DRUGS

What We Ban, What We Sell, What We Treat

Noosophy AI

under the direction of Hieronymus Anonymus

ÉDITIONS NOOSOPHIE

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Note on Generation and Editorial Responsibility

This book was developed through a collaboration between Hieronymus Anonymus and Noosophy AI. Hieronymus Anonymus initiated the project, defined its subject and purposes, arbitrated its orientations, reviewed and corrected the work, and retains final authority over validation and publication. Noosophy AI contributed to documentary research, structuring, drafting, comparison of arguments, coherence checks, source-to-target audits, and editing. The text is therefore neither raw model output nor a human text merely corrected by AI. It results from an iterative process of generation, critique, verification, correction, and human arbitration. Decisions about purpose, values, final validation, and publication remain human.

Contents

PART I

How Do We Make a "Drug"?

Chapter 1 — What Is a Drug?

“What is a drug?” sounds like the kind of question a dictionary should be able to settle. In practice, the answer changes with the job we are asking the word to do.

Alcohol is sold as a beverage, yet ethanol is a psychoactive and toxic substance that can cause dependence. Nicotine is usually encountered through tobacco products, vapes, or nicotine products, but it is also a psychoactive drug with a strong capacity to sustain repeated use. Caffeine is woven so deeply into ordinary American life that its pharmacological action can disappear behind the cup of coffee. Morphine, by contrast, is unmistakably an opioid: it can produce tolerance, physical dependence, addiction, respiratory depression, and fatal overdose. It is also an FDA-approved medication for severe pain and a Schedule II controlled substance under federal law. [1–5]

Those examples do not show that alcohol, nicotine, caffeine, and morphine are “basically the same.” They show the opposite. Their mechanisms, toxicities, patterns of use, dependence potential, medical roles, and social effects differ sharply. What becomes unstable is not the pharmacology. It is the hope that one word—drug—can summarize all of those dimensions at once.

That ambiguity is especially visible in American English. We speak of the Food and Drug Administration, prescription drugs, drugstores, drug interactions, and drug development without implying criminality. Yet in phrases such as “illegal drugs” or the “war on drugs,” the same word narrows toward substances associated with prohibition and law enforcement. In everyday

conversation, people may say “drugs and alcohol,” as though alcohol belonged to a different pharmacological universe. The language itself is already doing social classification.

The first task of this book is therefore modest but demanding: stop asking a single label to perform six different kinds of analysis.

The Broad Descriptive Category: Psychoactive Substances

When the question is simply whether a substance changes mental processes, psychoactive substance is usually a cleaner starting point. The World Health Organization uses the term for substances that affect processes such as perception, consciousness, cognition, mood, or emotion, and it explicitly treats the category as broader than the legal distinction between licit and illicit drugs. [1,2]

That definition immediately protects against a common mistake. Psychoactive does not mean addictive. A substance can alter alertness, mood, perception, or cognition without producing a substance use disorder in every person who uses it. Psychoactivity also tells us nothing, by itself, about overdose risk, chronic toxicity, therapeutic value, frequency of use, or legal status.

This is why alcohol, nicotine, caffeine, cannabis, opioids, cocaine, many prescription medications, and numerous other substances can belong in the same broad descriptive field without being equivalent in any global sense. Putting them in one analytical frame is not the same as ranking them together.

“Psychoactive” answers one limited question: does the substance affect mental processes? It does not answer the questions that usually matter most in policy and everyday judgment. How toxic is it? How does risk change with dose,

route, frequency, or mixing? How likely is repeated use to become difficult to control? Does the substance have a medical use? Who can lawfully possess or distribute it? What institutions surround it? How common and culturally normalized is it?

Those questions have to remain separate if the rest of the analysis is going to mean anything.

A Controlled Substance Is a Legal Category, Not a Pharmacological Family

American law provides a particularly clear example of how a legal category can be mistaken for a scientific one.

The central federal term is controlled substance. Under the Controlled Substances Act, controlled substances are placed into five schedules. The statutory criteria involve several considerations, including abuse potential, accepted medical use, safety, and dependence liability. Federal law also provides procedures for adding a substance, moving it from one schedule to another, or removing it from control. [6–8]

Nothing about that architecture creates a single pharmacological family. Opioids, stimulants, sedatives, hallucinogens, and other substances can all be controlled even though they act through very different mechanisms. And controlled does not mean “has no medical use.” Schedule II, for example, includes drugs with accepted medical uses as well as a high potential for abuse; morphine and fentanyl are familiar examples. [5–8]

This is also why the French legal word stupéfiant cannot simply be translated into American legal prose as narcotic. Federal law does define narcotic drug, but it is a specific statutory category rather than a general synonym for every controlled psychoactive substance. The book will therefore use

controlled substance when discussing the federal legal category, narcotic only when that narrower legal or historical term is actually relevant, and the name of the pharmacological class when the pharmacology is what matters. [7]

The distinction matters because legal status has consequences. Scheduling affects manufacture, prescribing, dispensing, research, possession, and distribution. But those consequences are produced by law. They are not chemical properties hiding inside the molecule.

Nor is American drug law a single layer. Federal law and state law can treat the same substance differently, and both can change over time. Cannabis makes that problem unusually visible, which is why later chapters will treat federal scheduling, state regulation, and the history of reform as separate questions rather than collapsing them into the sentence “cannabis is legal” or “cannabis is illegal.”

Medicine Is Not the Opposite of a Drug

Another familiar contrast places “drugs” on one side and “medicines” on the other. Pharmacologically, that boundary does not hold.

A medicine is defined by a therapeutic use and a regulatory context, not by the absence of pharmacological power. The same property that makes a substance useful can also generate risk. Morphine relieves severe pain because it is a potent opioid agonist. The FDA approves morphine products for severe pain in circumstances where alternative treatments are inadequate, while the prescribing information also carries warnings about addiction, misuse, respiratory depression, overdose, and death. Federal law places morphine in Schedule II. [3–5]

There is no contradiction here once the questions are separated. A prescription does not make morphine chemically harmless. It places its use inside a system that specifies an indication, dose, formulation, prescriber, monitoring practices, and a judgment that the expected benefit can justify the risk for a particular patient.

The reverse error is just as important. Calling a medicine a controlled substance does not make its therapeutic use fraudulent or negligible. A rule designed to limit diversion and misuse can coexist with a medical need for access.

That distinction will matter much more when this book turns to the American opioid crisis. If every controlled opioid is treated as though medical use were merely a legal disguise, patients and clinical care disappear from the analysis. If approval or prescription is treated as proof of safety, the capacity for dependence, misuse, and overdose disappears instead. Both shortcuts fail for the same reason: one category is being asked to answer a different question.

Hazard, Toxicity, Physical Dependence, and Addiction Are Not Synonyms

The word drug often becomes a compressed way of saying "dangerous." But danger itself has several components.

At minimum, we need to distinguish:

• psychoactivity: whether a substance changes mental processes;

• acute toxicity: whether a given exposure can rapidly cause serious injury or death;

• chronic toxicity: harms associated with repeated or prolonged exposure;

• physical dependence: physiological adaptation that can produce withdrawal when regular exposure stops;

• addiction or substance use disorder: a pattern in which use becomes difficult to control and persists despite significant harm or impairment;

• harms to other people: crashes, secondhand exposure, violence, prenatal exposure, family disruption, or other external effects;

• context of use: dose, frequency, route of administration, mixtures, individual vulnerability, product composition, and social environment.

These dimensions overlap, but they are not interchangeable.

Physical dependence is a particularly important example. The National Institute on Drug Abuse has long emphasized that the body can adapt to regularly used substances—including medications taken as prescribed—and that tolerance or withdrawal does not, by itself, establish addiction. Addiction involves a broader pattern of impaired control and continued use despite harmful consequences. [9]

This is not a semantic technicality. A patient who develops withdrawal after long-term treatment is not automatically displaying the same behavioral disorder as someone whose drug seeking has become compulsive and destructive. Conversely, a person can meet criteria for a substance use disorder even when dramatic withdrawal is not the defining feature.

The same distinction prepares us for a later chapter: addiction-like disorders can also involve behaviors rather than ingested substances. If the concept is reduced to “a chemical

that causes withdrawal," gambling disorder becomes almost impossible to understand.

Alcohol, Nicotine, and Caffeine: What Ordinary Language Hides

Alcohol is one of the clearest tests of our vocabulary. In ordinary American speech, people often distinguish "drinking" from "doing drugs." Pharmacologically, ethanol does not respect that social boundary. The WHO describes alcohol as psychoactive, toxic, and capable of producing dependence. [10]

That observation does not tell us what alcohol law should be. It does not prove that alcohol should be scheduled like an opioid, nor that another substance should be regulated like alcohol. It proves something narrower and more useful: cultural familiarity and pharmacological classification are different dimensions.

Nicotine makes the same point from another direction. Tobacco and nicotine products are legal but heavily regulated, and the CDC describes nicotine as highly addictive. [11] A legal market can therefore exist around a psychoactive substance with substantial dependence potential.

Caffeine stretches the contrast even further. Coffee and tea are ordinary parts of daily life, yet caffeine acts on the central nervous system and can produce tolerance and withdrawal. International diagnostic systems recognize caffeine-related conditions. [1,12] None of this turns a morning coffee into the equivalent of injected heroin. It shows why "psychoactive," "can produce withdrawal," and "high overall harm" must not be treated as interchangeable statements.

These examples serve a methodological purpose. A substance can be psychoactive without being prohibited; legal without

being harmless; medically useful without being risk-free; controlled without being medically useless; widespread without being pharmacologically neutral.

Six Questions Instead of One Label

For the rest of this book, the most reliable way to resist category errors is to replace “Is it a drug?” with a short sequence of separate questions.

1. What does it do?

What are its pharmacological or behavioral mechanisms and effects?

2. What harms can it cause?

At what doses, frequencies, routes of administration, and in what contexts?

3. What is its dependence or addiction potential?

For whom, under what patterns of use, and with what evidence?

4. Does it have medical, scientific, ritual, social, or other uses that matter to the evaluation?

5. What is its actual legal status?

Is it freely sold, age-restricted, prescription-only, federally controlled, differently regulated by a state, decriminalized in a particular jurisdiction, or prohibited?

6. How is it socially classified?

Medicine, beverage, vice, recreation, poison, controlled substance, consumer product, or something else?

No one answer can substitute for the others. Legal status does not tell us toxicity. Toxicity does not, on its own, tell us the best policy. Medical usefulness does not erase dependence potential.

Dependence potential does not mean every user becomes addicted.

This is also why labels such as hard drug and soft drug are poor substitutes for explicit criteria when they are treated as though they were universal scientific classes. A comparison can be meaningful, but only if the dimension is named: overdose mortality, dependence, chronic toxicity, impaired driving, harm to other people, frequency of use, or something else.

The goal is not to banish the word drug. American medicine, law, politics, and ordinary speech all use it, and the word remains useful. The goal is to stop letting it function as a conclusion.

A Social Category Can Change the Reality Around a Substance

Categories do more than describe. Once a society classifies a substance as a prescription medicine, an alcoholic beverage, a tobacco product, a controlled substance, or an ordinary consumer product, institutions form around that classification.

The category helps determine who may manufacture the product, who can distribute it, what quality controls apply, what information appears on a label, whether advertising is permitted, how it is taxed, whether possession can trigger arrest, whether a doctor can prescribe it, whether a researcher can obtain it easily, and whether a person using it is treated primarily as a customer, patient, offender, or some unstable combination of the three.

This does not mean law and medicine are arbitrary stories with no relation to the properties of a substance. Regulatory systems respond to real risks, therapeutic uses, patterns of misuse, political choices, institutional histories, and competing

values. But once created, the categories become causal conditions of their own.

That is why the rest of the book will keep two levels in view.

The first is the substance as it acts: chemistry, pharmacology, toxicity, dose, dependence potential.

The second is the substance as a society organizes it: prescription, licensing, taxation, prohibition, policing, commercialization, treatment, stigma, normalization.

The two levels interact. Neither can stand in for the other.

We can now return to the opening question. What is a drug?

There is no single answer that can simultaneously satisfy pharmacology, medicine, federal and state law, and ordinary American language. The rigorous answer is to say what sense of the word is being used.

In this book, psychoactive substance will name the broad descriptive category when mental processes are the relevant feature. Medicine will refer to a substance or product used in a recognized therapeutic context. Controlled substance will refer to the applicable legal category, with the relevant federal or state level specified when it matters. And drug will remain available when the social, historical, or political category itself is the subject.

That discipline does not resolve the central problem of the book. It finally makes the problem precise.

If “drug” does not simply mean psychoactive, dangerous, addictive, or medically useless, then what actually explains the boundary between the substances a society bans, the substances it prescribes, and the substances it sells?

Before we can answer that, we have to examine the criterion invoked most often as though it settled the matter by itself: danger.

That is the subject of the next chapter.

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Chapter 2 — Danger, Risk, and Harm

Calling a drug “dangerous” sounds informative until we ask the next question: dangerous in what way, to whom, at what dose, how often, by what route, in what combination, under what conditions, and compared with what?

A large enough exposure can make a substance acutely toxic even when ordinary use rarely reaches that level. A substance can have a relatively low chance of killing someone during a single episode yet produce an enormous public-health burden when millions of people use it repeatedly for years. Another drug can be used by far fewer people but carry a much higher chance of fatal overdose under certain conditions. And some of the harm may fall on someone other than the person who consumed the substance: a passenger, another driver, a child exposed to smoke, a fetus exposed during pregnancy, or a family living with the consequences of repeated intoxication.

One adjective cannot organize all of those situations. We need at least three ideas: hazard, risk, and harm.

In U.S. risk assessment, the Environmental Protection Agency separates the potential of an agent to cause adverse effects from the exposure conditions that determine how likely those effects are to occur. Its framework distinguishes hazard identification, dose-response assessment, exposure assessment, and risk characterization. Exposure itself has magnitude, frequency, duration, route, and population dimensions. [1,2]

Applied to psychoactive substances, that framework changes the question. A drug does not carry one fixed quantity called “danger.” It has properties capable of causing harm, and those properties meet real patterns of exposure.

Hazard Is Not Yet Risk

An opioid's capacity to suppress breathing is a hazard. That property does not vanish when the opioid is administered in a hospital. But the actual chance of a fatal overdose changes with dose, tolerance, other drugs in the body, the formulation, the speed at which the drug reaches the brain, whether the product contains what the user expects, and whether someone can recognize and reverse an overdose in time. [3–5]

The same logic applies elsewhere. A stimulant can raise heart rate and blood pressure. A sedative can impair alertness and coordination. Alcohol can slow reaction time and alter judgment. A psychedelic can produce an intense change in perception. Those effects become different risks depending on whether exposure is low or high, occasional or repeated, isolated or combined with other substances.

Dose matters, but dose is not the whole story. Route of administration can change absorption and the speed of onset. A drug that reaches the brain rapidly may produce a different subjective effect and a different reinforcement profile than the same drug reaching the brain more slowly. Research on route of administration has long shown that swallowing, snorting, smoking, and injecting are not interchangeable exposures. [6]

Formulation matters too. Immediate-release and extended-release products can contain the same active drug while producing different concentration-over-time profiles. A regulated tablet and an illicitly manufactured counterfeit pill can look similar while presenting radically different uncertainty about dose and contents. In the current U.S. drug supply, the presence of illegally made fentanyl in counterfeit pills and other drugs makes that uncertainty clinically important. [4]

Risk, then, does not reside in the molecule alone. It emerges from a hazardous property meeting a particular exposure.

Acute Toxicity, Chronic Toxicity, and Dependence

A second problem appears when very different forms of harm are compressed into the same judgment.

At minimum, we should separate:

• acute toxicity: injury or death during or soon after an exposure, including overdose;

• chronic toxicity: disease or injury that develops through repeated or prolonged exposure;

• dependence and addiction: physiological adaptation on one hand, and impaired control or compulsive use on the other;

• functional impairment: a temporary loss of capacities needed to drive, work, supervise a child, or make certain decisions safely;

• interactions: risks created or amplified when drugs are combined.

A substance can be especially serious on one dimension and less so on another.

Opioids make acute overdose risk unusually visible because excessive opioid effect can suppress breathing. That danger is strongly shaped by tolerance, dose, co-use of sedating drugs, product potency, and the speed of response. The CDC specifically identifies loss of tolerance as an overdose risk—for example after tapering or release from incarceration—and recommends naloxone for people at increased risk. [3]

Cigarette smoking shows a different pattern. Its dominant mortality burden is not usually an immediate toxic event from a single cigarette. It is the accumulation of cardiovascular disease,

cancer, respiratory disease, and other chronic harms over years, while nicotine helps sustain repeated use. CDC estimates that cigarette smoking and secondhand smoke exposure cause more than 480,000 deaths in the United States each year. [7]

Alcohol spans several categories at once. It can contribute to acute poisoning, crashes and other injuries, chronic liver and cardiovascular disease, cancers, and alcohol use disorder. CDC estimates that excessive alcohol use caused about 178,000 deaths per year in the United States during 2020–2021, with roughly two thirds attributable to chronic causes and one third to acute causes. [8,9]

Those examples do not tell us which substance is "the most dangerous." They show why the question is incomplete. Most likely to cause a fatal overdose in one episode? Most likely to sustain dependence? Largest chronic disease burden? Largest effect on driving? Largest harm to other people? Different criteria can produce different answers.

Individual Risk Is Not Population Burden

Numbers of deaths are indispensable in public health. They are also easy to misuse.

Consider three U.S. figures that all describe real and serious burdens:

• CDC estimates more than 480,000 deaths each year from cigarette smoking and secondhand smoke exposure. [7]

• CDC estimates about 178,000 deaths each year from excessive alcohol use, based on 2020–2021 data and an attributable-fraction method covering dozens of causes. [8,9]

• Provisional National Center for Health Statistics data estimate 69,973 drug overdose deaths in 2025, down from an estimated 81,313 in 2024. [10]

It would be a mistake to line those numbers up and treat them as a direct ranking of intrinsic toxicity.

They do not even measure exactly the same thing. The smoking figure is an attributable burden estimate built from diseases and exposures strongly linked to smoking. The alcohol figure combines fully and partially alcohol-attributable causes through CDC's Alcohol-Related Disease Impact methodology. The overdose figure is a provisional count of deaths classified as drug overdoses in a particular year, and many overdose deaths involve more than one substance. The time windows differ. The exposure prevalence differs. The pathways to death differ. [7–10]

Population burden depends partly on how many people are exposed, how often, for how long, and under what conditions. A widely used product can produce enormous total harm even when the probability of death in any single episode is low. A less common drug can carry a much higher acute risk per use or per user and still produce fewer deaths in the population as a whole.

The denominator changes the question. We might ask for deaths per total population, deaths per user, deaths per episode of use, years of life lost, years lived with disability, emergency visits, treatment admissions, or social and economic costs. Those measures are not interchangeable.

One number cannot answer all of them.

Harm Does Not Stop With the User

Drug policy also fails if it counts only what happens inside the body of the person who consumed the substance.

Secondhand smoke is the clearest example. CDC attributes more than 40,000 deaths among nonsmoking U.S. adults each

year to secondhand smoke exposure. The smoker's decision and the nonsmoker's exposure are linked, but the harm is not confined to the person holding the cigarette. [7]

Alcohol creates another set of external risks. NHTSA reports that 12,429 people died in alcohol-impaired-driving crashes in 2023, about 30 percent of U.S. traffic fatalities that year. Those deaths include impaired drivers, their passengers, occupants of other vehicles, pedestrians, and others caught in the same event. The pharmacological impairment matters, but so do transportation systems, driving norms, enforcement, vehicle safety, road design, and whether a person chooses to drive after drinking. [11]

The same distinction matters for pregnancy, child supervision, workplace safety, violence, and family disruption. A substance can affect third parties through direct exposure, through behavior while intoxicated, or through patterns of repeated use that reorganize time, money, attention, and care.

But the reverse caution is equally important: once harms to others are included, they should not automatically be attributed to pharmacology alone. A crash involves alcohol exposure and a decision to drive in a particular environment. Secondhand-smoke exposure depends on where smoking occurs and whether smoke-free rules protect other people. A family's burden can be altered by housing, access to treatment, poverty, stigma, and available support.

Harm is real even when causation is distributed across several layers.

People Are Not Interchangeable

An average risk never describes every person equally well.

Age, body size and composition, pregnancy, cardiovascular or respiratory disease, liver and kidney function, psychiatric conditions, genetics, acquired tolerance, concurrent medications, and a person's history of use can all change the response to a given exposure. Clinical research has repeatedly documented substantial variability in drug response across both intrinsic and extrinsic factors. [12]

Tolerance makes the point concrete. A person who uses an opioid regularly may tolerate a dose that would create a much greater risk for someone without tolerance. But tolerance can decline during a period of non-use. Returning to a former dose can then become dangerous. CDC identifies return to a high dose after loss of tolerance as a specific overdose risk, including after incarceration or tapering. [3]

That does not make risk "subjective." It means that the relevant exposure includes the condition of the person exposed.

The environment matters as well. A known dose is different from an uncertain dose. Using an opioid where naloxone is present is different from an otherwise identical overdose when no one can respond. Using a drug alone is different from using it where another person can recognize respiratory arrest and call for help. Drug-checking tools can reduce some uncertainty in an unregulated supply, although they do not make that supply predictable or safe. [4,13]

These are not reasons to deny pharmacological danger. They show how danger is translated—or not translated—into actual harm.

Later chapters will return to this point when the book separates damage caused by a substance from damage caused by an unregulated market, a legal commercial market, or a

punitive response. Here the principle is simpler: the same molecule does not create the same risk in every setting.

Compare Without Inventing a Universal Ranking

Because drug harms are multidimensional, researchers have tried to combine them into multi-criteria assessments. These models are useful precisely because they force the analysis to name the dimensions being counted: mortality, physical injury, dependence, family harm, crime, economic costs, harm to others, and more. [14,15]

That is an improvement over an unexplained label such as hard drug. But the method creates a second question: how much weight should each form of harm receive?

Multi-criteria drug-harm studies ask experts to score substances across defined criteria and then weight those criteria to produce an overall result. Studies in the United Kingdom, Europe, Australia, New Zealand, and more recently Canada have shown how different legal and cultural categories can look once multiple dimensions are considered together. The 2026 Canadian analysis, for example, assessed 16 substances across 16 harm dimensions with a panel of 20 experts. [14,15]

The advantage is transparency. The limitation is that the final score is partly a product of the chosen criteria, available evidence, national context, and weighting judgments.

If mortality to the user, violence, family disruption, health-care cost, and dependence are added together, someone has to decide how those dimensions become commensurable. Change the weighting and the ranking can change. Change the prevalence of use and the population-level harm can change. Change the market or policy context and some social harms can change even if the molecule does not.

None of that makes multi-criteria analysis useless. It makes the assumptions part of the result.

For this book, a global score can be evidence, but never a substitute for the criteria underneath it. Before saying one drug is “more dangerous” than another, we will ask: on which dimension, at what scale, in which population, under what conditions, and with what weighting?

What U.S. Mortality Figures Can—and Cannot—Tell Us

The American data make the need for that discipline unusually visible.

Smoking is a chronic-exposure problem with a huge population footprint. Alcohol produces both chronic disease and acute injury, and its burden is measured with attributable-fraction methods that include conditions for which alcohol contributes some share of deaths. Drug-overdose surveillance, by contrast, captures deaths from poisoning events and identifies involved substances when toxicology and death-certificate data permit. The current overdose epidemic is also highly dynamic: NCHS provisional data show a substantial decline in estimated overdose deaths from 2024 to 2025, while the drug supply continues to change. [7–10]

Those systems answer different questions.

So two opposite arguments both fail.

The first says: “Alcohol or cigarettes kill more people, therefore a prohibited drug is less dangerous.” That confuses total population burden with risk to an individual user or risk per episode.

The second says: “This drug can kill at a very small dose, therefore alcohol or tobacco is relatively harmless.” That

confuses acute toxicity with the full burden created by widespread, repeated exposure.

The differences are real; the task is to put them on the right scale.

A public-health policy needs to know how many people are being harmed. A clinician may need to know the risk for the person in front of them. A toxicologist may need dose-response data. A traffic-safety agency may care about impairment during a short window. A regulator may need to know what happens when millions of consumers encounter a product for decades.

“Danger” becomes useful only after the question has been specified.

