# The World's Most Misused Drug:

د واوقا اليه بنارينه بقيت توم ختر ترج الرطوية

الماكا المدمل الي الموقى وتعسد

لمارات تؤشق تنال كما فخدمه بستوتع بششتة المعتوقية

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بالوستسلع للاشر اباحظ البقاء خراضتها نبرد بؤماخره وافقة

رنياء فاخزنها في أنآ. رُجاج و واخصت الويتس بكل تطدر

والوجد جوجرا فاتد اعتما المشاغن فا واعلم الله قد حرا

The History and Impact of Alcohol on Civilization and the Evolution and Treatment of Alcohol Use Disorder .....

### Alcohol

- n. a colorless, volatile, flammable liquid that is produced by the natural fermentation of sugars and is the intoxicating constituent of wine, beer, spirits, and other drinks, and is also used as an industrial solvent and as fuel. (Oxford)
- mid 16th century: French (earlier form of *alcool*), or from medieval Latin, from Arabic *al-kuḥl* 'the kohl'. In early use the term referred to powders, specifically kohl, and especially those obtained by sublimation; later 'a distilled or rectified spirit' (mid 17th century).



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### A Brief History of Alcohol by Rod Phillips – TED Talks



# Alcohol and Civilization

- Alcohol has played a pivotal role in human history for over 10,000 years.
- Haifa, Israel, 13,000 BCE\*
- Jiahu, China, 7,000 BCE
- Sumeria, 4,000 BCE
- Egypt, 3,000 BCE
- Used in religious rituals, medicine, and social gatherings.
- An estimated 15% of the world's population is prone to alcoholism/AUD.
- (Sources: WHO, 2024; CDC, 2024)



### Bio & Psycho Components

- The human species is particularly driven to seek intoxication—alcohol is a neurotoxin. Other species exhibit this as well (apes, insects, etc.)
- Alcohol de-regulates the PFC, which controls planning, organizing, impulses, focus, and reasoning, and also interferes with creativity.
- Alcohol is not just a depressant (PFC), but also a stimulant—it boosts serotonin production and endorphins, contributing to a sense of euphoria and increased sociability.
- "A Pharmacological Hand Grenade"

### **Neurological Effects of Alcohol**

Short-Term Effects:

#### •Impaired memory and cognitive function:

○Alcohol disrupts the hippocampus, a brain region responsible for memory formation and retrieval.

### •Altered decision-making and impulse control:

 Alcohol affects the prefrontal cortex, leading to impaired judgment, impulsivity, and aggression.

#### •Reduced coordination and balance:

○Alcohol impairs the cerebellum, a brain region responsible for motor coordination.

### •Euphoria and relaxation:

○Alcohol increases the levels of neurotransmitters like GABA, promoting feelings of calmness and well-being.

#### •Drowsiness and sedation:

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## Hangovers, AW, and Blackouts

- Overlap exists between hangover and the symptoms of mild alcohol withdra assertion that hangover is a manifestation of mild withdrawal. Hangovers, he single bout of drinking, whereas withdrawal occurs usually after multiple, rep differences between hangover and AW include a shorter period of impair versus several days for withdrawal) and a lack of hallucinations and seizures
- Alcohol-related blackouts are gaps in a person's memory for events the intoxicated. These gaps happen when a person drinks enough alcohol memories from short-term to long-term storage—known as memory called the hippocampus. (NIH)
- There are two types of blackouts; they are defined by the severity of t common type is called a "fragmentary blackout" and is characterized with "islands" of memories separated by missing periods of time in be referred to as a grayout or a brownout. (NIH)
- Complete amnesia, often spanning hours, is known as an "en bloc" blackout, memories of events do not form and typically cannot be never occurred. (NIH)
- Blackouts tend to begin at blood alcohol concentrations (BACs) of abolegal driving limit) and higher. At these BACs, most cognitive abilities (equivalent, and decision-making) are significantly impaired. The level of high BACs makes the intoxication level associated with blackouts especied occur at much lower BACs in people who drink and take sleep and anti-analytication.



