertheless having serious problems with alcohol, despite having been raised in an alcohol-free home.

The research in epigenetics is exploding with the dramatic rise of cancers, autoim-

mune disorders, as well as neurodegenerative conditions—a rise in both total numbers of people contracting these diseases as well as new variations of disease type. And now, there is early epigenetic research conclusively linking Adderall use, psychosis, paranoia, and schizophrenia.

Psychosis is a loss of contact with reality causing the inability to differentiate between what is real and what is not. When someone is having a psychotic episode, the thoughts in their mind seem like reality.

It might not be initially clear that the person is in a psychotic episode. Psychosis does not mean the person is necessarily “acting crazy.” They may appear calm, collected, intelligent, and well spoken. The observer may not realize anything is at all amiss until the person begins reporting or responding to phenomena that clearly do not exist. Either the observer has no idea what they’re talking about because the person is hallucinating, or the person is reporting something with no basis in reality—for example, reporting that a centuries-old historic figure was the person’s best friend growing up.⁷

Paranoia and paranoid delusions often take center stage. Even under fairly normal circumstances, lawyers can experience paranoia as a result of our training, the adversarial nature of our work, and baseline reputational fear of showing weakness or being exposed in some way. Actual, diagnosable paranoia goes further. It involves intense anxious or fearful feelings and thoughts often related to persecution, threat, or conspiracy that others are “out to get me” in some way with no evidence, proof, or basis in reality. Paranoia makes a person think and feel they are in a perpetual state of actual danger. Paranoid thoughts can become delusions when they become so fixed that nothing can convince a person that what they think or feel is not true, even when all evidence points to the contrary.⁸

We have been scratching our heads because we are seeing more and more cases of delusional disorder. According to the Cleveland Clinic, delusional disorder is “a type of psychotic disorder. Its main symptom is the presence of one or more delusions. A delusion is an unshakable belief in something that’s untrue. The belief isn’t a part of the person’s culture or subculture, and almost everyone else knows this belief to be false.” As an example, someone may be convinced that they are working within a vast conspiracy involving financial fraud and that

they are under constant surveillance, when in reality they are conflating delusional paranoia with a contentious real estate or business transaction.

It is difficult to spot and identify substance use disorder problems when caused by prescriptions like Adderall until we see the psychosis and paranoia. These are lawyers who do not identify as having any kind of a substance use disorder problem, far more so than the baseline denial we usually see. Yet, when we suggest cessation of the pills, they will not remotely consider giving up their “legitimately prescribed” Adderall, insisting they “need it to function.”⁹ And yet their very sanity depends entirely upon medically detoxifying from these kinds of substances.

Similarly, we are seeing more reports from lawyers about their adolescent and young adult children exhibiting signs of very serious mental illness, including psychosis. Psychosis in teens can be particularly difficult to spot at first because it can start with isolation and withdrawal from family and friends. Even healthy teenagers withdraw from family members just for the cool/uncool factor. But when psychosis is unfolding, as paranoia develops, the teen or young adult may cut off all communication and contact with parents or other family members. The psychosis may take the form of allegations of verbal and physical abuse that plainly did not happen. Parents begin to question themselves and historical interactions, second guessing themselves and how their seemingly benign interactions could have been so misinterpreted. Any attempts at clarifying or insisting on communication will be met with strong resistance, often including violence towards the parents and/or threatening suicide and self-harm, necessitating calling the police and proceeding with involuntary commitment.

Schizophrenia is often misunderstood as a split personality. Schizophrenia is more like an inclusive umbrella diagnosis when there are symptoms of psychosis, paranoid delusions, hallucinations (auditory hallucinations are more common than visual ones), disorganized thought patterns, and an inability to express emotions or experience pleasure.¹⁰

All these conditions involve dysregulation of the dopamine system. What do drugs and alcohol do? They impact the regulation of dopamine in the central nervous system. But some drugs—even prescription drugs—have more of an impact than others. Adderall and marijuana—two of the most abused sub-

stances—are two of the most impactful.

Russian Roulette

The difficulty here is that 99% of people who take Adderall will not be driven into either acute episodic psychosis or long-term chronic psychosis. But some will, and the odds certainly increase if they have a genetic predisposition for this type of reaction. How can you tell if you have (or your child has) a genetic predisposition? You can’t. You can’t, that is, until you take it for some time (or give it to your child) and see what happens. For a profession and a group of people that value our cognitive ability above all else, it feels like a game of Russian roulette with a bullet loaded in the chamber.