A Minimum Framework for the Chapters Ahead

From this point forward, every comparison of substances should identify at least seven things:

1. the type of harm: acute, chronic, addictive, functional, social, or harm to others;

2. the unit of comparison: per use, per user, per year, per population, or per amount consumed;

3. the exposure: dose, frequency, duration, route of administration, and combinations with other substances;

4. the population: age, health status, pregnancy, tolerance, medications, and other relevant vulnerabilities;

5. the context: regulated or unregulated product, known or uncertain composition, monitoring, availability of emergency response, and social environment;

6. the source of the harm: pharmacology, behavior under intoxication, commercial conditions, illicit-market conditions, or policy response;

7. the values and weights used whenever several dimensions are collapsed into a single score.

This framework blocks two premature conclusions.

First, a legal substance is not necessarily less harmful than a prohibited one.

Second, a mismatch between a legal classification and one measure of harm does not, by itself, prove what the law should become.

Public policy must eventually choose among competing harms, freedoms, costs, and side effects. This chapter does not make that choice for the reader. It does something more basic: it makes the comparison honest enough for the later choice to mean something.

We now have two results. Chapter 1 showed that drug, medicine, psychoactive substance, and controlled substance are not synonyms. Chapter 2 shows that hazard, risk, and harm are not synonyms either.

If legal status cannot be read directly from a molecule, and if "danger" itself contains several distinct dimensions, another question becomes unavoidable: how did societies actually build the prohibitions they now treat as familiar?

That history comes next.

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Chapter 3 — A History of Prohibition

A molecule is not born illegal. Opium, cocaine, heroin, and cannabis all circulated at different times as medicines, commodities, raw materials, household remedies, colonial products, or objects of ordinary consumption before they entered modern systems of drug control. They did not become "illegal drugs" at the same moment, for the same reasons, or through the same legal mechanism. [1][2]

That historical fact does not mean prohibition was arbitrary, or that health risks were invented after the law arrived. Societies encountered real dependence, poisoning, predatory markets, overdose, and social disruption. But those problems were interpreted through institutions, professional interests, cultural fears, international conflicts, and existing social hierarchies. The history of prohibition is therefore both a history of substances and a history of the societies that classified them.

The danger is to replace one simple story with another. Saying that drugs were banned "because they are dangerous" erases the political choices, unequal treatment of substances, and social groups attached to them. Saying that prohibition was "all about racism" erases genuine medical concern, changing patterns of use, reform movements, international diplomacy, and the professionalization of medicine and pharmacy.

The task here is not to uncover one hidden cause. It is to understand how several forces condensed into a durable national and international system of control.

Before Prohibition: Medicine, Commerce, and Empire

Modern drug control is difficult to understand without opium. Long before international conventions, opium was simultaneously a medicine, a traded commodity, and a source of public revenue. In the nineteenth century, its circulation connected medicine to imperial power and state finance. British India, for example, operated an opium monopoly whose revenues were significant, while British military power helped force open Chinese markets that Chinese authorities had tried to restrict. [1]

The point is not to retroactively call every nineteenth-century merchant a modern drug trafficker. The legal architecture that gives "illicit trafficking" its current meaning did not yet exist. That architecture had to be built.

What changed was not the pharmacology of opium. Its capacity to relieve pain and produce dependence was already known. What changed was the political interpretation of the trade: the balance among producing states, commercial powers, consumer societies, medical reformers, missionaries, and governments increasingly willing to regulate psychoactive substances across borders.

1909-1912: Drug Control Becomes International

In 1909, representatives of thirteen powers met in Shanghai at the International Opium Commission. The meeting did not itself create a binding treaty, but it helped establish a new premise: opium was no longer only a domestic commercial or medical question. It required sustained international coordination. [1]

The next major step was the International Opium Convention signed at The Hague in 1912. It addressed opium and also

brought morphine, heroin, and cocaine into an emerging international control system. The core logic was not yet identical to the later criminalization of individual possession. It focused heavily on production, import and export, distribution, and limiting certain drugs to medical and scientific purposes. [1][2]

After World War I, the League of Nations expanded the system. Over the following decades, international control moved from a loose set of national restrictions toward a more organized regime of estimates, licensing, reporting, trade controls, and specialized institutions. The basic distinction between legitimate medical-scientific use and nonmedical circulation became increasingly important.

This matters for the American story because U.S. drug law did not develop in isolation. Domestic regulation and international diplomacy reinforced one another. The United States wanted tighter global controls, and its credibility abroad depended in part on regulating its own market. [3]

In the United States, the Substance Was Never the Whole Story

Late-nineteenth- and early-twentieth-century America makes the social dimension unusually visible. Opiates were common in medicine and patent remedies, and many people who became dependent through medical channels were white and middle class; women were prominent in historical descriptions of medically supplied morphine dependence. That pattern often invited a language of illness, prescription, or accidental dependency. [4]

At the same time, smoked opium became strongly associated in public discourse with Chinese immigrants in the American West. San Francisco adopted an ordinance against opium dens

in 1875. In 1909, Congress enacted the Smoking Opium Exclusion Act, restricting the importation of opium for nonmedical purposes and effectively targeting smoking opium. [3][5]

Historians have documented similar racialized associations in later campaigns: cocaine was tied in sensational accounts to Black men in the South, and marijuana was linked to Mexican migrants and other minority groups. Those associations did not create the pharmacological risks of the substances, but they affected which forms of use appeared threatening, which users appeared respectable, and which institutions were empowered to respond. [4]

Race was not the only force at work. The same period also saw the Pure Food and Drug Act of 1906, growing professional control over medicine and pharmacy, campaigns against secret ingredients and patent medicines, temperance movements, and rising concern about uncontrolled opiate and cocaine use. The American system that emerged combined consumer protection, medical regulation, taxation, policing, and moral reform rather than following a single line of causation. [4]

The Harrison Act: Tax Law Becomes Drug Control

The Harrison Narcotics Tax Act of 1914 is a central turning point. Formally, it used federal taxing and registration powers. People and businesses handling opium, opiates, or coca-derived products had to register, keep records, and operate within the law's requirements. [3][6]

But the practical significance of the Harrison regime went beyond bookkeeping. Federal enforcement and court decisions narrowed the space in which physicians could maintain patients on narcotics simply because they were dependent. A division

hardened between "medical" and "nonmedical" supply. Some people who had previously obtained drugs through physicians or pharmacies were pushed toward illicit markets, while federal authorities gained a durable role in defining legitimate narcotic practice. [4][6]

This is why the Harrison Act cannot be understood only as "science deciding which drugs were dangerous." Medical authority, tax law, professional boundaries, policing, and social judgments about legitimate patients and illegitimate users were being reorganized together.

Heroin and Cocaine: From Medicine to Controlled Drug

Heroin and cocaine also undermine the idea that today's prohibited drugs always existed outside medicine. Diacetylmorphine - heroin - entered commercial medicine at the end of the nineteenth century and was marketed as a pharmaceutical. Cocaine had genuine medical value as a local anesthetic and also appeared in commercial products. Their risks, patterns of nonmedical use, and dependence potential became increasingly difficult to ignore.

U.S. controls tightened. By 1924, legal manufacture of heroin in the United States had ceased, and American diplomacy pressed for international restrictions on manufacture and trade. State Department records from the period describe heroin as no longer manufactured domestically after June 7, 1924. [7]

The broader lesson is not that medicine had been mistaken about everything. It is that "medicine" and "drug" were never permanent opposites. A substance could move from ordinary therapeutic use to severe restriction, while a pharmacologically related substance - morphine, for example - remained an

important medicine. Legal status did not map neatly onto molecular family.

Cannabis: From Taxation to Schedule I

Cannabis followed a different path. Its legal history varied across countries and empires, and the U.S. trajectory was not simply the discovery of one new toxicological fact followed by prohibition.

By the early twentieth century, states were adopting their own restrictions. At the federal level, the Marihuana Tax Act of 1937 created a burdensome tax-and-registration regime that sharply constrained access. The American Medical Association opposed important parts of the measure, arguing that the evidence of harm was inadequate and that the law would obstruct medical research and use. [8]

Historical scholarship also documents racialized and xenophobic rhetoric around marijuana, especially associations with Mexican migrants and minority communities. But here again, a one-cause story would be inadequate. Recreational use was changing; officials worried about youth use; federal drug-control institutions were expanding; and Congress was responding to a mix of medical, cultural, bureaucratic, and political pressure. [4][8]

The legal mechanism changed again in 1970. The Controlled Substances Act created five federal schedules and initially placed marijuana in Schedule I. The Act was broader than the earlier narcotics laws: it integrated narcotics, stimulants, depressants, hallucinogens, and many prescription drugs within one federal scheduling framework. [9][10]

This shift matters conceptually. The federal system was no longer organized simply around a few historically notorious

"narcotics." It became a general architecture for deciding which psychoactive substances could be produced, prescribed, possessed, or distributed, and under what conditions.

1970-1973: Control Becomes a Federal System

The Comprehensive Drug Abuse Prevention and Control Act of 1970, of which the Controlled Substances Act is Title II, reorganized federal drug law. The scheduling system explicitly considered medical use, abuse potential, safety, and dependence liability, while also providing procedures for later scheduling changes. [9][10]

A year later, President Richard Nixon described drug abuse as America's "public enemy number one" and called for an intensified national response. That moment is often remembered as the beginning of the modern "war on drugs." The label is useful only if it does not erase what the 1971 program actually contained. Nixon asked not only for stronger enforcement and international supply control, but also for substantially expanded treatment, rehabilitation, prevention, research, and federal coordination. He created a Special Action Office for Drug Abuse Prevention focused on those health and treatment functions. [11]

The federal apparatus continued to consolidate. In 1973, the Drug Enforcement Administration was created within the Department of Justice, bringing major federal drug-enforcement responsibilities into one agency. [12]

So the early 1970s did not establish a purely punitive model. They built a dual structure that could simultaneously classify and police drug markets while funding treatment and prevention. The balance among those functions would change in later decades.

The 1980s: A More Punitive Federal Turn

During the 1980s, federal drug policy became more enforcement-centered and penalties grew more severe. In 1982, President Ronald Reagan announced new federal initiatives against drug trafficking and organized crime, and his administration repeatedly used the language of war and national mobilization against illegal drugs. [13]

The crack cocaine crisis then became a defining political and media event. Crack was cheap, rapidly delivered by smoking, visible in disadvantaged urban neighborhoods, and associated with real violence and severe social disruption in some markets. Public alarm was intense. Congress responded with the Anti-Drug Abuse Act of 1986, which created mandatory minimum sentences keyed to drug quantities. [14]

For cocaine, the statute established what became known as the 100-to-1 quantity ratio: five grams of crack cocaine and 500 grams of powder cocaine could trigger the same five-year mandatory minimum; fifty grams of crack and five kilograms of powder could trigger the same ten-year minimum. [14][15]

Congressional concern did not arise from nothing. Policymakers believed crack was unusually addictive, inexpensive, accessible to young users, and strongly associated with violence. But later research and federal sentencing reviews concluded that the 100-to-1 structure overstated important differences between crack and powder cocaine and swept too broadly across offenders with very different roles and levels of violence. The U.S. Sentencing Commission repeatedly urged revision. [15]

The racial impact was also highly uneven. The Sentencing Commission reported that Black defendants made up about 85 percent of federal crack cocaine offenders in 2000. That fact

establishes a disparate impact; it does not by itself establish discriminatory legislative intent. The Commission's 1995 report explicitly distinguished those questions, while still warning that a severe penalty structure with a concentrated racial impact required strong policy justification. [15][16]

Congress eventually changed the law. The Fair Sentencing Act of 2010 raised the crack quantities required to trigger the five- and ten-year mandatory minimums, reducing the statutory ratio from 100-to-1 to 18-to-1. The First Step Act of 2018 later made those Fair Sentencing Act changes retroactively available to certain people sentenced under the earlier regime. As of September 2026, federal law still uses the 28-gram and 280-gram crack thresholds against 500 grams and five kilograms of powder cocaine for those mandatory minimum tiers - an 18-to-1 ratio. [17][18][19]

These later reforms do not erase the history. They illustrate it. A legal distinction can be created during a crisis, become embedded in sentencing institutions, generate effects for decades, and then be revised when evidence, values, or political coalitions change.

1961, 1971, 1988: The Global System Consolidates

The American system developed inside a broader international architecture. The Single Convention on Narcotic Drugs of 1961 consolidated earlier treaties and placed opium and opiates, coca and cocaine, cannabis, and other drugs under international control. Its general logic was to limit controlled substances to medical and scientific purposes while regulating production, trade, stocks, and national obligations. [1][2]

The 1971 Convention on Psychotropic Substances extended international control to additional synthetic and pharmaceutical

substances, including stimulants, sedatives, and hallucinogens. The 1988 Convention against Illicit Traffic then strengthened international criminal cooperation and precursor controls. [1] [2]

By the end of the twentieth century, drug control was no longer a collection of isolated prohibitions. It was a global system linking medicine, pharmaceutical regulation, police, customs, courts, diplomacy, and international institutions.

That system also created path dependence. Once a substance entered a national and international control structure, changing its status required more than changing public opinion. Statutes, schedules, enforcement practices, professional rules, treaty obligations, agencies, and institutional routines had accumulated around the classification.

Why No Single Cause Is Enough

Across these episodes, several forces recur:

- real health harms, including dependence, poisoning, overdose, and impairment;

- the professionalization of medicine and pharmacy, which increasingly separated authorized treatment from nonmedical supply;

- moral and reform movements seeking to limit certain forms of intoxication;

- imperial and commercial interests, especially visible in the history of opium;

- racial, xenophobic, and class-based representations that made some forms of use and some groups appear more threatening than others;

- bureaucratic interests, as specialized agencies acquired jurisdiction, budgets, expertise, and enforcement tools;

- international diplomacy, which converted national choices into coordinated obligations;

- political and media crises that accelerated legislation and penalty changes.

Those forces did not carry the same weight for every substance or every period. Nineteenth-century opium cannot be understood without empire and international trade. The rise of prescription controls cannot be understood without medicine and the pharmaceutical market. Early American cannabis policy cannot be understood without racialized rhetoric and expanding federal drug-control institutions. The crack sentencing laws of the 1980s cannot be understood without the real crisis around cocaine markets, intense public fear, punitive politics, and later-documented racial concentration of federal enforcement.

Plurality is not explanatory weakness. It is what history reveals when we stop trying to find one essence of prohibition.

History also reveals path dependence. Once a substance is placed inside a legal category, institutions, enforcement practices, medical rules, and social expectations grow around that category. Old decisions continue to shape the present even when science, patterns of use, or public values change.

Prohibition as an Object of Inquiry, Not a Verdict

Recognizing this history does not automatically imply legalization. That would repeat the same mistake in reverse: turning description into an immediate policy conclusion.

An historically contingent prohibition can still have present-day justification. A rule can originate in moral panic, racialized

rhetoric, weak evidence, or institutional self-interest and later be defended for different reasons. Conversely, a policy created from sincere public-health concern can produce social costs that its authors did not anticipate.

History changes the burden of explanation, not by deciding the answer but by changing the question. If contemporary classifications are cumulative political and institutional products rather than a direct ranking of pharmacological danger, then they should be evaluated through their current effects, current evidence, and stated objectives.

Chapter 2 asked: what harm are we measuring? This chapter adds: what history produced the category through which we are measuring it?

The next step is the inverse problem. Some psychoactive substances with real dependence and health risks were not pushed outside ordinary commerce. They became beverages, medicines, nicotine products, everyday stimulants, and major tax bases.

Why?

Understanding prohibition is only half the story. We also have to understand legitimacy.

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Chapter 4 — A History of Legitimacy

If prohibitions have histories, legitimacy does too. Some psychoactive substances did not simply remain untouched while others were pushed outside the law. They became embedded in institutions, habits, industries, tax systems, and medical practices that made a different response imaginable: permit while regulating, tax while discouraging harmful use, prescribe while controlling access.

Alcohol, nicotine, caffeine, and psychoactive medicines do not share the same toxicology, dependence potential, or social history. Their comparison reveals something else: a substance can become integrated deeply enough that policy is organized less around eliminating its existence than around managing the conditions under which it is produced, sold, prescribed, and used.

Integration is not the same as innocence. Alcohol can produce dependence, injury, chronic disease, and death. Nicotine is addictive, while tobacco products expose users to very different patterns of harm depending on product and route. Caffeine is pharmacologically active and can produce withdrawal. Controlled medicines can cause tolerance, dependence, misuse, overdose, or serious adverse effects.

Legitimacy therefore cannot be read directly from pharmacology. It is also the history of how a society learns to live with a substance.

Alcohol Became a Beverage Before It Became a Regulatory Problem

Alcohol has one historical advantage over nearly every substance at the center of modern drug prohibition: its cultural integration predates the modern regulatory state by centuries.

Fermented beverages have long been woven into food, ritual, commerce, hospitality, celebration, and ordinary social life. By the time modern governments began trying to reduce alcohol-related harms, they were not confronting a marginal product that could simply be removed from an otherwise stable market. They were confronting established producers, retailers, customs, consumers, local economies, and tax systems.

Industrial production and distribution expanded availability further. At the same time, visible harms fueled powerful temperance movements. Legitimacy did not mean the absence of conflict. The modern history of alcohol is also a history of licensing, limits on where and when alcohol may be sold, age rules, taxes, impaired-driving laws, warning requirements, and campaigns to reduce harmful drinking.

The important point is institutional. Alcohol entered modern regulation from inside ordinary commerce.

Prohibition and Repeal: Legality Was Not Inevitable

The United States provides the clearest counterexample to the idea that alcohol was destined to remain legal.

The Eighteenth Amendment, ratified in 1919, prohibited the manufacture, sale, or transportation of intoxicating liquors for beverage purposes, as well as their importation and exportation. It took effect one year later. In 1933, the Twenty-first Amendment repealed it. The Twenty-first remains the only

constitutional amendment adopted specifically to repeal another amendment. [1]

That history should not be turned into the slogan that prohibition can never reduce consumption or harm. Those empirical questions are more complicated and belong later in this book. Its function here is narrower: even a substance with deep cultural roots can be moved from legal commerce into prohibition and then back into legal commerce.

The molecule did not change in 1920 or 1933. The institutional settlement did.

After Repeal: A Federal-State Regulatory Market

Repeal did not return alcohol to an unregulated marketplace. It produced a layered system.

At the federal level, the Alcohol and Tobacco Tax and Trade Bureau regulates major parts of alcohol production, importation, wholesale business, labeling, advertising, and federal excise taxation. Federal law requires permits for important industry activities and imposes labeling and advertising rules intended, among other things, to prevent consumer deception. [2][3]

At the same time, alcohol remains unusually decentralized. TTB itself emphasizes that every state has authority to regulate alcohol production, sale, and distribution within its borders, and that state and local rules can be more restrictive than federal rules. Retail licensing, distribution systems, hours of sale, location rules, and other requirements can therefore differ substantially by jurisdiction. [4]

This division matters. Saying that alcohol is "legal in the United States" is true only at a high level. The actual legal

market is built from overlapping federal, state, and local permissions and restrictions.

Legitimacy does not mean the absence of control. It can mean that control has moved inside the market.

Taxing What Public Policy Also Tries to Reduce

Alcohol also exposes a structural tension of legal psychoactive markets: the same product can generate public revenue while public institutions try to reduce some of its harms.

The federal government imposes excise taxes on alcohol, and states may impose their own taxes as well. TTB administers federal tax obligations for regulated industries and continues to collect federal excise revenue from alcohol and other products. [5]

Taxation can therefore do more than one thing at once. It can raise revenue. It can also change price and, depending on the policy design and consumer response, influence consumption. Those purposes do not have to be identical.

This does not show that governments want people to become dependent, nor does it prove that revenue interests control alcohol policy. It reveals a genuine institutional tension: a legal product can simultaneously be an economic activity, a source of tax revenue, and an object of harm-reduction policy.

Once a psychoactive product is incorporated into public finance, legitimacy becomes more than social tolerance. It becomes part of the state's own administrative architecture.

Tobacco and Nicotine: Legal Does Not Mean Lightly Regulated

Tobacco followed a different path. It became a global commodity and then an industrial mass market long before the

modern scientific consensus on smoking-related disease had fully developed.

As evidence accumulated, the United States did not move cigarettes into the Controlled Substances Act. Instead, tobacco acquired its own regulatory architecture. In 2009, the Family Smoking Prevention and Tobacco Control Act gave the Food and Drug Administration broad authority over the manufacture, distribution, and marketing of tobacco products. FDA's authority now extends across cigarettes and other tobacco products, including e-cigarettes and products containing nicotine from non-tobacco sources. [6][7]

Federal law also sets a minimum age of 21 for tobacco-product sales. Under current FDA rules, retailers must verify photo identification for customers under 30 attempting to buy covered tobacco products. [8]

This is not ordinary consumer regulation. FDA can require premarket review for new tobacco products, regulate manufacturing and marketing, require disclosures and warnings, and set product standards within statutory limits. Yet federal law also explicitly contemplates continued adult sales rather than requiring FDA to eliminate every tobacco product from the legal market. [6]

The case of nicotine makes the distinction even clearer. Nicotine's addictive properties do not make every nicotine-delivery system pharmacologically identical. A cigarette, a nicotine pouch, a medicinal nicotine patch, and an e-cigarette differ in route, formulation, toxic exposures, intended use, and regulatory category.

A coherent analysis therefore cannot transfer every harm of smoking onto the word nicotine itself. Nor can it treat legal availability as evidence that a product is safe.

Caffeine: Psychoactivity Hidden by Familiarity

Caffeine sits near the opposite end of the cultural spectrum from an illicit drug. Coffee, tea, soda, energy drinks, chocolate, supplements, and some medicines make caffeine part of ordinary American life.

Familiarity does not erase pharmacology. Caffeine promotes wakefulness primarily through antagonism of adenosine receptors. Higher intakes can contribute to insomnia, anxiety, palpitations, gastrointestinal symptoms, or other adverse effects, and regular users can experience withdrawal.

FDA nonetheless regulates caffeine mainly through food, beverage, supplement, and drug frameworks rather than through the Controlled Substances Act. FDA currently cites 400 milligrams per day as an amount not generally associated with negative effects for most adults, while emphasizing that sensitivity varies and that very high intake can be dangerous. Added caffeine must be used safely under the applicable food laws, and labeling requirements depend on how caffeine enters the product. [9]

Why did psychoactivity not lead caffeine toward a cocaine-like legal regime? No single answer is sufficient, but several differences are obvious: long integration into ordinary beverages, typically modest effects at common doses, widespread use without severe behavioral intoxication for most consumers, and the feasibility of managing many risks inside conventional food and consumer regulation.

This is precisely why "psychoactive" cannot function as a prediction of legal status.

Medicine: Legitimacy Through Use, Evidence, and Control

Psychoactive medicines reveal yet another route to legitimacy. Here, access is justified primarily through therapeutic use rather than cultural familiarity.

In the American regulatory system, FDA approval is based on a benefit-risk judgment for an intended population and use. Approval does not mean a drug is harmless. FDA explicitly describes medicines as products with both benefits and risks; approval means the available evidence supports a conclusion that benefits outweigh known and potential risks for the approved use. [10][11]

For controlled medicines, another layer is added. Morphine, some stimulants, benzodiazepines, and many other psychoactive drugs are regulated under the Controlled Substances Act while remaining available for medical use under defined conditions.

This means that "medicine" is not the opposite of "drug." It is an institutional relationship to a substance: evidence of benefit, defined indications, manufacturing standards, labeling, professional responsibility, prescription rules where applicable, monitoring, and systems for managing risk.

That architecture can reduce some risks without abolishing them. An approved medicine can be misused. A controlled medicine can be medically necessary. A legal prescription market can expand too rapidly or be marketed badly. Later chapters will return to prescription opioids in exactly this context.

Legitimacy here does not neutralize pharmacology. It organizes a use judged worthwhile despite risk.

Cannabis: One Substance, Multiple Legal Regimes

Cannabis makes the American problem unusually visible because legal legitimacy is divided across levels of government.