### More Neurological Effects of Alcohol

Long-Term Effects:

- **Brain shrinkage:** Chronic alcohol abuse can lead to a reduction in brain volume, particularly in areas involved in memory, learning, and decision-making.
- **Damage to neurons and brain cells:** Alcohol is a neurotoxin that can damage or kill brain cells over time.
- Increased risk of brain disorders: Heavy alcohol consumption is associated with an increased risk of developing brain conditions such as dementia, stroke, and Alzheimer's disease.
- Altered brain chemistry and structure: Chronic alcohol use can permanently alter the balance of neurotransmitters and the structure of brain circuits, leading to long-term cognitive and behavioral problems.
- Impaired executive function: Alcohol can impair the ability to plan, organize, and make sound decisions.

Health Effects of Alcohol on Organs & Body Systems

- Liver: Cirrhosis, fatty liver disease.
- Brain: Cognitive decline, memory loss.
- Heart: High blood pressure, cardiomyopathy.
- Cancer: Alcohol increases risk for breast, liver, and esophageal cancer.
- CDC & Surgeon General warnings: No safe alcohol consumption level for cancer prevention.

(Sources: CDC, 2024; NIAAA, 2024)

### Alcohol is a Carcinogen

Alcohol is classified as a Group 1 carcinogen by the International Agency for Research on Cancer (IARC) and alcohol consumption is linked to an increased risk of developing seven types of cancer:

- 1. Breast cancer (in women)
- 2. Colorectal cancer
- 3. Esophageal cancer
- 4. Liver cancer
- 5. Oral cancer (mouth and throat)
- 6. Laryngeal cancer (voice box)
- 7. Pancreatic cancer

# The Social Component

- Alcohol was historically used for communal purposes, such as labor, rituals, and banquets.
- The emergence of distillation and the consumption of "spirits" brought about heightened levels of symptoms of alcoholism/AUD.
- N. Europe/ Russia (vodka) v. S. Europe/ Italy (wine, beer)– cultural impacts.
- USA: disparities between big tobacco/alcohol, drive-thru liquor stores, stockpiling, private use, Covid and 'essential businesses," lack of societal signals of overuse.



# "Ominous Warnings"



Confucius advocated for moderation in alcohol consumption, emphasizing that while drinking is acceptable, one should not become confused or lose control from excessive drinking. 500BCE

Aristotle's writings in the Nicomachean Ethics include occasional criticisms of drunkenness, viewing it as a vice related to self-indulgence. 350BCE

Seneca, a Roman Stoic philosopher, viewed alcohol consumption with a critical eye, emphasizing moderation and self-control, arguing that excessive drinking leads to loss of control, impaired judgment, and various vices. 4BCE-65CE Leviticus 10:9-11 – God commanded priests not to drink so that they could tell the difference between the holy and the unholy. (Noah and Lot became drunk in Genesis, leading to immorality)

Irish/Japanese Proverb: "First the man takes a drink, then the drink takes the man." Illustrates the progression of alcoholism and the consequences of excessive drinking.

"First you take a drink, then the drink takes a drink, then the drink takes you." F. Scott Fitzgerald



- China (Xia Dynasty, c. 2070 BCE): First recorded alcohol prohibition.
- Babylon (1754 BCE, Code of Hammurabi): Regulated taverns with strict penalties.
- Egypt: Alcohol rationing controlled labor force productivity. (2686-2181 BCE)
- Rome: Lex Oppia banned alcohol for women. (215 BCE)
- Middle Ages: Monks controlled alcohol production for religious and medicinal use. (500-1500 AD)

(Source: Historical Records of Alcohol, WHO, 2023)



# Pre-Prohibition, USA

Pre-Prohibition Era

#### **1830s-1850s:**

Temperance movements gained momentum, advocating for alcohol abstinence, leading to state-level prohibition laws, with Maine passing the first state prohibition laws in 1846.

