

PRIMUM NON NOCERE

Amazonian Medicine for Modern Addiction

Exploring Ayahuasca's Clinical Potential

CONOR WATTERS, ND

Exploring the emerging science, cultural significance, and clinical applications of Ayahuasca in the treatment of substance use disorders.

Introduction: The Global Burden of Substance Use

Recent research on substance use disorder has highlighted the promise of Ayahuasca as a treatment option. Ayahuasca is a traditional Amazonian plant medicine. It has use ranging from Colombia to Brazil, by most estimates.

The Cost of SUD

Substance use disorder(SUD) remains a global problem of tremendous proportions. An estimated 296 million people worldwide are considered to use illicit substances.¹ Approximately 35–50% of those affected meet criteria for moderate to severe forms of the disorder, aligning with DSM-5 or ICD-11 gradings.² Estimated global health costs for treating SUD exceed \$600 billion annually, factoring in healthcare expenses, lost productivity, and criminal justice costs.^{4–6}

Current Treatment Approaches for SUD

Standard of care treatments for substance use disorder (SUD) encompass a range of evidence-based pharmacological and behavioral interventions, tailored by substance subtype. Behavioral therapies—including cognitive-behavioral therapy (CBT), motivational interviewing (MI), and contingency management—form a cornerstone across all SUDs. For opioid use disorder (OUD), first-line pharmacotherapies include opioid agonists such as methadone and buprenorphine, as well as the opioid antagonist naltrexone.^{7, 8} Alcohol use disorder (AUD) treatment integrates behavioral strategies with pharmacotherapies such as naltrexone, acamprosate, and disulfiram.^{9, 10} Stimulant use disorders, including cocaine and methamphetamine addiction, currently lack FDA-approved pharmacotherapies; however, contingency management and CBT have demonstrated the strongest evidence of efficacy.¹¹ Cannabis use disorder is similarly managed through behavioral therapies, particularly CBT and motivational enhancement therapy (MET), with family-based approaches proving effective in adolescents.¹² Integrated psychosocial supports—such as peer recovery programs, 12-step facilitation, and community reinforcement approaches—are recommended adjuncts across substance categories to improve engagement and long-term outcomes.

Substance Use Disorder Statistics

The most common substances involved in SUD include alcohol, marijuana, cocaine, heroin, and methamphetamine. According to the 2022 National Survey on Drug Use and Health (NSDUH), the prevalence rates among individuals aged 12 or older were as follows: alcohol use disorder at 10.5% (29.5 million people), marijuana use disorder at 6.7% (19.0 million), cocaine use disorder at 0.5% (1.4 million), heroin use disorder at 0.3% (900,000), and methamphetamine use disorder at 0.6% (1.8 million).¹³

Treatment efficacy varies by modality and substance. For instance, long-term residential treatment programs have demonstrated abstinence rates ranging from 68% to 71% among women who remained in treatment for six months or more.¹⁴ Behavioral therapies, such as contingency management and cognitive-behavioral therapy (CBT), have shown effectiveness in reducing substance use and improving treatment retention.¹⁵ Pharmacotherapies, including methadone, buprenorphine, and naltrexone, are effective for opioid use disorder, with studies indicating improved treatment outcomes and reduced relapse rates.¹⁶

What is Ayahuasca?

Pharmacologically, Ayahuasca is a combination of a dimethyltryptamine (DMT)-containing leaf and a monoamine oxidase inhibitor (MAOI)-containing vine. The leaf is most typically *Psychotria viridis*, and the vine is most typically *Banisteriopsis caapi*.

Ethnographically, Ayahuasca is a cultural product of South American peoples, including the Shipibo-Conibo.

Legal Status of Ayahuasca

Legally, Ayahuasca is a nuanced topic. In the United States, DMT is classified as a Schedule I controlled substance under the Controlled Substances Act of 1970.¹⁷ Several churches that use Ayahuasca as a sacrament in worship have obtained a DEA exemption through the Religious Freedom Restoration Act of 1993.¹⁸ Namely, the Church of the Eagle and the Condor (2024), the Santo Daime¹⁹, and the União do Vegetal.²⁰ The United States played a significant role in advancing international drug control treaties during the 1970s, including the 1971 United Nations Convention on Psychotropic Substances.²¹ The international rules that apply to the DMT in Ayahuasca are enforced under that Convention in the majority of signatory nations. The Peruvian government officially recognizes Ayahuasca as a cultural phenomenon that is protected as part of the nation's heritage.²² In other words, Ayahuasca is protected and legal in Peru.