States and territories have built different systems for medical cannabis, nonmedical adult use, possession, taxation, product testing, licensing, local control, and other issues. The National Conference of State Legislatures maintains a current database precisely because the rules continue to vary and change across jurisdictions. [12]

Federal law is now split rather than simply Schedule I. Effective April 28, 2026, a DOJ/DEA final rule placed FDA-approved drug products containing marijuana and marijuana covered by state medical marijuana licenses in Schedule III. Other marijuana — including marijuana outside an FDA-approved product or a state medical marijuana license — remains Schedule I. A separate broader rescheduling proceeding continued through formal hearings from June 29 through July 15, 2026. [13][14]

This creates a striking institutional split. State-licensed medical marijuana now falls under a different federal schedule from unlicensed or nonmedical marijuana, while state adult-use systems can still authorize products that remain Schedule I under federal law. Federal and state law have not merged. They coexist in tension.

The point here is not to settle whether cannabis should be in Schedule I, Schedule III, descheduled, or regulated in some other way. It is to observe what the conflict reveals: legal legitimacy is not always a single national status. It can be jurisdiction-specific, partial, and under active revision.

Cannabis therefore belongs in the history of legitimacy as well as the history of prohibition.

Why Some Psychoactive Substances Are Regulated Instead of Prohibited

Across these cases, several recurring mechanisms help explain why risky psychoactive products can remain inside legal institutions:

- historical and cultural integration, which creates entrenched practices and expectations;
- perceived utility, whether social, nutritional, stimulant, recreational, or therapeutic;
- patterns of use compatible with ordinary life for many users;
- the possibility of managing some risks through dose, quality control, age limits, labeling, prescription, licensing, or restrictions on sale;
- economic integration through producers, jobs, trade, and taxation;
- administrative capacity to build something between laissez-faire and criminal prohibition.

These factors do not form a formula that automatically predicts the right legal regime. They explain pathways of legitimacy.

Explanation is not justification. Saying that alcohol is deeply embedded in American commerce does not establish that every current alcohol rule is optimal. Saying that FDA-approved medicines have recognized benefits does not make every prescription appropriate. Saying that caffeine produces fewer severe acute harms than some prohibited drugs does not make its effects nonexistent. Saying that states regulate cannabis does not resolve the federal policy question.

A history of legitimacy describes how a society comes to organize continued access. It does not yet decide whether that settlement should remain unchanged.

Legality Can Hide the Drug; Illegality Can Hide the Use

Legal categories reshape perception.

Because alcohol is sold in grocery stores, restaurants, bars, and stadiums, it can become easy to forget that ethanol is a psychoactive drug capable of producing dependence and poisoning. Because caffeine arrives in coffee, its stimulant pharmacology becomes nearly invisible. Because an opioid arrives in a labeled pharmacy bottle, a patient may underestimate its dependence or overdose risk.

The reverse can happen with illegal substances. The legal category "drug" can become so dominant that it obscures dose, route, context, medical research, or the diversity of actual patterns of use.

This asymmetry matters throughout the book. A legal product tends to be described through its social form: beer, cigarette, coffee, prescription. An illegal one tends to be described through its legal identity: narcotic, controlled substance, illicit drug.

Pharmacology does not obey those lexical borders.

From Legitimacy to Use

The first four chapters have now separated four problems that ordinary language often compresses.

Chapter 1 distinguished drugs, psychoactive substances, medicines, and controlled substances. Chapter 2 separated hazard, risk, and harm. Chapter 3 showed that prohibition has a history. This chapter shows that legitimacy has one too.

The symmetry matters. Illegal substances are not necessarily illegal simply because they sit at the top of a universal scale of pharmacological danger. Legal substances are not necessarily legal simply because they sit at the bottom.

Between pharmacology and legal status lie traditions, institutions, medicine, markets, taxes, professional authority, federalism, and regulatory design.

But this still leaves the user strangely absent. Why do people seek these substances at all?

Risk and law cannot answer that question by themselves. People may seek pleasure, relief, energy, sociability, ritual, curiosity, altered perception, sleep, performance, escape, or self-medication.

Before asking how use sometimes becomes addiction, we need to understand why use begins - and why use and addiction are not synonyms.

Notes and Sources

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PART II

From Use to Addiction

Chapter 5 — Why Do We Want to Change How We Feel?

So far, we have mostly looked at psychoactive substances from the outside: legal categories, risk, history, institutions, markets. That perspective is necessary, but incomplete. It can leave the impression that people use drugs only because a market offers them, because addiction compels them, or because they do not understand the risks.

A great deal of substance use begins before addiction. People seek effects. They may want pleasure, relief, energy, sleep, confidence, sociability, endurance, altered perception, temporary escape, or simple curiosity. Some want to feel more intensely. Others want to feel less.

These motives are not equivalent, and identifying them does not make the behavior safe. But ignoring them produces a poor theory of human behavior. A policy that sees the user only as a passive victim of a molecule or as an irrational decision-maker may fail to understand why use can continue even when risks are known.

NIDA has long summarized several broad reasons people use drugs: to feel good, to feel better, to do better, and because of curiosity or social pressure. That typology is deliberately simple, but it gives us a useful starting point. Other motives include ritual, spirituality, experimentation, self-treatment, and the pursuit of particular social or emotional states. [1][2]

The question in this chapter is therefore not: Why do people make bad decisions? It is more basic: What are they trying to change about their experience?

Seeking Pleasure Is Not Yet a Disorder

The first answer is the simplest and, in health-focused discussions, sometimes the hardest to state plainly: some substances are used because their effects feel good.

Alcohol can reduce inhibition and produce a sense of ease. Stimulants can increase energy, alertness, or confidence. Opioids can combine relief with euphoria or well-being. Cannabis may produce relaxation or sensory change. Psychedelics can produce unusual perception, emotional intensity, awe, or experiences that users value for reasons that are not reducible to symptom relief. The exact effects vary with the substance, dose, route, person, expectations, and setting. [1] [2]

Recognizing pleasure as a motive is not the same as recommending use. It explains why information about harm does not always prevent behavior. A choice can contain an immediate subjective benefit and a delayed or probabilistic cost at the same time.

That timing matters. Reward often arrives now. Some harms arrive later, and some may never occur to a particular user. The comparison is therefore not always between a present pleasure and a present injury. It may be between a tangible reward today and a future risk that feels abstract.

Pleasure can also be social rather than purely pharmacological. Sharing a drink, smoking with friends, or taking part in a psychedelic experience may matter partly because of the relationship, ritual, or occasion around the substance. The drug becomes one component of a situation.

One distinction must remain protected: repeatedly seeking pleasure is not a definition of addiction. People repeat countless

rewarding activities without losing control or reorganizing their lives around them. Addiction requires additional criteria.

Feeling Better: Relief, Pain, and Self-Medication

A second function is less about creating a positive state than reducing a negative one. People may use substances in response to pain, anxiety, insomnia, stress, sadness, fear, intrusive memories, or tension that feels difficult to tolerate. [1][3][5]

The term self-medication covers several different behaviors. It can mean deliberately using a substance to manage a symptom without professional supervision. More broadly, it can describe relief-seeking: drinking to reduce social anxiety, using a sedative to sleep, taking a stimulant to push through exhaustion, or using a psychedelic in the hope of improving psychological or physical distress.

The motive does not prove that the strategy works, and it does not prove that it is safe. Some substances can worsen over time what they temporarily relieve. Some produce tolerance, withdrawal, or dangerous interactions. Unsupervised use can also delay care that would have addressed the underlying problem more effectively.

But the function still matters. If a substance is helping someone suppress pain or make a situation feel bearable, removing the substance without addressing what it was doing for that person may leave the reason for use untouched.

This is particularly visible with opioids, where legitimate pain treatment, physiological dependence, misuse, and opioid use disorder can overlap without being identical. Similar ambiguities can occur with sedatives and stimulants, where treatment, misuse, and attempts to keep functioning may occur in sequence or at the same time.

Research on psychedelic self-medication illustrates the same distinction. A 2026 scoping review found that some people report unsupervised psychedelic use to cope with or manage physical or psychological symptoms, while also emphasizing that the review-level evidence remains sparse and heterogeneous. The existence of the motive is better established than the safety or effectiveness of the practice. [3]

Doing Better: Performance, Endurance, and Availability

Not all substance use aims at intoxication or relief. Some use is instrumental: the person is trying to perform.

Caffeine is the ordinary example. People use it to stay awake, sustain attention, work a long shift, study, drive, or reduce the subjective feeling of fatigue. Prescription stimulants can also be misused in an attempt to feel more alert or improve academic or professional performance. NIDA notes that some people use stimulants without a medical need in hopes of improving mental performance, while evidence does not support the simple claim that misuse makes students without ADHD perform better academically. [1][5]

This function complicates the familiar image of the drug user escaping social demands. Sometimes the substance is used to meet those demands more aggressively: to work longer, finish an exam, remain available, extend a party, compete, or tolerate exhaustion.

The social environment can therefore change the expected value of a drug effect. In a setting that rewards constant availability, short-term stimulant use may appear locally rational to someone who is exhausted. That does not mean the environment mechanically causes the use. It means the

perceived benefit depends partly on the demands around the person.

This point will return in the epilogue, when the book reconnects with the economics of repetition: psychoactive products can be marketed not only as pleasure or relief, but as tools for continuing to function.

Sociability, Belonging, and Ritual

Substances are also social objects. Their use can mark belonging, structure a celebration, accompany conversation, signal trust, establish a rite of passage, or form part of a religious or communal practice.

Alcohol makes this function easy to overlook because it is so culturally familiar. A toast, a shared beer, or wine at a celebration is usually experienced as a social act rather than as a pharmacological event, even though ethanol is acting on the nervous system.

The same social integration can occur around illegal substances. Initiation may happen through friends, a music scene, a workplace, a subculture, or a group in which use carries a particular meaning. NIDA includes curiosity and social pressure among common reasons for starting drug use and emphasizes that adolescents can be especially sensitive to peer influence. [1]

But social pressure is too narrow to describe every shared use. People can consume together without coercion. The substance may facilitate a sense of closeness, function as a symbol of participation, or simply accompany an activity that participants already value.

This is why use cannot always be reduced to an isolated relationship between an individual and a molecule. Changes in

price, access, law, or availability can also change collective practices, settings, and identities.

Exploring, Ritualizing, and Altering Perception

Some substances are sought precisely because they can change perception, thought, emotion, or the sense of self in unusually powerful ways.

Psychedelics are the clearest example. NIDA notes that people report using psychedelic and dissociative drugs outside medical settings for recreation, to improve well-being, and for spiritual or self-exploration purposes, alongside growing scientific interest in possible therapeutic applications. [2]

In some religious and traditional contexts, altered consciousness can itself be the intended function: vision, initiation, healing ritual, relationship to the sacred, or communal cohesion. Those interpretations belong to cultural systems that should be understood on their own terms before they are translated into modern medical categories.

An intense experience does not, however, prove the truth of the interpretation attached to it. A drug-associated spiritual experience may be deeply important to the person without establishing a metaphysical claim. Likewise, an experience perceived as therapeutic is not by itself evidence of clinical effectiveness.

That distinction allows us to acknowledge what a person is seeking without confusing experience, meaning, value, and proof.

Escaping, Suspending, Forgetting

A changed state can also be sought because ordinary experience feels intolerable for a while.

Boredom, loneliness, poverty, conflict, persistent anxiety, traumatic memories, or a situation experienced as inescapable can give intoxication a function of suspension. The substance may not solve the problem. It may temporarily alter the person's relationship to it.

The word escape becomes moralizing when it is used as a verdict. A better question is concrete: What does the use actually interrupt or mute? Pain? An obligation? A memory? Inhibition? Exhaustion? Emptiness? The answer should not be invented from the mere fact that someone uses a substance.

Two people taking the same drug can be pursuing opposite states: one seeks stimulation, another sleep; one sociability, another isolation; one exploration, another emotional numbing.

That diversity is one reason the same intervention will not necessarily have the same effect for every user.

Combining Substances to Change the Effect of Another

Polysubstance use makes this local logic especially visible. People may combine drugs to intensify an effect, extend euphoria, soften an unwanted effect, come down after a stimulant, sleep, manage withdrawal, or approximate the effects of another substance that is unavailable or too expensive.

A rapid review of qualitative evidence identified precisely these motives: balancing or counteracting effects, prolonging a high, reducing unwanted symptoms, substituting for another drug, and self-medicating. The review also emphasized that polysubstance use can increase the risk of acute toxicity. [4]

Understanding the intention does not make the combination safe. Some combinations greatly increase the risk of poisoning or overdose, especially when multiple central nervous system depressants are involved.

The distinction is crucial: a behavior can make sense from the user's immediate point of view and still create severe danger. Local rationality and safety are not synonyms.

Use, Problematic Use, and Addiction

All of these motives can exist without addiction. That is probably the most important distinction in this chapter.

A person can drink for sociability without losing control of alcohol use. Someone can try a drug out of curiosity and never use it again. A person may use cannabis occasionally to relax, a psychedelic for a particular experience, or caffeine to stay awake without organizing life around the substance.

The reverse is also possible. A motive that begins as ordinary can change. Pleasure can become necessary just to feel normal. Relief can become avoidance of withdrawal. A stimulant first used for an exceptional deadline can become part of everyday functioning.

The transition toward addiction is therefore not contained in the initial motive alone. It concerns the way reinforcement, learning, repeated exposure, vulnerability, environment, and the pharmacology of the substance can progressively change the person's relationship to use. [1]

We should also resist retrospective reasoning. If someone eventually develops a substance use disorder, that does not mean the first use was already an expression of the later disorder.

Chapter 7 will examine more precisely when repeated use becomes addiction. Before we can do that, we need to understand what the substances themselves do to the body and brain.

Take the Function Seriously Without Automatically Endorsing the Behavior

Taking motives seriously protects against two opposite errors.

The first is moralization: the person uses only because they are irresponsible, weak, or uninformed. That explanation fails as soon as the substance is actually providing pleasure, relief, stimulation, social belonging, or another valued effect.

The second is romanticization: if use serves a function, then the behavior must be rational, beneficial, authentic, or liberating. That does not follow. A coping strategy can create more suffering than it relieves. A social practice can become dangerous. A desired experience can produce consequences the person did not intend.

The useful question is not whether to condemn or celebrate. It is to identify the actual function, the alternatives available, the risks involved, the degree of control, and the consequences.

This distinction also matters for public policy. A policy that reduces access to one substance without understanding what users were seeking may shift demand toward another substance or behavior. Conversely, recognizing a function does not imply that commercial markets should be allowed to satisfy it without limits.

A provisional conclusion is now possible: people do not seek "drugs" in the abstract. They seek different transformations of experience.

To understand why some of those transformations become especially powerful, we now have to move down one level and examine pharmacology: receptors, neurotransmitters, dose,

route, speed of delivery to the brain, tolerance, interactions, and toxicity.

That is the subject of the next chapter.

Notes and Sources

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[6] The functions described in this chapter are categories of motivation, not diagnoses. A motive should not be attributed to an individual without evidence about that person's actual use, circumstances, and account of what the substance is doing for them.

Chapter 6 — What Substances Actually Do

Saying that a substance "acts on the brain" is true but almost empty. The brain is not one switch that different drugs turn up or down. It is a network of circuits using many neurotransmitters, receptors, transporters, ion channels, and signaling systems. Psychoactive substances change those systems in very different ways. [1][2][14]

Two drugs can both produce euphoria while reaching that experience through different pharmacological routes. Two depressants can both cause drowsiness and poor coordination without sharing the same primary molecular targets. Two stimulants can increase monoamine signaling through different mechanisms. And two drugs that radically alter perception can belong to pharmacological families that are only loosely related. [1][2][14]

That diversity is central to risk. It is why the word drug is not a biological explanation, why dopamine cannot serve as a universal theory of addiction, and why dose, route, speed of delivery, formulation, and mixtures can radically change what the same substance does.

This is not a complete pharmacology manual. The goal is narrower: to understand enough mechanism to stop reasoning as if every psychoactive substance does the same thing to the brain.

A Molecule Never Acts on "the Brain" as a Single Object

A psychoactive substance can act in many ways. It may activate a receptor, block a receptor, change the opening of an ion channel, inhibit reuptake of a neurotransmitter, promote its

release, slow its breakdown, or affect several of these processes at once. [1][2][14]

The result depends on where those targets are located, how much drug reaches them, how quickly concentrations rise and fall, how long exposure lasts, and what adaptations follow repeated use. One molecule can therefore influence pain, breathing, memory, alertness, movement, or mood because the systems it changes participate in more than one function.

Common labels such as stimulant, depressant, hallucinogen, and opioid remain useful shorthand. They do not always identify one molecular mechanism. Alcohol, for example, is classified as a central nervous system depressant, but its effects involve GABAergic and glutamatergic signaling as well as other receptor systems and ion channels. [1][2]

The reverse is also true: different molecular mechanisms can converge on some of the same circuits. Many reinforcing drugs alter dopamine signaling directly or indirectly in systems involved in motivation and learning. That convergence does not erase the different steps by which they get there.

Opioids: Relieving Pain, Producing Euphoria, Slowing Breathing

Opioids are a particularly clear example of one pharmacological family containing both essential medical effects and severe risks. Morphine, heroin, fentanyl, and other opioids act on opioid receptors, especially the mu-opioid receptor. [3]

Activation of these systems can strongly reduce pain. That is precisely why opioids such as morphine and fentanyl can be medically valuable. The same receptor systems also affect reward and automatic physiological functions. At sufficiently

high exposure, opioids can suppress breathing enough to cause hypoxia, coma, and death. [3]

Risk therefore cannot be reduced to an opposition between "medical opioid" and "street opioid." It depends on the molecule, potency, dose, tolerance, formulation, route, co-use with other depressants, and whether effective emergency treatment is available.

Fentanyl makes the distinction between pharmacology and exposure context especially important in the United States. Pharmaceutical fentanyl and illegally made fentanyl are both synthetic opioids. Pharmaceutical fentanyl is used medically for severe pain or anesthesia; most recent U.S. fentanyl-related harms and overdoses are linked instead to illegally made fentanyl in the illicit drug supply. CDC notes that it may appear in powders or counterfeit pills and may be present without the user's knowledge. [15]

The molecule's high potency matters because active amounts are much smaller than for morphine. When the amount present in an illicit product is unknown, small errors in composition can therefore have large consequences. But potency should not be collapsed into a single scale of "addictiveness." Reinforcement also depends on speed of effect, pattern of use, context, learning, and individual vulnerability.

Stimulants: Cocaine and Amphetamines Do Not Do the Same Thing

Cocaine and amphetamines are often grouped together as stimulants. Both can increase alertness, energy, heart rate, and monoamine signaling. Their pharmacology is not identical. [4] [5]

Cocaine inhibits transporters that normally clear dopamine, norepinephrine, and serotonin from the synapse. Those neurotransmitters therefore remain available longer. When cocaine reaches the brain very quickly - especially by smoking or injection - the rapid rise in effect can strengthen its reinforcing properties. [4][5]

Amphetamines also interact with monoamine transporters, but they more strongly promote release and can reverse transporter flow, increasing synaptic monoamines through a different mechanism.

Saying that both "increase dopamine" is therefore accurate but incomplete. It hides differences in pharmacokinetics, duration, peripheral effects, and risk profiles. [4][5]

Stimulants can also produce anxiety, insomnia, elevated heart rate and blood pressure, and, at high doses or after prolonged exposure, severe agitation or psychotic symptoms. Mechanism still does not predict a person's experience by itself. Dose, sleep deprivation, health status, co-use, and context matter.

Nicotine, Caffeine, and Cannabis: Three Mechanisms, Three Experiences

Nicotine acts primarily at nicotinic acetylcholine receptors. Their activation changes the activity of many neurons and can promote release of several neurotransmitters, including dopamine. Cigarette smoking delivers nicotine to the brain rapidly, helping bind the pharmacological effect to repeated inhalation, hand-to-mouth behavior, and environmental cues. [6]

Speed helps explain why route matters so much. Nicotine delivered more slowly by some nicotine-replacement

medications does not create the same pattern of rapid peaks as repeated cigarette inhalation, even though nicotine is the active molecule in both cases. [6]

Caffeine follows another route. At ordinary concentrations, its main mechanism is antagonism of adenosine receptors. By blocking a signaling system involved in sleep pressure, caffeine increases wakefulness and reduces perceived fatigue. Its stimulant effect therefore does not need to be explained as a direct injection of dopamine into a reward circuit. [7]

Cannabis differs again. THC acts mainly through cannabinoid CB1 receptors in the endocannabinoid system. These receptors participate in memory, perception, appetite, movement, pain, and many other functions. The resulting experience can include relaxation, sensory changes, impaired short-term memory, altered coordination, or, in some people and contexts, anxiety and other unpleasant reactions. [8]

Putting nicotine, caffeine, and cannabis under the same category of psychoactive substance can be useful for some comparisons. It does not mean that the brain is encountering the same pharmacological event.

Alcohol and Benzodiazepines: Two Depressants, Different Mechanisms

Alcohol and benzodiazepines can both cause sedation, reduced anxiety, slowed reactions, and impaired coordination. Similar effects do not imply identical pharmacology. [1][2][13]

Benzodiazepines are positive allosteric modulators of GABA-A receptors. They do not simply replace GABA; they increase the inhibitory effect of GABA at certain receptor configurations when the neurotransmitter is present. [13]

Alcohol has a more diffuse pharmacology. It affects GABAergic and glutamatergic signaling and interacts with additional receptor systems and ion channels. Its effects on memory, judgment, balance, and coordination emerge from this distributed action. [1][2]

Different mechanisms can still interact dangerously. Combining central nervous system depressants can produce much deeper sedation than a person expects. FDA and NIAAA warn that opioids combined with benzodiazepines or alcohol can markedly increase the risk of profound sedation, respiratory depression, coma, and death. [13][16]

A prescription or legal retail status does not protect against pharmacological interaction. Safety depends on what is actually combined.

Psychedelics and Dissociatives: Altering Perception Through Different Routes

Drugs that can profoundly alter perception and the sense of self provide another example of misleading umbrella categories. Ordinary language often groups them together as hallucinogens even though their principal mechanisms can be very different. [9][10]

Classic psychedelics such as LSD, psilocybin, mescaline, and DMT produce much of their characteristic subjective effect through serotonergic 5-HT2A receptor signaling, although other targets can contribute depending on the molecule. [9]

Dissociatives follow another pharmacological path. Ketamine primarily antagonizes NMDA-type glutamate receptors, with additional effects on other systems. Its dissociative and anesthetic profile therefore cannot be reduced to the serotonergic mechanism of classic psychedelics. [10]

Two people may describe radical alterations of perception after substances that everyday language places in the same family, while the principal molecular mechanisms are different.

That distinction also matters medically. Effects being studied for psilocybin and effects being studied or used clinically for ketamine cannot be assumed to be interchangeable simply because both can produce unusual states of consciousness.

Dose, Route, and Speed: The Same Molecule Is Not Always the Same Exposure

Pharmacology depends not only on what is taken but on how it reaches the body and brain. [11][12]

Swallowing, inhaling, smoking, snorting, and injecting do not create the same concentration-time curve or the same speed of arrival at the brain. A rapid rise can produce a more intense subjective effect and can more strongly reinforce the association between an action and its consequence.

Research on the pharmacokinetics of addiction emphasizes speed and frequency for exactly this reason. Repeated rapid peaks do not expose the brain to the same signal as a formulation that delivers the same drug more gradually. [11] [12]

Cocaine illustrates the principle: smoking or injecting produces a faster onset than slower routes. Nicotine provides another example: cigarettes produce repeated rapid delivery, while a patch produces a much more gradual exposure.

This is why ranking drugs only by substance name loses important information. Dose, formulation, route, speed, and frequency are pharmacological variables in their own right.

Tolerance and Withdrawal: The Nervous System Adapts

Repeated exposure can change the nervous system's response. Tolerance means that a given exposure produces less effect than before, sometimes leading a person to increase the amount used to obtain a similar result. [1][11][12]

Withdrawal refers to symptoms that can appear when repeated exposure stops or falls sharply. The pattern depends on the substance and on the adaptations that have occurred: anxiety, irritability, sleep disturbance, physical symptoms, or, for some drug classes, medically dangerous complications.

These phenomena show that the brain and body adjust to repeated exposure. They should not automatically be equated with addiction.