#### . 1840s:

Massachusetts passed a local option law, allowing towns to enact their own prohibition laws.

#### **.** 1880s:

Kansas became the first state to make prohibition part of its state constitution.

. 1893:

The Anti-Saloon League was founded.

• Prohibition Era (1920-1933)

### **United States Prohibition**



### Alcohol-Related Deaths & Crime Statistics

Global: 2.6 million deaths annually from alcohol-related causes (WHO, 2024). U.S.: Alcohol-related deaths surged by 70% from 2012 to 2022 (KFF, 2024). Tennessee: 98% increase in alcoholrelated deaths over the past decade (KFF, 2024).

Crime: 40% of violent crimes involve alcohol (BJS, 2024). Homicides: 7,334 alcohol-related murders per year in the U.S. (CDC, 2024).

### Alcohol & Crime: Incarceration & DUI Statistics

40% of violent crime offenders were intoxicated at the time of the crime.

70% of domestic violence incidents involve alcohol.

25% of Tennessee inmates are imprisoned for alcohol-related offenses.

DUI arrests: Over 1 million annually in the U.S.

Alcohol-related crashes: 30% of U.S. road fatalities (NHTSA, 2024).

(Sources: BJS, 2024; NHTSA, 2024)



### **Alcohol and Suicide**

800,000 suicides per year worldwide; 2,200 deaths by suicide everyday. (WHO)

Suicide is a leading cause of death in one-third of all countries and accounts for 54% of all violence-related deaths. (WHO)

More people die by self-directed violence each year than all other-directed violence in the world, including all armed conflicts and homicides. (QPR)

An estimated 40-60% have a BAC exceeding the legal limit in completed suicides. (QPR)

Alcohol and drugs contribute greatly to suicide risk in younger people. (QPR)

# The "Disease Model"

- The biopsychosocial "disease model" of alcoholism, i.e., viewing it as a medical condition rather than a moral failing, emerged in the late 18th and early 19th centuries with physicians like Benjamin Rush and Thomas Trotter, gaining wider acceptance in the 20th century through figures like E. Morton Jellinek.
- In 1849, Swedish physician Magnus Huss coined the term alcoholism in his book, Alcoholismus Chronicus
- The largest association of physicians the American Medical Association (AMA) – declared that alcoholism was an illness in 1956. In 1991, the AMA further endorsed the dual classification of alcoholism by the International Classification of Diseases under both medical and psychiatric sections.
- The core of the brain disease model of addiction is the "brain-hijack theory" (Leshner, 1997; Volkow and Li, 2005). It posits that addiction is a brain disease caused by a dysfunction of brain systems involved in reward and pleasure-seeking.

-Alcohol Use Disorder, previously known as alcohol dependence and abuse, was integrated into a single category called Substance Use Disorder (SUD) in the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5), which was published in 2013.



# "The Opposite of Addiction is Connection"

- In the late '70s, psychologist Bruce Alexander set up a fascinating study. Rats in a fun, social "Rat Park" were way less likely to selfadminister drugs than those in dull, isolated cages. It highlighted how the environment matters in understanding addiction, which can be translated into human behavior.
- While not a complete cure-all, research suggests that strong social connections and meaningful relationships play a crucial role in overcoming addiction and maintaining sobriety. The lack of connection can be a root cause of addiction, and fostering connection can be a powerful tool in recovery.

# Alcohol Prevention Strategies & Effectiveness

School-based education programs reduce early alcohol use by 20% (NIH, 2024).

Minimum drinking age laws reduce underage drinking deaths by 40% (CDC, 2024).

Higher alcohol taxes lead to a 10% decrease in alcohol-related deaths (WHO, 2024).

Public awareness campaigns decrease binge drinking rates by 25% (NIAAA, 2024).

Community-based interventions have shown a 15% reduction in alcohol-related hospital visits (SAMHSA, 2024).