Adderall packs more of a dopamine one-two punch than Ritalin. Not only does it act as a dopamine reuptake inhibitor, leaving more dopamine behind in the neuronal synapse (space, or gap), but it also encourages extra dopamine release. Adderall has the effect of being a much more potent stimulant medication by having a greater ability to increase dopamine activity. The precise mechanism by which Adderall or other stimulants induce psychosis remains unclear; however, anti-psychotic medications like Haldol work by blocking the dopamine receptor and reducing the overall dopamine signaling in the brain. It is therefore a common belief among scientists that excessive doses of stimulants can cause psychotic symptoms of delusions and hallucinations by inducing excessive levels of dopamine.

Scientists always differentiate causation from correlation. While scientists are still researching the intricacies of the dopamine and psychosis cause and effect, research has conclusively established a correlation between the intake of amphetamines like Adderall and the development of psychosis.^{11 12} As we often see in the substance use disorder world, science can be slow to catch up to common sense experience and observation. Just ask Google (search “Adderall induced psychosis and paranoia”). There are dozens of sub-Reddit threads—some dating back ten years—of people describing their own psychotic and paranoid delusional episodes when taking even low doses of Adderall, both with and without an ADHD diagnosis.

An ADHD diagnosis does not guarantee safety from a psychotic episode.¹³ Once a person is psychotic, if you can get them to a hospital, they are treated with antipsychotic

medications called dopamine antagonists, like Haldol, which block the effects of dopamine.¹⁴ The risk for serious adverse effects is compounded when combined with other substances (either prescribed or not—we will cover both) used to offset the side effects of long-term Adderall use, the most common of which are anxiety, inability to sleep, and panic attacks.

Enter polypharmacy.

Polypharmacy is an umbrella term used to describe the simultaneous use of multiple medicines, typically five or more. The medical-industrial complex promotes this practice. Most medical treatments today are more about symptom management or temporary alleviation than about curing the underlying medical condition or eliminating its cause. Rather than recommend a patient discontinue Adderall if it causes anxiety or insomnia, many well-meaning prescribers will prescribe Klonopin—a benzodiazepine—to counteract Adderall's unwanted effects.

Benzodiazepines (benzos), also highly addictive, are a class of medications that slow down activity in the brain and central nervous system.¹⁵ The most common benzos are the prescription drugs Valium (diazepam), Xanax (alprazolam), Halcion (triazolam), Ativan (lorazepam), and Klonopin (clonazepam). One of the problems with the use of benzos to counteract the effects of Adderall is that benzos are not meant for long-term use. They are meant to be used for the acute and brief (one to two weeks) treatment of anxiety. Benzos are often used to treat panic attacks in emergency rooms, without a follow-up prescription. Studies show that tolerance develops over the course of days or weeks, and after four months, the brain has altered itself to the point that a given dose of benzodiazepines is no longer effective.¹⁶ It is also worth noting that alcohol and benzos are essentially the same, as far as the brain is concerned.

LAP has worked with lawyers who have used multiple brain chemistry pills for years. We've seen lawyers on as many as eight different psychiatric medications. Detox must be medically supervised, and dosages carefully reduced over weeks or months depending upon the drugs. Like alcohol, immediate cessation of benzos can throw someone into severe withdrawal syndromes of racing heart rate, dangerously high blood pressure, hallucinations, seizures, and eventually a potentially fatal condition called delirium tremens which requires care in an intensive care unit. Why?

Because our brain has learned to “lean” on the external substances to operate at an appropriate level of intensity. But when those substances are suddenly taken away, we lose balance, and the brain inadvertently creates a surge of intensity by releasing an uncontrolled amount of adrenaline and glutamate. The only way to safely detox from these medications is under close medical supervision, often in an inpatient setting.

That is what happens in the prescription world. But as we've noted, many Adderall users do not have valid prescriptions. These lawyers, or their children, who are using Adderall without a prescription are more likely to turn to nonprescription remedies to self-medicate the side effects of Adderall use. Research shows that users of nonprescription stimulants are more likely to report use of alcohol, cigarettes, marijuana, ecstasy, and cocaine.¹⁷ Marijuana edibles, like delta-8, are quickly becoming the go-to substance of choice to help one feel calmer and get to sleep.