A patient who takes certain medications over time can develop physiological dependence and experience withdrawal if the medication is stopped abruptly without necessarily showing compulsive drug seeking or loss of control. FDA makes this distinction particularly important for opioid pain medicines and benzodiazepines, where abrupt discontinuation can itself create risk. [13][17]

Conversely, addiction can develop around a behavior that produces no classic pharmacological withdrawal syndrome, as gambling demonstrates. Neuroadaptation belongs to the biological history of exposure; addiction describes a broader transformation of behavior, motivation, and control.

The next chapter will examine how those levels can meet.

Dopamine Is Not "Pleasure in a Bottle"

Few simplifications are as persistent as calling dopamine "the pleasure chemical." The phrase is attractive because it appears

to place cocaine, nicotine, alcohol, gambling, food, and digital rewards under one mechanism. [1][4][6][14]

Dopamine does play a major role in motivation, learning, incentive salience, and reinforcement. Many drugs with addictive potential increase dopamine signaling directly or indirectly in reward-related circuits. [1][14]

But convergence on dopamine does not mean dopamine is pleasure itself. Pleasant experiences recruit multiple systems, including endogenous opioids and endocannabinoids. Dopamine is heavily involved in what the brain learns to notice, anticipate, value, and pursue. [1][14]

Dopamine is also not a diagnostic test for addiction. Ordinary activities and necessary behaviors involve dopamine signaling. Its presence does not turn an activity into a drug, a pathology, or a pharmacological equivalent of cocaine.

And not every psychoactive drug produces its defining subjective effects mainly by increasing dopamine. Classic psychedelics are a clear counterexample: their characteristic effects are strongly associated with serotonergic 5-HT2A signaling. [9]

The more useful question is not "How much dopamine does it release?" but: What target is changed, how quickly, in which circuits, with what adaptations, and with what learned behavior?

Mixtures Create Risks That Each Drug Alone Cannot Fully Predict

Substances are not always used one at a time. The effect of a mixture is not necessarily the intuitive sum of two isolated effects. [13][16]

The clearest example is depressants. Opioids can suppress breathing; benzodiazepines and alcohol can produce sedation and suppress central nervous system activity through different receptor systems. Combining them can sharply increase the risk of profound sedation, respiratory depression, coma, and death. [13][16]

Other combinations can change the perception of bodily warning signals. A stimulant may make someone feel less sleepy while a depressant's toxicity remains present. Feeling more awake is not the same as reversing respiratory or cardiovascular risk.

Interactions also involve ordinary prescription and over-the-counter medicines. Serious risk assessment therefore needs the real combination, not a list of each substance evaluated as if it were acting in an empty body.

Pharmacology Creates Possibilities, Not Destiny

A mechanistic chapter can create a new mistake: once receptors are named, behavior can appear fully predictable. It is not. [14]

Pharmacology establishes possibilities and constraints. An opioid can suppress breathing. A benzodiazepine can potentiate GABA-A signaling. A stimulant can alter monoamines. A classic psychedelic can strongly engage 5-HT2A signaling. Those mechanisms are real.

They do not, by themselves, determine who will develop addiction, when use will repeat, what meaning a person will assign to an experience, or what social harms will emerge.

The same substance can be used once, occasionally, medically, intensively, or compulsively. Exposure can be relatively controlled under one set of conditions and dangerous

under another. A product of known composition is not the same exposure as an illicit mixture of uncertain contents. A slow-release formulation does not necessarily reinforce behavior in the same way as a rapid spike.

Biology therefore does not cancel context or learning. It gives them something concrete to act upon.

We can now state the problem of the next chapter. If substances have their own pharmacological mechanisms, why do some people move from controlled use toward a pattern that becomes increasingly prioritized and difficult to stop, while others do not?

That is where the question of addiction truly begins.

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Chapter 7 — When Use Becomes Addiction

The previous chapter showed that psychoactive substances do not all act through the same mechanisms. Yet substances as different as alcohol, nicotine, opioids, cocaine, and other stimulants can, in some users, lead to a comparable transformation: use becomes increasingly important, harder to control, and more persistent despite consequences the person may recognize as harmful. [1][2]

That transition is what needs to be explained. Saying that a drug simply "hooks the brain" is not enough. People exposed to the same substance do not all follow the same path. Some experiment and stop. Some remain occasional or controlled users. Some increase use and later reduce it. Others develop a persistent disorder.

WHO and UNODC treatment standards describe substance dependence as the result of dynamic interactions among biological, psychological, and social factors, with impaired regulation of use, increasing priority given to the substance, continued use despite consequences, and, for some substances, physiological features such as tolerance or withdrawal. [1]

In U.S. clinical language, substance use disorder is broader than the everyday word addiction. DSM-5-TR describes substance use disorders across a continuum from mild to severe, based on the number of diagnostic criteria met. Addiction is commonly used for the more compulsive, prioritized end of that continuum, but it should not be treated as a perfect synonym for every diagnosable SUD. [10][11]

The central problem is therefore not a fixed quantity of drug consumed, a withdrawal syndrome by itself, or a moral

weakness. It is a change in the relationship among a person, a reward, learned behavior, the environment, and the ability to organize and regulate choices.

From Reinforcement to Repetition

A behavior is more likely to be repeated when it produces an effect experienced as rewarding or when it removes something unpleasant. This is the basic logic of reinforcement. [2][3]

Early in use, the reward may be concrete: euphoria, pain relief, reduced anxiety, stimulation, sociability, or curiosity satisfied. When an effect arrives quickly and predictably, the nervous system can learn that a particular action - drinking, smoking, swallowing, snorting, or injecting - reliably produces that state.

Substances that produce intense and rapid effects can make this learning especially powerful. As Chapter 6 showed, pharmacokinetics matters: a fast rise in drug concentration tightly links the action, the context, and the effect. But reinforcement is not limited to pleasure. Relief from pain, relief from withdrawal, or escape from severe discomfort can also strongly reinforce use. [2][3]

The distinction between positive and negative reinforcement is important. In positive reinforcement, the behavior is repeated because it produces something sought. In negative reinforcement, it is repeated because it reduces or removes an aversive state.

Over time, a pattern that began as pursuit of euphoria can become organized more around avoiding anxiety, dysphoria, physical discomfort, or withdrawal. The function of use can change even when the substance remains the same.

Cues Learn Too

Learning does not stop at the pharmacological effect. Places, people, objects, smells, times of day, emotions, bodily states, and routines that repeatedly accompany use can become predictive cues. [4][5][6]

A bar, a cigarette pack, a song, a street, a notification, an argument, or an internal state of stress can eventually trigger anticipation or craving before the substance is present.

A 2022 systematic review and meta-analysis found that cue reactivity and craving measures were prospectively associated with later drug use and relapse, while also showing substantial variation across methods, substances, and individuals. [4]

That variability matters. Exposure to the same cue does not produce the same response in everyone, and some individuals appear more likely than others to assign strong motivational value to reward-predicting cues. [6]

Addiction is therefore not well described as a drug somehow remaining in the brain. Part of its persistence is learned: the environment surrounding use can become saturated with reminders, predictions, and urges.

From Pleasure to Incentive Salience

Dopamine returns here, but in a more precise role than the phrase "pleasure chemical" suggests. Dopamine systems contribute to reward learning, anticipation, and the motivational value assigned to cues. [2][3][6]

With repetition, a cue that predicts a substance can become powerful enough to capture attention and bias behavior before use begins. The concept of incentive salience describes this shift: certain cues acquire the capacity to make a reward strongly wanted or pursued. [3][6]

Wanting and liking can diverge. A person may continue to want a substance intensely even when its pleasurable effects have weakened, especially after tolerance, habit formation, withdrawal, and negative consequences have accumulated.

This is one reason the sentence "If it stopped being enjoyable, the person would stop" is too simple. Use can be maintained by anticipation, learned cues, habits, relief from negative states, withdrawal, and deeply trained action patterns.

When Reward Becomes Relief

Contemporary addiction models often describe a cycle in which the original reward is only one driver among several. [3]

NIAAA's three-stage addiction-cycle model, developed for alcohol but widely used as a neurobehavioral framework, links binge/intoxication to reward and incentive salience, withdrawal/negative affect to stress and emotional distress, and preoccupation/anticipation to craving and impaired executive function. [3][12]

As dependence deepens, the absence of the substance can become increasingly unpleasant. Anxiety, irritability, dysphoria, sleep disturbance, physical discomfort, and other negative states can increase the value of another dose because it provides temporary relief.

Use is then no longer organized only around obtaining a positive effect. It can also become a way to escape a negative baseline that repeated use has helped create or intensify. [3]

This process does not unfold identically across all substances or all people. It is a mechanism that helps explain why use can persist even when the original euphoric effect has weakened.

Tolerance, Withdrawal, and Addiction Are Three Different Things

Tolerance means that the same exposure produces less effect, or that a larger exposure is needed to obtain a comparable effect. Withdrawal refers to symptoms that emerge when repeated exposure is reduced or stopped. Both are evidence of physiological adaptation. [1][2]

They can accompany addiction, but they do not define it by themselves.

A patient taking certain opioids, benzodiazepines, or other medications over time can develop physical dependence and withdrawal without necessarily showing compulsive drug seeking, major loss of control, or a life reorganized around obtaining the drug.

Conversely, Chapter 8 will show that gambling can become addictive without a classic pharmacological withdrawal syndrome.

This distinction matters in American clinical practice because the word dependence has historically been used in more than one way. Physical dependence is an expected adaptation to some medications. Substance use disorder and addiction refer to broader patterns of impaired control, prioritization, and continued behavior despite harm. [2][11]

Confusing those meanings can pathologize a patient merely because tapering produces withdrawal, or can minimize an addiction when dramatic physical withdrawal is absent.

Control Is Not an On-Off Switch

The phrase loss of control can make addiction sound like a sudden switch from complete freedom to no agency at all. In

practice, control is usually more uneven and context-dependent. [1][2]

A person may avoid use reliably at work but repeatedly lose control at night. Someone may remain abstinent for weeks and then return to use in a highly conditioned context. Another person may reduce one pattern of use but remain unable to stop another.

Research on addiction describes alterations in executive function, decision-making, inhibition, reward learning, and stress regulation. Those changes can make some choices substantially harder. They do not mean that all agency disappears or that behavior becomes mechanically predetermined. [3][12]

This distinction matters for treatment and for law. Describing impaired control is neither a moral condemnation nor a declaration that a person has no responsibility, capacity for learning, or possibility of change.

Addiction changes the conditions under which choices are made. Treatment, social support, changes in environment, medication when appropriate, and sustained practice can change those conditions again.

Why Some People and Not Others?

Why can two people exposed to the same substance follow very different trajectories? Current evidence does not reduce the answer to one variable. [1][2][7][8]

NIDA emphasizes that no single factor determines whether a person develops addiction. Vulnerability emerges from combinations of biological, developmental, psychological, and environmental influences. [2]

Family, twin, and molecular studies show a meaningful genetic contribution to substance use disorders, but heritability is not destiny. It describes variation in risk within populations under particular environmental conditions; it does not identify an individual's inevitable future. [7][8]

Environment matters at many levels: availability, family exposure, peer networks, chronic stress, poverty, violence, housing stability, social support, access to treatment, and the availability of alternative sources of reward.

These influences interact. Genetic vulnerability can matter differently in different environments, while protective environments can reduce exposure, delay initiation, increase support, or make recovery easier. [7][8]

It is therefore as misleading to search for a single "addiction gene" as it is to search for a single social cause of addiction.

Adolescence: Vulnerability and Exposure

Age of first exposure matters, but not as a deterministic rule.

Adolescence and early adulthood are periods of ongoing development in systems involved in reward, self-regulation, planning, and decision-making. At the same time, peer environments, experimentation, changing autonomy, and access to substances can alter exposure. [9]

NIDA's adolescent-treatment guidance emphasizes that young people may face interacting risk factors such as poor supervision, drug-using peers, trauma, stressful environments, and co-occurring mental-health problems, while supportive family, school, and community environments can be protective. [9][13]

Starting young does not establish that addiction will follow. It means development and exposure are occurring at the same

time, and early patterns can have more opportunity to become reinforced.

The appropriate conclusion is not that adolescents are defective decision-makers. It is that prevention, early identification, and supportive environments matter because vulnerability is changing during development.

Stress and Trauma Are Risk Factors, Not Universal Explanations

Associations between trauma, chronic stress, mental-health problems, and substance use disorders are well documented. They should not be turned into automatic explanations for a particular person. [2][9][13]

Not everyone who experiences trauma develops addiction, and not everyone with an addiction has an identifiable trauma history. Adverse experiences can increase risk, alter stress regulation, shape coping, and complicate treatment, but those statements describe probabilities and mechanisms, not hidden causes that can be inferred from substance use alone.

The same caution applies to poverty and material insecurity. They can increase stress exposure, reduce access to care, constrain alternatives, and amplify the consequences of substance use. They do not define a person's motives or establish one causal story.

A serious analysis therefore distinguishes risk factor, plausible mechanism, observed association, and demonstrated cause in an individual case.

The Product Still Matters

Emphasizing environment does not make pharmacology disappear. Substances are not interchangeable. [2]

Speed of brain delivery, potency, duration, withdrawal profile, tolerance, and reinforcement properties can all influence how likely use is to repeat and how difficult it becomes to regulate.

A slow-delivery formulation does not create the same reinforcement profile as a route that produces rapid peaks. A substance with intense withdrawal can create strong negative reinforcement. A short-acting substance may encourage closely repeated use.

The transition toward addiction is therefore better understood as an interaction among product, person, learning, and environment.

Remove any one of those levels and the explanation becomes incomplete.

Addiction, Disorder, and a Continuum

Everyday language often suggests a sharp border between an "addict" and everyone else. Modern clinical classifications are more graded. [1][10][11]

DSM-5 combined the former abuse and dependence categories into substance use disorder. DSM-5-TR continues to describe SUDs across a broad range of severity, from mild to severe, with severity based on the number of diagnostic criteria met. [10]

That continuum matters because harmful use can exist before the most severe compulsive pattern appears. A person can meet criteria for a disorder without fitting every popular image of addiction, and symptom severity can change over time.

WHO's ICD framework uses somewhat different categories and terminology, including harmful patterns of use and

dependence. These systems overlap but should not be treated as word-for-word equivalents. [1]

In this book, addiction will remain a useful general term for the strongly compulsive and increasingly prioritized form of the problem. When diagnostic precision matters, the relevant clinical classification should take priority.

Relapse Does Not Erase Change

Another oversimplification is to treat any return to use as proof that the earlier change was unreal.

Learned associations can persist for a long time. Cues, stress, re-exposure, or return to an old environment can reactivate craving and behavior after a period of abstinence. [4][5]

That does not make relapse inevitable, and it does not mean progress has been erased. Treatment can be adjusted; medications may help for some disorders; behavioral therapies can strengthen coping and self-regulation; social support and environmental changes can reduce exposure to high-risk situations.

NIDA's adolescent treatment guidance states the point clinically: relapse can signal a need for more treatment or an adjustment in the treatment plan rather than proof that treatment has failed. [9]

Understanding recurrence as part of the possible course of a disorder should not be confused with telling a person that they are permanently trapped. Recovery can involve abstinence, reduced use, improved functioning, restored control, or other clinically meaningful changes depending on the disorder and treatment goal.

This distinction will matter later when the book turns from explanation to care.

From Drugs to Addiction — and Then Beyond Drugs

We can now return to the beginning of Part II.

Chapter 5 showed that substance use can serve very different functions. Chapter 6 showed that psychoactive substances act through different pharmacological mechanisms. This chapter explains how, in some trajectories, reinforcement, relief, learning, neuroadaptation, cues, stress, and vulnerability can progressively reorganize the priority of behavior.

No single level is enough by itself.

That leads to one more boundary question. If addiction depends partly on reinforcement, learning, cue salience, impaired control, and persistence despite consequences, is a psychoactive substance absolutely required?

Gambling forces the answer to be no.

The next chapter therefore moves the boundary again: from addiction to drugs toward addiction without drugs.

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Chapter 8 — Addiction Without Drugs

For a long time, the most intuitive picture of addiction was a substance gradually taking control of the person who uses it. A molecule enters the body, changes the brain, produces pleasure or relief, creates a reason to repeat the experience, and can eventually contribute to tolerance, physical dependence, and impaired control. Heroin, cocaine, nicotine, and alcohol seem to fit that picture easily. [1][4]

But what remains of the concept if no substance is consumed?

A person can gamble until savings disappear, lie to family members, borrow money to continue, jeopardize work or housing, try to stop, and then return despite the consequences. Nothing has been injected, smoked, swallowed, or metabolized as a drug. There is no "betting molecule" crossing the blood-brain barrier.

Yet gambling disorder is formally classified as an addictive disorder. In the DSM-5-TR, it is the only behavioral addiction included alongside substance-related and addictive disorders. The World Health Organization also classifies gambling disorder among disorders due to addictive behaviors. [1][2]

That recognition changes the definition. If addiction can exist without a drug, then addiction cannot be defined only by the presence of a psychoactive substance.

But broadening the category creates the opposite danger. If every intensely rewarding or frequently repeated activity is described as addictive, then sports, sex, food, gaming, shopping, work, social media, music, exercise, and relationships can all be pulled into the same label.

The result would not be a more powerful scientific category. It would be a category too broad to discriminate.

The challenge is therefore to identify what substance and behavioral addictions genuinely share while preserving the mechanisms that make them different.

When the Product Disappears but the Loop Remains

Gambling is the clearest place to begin.

Most people who gamble do not develop gambling disorder. Buying a lottery ticket, playing poker, visiting a casino, or placing an occasional sports bet is not itself a diagnosis. The distinction concerns what happens to control, priority, persistence, and functioning. [1][2]

DSM-5-TR criteria include persistent preoccupation with gambling, repeated unsuccessful efforts to control or stop, gambling when distressed, chasing losses, concealing the extent of gambling, and jeopardizing important relationships or opportunities. A diagnosis requires a pattern that produces clinically significant problems, not the mere existence of the activity. [2]

WHO's ICD-11 uses a related functional structure: impaired control, increasing priority given to gambling over other activities, and continuation or escalation despite negative consequences, with significant impairment. [1]

These frameworks shift attention from the object to the relationship with the object.

The roulette wheel is not addictive by itself. Nor does placing a wager automatically constitute addiction. What matters is whether the behavior becomes increasingly difficult to regulate, increasingly central, and increasingly persistent despite meaningful harm.

Several processes resemble what we saw with drugs: anticipation, craving, reward learning, cue-triggered urges, unsuccessful attempts to stop, and a progressive reorganization of time, attention, and priorities.

But similarity is not identity. In a substance addiction, the molecule also has its own pharmacology. It may bind to receptors, directly produce intoxication, alter neurotransmission, create tolerance, or produce a characteristic withdrawal syndrome. None of those drug-specific mechanisms is administered by a wager.

What remains when the substance disappears is the possibility that a rewarding behavior can be learned, anticipated, repeated, and prioritized until it begins to organize life around itself.

A drug can participate in addiction. Addiction is not simply the presence of a drug.

The Dopamine Trap

This distinction becomes easy to lose as soon as the word dopamine appears.

In popular language, dopamine is often treated as a unit of pleasure: an activity "gives dopamine," drugs give more, and therefore anything that produces enough dopamine begins to look like a drug. That model is convenient and wrong in important ways. [4]

Dopamine is deeply involved in motivation, reinforcement, learning, prediction, and incentive salience. It helps the nervous system learn which events and cues deserve attention and which actions are worth repeating. But pleasure itself is not reducible to dopamine, and dopamine signaling is not a diagnostic marker of addiction. [4]

Eating when hungry, hearing music we enjoy, succeeding at a difficult task, receiving social recognition, and anticipating a reward all engage reward-learning systems. Those systems are necessary for ordinary adaptive behavior.

The problem in addiction is not that reward exists.

The problem emerges when learned motivation becomes persistently disproportionate to other goals, control deteriorates, the behavior or substance gains excessive priority, and pursuit continues despite sufficiently important consequences.

Drugs can make this process more complicated because their pharmacology can alter neural signaling directly and rapidly. Route, dose, speed of delivery, and molecular mechanism remain important. A cigarette, an opioid injection, cocaine, and alcohol do not create the same neurochemical event.

So there is no scientifically useful ladder in which low dopamine means normal and high dopamine means addiction.

The better questions are functional: What is being learned? Which cues predict the reward? How quickly can the behavior be repeated? What happens when the person tries to stop? How much priority does it acquire? What consequences follow?

Uncertainty Can Become Part of the Reward

Gambling also demonstrates that repetition does not require a guaranteed reward. Uncertainty itself can become part of the learning environment. [1][2]

A bettor does not know whether the next wager will win. A slot machine can produce long stretches without a payout and then suddenly deliver one. A sports bet can preserve uncertainty for an entire game. Visual, auditory, and contextual signals can themselves acquire motivational importance.

The behavioral loop can therefore become more complex than action -> pleasure -> repeat. It may look more like cue -> anticipation -> action -> uncertainty -> outcome -> interpretation -> urge to act again.

Loss does not necessarily close the loop. It can produce chasing: the belief or urge that another wager can recover what was lost. A near miss can feel informational even when the underlying event remains probabilistic. A run of losses can invite the gambler's fallacy - the mistaken expectation that a win has somehow become due.

These mechanisms do not prove that every commercial gambling product inevitably produces addiction. They show that product design and environment can influence the conditions under which repetition is learned.

WHO emphasizes that gambling harms are shaped not only by individual vulnerability but also by availability, accessibility, digitalization, advertising, and normalization. The harms can extend to families and communities. [1]

This becomes especially important when repetition itself is monetized. The person brings motivation, vulnerability, resources, and history. The market organizes opportunities, friction, cues, price, speed, and availability.

Addiction is therefore not located entirely inside the product or entirely inside the person. It can emerge from the interaction among behavior, learning, environment, and vulnerability.

Gaming and the Boundary Between Passion and Disorder

Video gaming complicates the boundary further.

Millions of people play frequently without developing a disorder. Gaming can provide challenge, mastery, relaxation,

social connection, creativity, or even employment. Large amounts of time alone do not establish pathology. [3][6]

WHO nonetheless recognizes gaming disorder in ICD-11. Its criteria again emphasize impaired control, increasing priority over other activities, persistence or escalation despite negative consequences, and significant impairment, usually evident over an extended period. WHO also stresses that the disorder affects only a small proportion of people who game. [3]

The American classification is more cautious. DSM-5-TR includes Internet Gaming Disorder in the section for conditions requiring further research rather than as a formally established behavioral addiction. The American Psychiatric Association continues to state that gambling disorder is the only behavioral addiction formally included in DSM-5-TR. [5][6]

That difference should not be hidden or treated as a contradiction that must be artificially resolved. WHO and APA have drawn the boundary differently.

The disagreement is scientifically useful. It reminds us that a clinical category can have substantial evidence and recognizable impairment while its exact diagnostic status remains under debate or under refinement.

The case protects against two opposite errors.

The first is denial: if no substance is present, there cannot be an addiction-like disorder.

The second is pathologization: if an activity can become disordered, intensive participation must already be pathological.

Neither follows.

A passion can occupy enormous amounts of time without being an addiction. Elite athletes, professional musicians,

researchers, artists, and competitive gamers may structure much of life around an activity while retaining control and accepting sacrifices they regard as worthwhile.

Conversely, an activity that looks ordinary from the outside can become deeply disruptive for a particular person.

The relevant questions therefore remain control, priority, persistence despite harm, distress, and real impairment - not time spent by itself.

Sugar and Ultra-Processed Food: The Case That Resists

After gambling and gaming, food seems like an obvious next step.

The argument is tempting. Sweet and highly palatable foods are rewarding. Some people describe intense cravings, repeated unsuccessful efforts to reduce intake, and continued consumption despite consequences. Reward-learning systems are involved. Why not simply call this sugar addiction?

Because this is precisely where the concept needs resistance.

Food addiction - and, more specifically in recent literature, ultra-processed food addiction - is not currently a formally recognized diagnosis in DSM-5-TR or ICD-11. Research has expanded rapidly, and some investigators argue that certain ultra-processed foods can support addiction-like patterns, but the construct remains debated. [7][8]

The Yale Food Addiction Scale and related instruments adapt substance-use-disorder criteria to eating behavior. Studies have identified people who report craving, impaired control, unsuccessful attempts to cut down, and continued consumption despite consequences. [7][8]

But a core problem remains: what exactly is the addictive agent or property?

