

Introduction/Background and Purpose

Psychedelics are a drug category that change perception of consciousness by causing changes to the brain's serotonin receptors, and can induce effects on perception, social and emotional behavior, and may have effects on mental health disorders. One important psychedelic is mescaline, naturally occurring in plants including yet not limited to the peyote cactus (Kelmendi et. al., 2022). Peyote is a plant that has been used for its psychedelic properties by Indigenous groups for centuries, despite being federally banned with an exemption for Indigenous groups. The cactus grows in very limited quantities in specific regions of Texas and Mexico, and is considered sacred to these groups, who may fear its legalization due to exploitation by commercial entities (Terry & Trout, 2017). The psychedelic is consumed as cactus buttons (pictured in Figure 4) are chewed, steeped in water, or ground into a powder that can be smoked or swallowed inside of a gelatin capsule (Drug Enforcement Agency 2024). The purpose of this project is to develop a literature review regarding peyote and its potential as medicine alongside legal restrictions regarding its access, and its history in religious and Indigenous communities, to inform citizens of the possibilities of psychedelic legalization amidst their cultural context.



Figure 1: An excerpt of the website of Lophos, a Canadian pharmaceutical company looking to sustainably cultivate peyote, pictured on the right. Accessed 6 February 2025.

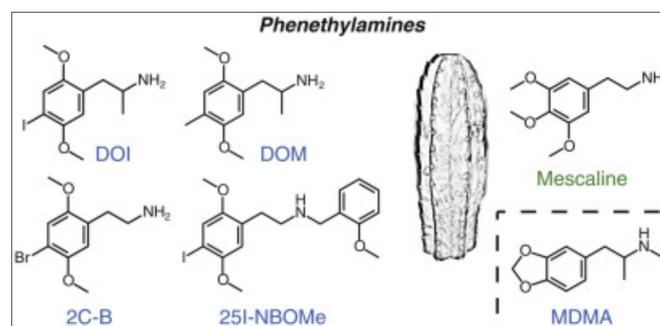


Figure 2: A visualization by Kelmendi et. al. of the drug class that mescaline belongs to alongside synthetic drugs similar in structure.

demographic variables	M (SD) or %	better (n = 159)	no change/worse (n = 25)
age	38(14.4)	35.8(14.1)	41.4(14.1)
gender			
female	20%	19%	20%
male	76%	70%	76%
transgender or gender-fluid	4%	11%	4%
ethnicity			
White	83%	84%	92%
non-White	17%	16%	8%
sexual orientation			
heterosexual	82%	84%	76%
non-heterosexual	18%	16%	26%
location			
North America	60%	65%	60%
Europe	20%	11%	28%
other	20%	24%	12%
employment			
employed	68%	68%	65%
other (e.g., retired/disabled)	32%	32%	35%
education			
less than Bachelor's	48%	52%	56%
Bachelor's or higher	52%	48%	44%

Figure 3: A section of a chart from Agin-Liebess, et. al. that demonstrates the proportion of online survey respondents who reported effects of mescaline usage on depression symptoms depending on their demographic status.

The Legal Landscape and Restriction on Use

The Controlled Substances Act currently bans peyote and mescaline as Schedule I substances, which means they are banned with limited exception for research, which may be difficult to achieve due to regulations and associated costs. This comes as government documentation describes the drugs as having a 'high potential for abuse,' coupled with a lack of accepted safety (Drug Enforcement Administration, 2020).

History of the Native American Church: Native American peoples have used peyote for thousands of years, and a belief set known as *peyotism* began to form in the 1870s in what is now called Oklahoma. By 1918, groups of tribes formed the Native American Church of Oklahoma on behalf of peyotism. Peyote is generally consumed in ceremonies that are conducted by religious leaders dubbed 'roadmen,' and services may recognize marriages, funerals, Christian holidays, national holidays and life milestones. The NAC currently holds worship for hundreds of thousands of Native Americans (Swan n.d.)

AIRFA: The American Indian Religious Freedom Act, passed in 1978 to ensure religious freedom and access to sacred sites for Native Americans, and was amended in 1994 to provide an exemption to Indigenous groups within 'traditional Indian religion' to possess and use peyote. The Supreme Court case *Employment Division v. Smith*, alongside implementation issues regarding access to sacred sites prompted reconsideration of integrating 1st Amendment religious freedoms to protect Indigenous beliefs, including peyotism (Vile 2024).