Cannabis and THC

As a result of the sweeping legalization across the country of its use for both medical and recreational purposes, there are some serious misconceptions about marijuana's purported safety. It is not an overstatement to say that many readers might assume marijuana use is “safer” than alcohol use. But to be considered safer than the fourth leading cause of preventable deaths¹⁸ is not saying much. The dangers of THC are especially concerning when combined with Adderall, and especially in people ages 11 to 25 (even without Adderall).¹⁹

Enter delta-8.

Delta-8 (short for Delta-8 THC) is technically a “hemp” product, so it is currently legal at the federal level and unregulated. As a result, sales of delta-8 products across the country have exploded. You can buy it at your local gas station or convenience store, along with other unregulated synthetic or designer drugs, like kratom, spice, and bath salts.²⁰ Sometimes packaged like candy, it is often sold in the edible form of gummy bears and marketed to youth.²¹ It's also sold at herbal stores or CBD stores as a “natural remedy” sleep aid.

Let there be no confusion—delta-8 is a type of THC. THCs are the psychoactive chemical contained in marijuana, which is also addictive. Because delta-8-containing

products are not regulated, manufacturers employ various methods to increase the concentration of THC in their products to keep consumers coming back for more. Some products reach a THC potency of 95%.²² This is especially true for delta-8 vape juice products. Vape juice is liquid used in e-cigarettes, which, when heated, creates an aerosol that users inhale.

The FDA recently started tracking delta-8 related “adverse events” and calls to poison control centers.²³ Adverse events (over a 14-month span) included, but were not limited to, hallucinations, vomiting, tremor, anxiety, dizziness, confusion, loss of consciousness, admission to hospitals (including critical care units), and at least one known death.²⁴ As if that weren't enough, our dogs are going into seizures from neurotoxicity from eating dropped edibles while they are out on their evening walks.²⁵

I consulted Harold Hong, MD, for help writing this article. Dr. Hong is the medical director at New Waters Recovery in Raleigh. He spoke at our annual LAP conference in November about the neuroscience of addiction and recovery. I have been at LAP for a dozen years now, and I have never witnessed a response like I did when he described the impacts of marijuana use on the young, still developing brain. There was a collective gasp. Now let me assure you, not much can shock LAP volunteers—much less cause gasping. Most of them are well-schooled in the neuroscience of addiction. But neuroscience research and understanding are evolving.

The LAP volunteers audibly gasped when Dr. Hong talked about synaptic pruning, which is particularly crucial to brain development in late adolescence through the mid-20s. This is the process that occurs as we mature from emotionally reactive children, with little-to-no impulse control, into more measured, thoughtful, reasoning adults. Synaptic pruning is a process during which the highly emotionally reactive “tendrils” of neurons are pruned, eliminating up to 50% of the synaptic connections in some regions of the brain. The process contributes to the increases in brain efficiency, learning, and emotional maturation seen during adolescence and young adulthood.

More importantly for our purposes, appropriate pruning is associated with effective mood regulation and impulse control, while disrupted pruning is associated with clinical mood disorders²⁶ due to overactivity,

or “white noise” in how different parts of the brain communicate with each other. *Use of marijuana/THC in any form interferes significantly with and stops the pruning process,*²⁷ *and once this critical window of pruning and brain maturation closes in the mid to late 20s, there is no known way to induce it to happen again, which is to say that these effects on disrupted brain development persist throughout a lifetime.* If an adolescent uses marijuana in any form for, say, five years, the brain does not go back and catch up or make up for lost time. That window has closed. The result? *“It has long been recognized that the use of cannabis in early adolescence increases the risk of later development of psychosis and schizophrenia.”*²⁸

The problem with the conversation around marijuana use is that a 40-year-old who has never used THC before, and underwent healthy brain development, will have a totally different response to it than an adolescent. It is also worth noting that marijuana today is so much more potent and is having some of the same adverse effects on adults, just not for the same developmental reasons. Prior to the 1990s, the THC content in marijuana was less than 2%. In the 1990s it grew to 4%, and between 1995 and 2015 there has been a 212% increase. As of 2021, research shows an average content of 15.34%, with some products as high as 95%.²⁹ At the risk of sounding hyperbolic, instead of the stereotypical super mellow individual we see at 40, we will be seeing a generation of volatile, hyper-reactive, sometimes violent, psychotic, and schizophrenic young adults. And, regardless of age, when used with Adderall, the incidence of psychosis increases exponentially. As we see with alcohol, just because something is legal does not mean it is safe.