Is it sugar by itself? Refined carbohydrates? Added fats? Particular combinations of rapidly absorbed carbohydrates and fats? Energy density? Texture? Flavor engineering? Eating rate? Learned cues? Some interaction among these characteristics?

Recent research increasingly shifts from "sugar addiction" toward specific ultra-processed food profiles, but major uncertainties remain. The 2024 research update by LaFata and colleagues explicitly notes gaps in identifying the relevant addictive ingredient or attribute and in distinguishing the proposed syndrome from existing eating disorders. [7]

More recent researchers have argued for formal recognition, while others continue to dispute whether addiction is the best explanatory or diagnostic framework. The existence of an active debate is itself part of the evidence state; it should not be erased. [8][9]

Food also creates a conceptual difficulty that cocaine or gambling does not. Eating cannot simply be eliminated. The clinically relevant problem, if a distinct addiction-like syndrome exists, must concern particular products, patterns of consumption, loss of control, impairment, and vulnerability - not food as such.

That is why this chapter should not present sugar as a spectacular proof that everyday food is a drug.

The case is more valuable because it does not fit cleanly. It forces the concept of addiction to remain testable instead of expanding whenever a behavior looks compulsive.

What Addiction Actually Means

We can now return to the original question: what remains when the drug disappears?

Not a molecule. Not necessarily intoxication. Not necessarily pharmacological tolerance or withdrawal. Not even, in every case, unusually intense pleasure.

What remains is a possible reorganization of reward, learning, motivation, control, priority, persistence, and consequence. [1][2][4]

That does not make all addictions the same.

Substance addictions include drug-specific pharmacology. Gambling involves uncertainty, money, and repeated probabilistic decisions. Gaming has its own social, competitive, design, and reinforcement structures. Proposed food-addiction constructs confront the special problem that eating is biologically necessary and that the relevant product characteristics remain under investigation.

The unity of the concept therefore cannot come from one mechanism acting identically everywhere.

It comes from a sufficiently similar organization of behavior and impairment to justify comparison in some cases.

Several distinctions now need to survive the rest of the book:

Pleasure is not addiction.

Reward is not addiction.

Repetition is not addiction.

Habit is not necessarily addiction.

Physical dependence is not necessarily addiction.

And addiction does not necessarily require a drug.

A rewarding activity can remain freely chosen and easy to stop. Repetition can be useful. Habit can automate healthy or neutral behavior. A patient can develop physiological dependence on a medication without compulsive use. And gambling demonstrates that serious addictive pathology can exist without ingesting a substance.

Two definitions therefore fail.

Addiction is what a drug causes. Too narrow.

Addiction is any pleasurable activity repeated a lot. Too broad.

A more demanding definition focuses on a persistent pattern in which pursuit of a substance or behavior acquires excessive priority, becomes difficult to regulate, continues despite significant negative consequences, and produces meaningful impairment or distress.

That definition still leaves room for different mechanisms and different levels of certainty.

Gambling disorder is firmly established in both major classification systems. Gaming disorder is recognized in ICD-11 while DSM-5-TR keeps Internet Gaming Disorder in a research section. Ultra-processed food addiction remains an active scientific and clinical debate without formal DSM or ICD recognition. [1][3][5][7][8]

Three cases, three levels of classification certainty.

Comparing mechanisms does not mean declaring the phenomena identical.

And this changes the next part of the book. If addiction is not contained entirely inside a molecule, drug policy cannot be evaluated only by asking which substances should be banned.

We also have to ask what conditions make use or behavior more likely to become harmful, how markets organize repetition, who benefits economically from repeated consumption, who bears the costs, and what different systems of regulation add to or subtract from the harm.

That is where Part III begins.

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PART III

Who Produces Harm, and How Should We Respond?

Chapter 9 — The Drugs We Market

The previous chapters established two boundaries that this part of the book must keep separate. A substance is not safe because it is legal, and it is not dangerous simply because it is prohibited. Addiction is also not contained entirely inside a molecule. The surrounding market changes exposure, information, repetition, and the incentives of everyone who participates in the system.

A legal psychoactive product can be manufactured openly, standardized, labeled, advertised, taxed, prescribed, recalled, inspected, and sold by identifiable businesses. Those features can reduce major forms of uncertainty. A consumer may know the concentration, ingredients, manufacturer, and package size. Regulators can impose age limits, warnings, licensing, product standards, prescription requirements, and penalties for misleading claims. [1][4][6]

Legal commercialization also creates another fact: sales generate revenue.

That statement does not imply that every business selling alcohol, nicotine, medicine, or cannabis is trying to create addiction. It identifies a structural tension. If a product can be consumed intensively or dependently by part of its market, then measures that successfully reduce the heaviest or most harmful use can also reduce sales.

Alcohol, tobacco and nicotine, psychoactive medicines, and legal cannabis show different versions of that tension. One is an old cultural commodity. One is a highly regulated nicotine market with a long history of dependence and disease. One is distributed through health care. One is a rapidly evolving

patchwork of state-level legal markets that remains federally controlled.

A Legal Market Changes Exposure

Individual risk depends partly on dose, frequency, route, formulation, and personal vulnerability. Population harm also depends on how many people are exposed and how easy it is to repeat the behavior.

Legality does not determine availability by itself. A government can permit a product while limiting outlets, hours, advertising, package size, age, prescribing, or product characteristics. But open commercial distribution generally creates more visible and repeatable opportunities to buy than a product that is rare, difficult to obtain, or restricted to narrow medical channels.

In the United States, alcohol policy provides clear examples. State and local governments can restrict hours and days of sale, outlet conditions, sponsorship, advertising, or price promotions. NIAAA lists these environmental interventions precisely because availability, price, and commercial exposure can influence drinking patterns without determining any one person's behavior. [1]

The same logic applies to other markets. A pharmacy prescription, a convenience-store cigarette display, a licensed cannabis dispensary, and an illicit street sale are all access systems. Each organizes information, friction, price, availability, and repetition differently.

A market therefore acts upstream of addiction. It does not need to create a disorder directly in order to change the number of opportunities for use.

Alcohol: Selling a Product Whose Harm Also Depends on Volume

Alcohol makes the commercial tension unusually visible because it is simultaneously a psychoactive drug, a culturally ordinary consumer product, and a major regulated industry.

CDC estimates that excessive alcohol use caused about 178,000 deaths per year in the United States during 2020-2021. The estimate includes both harms from long-term excessive use and deaths associated with drinking too much on a single occasion. [2]

At the same time, alcohol is sold through supermarkets, liquor stores, bars, restaurants, stadiums, entertainment venues, delivery systems, and other ordinary commercial settings. Federal, state, and local rules shape this market, but the basic revenue relationship is straightforward: producers and sellers earn more when more product is purchased.

This does not mean every additional drink has the same social cost, or that every business prefers harmful use. It means that a public-health objective such as reducing very heavy consumption can conflict with a commercial objective based on sales volume.

American survey research helps show why this question matters. Historical national data found alcohol consumption to be highly concentrated among heavier drinkers. In the 2000 National Alcohol Survey, the top 10 percent of drinkers by average daily volume accounted for more than half of all reported drinks. A later methodological comparison again found that the highest-consumption groups accounted for a very large share of total drinks, although the exact estimate varied substantially by survey method. [3]

Those figures should not be presented as a current 2026 market-share estimate. They establish a durable analytical problem instead: when consumption is concentrated, policies aimed at the heaviest drinking can affect a disproportionate share of volume.

This is why the question "Who buys the most?" belongs beside "How many people drink?"

Marketing Sells Meaning as Well as a Molecule

Advertising does not change the chemistry of ethanol. It changes the symbolic and social environment in which the product is encountered.

Alcohol brands can be associated with celebration, sport, music, status, sexuality, humor, belonging, or relaxation. Price promotions can change the cost of repeated consumption. Sponsorship can attach a product to an event long before a purchase occurs.

In the United States, alcohol advertising has historically combined government rules with substantial industry self-regulation. Federal Trade Commission reports have examined placement standards, digital marketing, sponsorship, product placement, and youth exposure. The Commission's 2014 report documented a shift in major-company spending away from some traditional media toward digital promotion, point-of-sale support, sponsorship, and entertainment. [4]

That report is historical rather than a measurement of the 2026 media environment. Its function here is to show that legal-market exposure is not limited to a television commercial. It can be built into retail space, sports and entertainment, online environments, and pricing.

Marketing should not be treated as a sufficient cause of addiction. People drink for reasons that predate advertising: pleasure, sociability, relief, habit, ritual, or taste. But commercial communication can influence salience, expectations, brand preference, and the frequency with which a product is encountered.

The market does not replace pharmacology. It changes the environment in which pharmacology is repeatedly accessed.

Tobacco and Nicotine: When Repeated Use Is Central to the Market

Tobacco makes the tension sharper because nicotine is highly addictive and cigarette use is typically repetitive. The commercial relationship is therefore built around recurring purchases rather than occasional exposure.

CDC reports that cigarette smoking remains a leading preventable cause of disease and death in the United States. Adult cigarette use has fallen substantially over time; NCHS estimated that 9.9 percent of U.S. adults smoked cigarettes in 2024. Yet the remaining market still involves millions of recurring users. [5]

Federal policy does not treat tobacco as an ordinary consumer good. FDA regulates manufacturing, distribution, retail access, advertising, warnings, and the legal introduction of new tobacco products. New tobacco products generally require a written FDA marketing order, evaluated under a population-level public-health standard rather than the "safe and effective" standard used for medicines. [6][7]

Retail rules include a federal minimum age of 21, photo-ID verification for purchasers under 30, restrictions on vending and self-service access in many settings, prohibitions on free

samples for most products, and warning requirements. FDA also regulates advertising and promotion and can restrict the sale and distribution of products when appropriate for the protection of public health. [6][7]

This architecture shows why "legal" and "ordinary" are different concepts. A market can remain lawful while government actively tries to reduce initiation, promote cessation, restrict product characteristics, and limit promotion.

It also shows why nicotine itself should not be treated as a complete description of tobacco harm. Combustion creates much of the extraordinary disease burden of cigarettes, while nicotine strongly supports dependence. Different nicotine-delivery products therefore cannot be assumed to have identical risk profiles.

A legal market can be differentiated within the same pharmacological family.

Medicine: A Market That Passes Through Care

Psychoactive medicines create a different arrangement. Their legitimacy begins with a therapeutic use.

An opioid may be appropriate for severe pain. A stimulant may be prescribed for ADHD. A benzodiazepine may be useful for specific indications. Access then passes through a system of FDA approval, manufacturing standards, labeling, professional judgment, prescribing rules, controlled-substance law where applicable, insurance, pharmacies, and post-market surveillance. [8]

Those layers reduce some risks and create accountability that an illicit market lacks. They do not eliminate commercial incentives or clinical error.

A medicine can be overprescribed. A label can be misunderstood. Promotion can shape professional behavior. Patients can develop physical dependence, misuse a medicine, experience dangerous interactions, or develop a substance use disorder. FDA's boxed-warning actions on benzodiazepines explicitly preserve both sides of this reality: these drugs remain important therapeutic options, while abuse, misuse, addiction, physical dependence, and withdrawal require serious warnings. [8]

The relevant distinction is therefore not medicine versus drug. It is a drug being supplied inside a therapeutic institution that is supposed to justify and manage risk because a benefit is expected.

OxyContin: When Medical Availability and Marketing Changed the Epidemic

The American opioid crisis makes this interaction impossible to treat as theoretical.

FDA approved OxyContin, an extended-release oxycodone product, in 1995, and Purdue Pharma launched it in 1996. Prescription opioid use was already changing in the United States, but OxyContin entered that environment with intensive promotion to prescribers and rapidly expanding distribution. [9]

A 2022 Quarterly Journal of Economics study used cross-state differences in early exposure created by triplicate-prescription programs. OxyContin distribution was more than 50 percent lower in those states after launch, and overdose mortality grew substantially more slowly. The authors concluded that the introduction and marketing of OxyContin explained a substantial share of the early growth in overdose deaths. [9]

That is stronger evidence than simply observing that prescriptions and deaths rose at the same time. It still does not make OxyContin the only cause of the American opioid crisis.

Other changes mattered: evolving pain-treatment norms, prescriptions from other manufacturers, diversion, individual vulnerability, access to treatment, heroin markets, and later the rapid spread of illicitly manufactured fentanyl. The epidemic itself changed form.

But marketing was not merely an abstract possibility. Purdue and an affiliated company also faced federal criminal cases involving the sale and promotion of OxyContin. In 2020 Purdue Pharma pleaded guilty to three felony offenses, including conduct in which it admitted continuing to market opioid products to more than 100 health care providers it had good reason to believe were diverting opioids. DOJ records also note an earlier 2007 guilty plea by a Purdue affiliate for misbranding OxyContin through claims that minimized addiction, abuse, dependence, and withdrawal relative to other pain medicines. [10][11]

Those legal admissions are not evidence that every physician, patient, or opioid prescription was illegitimate. They document that a legal pharmaceutical market can contain serious commercial misconduct even while the product also has legitimate medical uses.

The lesson is narrower than "industry caused addiction." Commercial promotion, prescribing institutions, pharmacology, patient need, and market exposure can interact strongly enough to change the trajectory of a population-level drug crisis.

Legal Markets Reduce Some Risks and Can Increase Others

A legal market can remove uncertainties that are common in clandestine supply.

Products can have known composition, measured doses, manufacturer identification, recall systems, quality-control rules, package information, civil liability, and accessible health warnings. A patient or consumer is not forced to infer what is inside a sealed product from appearance or reputation alone.

Legal commercialization can simultaneously increase population exposure by making a product easier to obtain, easier to advertise, easier to normalize, or more diverse in formulation.

These effects are not contradictory.

A regulated product can be safer per unit than an unknown illicit product while still producing a large total burden because it is used by many people or used frequently. A clandestine drug can reach fewer people while exposing those users to far greater uncertainty in composition or potency.

This is why neither total deaths nor product standardization alone measures intrinsic drug risk. Population harm is produced by product, market, pattern of use, and policy together.

Cannabis: Commercialization Is a Policy Choice, Not a Single Legal Status

Cannabis adds a newer American case.

States and territories have built different medical and adult-use systems involving licenses, taxes, product rules, retail structures, local control, public-health requirements, and other restrictions. NCSL's current database tracks these differences because there is no single state model of "legal cannabis." [12]

Federal law now distinguishes among marijuana categories. Since April 28, 2026, FDA-approved marijuana-containing drug products and marijuana covered by state medical marijuana licenses are Schedule III, while other marijuana remains Schedule I. A broader rescheduling proceeding also remained active in 2026. State adult-use authorization therefore does not erase the federal-state legal conflict described in Chapter 4. [13]

Where licensed commercial markets operate, cannabis can acquire many features familiar from other legal psychoactive products: branded products, retail competition, product differentiation, repeat purchasing, advertising or promotion subject to state rules, and tax revenue.

Legal access can also shift purchases away from illicit sellers. Recent U.S. research finds that adults in legal states often purchase predominantly from licensed dispensaries while some illicit purchasing persists. [14]

This matters because "legalize cannabis" is not a complete market design. A state can choose tighter or looser rules on outlet density, advertising, product formats, potency, taxation, packaging, age verification, and local licensing.

Commercialization is therefore a second decision layered on top of legality: not only whether possession or sale is lawful, but how aggressively a market is allowed to compete for repeated use.

Chapter 13 will compare regulatory regimes more directly. Here the point is only that a legal market is designed, not discovered.

Tax, Regulate, Warn: Government Becomes Part of the Market Architecture

When a psychoactive product remains legal, government does not simply choose intervention or nonintervention. It helps construct the market.

Taxes change price. Licenses determine who may sell. Age limits determine who may legally buy. Labeling and warning rules shape information. Product standards define what can enter commerce. Prescribing rules control access through medicine. Advertising rules shape commercial speech. Enforcement determines how seriously those boundaries function in practice.

Government may also collect revenue from the product while spending money to reduce its harms.

That tension is real but does not prove that public institutions want dependence to continue. Taxation can simultaneously raise revenue and increase price. Licensing can simultaneously permit a market and constrain its size.

The analytically important question is not whether the state is "for" or "against" the product. It is which incentives, frictions, and protections the regulatory structure creates.

Who Uses the Most Matters to the Business Model

Consumers do not necessarily contribute equally to sales.

The American alcohol literature shows why this deserves direct measurement. Historical national surveys found that a relatively small group of high-volume drinkers accounted for a very large fraction of self-reported consumption. [3]

That concentration cannot simply be transferred to cigarettes, cannabis, gambling, or prescription medicines. Each market has its own distribution.

Nor should an old alcohol survey be presented as proof of the exact composition of today's market.

The question itself, however, remains essential: What share of revenue or volume comes from the heaviest users? How much would the market contract if the users experiencing the most harm successfully reduced consumption?

For products with dependence potential, the answers affect commercial incentives. A market whose revenue is highly concentrated among frequent consumers has a different relationship to harm reduction than a market dominated by occasional purchases.

This is a structural question, not an accusation of motive.

Commercialization Does Not Mechanically Cause Addiction

It would be easy to overcorrect from a purely pharmacological explanation to a purely commercial one.

People use substances for reasons described in Chapter 5: pleasure, sociability, relief, performance, curiosity, ritual, habit, or pain. Pharmacology still matters. Genetic and developmental vulnerability still matter. Family, peers, stress, treatment access, and social conditions still matter.

Industry acts on the environment through availability, price, product design, promotion, information, retail placement, and, in the case of medicines, influence within prescribing systems.

Those mechanisms can increase or decrease exposure and repetition. They do not constitute a sufficient cause of addiction in any particular person.

The distinction matters because structural analysis can become monocausal just as easily as biological analysis can.

A Legal Market Can Be Designed in Many Ways

"Legal" does not describe one regulatory system.

Between ordinary retail sale and tightly controlled medical prescribing lie public monopolies, capped licenses, outlet-density limits, age restrictions, minimum prices, excise taxes, advertising limits, potency rules, package limits, warning requirements, pharmacy-only distribution, and many other arrangements.

Alcohol, tobacco, controlled medicines, and state cannabis systems already use different combinations of these tools.

The relevant policy question is therefore not only legal or illegal. It is what kind of market exists, which forms of competition are permitted, how easy repeat purchasing becomes, and which protections remain outside the seller's commercial interest.

The existence of regulation is not proof that the optimal balance has been found. It shows that societies already recognize an intermediate space between prohibition and an unrestricted market.

Legal Does Not Mean Socially Neutral

Commercialization changes meaning as well as access.

A product sold in a grocery store, pharmacy, licensed dispensary, or stadium occupies a different symbolic space from a product purchased through an illicit market. Packaging, prescriptions, advertising, retail displays, and familiar brands can make a psychoactive substance feel ordinary even when warnings acknowledge significant risk.

The reverse will appear in the next chapter. Illicit status can make the molecule itself appear to explain every harm while

hiding harms created by uncertain composition, clandestine distribution, and the inability to use ordinary legal institutions.

Legal status therefore shapes both material access and social perception.

What We Carry Into the Illicit Market

A legal market can standardize, inform, tax, inspect, and create accountability. It can also normalize, promote, diversify products, and expand exposure.

The comparison is incomplete until we examine its mirror.

What happens when production and sale continue but ordinary quality control, contracts, labeling, formal dispute resolution, and open competition are replaced by clandestine arrangements?

What happens to product composition, price, violence, information, and enforcement when the market itself becomes illegal?

That is the subject of the next chapter: what prohibition produces.

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Chapter 10 — What Prohibition Produces

Prohibiting a substance is intended, among other things, to reduce supply, access, and use. But when demand persists, prohibition does not necessarily make exchange disappear. It changes the institutions through which exchange occurs.

A seller cannot submit an illicit product to ordinary food or drug labeling rules. A buyer cannot rely on the same manufacturing standards, recalls, warranties, or contract enforcement available in legal commerce. Suppliers and distributors must account for seizure, arrest, confiscation, secrecy, and sometimes violence. [1][4]

Those conditions do not make every illegal transaction identical, and they do not make every illicit drug market violent. They create a different environment in which information, enforcement, and dispute resolution operate through different mechanisms.

The analytical challenge is the same one that has guided the book from the beginning: do not attribute to the molecule what is produced by the market, and do not attribute to the market what is produced by the molecule.

An opioid overdose remains a pharmacological event. Receiving a much stronger opioid than the one a person intended to take adds a market-level risk. Arrest for possession adds a policy-enforcement risk. The three can occur together without being the same cause.

When the Label Disappears

In regulated commerce, a pill, vial, edible, or bottle normally has an identity, a labeled concentration, a manufacturer, and a

chain of accountability. Those safeguards do not make the substance harmless. They reduce one basic uncertainty: knowing what the product is supposed to contain.

In an illicit market, that information may be incomplete, false, or absent.

A powder sold as heroin may contain fentanyl, another opioid, or a varying mixture of active ingredients and diluents. A pill sold as oxycodone, alprazolam, or a stimulant may not contain the expected pharmaceutical product at all. Two items sold under the same street name can have different contents or potency. [2][3]

This matters even when the user's intention has not changed. A person may believe they are repeating a familiar exposure while actually receiving a different molecule or a substantially different amount.

The street name therefore stops being a reliable chemical description.

The illicit market does not create the intrinsic toxicity of an opioid. It changes the user's ability to know which opioid, concentration, or mixture is present.

Counterfeit Pills and Unintended Fentanyl Exposure

The current U.S. market makes this distinction unusually visible.

CDC distinguishes pharmaceutical fentanyl from illegally made fentanyl. Both are synthetic opioids, but most recent fentanyl-related harms and overdoses in the United States are linked to illegally made fentanyl. CDC reports that illicit fentanyl can appear as powder, be mixed into heroin, cocaine, or methamphetamine, or be pressed into counterfeit tablets that resemble medications such as oxycodone or alprazolam. [2]

DEA likewise documents counterfeit tablets made to resemble legitimate prescription opioids, benzodiazepines, or stimulants while containing fentanyl or methamphetamine. Its laboratory findings from seized pills show that fentanyl content can vary enough for some tablets to contain amounts considered potentially lethal. [3]

Seizure data are not a random sample of everything sold in the United States. They should not be converted into a national prevalence estimate. Their narrower function is enough: they demonstrate that a product can visually imitate a regulated medicine while containing a different active drug.

The appearance of pharmaceutical legitimacy can therefore survive after pharmaceutical quality control has disappeared.

That is a market-level hazard layered on top of the pharmacology of the substance itself.

Why Synthetic Drugs Change Market Logistics

Illicit supply chains must move, conceal, finance, and replace products under the risk of seizure. A high amount of pharmacological effect concentrated in a small physical volume can therefore change logistics.

Synthetic drugs can also be produced without the agricultural cycle required for opium poppies or coca. DEA's 2025 National Drug Threat Assessment emphasizes that fentanyl and methamphetamine production is not constrained by weather, crop cycles, or eradication in the same way as traditional plant-based drug production. Precursor chemicals, equipment, clandestine laboratories, transport networks, and distribution systems replace part of the agricultural infrastructure. [5]

UNODC's World Drug Report 2026 describes the global synthetic-drug market as continuing to expand and diversify. Amphetamine-type stimulant seizures reached a record 604 metric tons in 2024, dominated by methamphetamine. UNODC also identifies emerging synthetic opioids such as nitazenes and orphines as a growing source of acute emergencies in some regions, while fentanyls still account for the largest share of harm from nonmedical synthetic opioids in North America. [6]

None of this means synthetic automatically means dangerous. Modern medicine depends on synthetic chemistry. The specific risk comes from the combination of pharmacological potency, uncertain composition, changing supply, and a market that can replace one compound with another faster than consumers or institutions learn what is circulating.

Fentanyl Is Not a Mechanical Consequence of Prohibition

The logistical advantage of compact, potent products has sometimes been summarized as an "iron law of prohibition": enforcement pressure supposedly pushes illicit markets inevitably toward stronger drugs.

There is a plausible economic mechanism behind the idea. Concealing and transporting greater value or effect in less volume can be advantageous under enforcement pressure.

But the mechanism is not a universal law, and it cannot explain the American fentanyl transition by itself.