U.S. Supreme Court. *Employment Division v. Smith*: Prior to the revision of AIRFA, this Supreme Court case involved two individuals who were fired from a drug rehabilitation center after consuming peyote in a festival at the Native American Church. The Supreme Court ruled that the religious beliefs of the individuals were not sufficient to justify their usage of a substance that was then universally prohibited. Key takeaways: Native American churches in the USA often consider hallucinogenic drugs such as peyote to be crucial for their ages-old rituals, yet modern day regulations get in the way of the usage of psychedelics. Constitutional law generally allows for this by stating that the regulations are equally implied, yet assumptions of harm on modern non-Indigenous populations are often drawn-out using modern scenarios unrelated to traditional practice.

Colorado recently decriminalized mescaline usage and possession on their state level, while keeping peyote illegal. The bill, Colorado Proposition 122, also introduced to the state the *Regulated Natural Medicine Access Program* that will license health centers to administer psychedelics it deems natural medicine, including mescaline. This applies to personal use primarily, and it allowed those previously convicted to petition the court system to seal the records of their conviction (Ballotpedia n.d.).

The Clash on Legalization

- Literature is debated on the safety of mescaline intoxication. Mescaline intoxication has no reported fatalities and typically resides within 14 hours (Alcohol and Drug Foundation, 2025). One American case study ranging from 1997-2008 detailed characteristics of 31 patients after mescaline exposure, and almost all patients took the drug intentionally, with none displaying life threatening symptoms. Nonetheless, some patients did require medical attention to moderate or mild symptoms (Carstairs & Cantrell, 2010).
- This demonstrates that a clear divide exists between the Drug Enforcement Administration with current research: there is a potential for peyote to have medical usage on psychiatric conditions including depression. In addition, observational study demonstrates that peyote is likely not a highly addictive substance, and that peyote intoxication does not present a severe medical danger.
- This leads for two potential schools of thought to develop, with either peyote being seen as a drug that is dangerous and therefore ought to be banned, or as not dangerous and unnecessarily banned. Investigations have mostly been with survey data, yet hospital case logs and studies of patients consistently suggest that high doses of this drug are not life threatening. Most survey data collected, and reports of hospital patients describe the effects of mescaline and peyote as positive, and there is not sufficient data to suggest that the substance is addictive.
- Alternatively, peyote may ought to remain illegal to the general public since it is considered a sacred substance by Native Americans who rely on its usage; however, mescaline was not a substance specifically known to be sacred, nor was it specific to the peyote cactus.

Commercialization Potential

Currently, Canadian startup Lophos Pharmaceuticals is trying to develop growth technology to rapidly cultivate peyote for medical usage while maintaining its content of derivatives including mescaline. One of their stated motivations is to harvest the drug for medicinal purposes while providing a solution to the overharvesting that many Indigenous communities fear (*Psychedelic Research Company*). Lophos is the largest cultivation center for peyote in North America and aims to grow the cacti in a three-year period, alongside synthetically producing mescaline. The company plans to sell peyote to those of Indigenous descent or in medical need first, and has the right to sell peyote to any individual as it is legal to possess and use in Canada (Lophos Pharmaceuticals n.d.).

References



Figure 4: A cross section of a peyote cactus, with buttons visible on the top left. Drug Enforcement Agency, Accessed 10 February 2025.

Methods

The researcher consulted court cases, books, and journal articles to create a landscape review of the legislation regarding peyote alongside the potential of mescaline-related psychedelics to be used as a medical treatment. Data collected was qualitative and the researcher made conclusions on the consequences of legalizing mescaline nationwide, alongside demonstrating a contrast in opinions that may result from this outcome.

Mescaline as Psychiatric Medication

A 2021 survey discovered that mescaline usage is associated with relief in depression and alcohol abuse symptoms. The sample size was large yet variations in demographics were noted to correlate with certain responses, pictured in Figure 3 (Agin-Liebess et. al., 2021).

Mescaline's addiction was studied by Malin Uthaug and colleagues in 2021, with the authors observing limited addictive ability in that respondents of a small survey did not typically feel the need to consume more mescaline, typically in the form of peyote (Uthaug et. al., 2021).

A clinical trial in a hospital setting with 16 healthy patients confirmed that mescaline increases blood pressure and heart rate varying with doses, and produces significant positive subjective experiences, with less patients reporting very negative experiences (Klaiber et. al., 2024). A limitation of this study is that it's small and not a large RCT that doesn't provide the same variance in data as a large study.

Contention of Communities on Legalization

The main concern of Indigenous groups about peyote in particular is not its legalization, but its access to their groups. One news report interviewing Indigenous individuals cited that 'poaching and excessive harvesting' have made the cactus harder to access due to its slow-growing nature. Nonetheless, individual accounts have described peyote as one of the backbones of faith to the Native American Church. Many Indigenous groups are suspicious of commercialization or decriminalization of peyote and other psychedelics, fearing exploitation. (Bharath and Wardarski).