Scientific Research on Ayahuasca and SUD

Scientific research has been pre-clinical, with animal and chemical, observational, and narrative studies. Although randomized controlled trials on Ayahuasca do exist, they are few and far between.

Pre-clinical studies on animals have found that conditioned place preference is erased. Rodents were fed a drug of abuse, such as ethanol, cocaine, or methylphenidate. It was observed that they would return to the same place where they were habitually administered the drug of abuse to obtain more of the drug. This would happen for sequential days. Ayahuasca would be administered to the rodents. It was observed that the rodents no longer sought the drug of abuse. They did not return to the place of administration seeking the drug anymore.²³

Chemical studies have found, like all plants, that the active constituents in the leaf and root of Ayahuasca vary in concentrations.²⁴ This leads to variation in effect between harvests and batches of brew. Practitioners develop preferences for batches for which they attribute nuanced energetic properties. One example in the literature is that members of the Uniao do Vegetal (UDV) church were found to prefer the brew when rich in tetrahydroharmine compared to harmine and harmaline levels.²⁴ Tetrahydroharmine is the only harmala alkaloid shown to have a selective serotonin reuptake inhibition effect.²⁴ It is also asserted that the preparation method of the brew can alter the tetrahydroharmine levels.²⁴

Pharmacokinetically, the MAOI allows for enteric absorption of the DMT and dramatically slows down the breakdown of DMT in the neural synapses. This allows a saturation of the nervous system that causes the desired pharmacological activation.^{24, 25} Furthermore, harmine (a MAOI compound) stimulates the proliferation of human neural progenitors, which is speculated to help with repair of damage from drug use.^{24, 26}

Neuropsychiatric and physical changes occur during Ayahuasca “intoxication,” including hallucinations, diaphoresis, tachycardia, excitement, nervousness, flatulence, eructations, nausea, and emesis. Harmine was once coined as “telepathine” because of subjective reports of telepathy between individuals co-experiencing the same ceremony. Harmala alkaloids and DMT are both thought to interact with 5-HT₂ receptors and cause hallucinations.²⁴ Antidepressant effects are thought to come from harmine, causing restoration of the brain-derived neurotrophic factor (BDNF) signal.²⁴

Narrative studies have found greater self-connectedness, increased self-esteem, a better ability to engage in group dynamics, trust, love, and hopefulness.

A study involving Coast Salish people in British Columbia found that substance use disorder behaviors decreased. A majority of the participants were able to abstain from a substance with which they had a troubled relationship. The study was conducted during a retreat weekend, and guest shamanic healers from South America performed several Ayahuasca ceremonies.

A study involving members of the UDV church in Brazil found that members had reduced alcohol abuse rates compared to earlier in their lives.

A study by Gabrielle Agin-Leib et al found that Ayahuasca was helpful for treatment-resistant depression. This was a notable randomized controlled trial.

An observational study in 2021 found that the Shipibo Ayahuasca ceremony improved wellness.²³

Personal Reflection: Healing in the Amazon

This story is not just academic—it’s personal. I witnessed the remarkable when I traveled to the Amazon region of Peru to a Shipibo lineage Ayahuasca healing center. I was a medical student then, accompanied by a naturopathic doctor who guided me and my peers through an immersive journey of observation and experience. We witnessed Maestro Ricardo Amaringo of Nihue Rao Centro Espiritual conducting his healing work in the traditional maloca (“ceremonial house”) setting.

I saw individuals undergo profound healing from a range of conditions—severe childhood trauma, heroin addiction, recovery from automobile accidents, chronic illness resulting from brain trauma, and even emotional resilience in the face of lifelong limitations from congenital disabilities. I found the approach of the Shipibo healers to be remarkably aligned with the nature cure philosophy at the heart of naturopathic medicine.