The spread of illicit fentanyl also depended on available synthesis methods, precursor supply, criminal organizations, existing opioid demand, changes in heroin and prescription-opioid markets, price, distribution choices, and the ability of suppliers to press fentanyl into powders and tablets. [5]

Current emerging-opioid evidence reinforces the need for this caution. DEA's 2025 report on nitazenes states that new analogues can appear when existing compounds become riskier to produce because of regulatory action or scheduling, but it simultaneously notes that the current U.S. nitazene threat remains small compared with fentanyl. [7]

Regulation can therefore shape incentives for substitution without uniquely determining which drug will emerge, when it will emerge, or how large the market will become.

A structural pressure is not a complete historical cause.

Price, Risk, and the Illicit-Market Premium

Part of an illegal drug's retail price can reflect costs that are not chemical manufacturing costs: seizure risk, lost shipments, concealment, laundering, legal exposure, fragmented distribution, and uncertainty. [4]

That risk premium is one of the mechanisms through which prohibition may reduce use. Higher prices, lower visibility, and greater difficulty of access can discourage initiation or reduce consumption for some people.

The same premium can also create profit opportunities for suppliers willing to accept the risks.

These effects are not contradictory. A policy can raise the cost of obtaining a drug and still leave enough demand for a profitable illicit market to persist.

This is why the existence of trafficking profits does not prove that prohibition has no effect on access, and the existence of reduced access does not prove that the illicit market has no added harms.

The relevant comparison is between bundles of effects, not slogans.

When a Market Cannot Call the Police

A legal seller can insure inventory, sue a supplier, report theft, enforce a contract, or ask a court to resolve a dispute.

Participants in an illicit market cannot normally use those institutions to protect an illegal transaction.

That does not mean that every drug deal is enforced by violence. Illegal markets also use reputation, trust, family ties, repeat dealing relationships, debt, and other informal arrangements.

But when disputes become severe, the absence of ordinary legal enforcement can increase the value of intimidation, retaliation, armed protection, and territorial control.

The Johns Hopkins-Lancet Commission reviewed evidence linking illicit drug markets and some enforcement strategies to violence while also emphasizing that patterns differ greatly across places. DEA's current threat assessments separately document violent transnational organizations and domestic distribution networks involved in U.S. fentanyl, methamphetamine, cocaine, and other markets. [4][5]

The level of violence depends on more than illegality: firearm availability, organizational structure, competition, corruption, local institutions, policing strategy, and geography can all matter.

Illegality creates one institutional condition. It does not predict one universal level of violence.

Organized Crime and Illicit Profits

Large illegal drug markets can generate revenue for organizations engaged in other criminal activity, including money laundering, extortion, weapons offenses, corruption, and violence.

It would be inaccurate to treat every low-level seller as a member of a cartel. Drug markets include independent sellers, local groups, family networks, retail crews, wholesalers, and large transnational organizations.

At the higher levels of the current U.S. synthetic-drug market, DEA identifies major Mexican cartels and their procurement, financial, trafficking, and domestic distribution networks as dominant suppliers of illicit fentanyl and methamphetamine. [5]

The policy-relevant distinction is not between a "bad molecule" and a "bad person." It is that persistent demand for a prohibited product can create a valuable market outside legal commerce, and some of that value can strengthen organizations whose activities extend beyond drug sales.

This is a social harm produced through market structure rather than through the drug's receptor pharmacology.

Enforcement and Adaptation: A Market That Learns

Illicit markets respond to pressure.

A disrupted route may be replaced. A seized shipment may be written off as a cost. A controlled precursor may be substituted. A newly scheduled drug can be replaced by an analogue. Distribution can shift toward encrypted messaging, social media, parcel systems, or different geographic hubs. [5][7]

DEA's nitazene report provides a concrete contemporary example: it states that chemical suppliers can introduce new nitazenes or analogues when existing ones become more

difficult or risky to produce because of regulatory action and scheduling. [7]

This does not make enforcement useless.

A seized shipment does not reach the intended customers. A laboratory closure can interrupt production. A precursor restriction can raise costs. An arrest can disrupt a particular network. Those are real outcomes.

But a local disruption and a durable reduction in total supply are different endpoints.

Evaluation therefore has to continue through time. Did the intervention reduce availability? Did supply return? Did another drug replace the first? Did production move? Did prices or purity change? Did violence increase or decline?

Interruption, displacement, substitution, and sustained reduction should not be treated as the same result.

Clandestine Markets and Imperfect Information

The buyer in an illegal market also loses protections that normally exist after a product reaches the consumer: batch recalls, mandatory ingredient labels, manufacturer complaints, routine quality standards, and accessible product-liability systems.

Harm-reduction programs try to recreate part of that missing information without pretending to recreate a regulated market.

CDC notes that fentanyl test strips can detect fentanyl in many drug samples and may reduce uncertainty about unintended fentanyl exposure. CDC also warns that a negative result does not guarantee safety and that test strips may fail to detect some other highly potent fentanyl-like compounds. [2]

Drug checking, alerts, and forensic surveillance can serve a related function: identify what is circulating and communicate emerging risks.

CDC's 2026 expansion of Traceable Opioid Material reference kits for laboratories reflects how rapidly forensic and public-health systems now need to identify fentanyl compounds, synthetic opioids, and other emerging drugs of concern. [8]

These tools do not make illicit consumption safe.

They demonstrate a narrower point: information about composition has health value independently of whether the underlying behavior is approved, condemned, or illegal.

Choosing to use one drug is not the same as consenting to receive another drug unknowingly.

Prohibition Can Also Reduce Some Use

An audit of prohibition has to retain the effects it is intended to produce.

Criminal prohibition can reduce visibility, raise prices, limit ordinary retail access, create inconvenience, and communicate a strong social norm. Those barriers can deter some initiation or reduce use among some people.

The Johns Hopkins-Lancet Commission, despite emphasizing many health harms associated with enforcement-centered prohibition, explicitly discussed the argument that high illicit-market prices and barriers to access can reduce drug use and dependence for some populations. [4]

The size of that effect is difficult to isolate because policy regimes change many variables at once.

This prevents a false comparison. A real illicit market should not be compared with an imaginary legal market that has the

same price, availability, advertising, product range, and prevalence of use.

Changing legal status changes the market.

The policy problem is therefore comparative: which harms are prevented by barriers to access, which harms are created or amplified by clandestine market conditions, and which objectives matter most in the jurisdiction being considered?

That question cannot be answered from the molecule alone.

Product, Market, and Enforcement: Three Sources of Harm

At this stage, three layers need to remain separate.

The product and pattern of use can cause intoxication, toxicity, dependence, and overdose.

The illicit market can add uncertain composition, counterfeit products, weak quality control, clandestine dispute resolution, and some forms of organized-crime financing.

The enforcement system can add arrest, sentencing, incarceration, criminal records, police encounters, seizure, and other institutional consequences.

The layers interact. They should not be collapsed.

Two jurisdictions can prohibit the same substance while using very different enforcement intensity. A jurisdiction can criminalize trafficking while removing criminal penalties for personal possession. A substance can remain illegal while harm-reduction programs expand information and treatment.

This distinction is what opens the next chapter.

We now move from what happens to the market under prohibition to what happens to people and institutions when the prohibition is enforced.

Notes and Sources

[1] United Nations Office on Drugs and Crime, World Drug Report 2026, searchable findings and market analyses. Used for current global evidence on synthetic drug expansion, amphetamine-type stimulant seizures, emerging synthetic opioids, and market adaptation. The report documents record ATS seizures of 604 metric tons in 2024 and identifies fentanyls, nitazenes, and other synthetic opioids as evolving concerns.

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[2] Centers for Disease Control and Prevention, Fentanyl, June 9, 2025. Distinguishes pharmaceutical from illegally made fentanyl; documents fentanyl in powders and counterfeit pills, possible mixing with heroin, cocaine, and methamphetamine, and the limitations of fentanyl test strips.

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[4] Johns Hopkins-Lancet Commission on Drug Policy and Health, Public Health and International Drug Policy, 2016. Used descriptively for evidence on unregulated illegal markets, adulteration, violence, policing-related harms, and the countervailing argument that high prices and access barriers under prohibition can reduce some use. The Commission's overall policy verdict is not adopted here.

https://pmc.ncbi.nlm.nih.gov/articles/PMC5042332/

[5] Drug Enforcement Administration, 2025 National Drug Threat Assessment. DEA describes the U.S. illicit synthetic-drug market, major trafficking organizations, counterfeit pills, precursor supply, and the logistical flexibility of fentanyl and methamphetamine production relative to crop-dependent drugs.

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[6] United Nations Office on Drugs and Crime, World Drug Report 2026 findings on synthetic markets and new psychoactive substances. Fentanyls remain the largest share of harm from nonmedical NPS synthetic opioids in North America, while nitazenes and orphines have produced acute emergencies and fatalities in multiple settings.

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[7] Drug Enforcement Administration, State and Territory Report on Enduring and Emerging Threats: Nitazenes, September 2025. DEA reports that nitazenes remain a much smaller U.S. threat than fentanyl but that new analogues may be introduced as scheduling and regulatory actions change production risk.

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[8] Centers for Disease Control and Prevention, Traceable Opioid Material Kits, updated August 4, 2026. CDC laboratory reference materials support detection and identification of fentanyl compounds, synthetic opioids, and other emerging drugs of concern.

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Chapter 11 — The Price of the War on Drugs

The previous chapter examined what happens to a market when production and sale move outside ordinary legal commerce. This chapter changes the object again. It focuses on the institutions used to enforce prohibition: police, prosecutors, courts, probation, sentencing systems, jails, prisons, and the consequences that can continue after a sentence ends.

That distinction is essential. An arrest is not a pharmacological effect. A criminal record is not a property of cocaine. A prison term is not caused by cannabis chemistry. Those consequences arise because laws define conduct as criminal and institutions are mobilized to investigate, prosecute, and punish it.

That does not by itself establish that enforcement is unjustified. Drug-law enforcement can pursue concrete objectives: disrupt trafficking organizations, seize dangerous products, remove weapons, deter some participation in illicit markets, or increase barriers to supply.

It can also create costs of its own.

The phrase war on drugs will therefore be used here as a historical and political label for enforcement-centered strategies, not as a claim that every drug law, every jurisdiction, or every police practice is identical.

When Drug Control Becomes a Large Criminal-Justice System

The United States does not have one drug-enforcement system. It has overlapping federal, state, tribal, territorial, county, and municipal systems with different statutes, priorities, penalties, and data practices.

FBI arrest data make the scale of police contact visible. For 2024, the FBI estimated 822,488 arrests for drug-abuse violations nationwide. In the FBI's drug-arrest distribution table, about 87.7 percent of those arrests were classified as possession and 12.3 percent as sale or manufacturing. [1]

That statistic is an arrest measure, not a conviction or incarceration measure. One person can be arrested without being convicted; a case can be dismissed, diverted, reduced, or sentenced without prison. It also reflects reporting practices across thousands of agencies rather than a single national penal code.

The prison picture is different.

Bureau of Justice Statistics data show that at yearend 2022, the most recent year with detailed state-prison offense data in its 2025 report, 62 percent of people sentenced to more than one year in state prison were serving time for a violent offense. About 13 percent were serving time for a drug offense, and 3.6 percent for drug possession as the most serious offense. [2]

Federal prisons look different again. At September 30, 2023, 45 percent of sentenced federal prisoners were serving time for a drug offense. But recent federal sentencing data show that federal drug prosecutions are overwhelmingly trafficking cases rather than simple-possession cases. In fiscal year 2025, 16,144 of 16,234 federal drug cases reported by the U.S. Sentencing Commission involved drug trafficking. [2][3]

The same phrase drug enforcement therefore describes very different layers: large numbers of possession arrests at state and local levels, a smaller state-prison share centered more broadly on serious offenses, and a federal caseload dominated by trafficking.

Any analysis that combines these layers into one number loses the institutional structure it is trying to explain.

Possession, Trafficking, and Role Are Not the Same Offense

Drug possession for personal use, low-level retail selling, transportation, wholesale distribution, manufacturing, importation, money laundering, leadership of a trafficking organization, and violence used to protect a market are not interchangeable behaviors.

The law often distinguishes them, but legal labels can still cover wide ranges of responsibility.

Federal sentencing data illustrate that variation inside the category drug trafficking. In FY2025, 16 percent of federally sentenced drug-trafficking defendants received a guideline reduction for minor or minimal participation, while 7 percent received an increase for a leadership or supervisory role. Thirty-two percent received a weapon-related increase. [3]

Those categories do not tell the entire story of a person's conduct, but they demonstrate why the word trafficker should not be treated as a precise description of role.

The same principle applies outside federal court. A courier, a local seller, a wholesaler, and a violent organization leader can all participate in distribution while occupying very different positions, earning different profits, and creating different harms.

Proportionality therefore requires more than asking whether a drug offense occurred. It requires attention to conduct, quantity, violence, coercion, profit, role, prior record, and the consequences actually produced.

That statement does not determine the appropriate sentence. It defines the information needed before a sentence can be evaluated.

Federal Sentencing Is Not the Same as State Drug Enforcement

Federal sentencing is unusually visible because the U.S. Sentencing Commission publishes detailed national data. It should not be mistaken for the entire American system.

In FY2025, drug trafficking accounted for about one quarter of the federal sentencing caseload. Ninety-seven percent of people sentenced for federal drug trafficking received a prison sentence, and the average sentence was 87 months. Fifty-six percent were convicted of an offense carrying a statutory mandatory minimum penalty, although a substantial share received statutory relief. [3][4]

The drug mix also differed sharply by substance. Methamphetamine made up 47 percent of federal trafficking cases, fentanyl roughly one quarter, and powder cocaine about one fifth; marijuana and heroin represented much smaller shares. [3]

State law can look very different. States define possession, distribution, diversion eligibility, probation, sentencing ranges, cannabis offenses, and treatment alternatives through their own statutes.

This federal-state split matters throughout the chapter. A national statement about federal mandatory minimums cannot automatically describe a state possession case. A state cannabis reform cannot by itself change federal scheduling or federal trafficking law.

The Sentence Does Not End All Consequences

A criminal sentence has direct components: imprisonment, jail, probation, supervised release, fines, treatment conditions, or other court orders.

A conviction can also trigger collateral consequences that are not formally part of the sentence.

The National Inventory of Collateral Consequences of Conviction, developed with support from the National Institute of Justice and Bureau of Justice Assistance, documents restrictions across employment and occupational licensing, housing, public benefits, education, property rights, family relationships, civic participation, and other areas. The exact consequences depend on the offense and jurisdiction. [5]

That variation is important. A drug conviction does not create the same legal disability in every state, and some restrictions have exceptions, time limits, waivers, or relief procedures.

The broader point remains: the practical cost of a conviction can continue after the jail or prison term, and it can affect family members as well as the person sentenced.

A proportionality analysis therefore has to ask not only what sentence appears on the judgment, but what durable legal and social consequences follow from the conviction.

Release From Jail or Prison Can Be a High-Risk Health Transition

Incarceration can interrupt drug use, reduce access, or change patterns of use. For people with opioid use disorder, it can also reduce physiological tolerance.

The period immediately after release can therefore be dangerous if opioid use resumes.

Recent U.S. studies show how large that risk can be in particular settings. A 2024 Minnesota study followed 99,065 people released from jails and prisons in 2020-2021. After adjustment for age and gender, overdose mortality among people released from jail was estimated at 15.5 times the Minnesota general-population rate; among people released from prison it was 28.3 times the general-population rate. Drug overdose was the leading cause of death after release in that cohort, and opioids were the leading drugs involved. [6]

An Oregon cohort covering prison releases from 2014-2017 found that fatal and nonfatal opioid-overdose rates were highest in the first two weeks after release. [7]

Those are state-specific cohorts from defined periods, not national constants. Their value is clinical and descriptive rather than rhetorical: they document a high-risk transition in which reduced tolerance, unstable access to treatment, return to a changed illicit supply, and social disruption can combine.

Prison can temporarily stop a pattern of consumption without treating the condition that made use difficult to control.

Treatment During Incarceration and Reentry Can Change the Risk

The health outcome of incarceration depends partly on what happens during custody and during the transition back to the community.

Medication for opioid use disorder - including methadone, buprenorphine, and naltrexone when clinically appropriate - can be delivered in correctional settings and linked to community treatment after release.

Federal practice has expanded substantially. Bureau of Justice Statistics reported that 12,479 people in Federal Bureau

of Prisons custody received FDA-approved medication-assisted treatment for a substance use disorder during 2024, more than twice the 2023 number. [8]

That does not establish universal access across U.S. prisons and jails. State and local correctional systems vary widely.

The Department of Justice has also used the Americans with Disabilities Act in specific jail cases to require individualized access to medications for opioid use disorder rather than blanket discontinuation. [9]

The distinction is important. Forced interruption of medication, untreated withdrawal, initiation of treatment, and continuity of an existing treatment are not the same correctional policy.

Continuity of care is therefore part of the penal system's health effect, not an issue that begins only after release.

Criminalization, Stigma, and Access to Care

Drug law can affect health before a conviction occurs.

CDC guidance has long identified fear of arrest, prosecution, or stigmatization as a potential barrier to HIV, hepatitis, syringe-service, and substance-use treatment services among people who use illegal drugs. [10]

More recent U.S. qualitative research shows that the mechanism can persist even under partial reform. In interviews with people who use drugs in Oregon during the state's decriminalization period, participants described mistrust of law enforcement as a barrier to police-mediated services and reported continuing unpredictability in policing. [11]

A 2026 Baltimore study of women who use drugs similarly found that material insecurity and repeated police interaction

remained intertwined even during a period of reduced enforcement for some low-level offenses. [12]

These studies do not prove that police contact always reduces treatment access. They show that legal exposure, trust, confidentiality, housing status, and the design of police-health interfaces can change whether a service feels safe to use.

The effect is therefore institutional and contextual, not universal.

Disparities Are Real Measurements, but Their Causes Must Be Tested

Equal wording in a statute does not guarantee equal exposure to stops, searches, arrests, charging decisions, plea bargaining, probation, or imprisonment.

In federal sentencing, the U.S. Sentencing Commission has found demographic differences even after controlling for many available offense and personal characteristics. In its analysis of fiscal years 2017-2021, Black males sentenced for drug trafficking were 35.2 percent less likely than White males to receive probation only, while Hispanic males were 33.8 percent less likely. Among those imprisoned for drug trafficking, differences in sentence length were much smaller: Black males received terms 1.2 percent longer and Hispanic males 1.2 percent shorter than White males in the Commission's model. [13]

Those findings describe statistical associations in a defined federal period. They do not by themselves identify the cause of the differences or prove discriminatory intent in an individual case.

The racial composition of current federal drug cases also varies greatly by drug type, geography, citizenship, prior record,

weapon involvement, and other case characteristics. Descriptive percentages should not be converted into an explanation without analysis. [3]

The proper question is therefore not only whether a disparity exists, but at which stage it emerges, what variables explain part of it, what remains unexplained, and whether the pattern changes after reform.

Gender, Vulnerability, and Role Must Also Be Separated

Gender adds another layer of heterogeneity.

In FY2025, drug trafficking was the most common offense type among federally sentenced women, accounting for about 32 percent of women's federal cases. At the same time, 71 percent of federally sentenced women had little or no prior criminal history. [14]

Those facts do not establish that women in drug cases are generally low-level couriers, coerced participants, or economically vulnerable. That inference would require case-specific evidence.

They do show why role should be measured rather than assumed.

Across all federal drug-trafficking cases in FY2025, some defendants received reductions for minor or minimal participation while others received enhancements for leadership or weapons. The same legal offense category can therefore contain very different degrees of power and responsibility. [3]

Vulnerability, poverty, coercion, caregiving responsibilities, prior victimization, and economic dependence may matter in an individual case. None should be inferred automatically from sex or gender.

The analytical protection is the same as elsewhere in the book: category is not biography.

Enforcement Can Change the Violence of a Market

Police intervention can alter a drug market as well as remove particular participants.

A systematic review published in 2011 examined fifteen studies of drug-law enforcement and drug-market violence. Fourteen reported an adverse association, and ten of eleven longitudinal analyses found a significant association between increased enforcement and increased violence. The authors interpreted the pattern as consistent with market destabilization: removing actors can create competition over newly available territory or positions. [15]

This literature is old, largely observational, and highly dependent on the markets studied. It should not be converted into a rule that every arrest increases violence.

It does establish a testable secondary effect that enforcement evaluations should measure rather than assume away.

A raid can remove violent actors and still create a succession conflict. Another intervention can reduce violence. Outcomes depend on market structure, replacement dynamics, weapons, organizational cohesion, geography, and policing strategy.

The Institutional Opportunity Cost

Enforcement consumes resources: investigation, surveillance, arrests, laboratories, prosecution, public defense, courts, probation, detention, incarceration, and reentry services.

The existence of those costs is not an argument by itself against enforcement. Every public policy uses scarce resources.

The relevant concept is opportunity cost. A police hour, a prosecutor's case load, a court date, or a prison bed used for one category of offense cannot be used simultaneously for another.

This is why the distinction between possession and trafficking matters again. In 2024, possession accounted for most drug arrests in FBI data, while federal prosecution concentrated overwhelmingly on trafficking. The systems are allocating enforcement resources to different stages of the market. [1][3]

Whether that allocation is justified depends on what outcomes it produces: reduced supply, reduced violence, deterrence, safer communities, or other stated objectives.

A dollar amount alone cannot answer that question.

What Enforcement Can Actually Accomplish

Listing costs is not an evaluation unless intended benefits are measured too.

Enforcement can seize a shipment that otherwise would have been sold. It can close a laboratory, arrest a violent distributor, recover firearms, disrupt money laundering, raise operating costs, or temporarily reduce availability.

Federal data also show that current trafficking cases are not all low-level. In FY2025, nearly one third of federal drug-trafficking defendants received a weapon enhancement, and a subset received leadership or supervisory enhancements. [3]

At the same time, the same data show minor or minimal participants and many people with little or no prior criminal history.

The word success therefore needs a target and a time horizon.

Did the intervention remove a violent organization or mainly replace it? Did overdose risk fall? Did price rise? Did a different substance take the first drug's place? Did violence move to another neighborhood? Were the people arrested the highest-harm actors or simply the easiest to detect?

An enforcement strategy can succeed on one objective and fail on another.

Criminal Law Contains More Than Imprisonment

Another false binary treats the policy menu as either full prohibition with imprisonment or no legal response at all.

In the federal system, mandatory-minimum statutes coexist with safety-valve relief, substantial-assistance provisions, probation in eligible cases, supervised release, treatment conditions, and other mechanisms. In FY2025, about one third of people convicted of offenses carrying mandatory minimums received some form of relief from the otherwise applicable penalty. [4]

States and localities add diversion programs, specialty courts, civil penalties, decriminalized possession regimes, treatment referrals, and other alternatives, with highly variable eligibility rules and evidence.

International drug-control conventions also leave room for alternatives to conviction or punishment in appropriate cases. WHO and UNODC have published guidance on treatment and care for people with drug-use disorders in contact with the criminal-justice system, including alternatives for lower-severity cases and safeguards against coercive treatment. [16]

The existence of alternatives does not establish that any particular alternative is effective.

It establishes that criminalization, conviction, incarceration, treatment, and public-health response are separable policy choices rather than one indivisible package.

The Penal Ledger Does Not Decide the Policy by Itself

This chapter has not established that all drug-law enforcement is counterproductive, and it has not established that enforcement costs are negligible.

It has separated causal layers.

A substance can cause pharmacological harm.

An illicit market can add uncertainty, counterfeit products, and some forms of violence.

The enforcement system can add arrests, prosecution, imprisonment, collateral consequences, disparities, and institutional costs.

The same enforcement system can also seize products, disrupt supply, incapacitate violent actors, recover weapons, and raise barriers to market participation.

A coherent evaluation therefore has to ask which harms are prevented, which harms are created, who bears them, how long the effects last, and what alternative instruments are available.

That distinction prepares the next chapter.

When a person has a substance use disorder, what exactly should intervention aim to do: punish an offense, treat the disorder, prevent immediate death, reduce infectious disease, restore functioning, protect third parties, or combine several of those goals?

Those are different functions.

The next chapter examines what happens when punishment gives way - partly or fully - to care and harm reduction.

Notes and Sources

[1] Federal Bureau of Investigation, Crime in the United States, 2024, arrest tables. The FBI estimated 822,488 arrests for drug-abuse violations in 2024; its drug-arrest distribution table classified 87.7% as possession and 12.3% as sale/manufacturing. Arrests are police events, not convictions or prison sentences.