Typing It All Together

Adderall use and abuse is on the rise. Its use is particularly prevalent in the legal profession. For a small percentage of lawyers, use of it alone can throw them into psychosis. Acute psychotic episodes are easy to spot. But there are plenty of lawyers experiencing a gradual slow build of paranoia that is developing into delusional disorder, followed by full-blown psychosis, even as they are still functioning as lawyers.

Marijuana use, particularly with products containing delta-8 THC, is on the rise. Its use is gaining momentum in the profession because it is legal in some forms. For a small

percentage of lawyers, use of marijuana by itself can throw them into psychosis based on the potency issues discussed above. Adolescents under the age of 25 should not use it in any form. It impacts and hinders brain development so severely, it puts them at much greater risk for not only acute psychosis when they are young, but also long-term psychosis and schizophrenia as adults.

Adderall use along with products like delta-8 THC is also on the rise, causing or threatening to cause psychosis in a much larger percentage of lawyers.

The Takeaway?

Forewarned is forearmed.

All of this has created a perfect storm. THC increases the total number of synaptic connections by disrupting the process that would have pruned away extraneous connections. Adderall increases the activity at these extraneous connections by dramatically enhancing the levels of dopamine in those connections. Easy access to Adderall has expanded via quick-to-prescribe online platforms flooding social media with advertisements on how to obtain it. Add to that the pervasive availability of THC products at your local gas station or convenience store, and we have a reasonable understanding and explanation for why we are seeing a significant uptick at LAP of both lawyers, and especially their children, with delusional and psychotic symptoms.

For every regrettable action, in the heat of the moment, there was a seemingly good reason to do it. When a major case or deal requires one or more late nights, Adderall can seem like a great option to get across the finish line. When the stress of a challenging case keeps us up at night, a delta-8 gummy can seem like the perfect solution. But our experience at the LAP tells us that it is not worth the risk. There are numerous highly effective and healthy solutions to these challenges available to us that don’t involve the dangerous consequences of quick-fix drugs. The LAP specializes in helping lawyers find and implement these solutions in their own lives without resorting to “better living through chemistry” that can have unintended, long-lasting consequences, some of which are devastating and irreversible. ■

Robynn Moraites is the director of the North Carolina Lawyer Assistance Program, a confidential program of assistance for all North

Carolina lawyers, judges, and law students, which helps address problems of stress, depression, alcoholism, addiction, or other problems that may impair a lawyer’s ability to practice. For more information, go to nclap.org or call: Cathy Killian (Charlotte/areas west) at 704-910-2310, or Nicole Ellington (Raleigh/down east) at 919-719-9267.

Harold Hong, MD, is the medical director of New Waters Recovery, a detox and treatment facility in Raleigh, NC. Dr. Hong is a board-certified psychiatrist who is passionate about recovery from substance use disorders and addiction through a holistic approach. Read his full bio at newwatersrecovery.com/who-we-are/meet-the-team/dr-harold-hong.

Endnotes

1. See cdc.gov/ncbddd/adhd/data.html.
2. *Id.*
3. See CNN: bit.ly/3Q7JJtN.
4. *Id.*
5. See FDA: bit.ly/3rlwknr.
6. HBO, Season 1, Episode 6, 2014.
7. See www.nimh.nih.gov/health/publications/understanding-psychosis for an excellent short summary and overview of signs and symptoms of psychosis.
8. For a detailed and devastating account of prescription Adderall abuse and the unfolding paranoia and eventual suicide of a promising young man, see this five-minute YouTube video, youtu.be/7AHkhnmlrZk.
9. This reaction is commonplace across all substances, but something about a prescription legitimizes it more so in lawyers’ minds.
10. See psychiatry.org/patients-families/schizophrenia/what-is-schizophrenia for an excellent short summary and overview of signs and symptoms of schizophrenia.
11. See, e.g., link.springer.com/article/10.1186/1471-244X-12-221.
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