The experience of Ayahuasca healing in the jungle was an incredible fusion of ecotherapy and psychopharmacology. Each night, the visual and sonic motifs of the Amazon blended into an all-encompassing sensory journey. The shamans’ songs pierced the evening air as ceremonial participants rode their medicine experiences through. Frog, insect, monkey, and bird symphonies abounded. Dreams of my forefathers’ lives flashed through my mind, revealing possible epigenetic moments of trauma and resilience. These visions resonated with me as explanations for my own experience of my nature as an individual rooted in lineage. It brought new personal meaning to healing seven forward and backward generations in time, as commonly attributed to North American indigenous culture.

As I saw the darkness my ancestors had accumulated and felt it within my being, I felt it viscerally. This was not easy. A cascade of powerful and overwhelming emotions moved through me. Fear, terror, regret, sadness, woe, misery in what felt like only a few heartbeats. Visions of what might have been my own past life crossed through my mind. I had not been as good to others as I could have. I cried and in a profound state of spiritual communion, I asked God to forgive me for whatever wrongs I had done and also to take away the pain and darkness that I carried from my forefathers.

I felt heard in a very big way when the lead shaman's song seemed to hit me right in the gut - I had a completely uncontrollable bout of emesis into my bucket (yes, it is part of the kit each participant has at their place). This was very thorough throughout a song that lasted for what I can only guess was ten minutes. It was very uncomfortable. "Just breathe through it", I told myself while being grateful for years of yogic breathwork and more recently biofeedback training.

In that moment, I witnessed a hallucinatory personification of the dark energy riding the wave of emesis out of my body, dissolving as it left me. I felt lighter, cleaner, and deeply relieved. Unlike alcohol poisoning, this experience, though messy, felt distinctly salutary... I returned to a place of calm introspection, observing my thoughts and sensations with clarity and grace. The altered state continued, filled with insight and reverence.

Later, the master shaman called me forward to receive a personal medicine song. He allowed me a moment to settle into a seated posture, then began singing over me. From his mat several feet away, his acoustic vibrations carried and seemed to bathe over my corporeal and psychic being. My nervous system downshifted multiple gears. A profound peace bloomed behind my mind's eye.

Visions of hope and joy filled my inner world. I felt immense gratitude for living in a world where good things still happen. The medicine showed me glimpses of future clinical paths –visions of hydrotherapy, water birthing, frog peptides from Kambo (another Amazonian medicine), and even death doula work in a remote, temperate rainforest. I watched as the medicine taught me lessons about the forest and how to move wisely through it. I gained knowledge about soldiering and hunting. I dreamed awake about letting metaphorical sleeping dogs lie and embracing paths of peace and mercy. It was a profound, alive, and intelligent tutelage, and I consider it a direct transpersonal encounter with Vis Medicatrix Naturae.

This experience underscored for me that Ayahuasca should only be administered by well-trained facilitators who are capable of holding space for the deep emotional and spiritual processes that can emerge in ceremony. I strongly urge anyone considering this path to vet the guides they choose to work with carefully. Chris Kilham describes approaches to do this in his book "The Ayahuasca Test Pilots Handbook" (2014).²⁴

NATUROPATHIC DOCTOR NEWS & REVIEW

In his book Fellowship of the River (2017), Dr. Joe Tafur, MD, explains how Ayahuasca's ceremonial healing helps people.²⁵ I highly suggest this book, as he speaks eloquently in language that bridges Western medical science and Latin American traditional healing. His book is full of cases and truly an asset for the naturopathic doctor's bookshelf. 🌿



Dr. Conor Watters ND MSAS PATP practices at Healing Watters PLLC. He is located in the Pinehurst neighborhood of Seattle, Washington, USA. His website is www.healingwatters.com and his business line is 425-380-3098. He graduated from Bastyr University in 2022 with a Doctorate in Naturopathic Medicine. He earned his Masters of Science in Ayurvedic Medicine in 2018 from Bastyr University. Between the graduate degrees, he served in the WA Army National Guard and he ran 911 calls as an EMT with American Medical Response during the COVID-19 pandemic. He is most passionate about working with servicemembers, veterans, first responders, and outdoors enthusiasts.

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