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[3] U.S. Sentencing Commission, Drug Trafficking Quick Facts and 2025 Annual Report. FY2025: 16,144 federal drug-trafficking cases; 97% received prison; average sentence 87 months; 44% had little or no prior criminal history; 32% received a weapon enhancement; 7% leadership/supervisory enhancement; 16% minor/minimal role reduction.

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Chapter 12 — Punish, Abandon, or Treat?

Drug policy is often presented as a choice between two images. In the first, the person has violated a rule and should be deterred or punished. In the second, the person is sick and should be treated.

That opposition is too simple.

A person can use a drug without having a substance use disorder. Another can have a severe opioid use disorder. A third may be at high immediate risk of overdose while not ready to enter treatment. A fourth may have a substance use disorder and also commit an act that directly harms someone else.

User, patient, person with a substance use disorder, and person charged with an offense therefore describe different dimensions. They can overlap. They are not synonyms.

The useful question is not simply whether to punish or treat. It is: what problem is the intervention supposed to solve?

Use Does Not Automatically Mean Disorder

Clinical treatment begins with diagnosis and assessment, not with the legal status of the substance.

WHO and UNODC treatment standards state that drug-use disorders require appropriate clinical assessment. The mere fact that a person has used a controlled or illegal substance does not establish a disorder. [1]

American diagnostic language leads to the same distinction. As Chapter 7 showed, substance use disorder is diagnosed from a pattern of impaired control, risky use, social impairment, and pharmacological criteria across a continuum of severity - not from the existence of one episode of use.

This protects against two opposite mistakes.

The first is medicalizing every illegal drug user as a patient. The second is treating a severe addictive disorder as nothing more than a sequence of bad decisions.

A functioning system may therefore need prevention and information for some people, brief intervention for others, structured treatment for people with a disorder, emergency protection for people at acute risk, and a separate legal response when conduct harms other people.

One label cannot perform all of those functions.

Treat What, Exactly?

Saying "treatment" is not enough. Treatment needs a target.

For opioid use disorder, goals can include reducing overdose risk, suppressing withdrawal and craving, reducing nonmedical opioid use, retaining the person in care, and improving health and functioning.

For stimulant, alcohol, sedative, cannabis, or other substance use disorders, the mix of evidence-based interventions is different. Psychosocial treatment, medications where evidence and approval support them, management of co-occurring psychiatric or medical problems, sleep, pain, housing, and social support may all matter.

WHO and UNODC emphasize individualized, evidence-based treatment rather than one therapy applied to every substance and every patient. [1]

This matters because use often has a function. Removing a drug that was being used to manage pain, panic, insomnia, withdrawal, or trauma-related distress without addressing that function can leave the pressure for use intact.

Treatment is therefore not simply the absence of a molecule from the body. It concerns the disorder, the risks around it, the person's goals, and the conditions that make sustained change possible.

For Opioid Use Disorder, Medication Can Be the Treatment

Opioid use disorder is especially important because it exposes a persistent misconception: treating addiction does not necessarily mean immediately removing every opioid-receptor agonist from the person's body.

Methadone and buprenorphine can stabilize opioid signaling, reduce withdrawal and craving, and reduce nonmedical opioid use when delivered as treatment. Naltrexone follows a different pharmacological strategy as an opioid antagonist. All three are FDA-approved medications for opioid use disorder in the United States. [2][3]

Large systematic reviews consistently find substantially lower mortality during opioid agonist treatment with methadone or buprenorphine than during periods out of treatment, while also showing that induction and treatment discontinuation are clinically important risk periods. [4]

Calling this "replacing one drug with another" misses the central difference between the exposures. A stable, clinically managed medication with known composition and dose is not the same exposure as repeated use of an illicit opioid supply with uncertain content, fluctuating potency, and intermittent availability.

The medications are not risk-free. Methadone can cause dangerous sedation or respiratory depression, especially during induction or when combined with other depressants.

Buprenorphine can be misused or diverted. Treatment therefore still requires clinical judgment and monitoring.

Their therapeutic status comes from evidence about outcomes, not from the fact that they cease to be pharmacologically active opioids.

The U.S. Treatment System Makes the Distinction Concrete

The United States regulates these medications through different pathways.

Methadone used to treat opioid use disorder remains federally tied to certified Opioid Treatment Programs. The 2024 revision of 42 CFR Part 8 expanded flexibility inside that system: it reduced outdated admission barriers, incorporated harm-reduction principles and shared decision-making, allowed greater clinical discretion for take-home doses, and expanded some telehealth pathways. The compliance date was October 2, 2024. [5][6]

The rule did not make ordinary outpatient methadone prescribing for OUD generally available outside the OTP structure. Methadone ordered for OUD is still dispensed through an OTP or an authorized medication unit under the federal framework. [6]

Buprenorphine follows a different path. Congress eliminated the federal DATA 2000 waiver requirement - commonly called the X-waiver - at the end of 2022. Practitioners with appropriate controlled-substance prescribing authority no longer need that separate waiver merely to prescribe buprenorphine for OUD, although ordinary professional, DEA, and state requirements still apply. [7]

These differences are not pharmacological trivia. They determine where treatment can be started, how often a patient

must interact with a program, how travel and employment fit around care, and how much friction exists between wanting treatment and receiving it.

Treatment policy can therefore change outcomes partly by changing access, not only by changing the medication.

Prevent Death Before Solving the Whole Disorder

Harm reduction begins from a different question: what can prevent an avoidable injury or death even if substance use continues today?

Naloxone is the clearest example. It is an opioid antagonist that can rapidly reverse life-threatening opioid overdose. It does not treat opioid use disorder, eliminate withdrawal, or resolve the reasons a person uses opioids. It can keep a reversible overdose from becoming a death. [8][9]

That distinction is the point.

The United States has progressively moved naloxone closer to ordinary public access. FDA approved the first over-the-counter naloxone nasal spray in 2023 and, in June 2026, approved another 4-mg OTC intranasal naloxone product. CDC states that naloxone is available in all 50 states and can be obtained over the counter, through pharmacies, community programs, and many syringe services programs. [8][9]

Naloxone's action is temporary, and emergency medical care can still be necessary because opioid toxicity can outlast the reversal. But the outcome being targeted is unusually clear: survive the overdose.

There is no necessary contradiction between naloxone and treatment. The first can preserve the possibility of the second.

Sterile Syringes Reduce a Harm That Is Not the Drug Itself

Injection makes another distinction visible.

HIV, hepatitis C, bacterial endocarditis, and other infections are not inevitable pharmacological effects of heroin, fentanyl, or methamphetamine. They can be transmitted or amplified through shared syringes and contaminated injection equipment. [10]

Syringe services programs act directly on that pathway by providing sterile equipment and safer disposal while often also offering HIV and hepatitis testing, vaccination, wound care, naloxone, and linkage to treatment.

CDC states that comprehensive SSPs are associated with an estimated 50 percent reduction in HIV and hepatitis C incidence. It also summarizes nearly three decades of research finding that SSPs do not increase illegal drug use or crime. [10][11]

Those claims should not be inflated. A sterile syringe does not make injecting an opioid safe. It does not prevent every infection or every overdose. The program reduces particular harms that arise through the method of use and can create a point of contact with health services.

The policy choice is therefore not whether to call injection acceptable. It is whether an avoidable infection should be allowed to function as part of the deterrent environment.

Fentanyl Test Strips: Information Before Consumption

Fentanyl test strips apply the same logic to uncertain drug composition.

CDC states that fentanyl test strips can detect fentanyl in many drug samples and may help people identify unintended fentanyl exposure. They cannot determine an exact concentration, and a negative result does not establish that a

sample is safe; some potent fentanyl-like compounds may not be detected. [12]

Their function is therefore limited but real: convert part of an invisible composition risk into information before consumption.

That is not the same as quality control in a regulated pharmaceutical market. A test strip cannot identify every active ingredient or guarantee dose uniformity.

It does show why harm reduction and treatment answer different questions. A person can receive information about an immediate risk whether or not they currently meet criteria for a substance use disorder and whether or not they intend to stop using the drug.

Harm Reduction Is Not Abandonment

Harm reduction is sometimes described as giving up on recovery: if abstinence cannot be achieved immediately, the system merely makes drug use easier.

That description does not match how major U.S. public-health agencies define the approach.

CDC links syringe services, naloxone, fentanyl test strips, infectious-disease care, and same-day connection to substance-use treatment within the same prevention continuum. SAMHSA's harm-reduction framework emphasizes accessible, noncoercive support and connection to multiple pathways of health and recovery. [10][13]

The sequence matters. Protection is not made conditional on first proving abstinence.

A syringe can prevent an infection today. Naloxone can reverse an overdose tonight. A test strip can reveal fentanyl before use. The same contact can then provide treatment,

medical care, peer support, or recovery services if the person wants them.

Protecting someone while they continue to use does not make a claim that the use is harmless. It refuses to make preventable injury the price of eligibility for help.

Abstinence Can Be a Goal Without Being the Only Measure of Success

For some people, complete abstinence is the chosen and appropriate goal. For some disorders or individual histories, any return to a particular substance may carry high risk.

Other clinically meaningful improvements can occur before or without total abstinence: fewer episodes of use, elimination of injection, ending dangerous drug combinations, stable medication treatment, lower overdose risk, better physical health, restored housing or employment, improved relationships, and sustained engagement in care.

SAMHSA describes recovery as highly personal and occurring through many pathways. Its framework includes abstinence from alcohol or nonprescribed drugs as one possible element for people with addiction, while also defining recovery through health, home, purpose, community, and person-driven change. [14]

This does not mean every outcome is equally good.

It means that one binary measure - any drug detected versus none - can miss changes that matter clinically.

Abstinence can remain a serious goal without becoming a prerequisite for receiving care, naloxone, sterile equipment, or respect.

Consent Changes the Nature of Treatment

Treatment can itself become harmful when the word care is used to hide coercion, humiliation, or interventions unsupported by evidence.

WHO and UNODC standards place dignity, confidentiality, evidence-based practice, and informed participation at the center of treatment. SAMHSA's current OTP regulations similarly emphasize shared decision-making and patient-centered care. [1][5]

These principles matter because substance use treatment can involve unusually strong power differences: controlled medications, courts, probation, incarceration, child-custody consequences, housing requirements, or access to benefits.

A clinically appropriate treatment accepted through informed decision-making is not the same institutional act as a nominal treatment imposed as punishment.

This does not mean that every treatment episode in the United States is fully voluntary.

The relevant questions are concrete: What choices actually exist? Is the intervention evidence-based? Can medication be withheld for refusing counseling? Is confidentiality protected? What happens if the person disagrees with the treatment plan?

Coercion Still Exists in Real Systems

American criminal courts can require substance-use testing and treatment as conditions of pretrial release, probation, supervised release, or other forms of judicial supervision. Federal court guidance explicitly describes treatment and testing conditions that can be imposed in the criminal-justice system. [15]

Drug courts and diversion programs can also offer treatment as an alternative to ordinary prosecution or sentencing. Such arrangements can expand access to care, but the degree of choice varies when refusal may expose a person to detention, conviction, or a longer sentence.

The existence of legal leverage does not make the treatment ineffective by definition. Nor does calling the intervention treatment remove the coercion.

Evaluation therefore needs more than the label therapeutic. It should distinguish clinical effectiveness, procedural fairness, access to evidence-based medications, proportionality of sanctions, and how much meaningful choice the participant actually has.

Medicalizing a criminal-justice response does not automatically eliminate questions of power.

Treat the Disorder Without Turning the Person Into the Disorder

Moving from criminal language toward medical language can reduce some forms of stigma. It can also create a different reduction: the person becomes nothing but a patient.

Substance use disorder is a condition a person can have. It is not the person's entire identity.

Recovery can include relationships, family roles, work, housing, meaning, community, health, responsibility, and preferences about treatment. SAMHSA's recovery framework emphasizes precisely these dimensions. [14]

Language matters because stigmatizing labels can influence whether people seek treatment and how professionals interpret their behavior.

Recognizing a disorder as treatable does not erase responsibility for harms done to other people. It separates treatment of the disorder from condemnation of the whole person.

Treat the Environment as Well as the Symptom?

Individual treatment occurs inside an environment.

Unstable housing, untreated pain, psychiatric symptoms, violence exposure, social isolation, unemployment, transportation barriers, and continuous contact with high-risk drug markets can make recovery harder.

Those conditions do not explain every substance use disorder, and correcting them is not a guaranteed cure. Chapter 7 rejected that kind of monocausal reasoning.

They can still alter the probability that treatment is started, retained, and translated into a stable life.

This is one reason current U.S. opioid-treatment regulation increasingly emphasizes patient-centered plans, take-home flexibility, telehealth, and practical barriers such as transportation and employment. [5][6]

The clinically relevant unit is therefore not only the medication or counseling session. It can include the conditions required for a person to keep receiving and using the treatment.

Punishing Harm Is Not the Same as Treating Addiction

A person with a substance use disorder can also commit acts that create independent reasons for legal intervention: assault, impaired driving, theft, exploitation, reckless endangerment, or participation in a trafficking offense.

Recognizing addiction as a health condition does not make those acts disappear from criminal law.

The useful distinction is functional.

A criminal sanction responds to an offense and to the legal goals assigned to punishment.

Treatment responds to a health disorder.

Harm reduction responds to an immediate or preventable risk.

The same person can be involved in all three systems at once.

Confusing the functions produces poor evaluation. A prison term should not be declared medically successful merely because forced abstinence occurred during confinement. A treatment program should not be judged solely by whether a participant never commits another offense, because criminal behavior has determinants beyond the treatment target.

The intervention should be evaluated against the problem it is actually designed to change.

A Health Response Does Not Resolve the Entire Drug-Policy Question

A strong treatment system does not answer every question in drug policy.

Even if everyone with a substance use disorder could obtain excellent care, a society would still have to decide who may manufacture and sell psychoactive substances, which products are permitted, how potency is regulated, what age limits apply, what advertising is allowed, how prices and taxes are set, and what happens to illicit supply.

Harm reduction can reduce deaths and infections without changing the legal status of a drug.

Treatment can improve the life of a person with opioid use disorder without dismantling a trafficking organization.

Decriminalizing possession can reduce some criminal penalties while leaving production and sale illegal.

We therefore need to keep two levels separate: what do we do with the person, and what do we do with the product and its market?

This chapter addressed the first.

The next examines the second by comparing real jurisdictions that changed their regimes through decriminalization, controlled medical supply, or regulated legal markets.

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Chapter 13 — What Happens When We Regulate Differently?

Public debate often compresses drug policy into a binary: prohibition or legalization. That framing erases most of the institutional space in between.

A jurisdiction can keep production and sale illegal while removing criminal penalties for personal possession. It can replace a criminal offense with a civil or administrative response. It can authorize a medicine derived from a prohibited substance. It can prescribe, under strict conditions, the same molecule that circulates illegally outside medicine. It can legalize adult sale while restricting advertising, age, outlet density, packaging, product forms, or potency.

These arrangements do not create the same market or the same relationship between the user and the state.

The question of this chapter is therefore not "Does legalization work?" It is: what part of the system changed, which mechanism was supposed to change with it, what outcomes were observed, and what new risks or tradeoffs appeared?

Decriminalization Is Not Legalization

The first distinction is legal.

Decriminalization usually removes or reduces criminal penalties for a behavior such as possession for personal use. Production and commercial supply can remain illegal.

Legalization changes another boundary: conduct that had been prohibited becomes permitted under defined conditions. When legal supply is created, the reform can change product

standards, retail access, licensing, taxation, competition, and the destination of market revenue.

Those mechanisms are different.

If possession is decriminalized while supply remains illegal, the user may have less contact with the criminal-justice system while still buying from an unregulated market. If production and sale are legalized, the source of the drug can move into a regulated commercial or medical system.

Using one word for both reforms makes evaluation nearly impossible.

Portugal: Moving Personal Possession Out of Ordinary Criminal Punishment

Portugal remains the best-known example of broad decriminalization of possession for personal use.

Law 30/2000, implemented in 2001, moved possession of small quantities for personal consumption out of ordinary criminal prosecution. Trafficking remained criminal. People found with quantities treated as personal use could be referred to Commissions for the Dissuasion of Drug Addiction, administrative bodies combining legal, health, and social perspectives. [1]

Portugal therefore did not "legalize all drugs." It changed how the state responds to the user while leaving unauthorized supply illegal.

The reform was also part of a wider national strategy involving treatment, prevention, harm reduction, and institutional coordination.

That matters methodologically. If overdose mortality, HIV transmission, treatment enrollment, or drug use changes after

2001, it is difficult to assign every change to the legal classification of possession alone.

Portugal's strongest value for this book is institutional rather than rhetorical: it demonstrates that personal possession can be treated outside ordinary criminal punishment while the illicit supply market remains prohibited.

Portugal Is Not a Laboratory

National reforms do not occur under laboratory conditions.

Drug markets change. Cohorts age. Treatment capacity expands or contracts. New synthetic drugs appear. Economic conditions change. Public-health programs improve or deteriorate. Enforcement priorities shift.

A before-and-after line cannot by itself isolate the contribution of one legal reform.

This is why Portugal has been used too easily in opposite directions: as proof that decriminalization solves drug problems, or as proof that it fails.

Neither conclusion follows from the existence of one national trajectory.

A more disciplined comparison asks separate questions: Did criminal penalties for possession fall? Did treatment access change? Did overdose mortality change? Did infectious disease change? Did the illicit market remain? Did patterns of use change?

Each answer can differ.

Switzerland: Not One Tool but Four

Switzerland followed another path.

Its four-pillar policy combines prevention, therapy, harm reduction, and enforcement. The model developed in response to severe heroin-related problems and open drug scenes in the late twentieth century and was later embedded in federal law. [2]

The importance of the model is not that Switzerland abandoned enforcement. It did not.

Its importance is functional separation. Prevention is not expected to perform the same task as treatment. Harm reduction is not expected to replace all enforcement. Criminal law remains available while health interventions address other parts of the problem.

The same state can therefore prohibit some forms of supply, treat dependence, distribute harm-reduction tools, and regulate controlled medical access at the same time.

Prescribing Heroin: Changing the Supply Relationship Without Changing the Molecule

Switzerland's diacetylmorphine program makes that logic especially clear.

Diacetylmorphine is pharmaceutical heroin. For a narrowly defined group of people with severe heroin dependence, it can be administered under tightly controlled medical and psychosocial supervision. [3]

The Swiss Federal Office of Public Health reports that in 2024 roughly 1,800 people received this treatment in 22 specialized outpatient institutions. The treatment is reserved for severe dependence and exists inside a highly regulated clinical framework. [3]

The molecule has not been transformed into something else.

The supply relationship has changed.

Instead of obtaining an uncertain illicit product through a clandestine market, an eligible patient receives a known pharmaceutical product within a medical system.

This is neither general legalization nor ordinary retail sale.

It demonstrates a third category: legal access to a tightly controlled supply for a limited therapeutic population.

Canada: Legal Supply With Deliberate Constraints

Canada changed a different layer of the system when the Cannabis Act took effect on October 17, 2018.

The federal law created a legal framework for nonmedical adult cannabis while restricting promotion, packaging, labeling, youth access, and unauthorized production and sale. Provinces and territories control important parts of retail distribution and can impose additional rules. [4]

That makes Canada fundamentally different from Portugal. The reform does not merely change the legal consequence for possession. It creates licensed production and legal channels of sale.

The policy therefore contains a built-in tension.

To displace the illicit market, legal supply must be accessible and competitive enough that consumers choose it.

To reduce public-health harm, the same system may seek to limit promotion, high-risk products, youth access, outlet density, or excessive consumption.

Legalization does not remove regulation. It changes what regulation is regulating.

A Legal Market Can Replace a Large Part of an Illegal One Without Eliminating It

Canada's post-legalization data show a large shift in where cannabis users report obtaining the product.

In the 2024 Canadian Cannabis Survey, 72 percent of people who had used cannabis in the previous year reported usually purchasing from a legal store or legal website. Only 3 percent reported an illegal purchase source as their usual source. In 2019, the legal-purchase figure was 37 percent. [5]

These are self-reported survey data, not a complete accounting of every gram sold.

They nevertheless show that a legal supply channel can capture a substantial part of demand.

The illicit market did not disappear. Social supply, home growing, illegal websites, dealers, and unauthorized stores continued to exist.

The Canadian expert review of the Cannabis Act concluded that substantial progress had been made in displacing illicit supply while also identifying continuing illegal retail and online markets. [4]

Market displacement should therefore be measured as a degree, not a binary.

Legalization Also Changes Exposure and the Forms of Harm

Replacing illegal supply is only one outcome.

Canada's independent legislative review found that adolescent cannabis use had not shown the dramatic post-legalization increase some had feared, but youth use remained high and use among young adults had increased in some surveys. The panel also expressed concern about higher-potency

products and increases in cannabis-related poisonings, including accidental ingestion by children. [4]

Systematic reviews across Canada and the United States similarly find mixed outcomes: reductions in cannabis-specific criminal enforcement, increased adult use or access in many settings, inconsistent changes in adolescent prevalence, and increases in some cannabis-related emergency or hospital outcomes. [6][7]

The point is not to convert those findings into one score.

A policy can reduce one category of harm while increasing or transforming another.

That is why "Did legalization work?" is not a sufficiently precise empirical question.

The United States: Legalization Without One National Cannabis Regime

The United States adds a complication that Canada does not have: federalism.

States and territories have adopted many different medical and adult-use cannabis systems involving licensing, taxation, local control, product rules, retail structures, and public-health requirements. NCSL maintains a continuously updated database precisely because state law keeps changing and because the regimes are not uniform. [8]

Federal law remains separate.

Federal law is now split. Effective April 28, 2026, FDA-approved marijuana-containing drug products and marijuana covered by state medical marijuana licenses were placed in Schedule III. Other marijuana remains Schedule I. Separately,

DEA continued a broader rescheduling proceeding through formal hearings from June 29 through July 15, 2026. [9][10]

A product can therefore be sold under a state licensing regime while remaining federally controlled.

That conflict is not a small technicality. It affects banking, taxation, research, interstate commerce, employment rules, enforcement exposure, and the meaning of the word legal.

There is no single American cannabis legalization experiment.

Market Design Matters as Much as the Word Legalization

Even among jurisdictions that permit adult cannabis sales, the market can be designed very differently.

Rules can vary in retail density, local bans, taxes, home growing, product formats, potency standards, packaging, advertising, delivery, vertical integration, public or private retail, and enforcement against unlicensed sellers. [8]

Research increasingly treats these features as independent policy variables rather than as details.

A systematic review of legal cannabis availability found that greater commercial availability - such as closer or denser retail access - was associated in several North American studies with higher use and some adverse health outcomes, although designs and causal certainty varied. [11]

That does not establish that fewer stores are always the optimal rule.

It establishes that legalization and commercialization are different analytical steps.

A jurisdiction can make possession legal while still choosing a highly restricted market, or it can permit intensive commercial competition for repeat customers.

Oregon: A Reform Can Be Implemented, Evaluated, and Then Partly Reversed

Oregon provides a specifically American example of why reforms should not be treated as permanent laboratory treatments.

Measure 110 took effect in February 2021 and decriminalized possession of small amounts of controlled substances while directing substantial cannabis-tax revenue toward treatment and recovery services.

The policy clearly changed criminal-justice contact. A 2025 synthetic-control study estimated that Measure 110 reduced drug-possession arrest rates by about 68 percent overall and reduced Black-White differences in those arrest rates substantially during the period studied. It found no significant increase in violent or property arrest rates attributable to the measure. [12]

But implementation was contested. The Oregon Secretary of State's 2025 audit found persistent coordination, data, and service-system weaknesses and concluded that the original public-health vision had not been fully realized. [13]

The legislature then changed course. House Bill 4002 reinstated criminal penalties for possession of specified controlled substances beginning September 1, 2024 while also authorizing deflection programs that can route eligible people toward behavioral-health services instead of ordinary prosecution. [14]

Oregon therefore no longer represents the same legal regime it did in 2021.

That fact is analytically important. A reform can alter arrests, struggle with implementation, produce politically and empirically contested outcomes, and then be redesigned before long-term effects are fully settled.

Oregon's Overdose Evidence Does Not Produce a Simple Verdict

Overdose mortality became the most contested measure in evaluations of Measure 110.

A 2024 JAMA Network Open analysis found no association between Measure 110 and fatal overdose after modeling the timing of the rapid fentanyl shock to Oregon's unregulated drug supply. [15]

A July 2026 NBER working paper using different synthetic-control specifications reached the opposite conclusion, estimating sustained increases in overdose mortality after decriminalization in Oregon and Washington. [16]

These results should not be forced into artificial agreement.

They depend on different modeling decisions, time periods, assumptions about fentanyl exposure, and counterfactual construction. One is a peer-reviewed cohort analysis; the newer result is a working paper and may change before journal publication.

The disagreement is itself useful.

It demonstrates why a national or state policy cannot be judged from a raw before-and-after mortality curve when the illicit supply is simultaneously undergoing a major fentanyl transition.

Oregon can establish with much greater confidence that possession arrests fell. Its independent effect on overdose mortality remains more disputed.

Fewer Arrests Do Not Automatically Eliminate Disparities

One direct effect of removing a criminal offense is easier to identify: the offense can no longer generate the same number of arrests.

A 2025 systematic review of North American cannabis reforms found substantial reductions in cannabis offenses after decriminalization and adult-use legalization in most included studies. [17]

The distribution of the remaining enforcement was more complicated.

Absolute cannabis-offense rates generally fell across racial and ethnic groups, but relative disparities sometimes narrowed and sometimes persisted or increased.

Oregon's Measure 110 study provides a different example: during the decriminalization period, estimated possession-arrest reductions were larger for Black and Hispanic people than for White people, and Black-White rate differences fell. [12]

These results are not contradictory.

Different reforms, offenses, jurisdictions, baselines, and police practices can produce different equity effects.

Reducing total arrests and eliminating disparities are separate outcomes that should be measured separately.

Possession and Trafficking Do Not Need the Same Policy

The cases in this chapter also show that one jurisdiction can regulate different stages of the market differently.

Portugal removed ordinary criminal punishment for personal possession while keeping trafficking illegal.

Switzerland retained enforcement while expanding treatment, harm reduction, and a tightly controlled pharmaceutical supply for a narrow patient group.

Canada legalized a regulated adult cannabis supply while preserving offenses for unauthorized distribution and youth access.

U.S. states can legalize adult cannabis under state law while federal prohibition remains.

Oregon temporarily decriminalized personal possession of multiple controlled substances while trafficking remained criminal, then recriminalized possession while retaining treatment and deflection infrastructure.

There is therefore no legal necessity to assign one level of control to possession, production, retail sale, medical supply, and organized trafficking.

Each can be designed around a different objective.

Reform Often Redistributes Harm Rather Than Erasing It

Across these cases, reforms change the distribution of risk.

Decriminalization can reduce arrests without changing illicit product quality.

A medical-supply program can stabilize a small high-risk population without replacing the wider illicit market.

Legalization can reduce cannabis possession offenses and create labeled products while increasing commercial availability or creating new forms of accidental exposure.

A tightly controlled retail model can reduce promotion while leaving more demand to illicit sellers.

A highly competitive legal market can displace illicit supply more aggressively while creating stronger commercial incentives to increase sales.

Those tradeoffs are not proof that all policies are equivalent.

They mean the unit of analysis must be the specific outcome.

A reform may reduce incarceration and still fail to reduce overdose. It may reduce illicit purchasing and increase emergency presentations. It may reduce total arrests while leaving relative disparities.

One word - success - cannot summarize all of those directions.

How to Compare Regimes Without Hiding the Tradeoffs

The same comparison grid should therefore be used across reforms:

Use: prevalence, frequency, age of initiation, route, and intensity.

Addiction: substance use disorder, dependence, treatment access, treatment retention, and recovery.

Mortality and morbidity: overdose, poisoning, disease, injuries, and health-care utilization.

Harm to others: impaired driving, violence, accidental exposure, family impacts, and other external consequences.

Market: price, potency, composition, legal versus illicit share, retail density, and organized crime.

Justice: arrests, charges, convictions, incarceration, collateral consequences, and their distribution across groups.

Economics: tax revenue, commercial profit, enforcement cost, treatment cost, and incentives to expand or reduce consumption.

Equity and access: who benefits, who remains exposed to harm, who can access treatment or regulated supply, and who remains subject to enforcement.

No indicator can absorb all the others.

If a reform improves five dimensions and worsens a sixth, the evidence can identify the tradeoff. It cannot decide by itself how much value a society should assign to each outcome.

What Real-World Experiments No Longer Let Us Pretend

Portugal, Switzerland, Canada, Oregon, and the diverse American cannabis regimes make several simplifications difficult to maintain.

Decriminalization is not the same as legalization.

Legalization is not one market design.

A health-oriented policy does not necessarily eliminate enforcement.

A prohibited molecule can sometimes be supplied medically without creating a commercial consumer market.

Removing possession penalties can reduce criminal-justice contact without regulating illicit product quality.

Creating legal supply can displace part of an illicit market without making the illicit market disappear.

A reform can reduce one harm while increasing or transforming another.

And a jurisdiction can reverse or redesign a reform when political priorities, evidence, implementation, or public conditions change.

Real-world experience therefore replaces one ideological question with a set of engineering questions: Which rule changed? Which mechanism did it affect? For whom? At what scale? For how long? What moved somewhere else?

That closes the main body of the book.

We began with a question of language - what is a drug? - and end with a question of collective choice: which harms does a society accept, which does it try to reduce, and through which instruments?

The conclusion can now bring those layers back together without making that choice for the reader.

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Conclusion — The Dependencies We Choose

We began with a deceptively simple question: why are some psychoactive substances called drugs and prohibited while others are sold as beverages, medicines, nicotine products, or ordinary consumer goods?

Thirteen chapters later, no single definition makes pharmacology, danger, addiction, medical value, and legal status line up perfectly.

That does not erase differences among substances. It requires us to describe them more precisely.

A substance can be psychoactive without being illegal. It can be legal without being low-risk. It can be medically useful while also capable of producing dependence, overdose, or dangerous interactions. Two substances can sit in the same legal schedule while having different risk profiles. And addiction can exist without any psychoactive drug being consumed.

The lesson was never that "everything is a drug." That slogan would destroy the distinctions the book worked to build.

The result is almost the opposite: the word drug covers too many dimensions to function by itself as a measure of danger, addiction, medical value, or sound policy.

What Legality Does Not Tell Us

Alcohol is enough to show why legal status cannot serve as a health shortcut.

In the United States, alcohol is an ordinary commercial product regulated through overlapping federal, state, and local systems. It is also a psychoactive substance capable of dependence, injury, chronic disease, and death. Chapter 9 used

CDC estimates of roughly 178,000 U.S. deaths per year from excessive alcohol use during 2020-2021. [1]

That fact does not prove that some other drug should be legalized.

It proves something narrower: legality is not a certification of safety.

Morphine shows the reverse. A tightly controlled Schedule II opioid remains an essential medicine for severe pain. Its therapeutic value and its capacity for respiratory depression or dependence are not contradictory descriptions. They are properties of the same substance used under different conditions.

Legal status is therefore best understood as an institutional decision about access, supply, monitoring, and permitted use - not as a pharmacological summary.

What Illegality Does Not Tell Us

Illegality does not provide a scientific ranking of intrinsic danger either.

American drug law grew through international treaties, tax law, medical professionalization, moral campaigns, racialized and xenophobic rhetoric in documented periods, administrative expansion, political crises, and changing understandings of risk.

That history does not automatically invalidate every current prohibition.

A rule can acquire a new justification after the conditions that produced it have changed.

But the existence of the rule cannot substitute for the justification.

A present-day classification should be evaluated by its present objectives, evidence, and effects - not treated as scientifically self-validating because it has become familiar.

Harm Comes From More Than One Place

One of the book's central distinctions concerns the source of harm.

Some harm comes directly from the substance and the way it is used: intoxication, acute toxicity, chronic disease, impaired driving, dangerous interaction, withdrawal, or overdose.

Some harm comes from the market around the substance: aggressive promotion, high availability, product design that encourages repetition, uncertain composition, counterfeit pills, or the absence of quality control in an illicit market.

Some harm comes from the institutional response: arrest, prosecution, incarceration, collateral consequences, treatment interruption, enforcement costs, or unequal exposure to sanctions.

These causal chains can reinforce one another. They can also pull in opposite directions.

A regulated market can reduce uncertainty while increasing availability. Prohibition can reduce visibility or access while increasing uncertainty about illicit products. A health intervention can reduce overdose without changing the market. A criminal penalty can disrupt a supplier while creating costs for the person sanctioned and for the institutions enforcing the law.

That is why asking "How many deaths does the drug cause?" is necessary but incomplete.

We also need to ask which harms come from the pharmacology, which from patterns of use, which from the market, and which from the policy surrounding it.

Addiction Is Not the Substance

Gambling, gaming, and the debate over ultra-processed food moved another boundary.

Gambling disorder demonstrates that a recognized addictive disorder can exist without administering a psychoactive molecule. Internet Gaming Disorder demonstrates that intense repetition does not automatically create an established addiction diagnosis in every classification system. The ultra-processed-food debate demonstrates that addiction-like features do not instantly justify a new clinical category.

These cases protect us from dopamine reductionism.

Pleasure, reward, repetition, habit, physical dependence, and addiction are not synonyms.

Dopamine participates in motivation, learning, anticipation, and reinforcement. Its involvement does not turn every rewarding behavior into a drug or every repeated behavior into addiction.

That distinction matters in a society filled with products and environments designed to capture attention and encourage repetition.

Comparison can reveal mechanisms.

Equating the phenomena hides them.

Drug Policies Do Not All Optimize the Same Outcome

Much political disagreement about drugs becomes easier to understand once we ask what outcome each side is trying to minimize.

A policy may primarily seek to reduce the number of people who use a substance.

Another may prioritize severe substance use disorder.

Another may prioritize overdose deaths, infectious disease, impaired driving, youth exposure, organized crime, unknown product composition, arrests and incarceration, public expenditure, or the commercial incentives created by a legal market.

Those goals can overlap. They do not always move together.

A reform can sharply reduce possession arrests without immediately reducing drug use. A prohibition can reduce legal availability while leaving illicit users exposed to uncertain composition. Legal supply can move purchases away from an illicit market while increasing commercial visibility.

Evidence can measure those changes.

Evidence alone cannot decide how much moral or political weight each outcome should receive.

That remaining step is a value judgment: which freedoms may be restricted, which protections are required, which costs are proportionate, and who should bear them.

The purpose of the book is to expose that judgment rather than hide it inside the word drug.

Decriminalize, Treat, Regulate: Different Verbs

Portugal, Switzerland, Canada, Oregon, and the American state cannabis patchwork make the same lesson difficult to avoid.

Decriminalizing personal possession does not automatically create legal supply.

Offering treatment does not necessarily eliminate enforcement against trafficking.

Prescribing a controlled drug does not make it an ordinary consumer product.

Legalizing adult sale does not require unrestricted advertising, unlimited potency, dense retail networks, or a single national model.

Drug policy is modular.

Production, retail sale, possession, use, advertising, age, composition, medical access, and criminal enforcement can be regulated separately.

That makes slogans less satisfying.

It makes policy analysis more precise: which instrument is supposed to reduce which problem?

A Society Can Punish, Treat, and Sell at the Same Time

The apparent contradiction that opened the book can now be stated more fully.

The same society can imprison some people for drug trafficking, fund methadone treatment, permit prescription opioids, tax alcohol and tobacco, prohibit sales to minors, authorize adult cannabis markets under state law, distribute naloxone, and recognize gambling disorder as an addiction without a drug.

Those responses are not automatically incoherent.

The products, uses, risks, markets, and legal objectives are different.

They become incoherent when the system cannot explain the principle behind the difference.

If two products are treated radically differently on a criterion that supposedly justifies the policy, the other relevant dimensions should be named.

The demand of this book is therefore not universal equivalence.

It is coherence: specify the criterion, the scale, the time horizon, the beneficiaries, the people excluded, and the costs shifted elsewhere.

Who Bears the Cost?

The same question returned throughout the book.

When alcohol is commercialized, costs can fall on the drinker, family members, people injured by impaired driving, employers, insurers, and public health systems.

When prescription opioids are marketed or prescribed badly, patients, families, communities, and health systems can absorb consequences that began inside legal medicine.

When drugs are prohibited, users can bear the risk of unknown composition; neighborhoods and trafficking corridors can bear illicit-market violence; taxpayers fund police, courts, prisons, and treatment; people convicted of offenses can carry consequences long after a sentence ends.

No regime makes every cost disappear.

It redistributes costs, risks, protections, and benefits.

That leads to a more demanding question than being "for drugs" or "against drugs": who receives the benefits of a regime, and who carries its harms?

The Dependencies We Choose

The title of this conclusion needs a safeguard.

A person does not necessarily choose to become dependent. A society does not gather in one room and decide which addictions it would like to create.

The choice is institutional in a narrower sense.

We collectively maintain different regimes for substances and behaviors that can, for some people, become strongly reinforcing or addictive.

We prohibit some. We prescribe some. We tax some. We license some. We market some as entertainment. We authorize some at the state level while federal law says something else.

Those choices are partly inherited. They carry history, industries, habits, treaties, professional systems, and political compromises.

They are still revisable.

Coherence does not require giving every product the same legal status.

It requires being able to say why the differences exist.

What This Book Deliberately Leaves to the Reader

The evidence assembled here does not generate an automatic political ordering.

A person can give more weight to individual liberty or to reducing population-level use; more weight to health protection or to limiting criminal punishment; more weight to immediate deaths or to long-term market effects.

Different priorities change the tradeoffs.

The role of the investigation was to make those tradeoffs visible rather than hiding them behind a category.

Several minimum disciplines remain:

Do not treat legal as safe.

Do not treat illegal as scientifically more dangerous by definition.

Do not confuse use with addiction.

Do not confuse pharmacological mechanism with social consequence.

Do not attribute market harms to the molecule without evidence.

Do not attribute every drug-related harm to prohibition without separating causal chains.

Do not call a policy successful until the outcome it was supposed to improve has been named.

Once those distinctions are maintained, the debate becomes less comfortable and more honest.

One Last Loop Remains

One question has appeared repeatedly without belonging entirely to drug policy.

Alcohol, tobacco, gambling, prescription medicines, commercial cannabis, and many other consumer markets can generate revenue from repeated behavior.

That does not mean every market creates addiction, and it does not mean every repeated purchase is pathological.

But when a satisfaction can be sold again and again, an economic question appears beside the clinical one:

What happens when the repetition of desire becomes a recurring source of revenue?

That is where this investigation meets another book: Consumerism: The Opium of the People - Small Pleasures, Endless Wants, and the Commodification of Life.

The epilogue will not reopen that entire argument.

It will show why the two investigations eventually meet - and where the comparison has to stop.

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Epilogue — From the Drug Market to the Market for Desire

This book could end with its conclusion.

The necessary distinctions are now in place: substance and addiction are not the same thing; legal status does not map cleanly onto danger; legal markets, illicit markets, and enforcement systems produce different kinds of harm; and policy can move costs as well as reduce them.

But one question kept returning without belonging entirely to the subject of drugs:

What happens when a repeated behavior is also a source of recurring revenue?

That is where this book meets Consumerism: The Opium of the People - Small Pleasures, Endless Wants, and the Commodification of Life, without turning into another chapter of that book.

The Previous Book Did Not Say That Consumption Is Addiction

Consumerism: The Opium of the People begins from a distinction parallel to the ones built here: consumption is not consumerism. [1]

The book describes consumerism as an economic, cultural, and psychological arrangement in which renewing consumption becomes one of the mechanisms through which the system reproduces itself.

The problem is not pleasure, objects, commerce, or buying.

It is that repeated demand becomes increasingly valuable in itself.

That distinction must remain intact.

A person who buys clothes, replaces a car, pays for a subscription, upgrades a device, or enjoys a purchase is not therefore addicted in a clinical sense.

Likewise, the present book has shown that reward, repetition, and habit do not automatically constitute addiction.

The bridge between the two books is therefore not the claim that consumerism is a drug.

It is narrower: repetition can become economically productive.

When Repeating Becomes Revenue

A one-time sale produces one transaction. A recurring relationship can keep producing revenue as long as it continues.

The Consumerism book treats that temporal change directly in its discussion of recurring revenue. It also protects the distinction: recurring payment is not inherently problematic. A continuing service can require continuing infrastructure and can provide continuing value. [1]

The question becomes sharper when revenue depends on keeping a behavior going after its value has weakened, when exit becomes costly, or when the heaviest users generate a disproportionate share of sales.

Gambling makes the intersection unusually visible.

Gambling disorder is a recognized behavioral addiction. At the same time, gambling operators earn revenue from repeated betting and losses.

Clinical mechanism and economic mechanism can therefore meet in the same behavior.

They still should not be confused.

A gambling market can exist without every gambler having a disorder, and the existence of gambling disorder does not explain every feature of the gambling industry.

The useful question is what happens when a revenue model benefits from repetition that, for some people, becomes increasingly difficult to control.

Cue, Desire, Reward, Adaptation

The Consumerism book describes a loop in which signals and promises feed anticipation, desire leads to acquisition, acquisition produces satisfaction, adaptation reduces the novelty of that satisfaction, and new signals help restart the movement. [1]

The present book has used some of the same words: cues, anticipation, reward, reinforcement, learning, repetition.

That linguistic overlap can tempt us into a false identity.

Substance addiction can involve direct pharmacology, receptor-level effects, neuroadaptation, conditioned cues, tolerance, withdrawal, and compulsive use.

Consumerism, as analyzed in the other book, is primarily an economic, cultural, and symbolic system involving production, advertising, credit, identity, novelty, status, replacement, subscriptions, and the renewal of demand.

The similarity lies at another level.

In both systems, permanent satisfaction would interrupt repetition.

For an addictive disorder, the relevant concern may be persistent wanting, impaired control, and difficulty stopping.

For a commercial system, the concern may be churn, replacement cycles, repeat purchases, and the need for demand to return.

A lost future sale and a reduced addictive compulsion are not the same event.

Easy In, Hard Out

Consumerism: The Opium of the People uses the phrase Easy In, Hard Out for a recurring-revenue problem: entry into a commercial relationship can be nearly frictionless while exit becomes disproportionately difficult. [1]

That idea returns here in a more severe form, but only as a functional comparison.

A legal psychoactive product can be easy to buy while stopping after dependence develops requires treatment, time, or support.

Digital betting can make another wager take seconds while financial losses and loss of control accumulate.

A medicine can begin with a legitimate therapeutic need while discontinuation later requires clinical management.

The parallel has a limit.

A difficult cancellation interface is commercial friction. Opioid withdrawal is a biological and behavioral phenomenon. Calling both a cost of exit can reveal a structural question, but it does not make the mechanisms equivalent.

The common question is narrower:

Who designs the conditions of entry, who bears the cost of exit, and who benefits from repetition between the two?

The Opium of the People: Metaphor and Limit

The title Consumerism: The Opium of the People uses an interrogative metaphor.

It does not claim that purchasing acts pharmacologically like an opioid.

This book makes that boundary even clearer.

Real opioids act on opioid receptors. Their effects depend on dose, route, pharmacokinetics, tolerance, interactions, and individual vulnerability. They can produce respiratory depression, withdrawal, and overdose.

Consumerism has no common molecule, no single receptor, and no single clinical syndrome.

The metaphor asks a different question: what forms of consolation, pleasure, identity, relief, novelty, or hope are made readily available, and which institutions benefit when consumption has to begin again?

The analogy becomes misleading the moment a social structure is turned into a medical diagnosis.

The Two Books Correct Each Other

The Consumerism book prevents this one from treating drugs as if they existed outside markets.

Legal psychoactive products are manufactured, distributed, branded, promoted, taxed, prescribed, insured, and sold through institutions whose incentives matter. Even illicit markets respond to price, risk, innovation, competition, and profit.

This book returns a safeguard.

Not every repetition is an addiction.

Not every satisfaction produces impaired control.

Not every recurring payment is a dependency.

Not every reward is pharmacologically comparable.

The two books are therefore more useful when they constrain each other than when they are merged into one grand theory.

The levels should remain visible at the same time: pharmacology, learning, psychology, social environment, market structure, and institutional choice.

What Actually Meets

The two books can now be connected without collapsing them.

Consumerism: The Opium of the People primarily follows a sequence such as:

desire -> acquisition -> satisfaction -> adaptation -> renewed desire.

This book primarily follows:

substance or behavior -> reward and learning -> repetition -> possible addiction -> harm -> social response.

Their intersection is narrower:

reward -> repetition -> the possibility of monetizing repetition -> distribution of benefits and costs.

The final question is therefore not whether we are all "drugged by consumption."

It is:

What happens when an economy can earn durable revenue from behaviors it works to make easy to repeat - and, in some cases only, from behaviors that can become difficult to stop?

That question now belongs to both books.

And it preserves their shared safeguard:

comparison is not equivalence.

Sources and Inter-Work Articulation

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What Is the Noosophical Movement?

The Noosophical movement is a project of research, transmission, and transformation. It seeks to understand reality more accurately, connect forms of knowledge that are often studied separately, make important knowledge more accessible, and turn those understandings into works, practices, tools, or institutions that can be confronted with their effects and corrected.

It is therefore not limited to philosophy. It can work on education, health, agriculture, economics, politics, human relationships, culture, institutions, science, spirituality, and artificial intelligence. Depending on the subject, it may produce a book, a method, an experiment, a critique, a practical tool, or an institutional proposal.

One central idea of the movement is that accumulating knowledge is not enough. We also have to learn how to connect different kinds of knowledge without confusing them. Understanding agriculture, for example, requires looking at soils, plants, energy, economics, labor, food habits, and environmental effects. Connecting those dimensions does not mean reducing them to one explanation: each field retains its own methods and standards of evidence.

The movement also seeks to transmit. Important knowledge should not depend entirely on a lucky encounter, the social environment into which someone was born, or a late discovery. Part of Noosophical work therefore consists in identifying, checking, condensing, and making genuinely accessible knowledge that can help people understand the world, care for themselves, exercise their rights, and gain autonomy.

The movement takes its name from Noosophie, which in its philosophy refers to truth or the structure of reality independently of how we understand it. The world does not become true because we have succeeded in explaining it. It exists and functions independently of our theories, beliefs, and institutions. We can understand some parts correctly, misunderstand others, or perceive only a small part so far.

For that reason, the Noosophical movement does not treat its own texts as infallible. An idea should be compared with available knowledge, confronted with objections, tested where possible, and corrected when it does not withstand reality.

Noosophie is therefore not only something to think about. The movement seeks to make what is understood useful, transmissible, and capable of transformation in the real world.

How This Book Was Produced

This book was developed in successive stages rather than generated automatically as a complete text. Its subject, goals, and general orientations were first defined humanly. Noosophe AI then helped explore the subject, research and compare sources, build possible structures, and surface arguments, objections, and areas of uncertainty.

The manuscript was developed progressively, chapter by chapter. Proposals were reviewed, discussed, corrected, or rejected when they did not fit the project, relied on insufficient evidence, or simplified the subject too aggressively. Distinct phases of research, drafting, critique, coherence checking, and assembly were used where needed.

Artificial intelligence is not treated here as a source of authority. It functions as an active tool for research,

formulation, comparison, and testing. Its proposals can be wrong and remain revisable.

The published version will result from that iterative work, successive corrections, and final human validation. The method is intended to use the capabilities of AI without transferring to it decisions about the book's purpose, value choices, or publication.

About Hieronymus Anonymus

Hieronymus Anonymus is the human initiator of the Integrative Noosophy project. His work focuses on connecting fields of knowledge and practice that are usually treated separately, and on experimenting with new forms of collaboration between humans and artificial intelligence. He participates in the design, discussion, revision, and validation of works published by Éditions Noosophie.

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Why are alcohol, nicotine, and certain medications legal while other substances are banned? Can the danger of a drug be measured by its legal status? What really changes when prohibition pushes production into illicit markets? And why do some addictions exist without a substance at all?

Drugs examines these questions without turning the inquiry into advocacy. From the history of opium and cannabis to the mechanisms of addiction, from the markets for alcohol and tobacco to pharmaceutical opioids, from gambling to harm reduction, the book distinguishes what belongs to the molecule, to use, to the market, and to public policy.

Its goal is not to decide in the reader's place which drugs a society should ban or allow, but to make visible the criteria, costs, and contradictions that structure those choices.

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