(Sources: NIH, CDC, WHO, NIAAA, SAMHSA, 2024)



### **Detox and Rehab**

- Detoxification is a set of interventions aimed at managing acute intoxication and withdrawal. It denotes a clearing of toxins from the body of the patient who is acutely intoxicated and/or dependent on substances of abuse. Detoxification seeks to minimize the physical harm caused by the abuse of substances.
- Alcohol withdrawal can cause a range of physical and psychological symptoms, including seizures, delirium tremens (DTs), and even heart failure. These conditions can escalate quickly and require immediate medical attention. Without proper monitoring and intervention, the consequences can be fatal.
- The rehabilitation process for alcohol addiction involves a comprehensive approach that addresses the physical, mental, emotional, and sometimes spiritual aspects of the condition. This multi-faceted approach aims to provide a solid foundation for lasting recovery and long-term sobriety, which may include lapses in abstinence.
- World Rates: 17.3% of individuals with AUD receive treatment, with remission rates at 79.5% for alcohol abuse and 69.7% for alcohol dependence. (PMC)
- USA Rates: Only 7.9% with AUD receive treatment and 50% receiving treatment remain abstinent from alcohol one year after completing treatment. (World Metrics)

Alcohol Treatment & Recovery Success Rates

- Cognitive Behavioral Therapy (CBT): 50-60% success rate in relapse prevention.
- Dialectical Behavioral Therapy (DBT): 45% success rate for alcohol use disorder.
- 12-Step Programs (AA): Long-term success rate estimated at 30-50% with continued participation.
- SMART Recovery: 40-60% effectiveness for sustained sobriety.
- Celebrate Recovery (Over 5 Million Members, 35,000 Churches); Recovery Dharma (Over 16,000 Members); Faithbased and mindfulness-based approaches showing increasing success.
- (Sources: NIAAA, SAMHSA, 2024)

# Conclusion & Sources

- Alcohol has played a major role in human civilization but has also led to major health and crime issues.
- Prevention and treatment strategies are key to mitigating harm.
- Continued research and policy efforts are necessary to reduce alcohol-related deaths and addiction.

### \*\*Key Sources:\*\*

- World Health Organization (WHO), 2024 Report on Alcohol and Health
- Centers for Disease Control and Prevention (CDC), 2024 Alcohol-Related Deaths & Crime Statistics
- National Institute on Alcohol Abuse and Alcoholism (NIAAA), 2024 Study on Alcohol Prevention Programs
- National Highway Traffic Safety Administration (NHTSA), 2024 DUI and Alcohol-Related Traffic Fatalities
- Substance Abuse and Mental Health Services Administration (SAMHSA), 2024 Community-Based Alcohol Prevention Report
- Bureau of Justice Statistics (BJS), 2024 Report on Alcohol and Crime
- Kaiser Family Foundation (KFF), 2024 Alcohol-Related Death Analysis

### **Contemporary Publications**

- Malcolm Gladwell, in his book *Talking to Strangers (2019)*, explores how alcohol consumption, particularly on college campuses, can contribute to a misunderstanding of social situations and potentially lead to harmful outcomes like sexual assault. He advocates preventative measures rather than blaming victims. Regarding alcohol's impact on perception, Gladwell argues that alcohol narrows our focus and reduces our ability to consider long-term consequences, leading to impulsive and potentially harmful behaviors. He suggests that alcohol creates a sense of "myopia," where our emotional and mental fields narrow, making us more likely to act on immediate desires and less sensitive to social norms. Gladwell also emphasizes the importance of social environments in shaping behavior, citing examples of communities with different drinking cultures and rules.
- Edward Slingerland's book Drunk (2021), draws evidence from history, archaeology, neuroscience, psychopharmacology, literature, social psychology, and genetics (etc.) to argue that our taste for chemical intoxicants isn't an evolutionary mistake but a means for solving several distinctively human challenges, such as alleviating stress, enhancing creativity, building trust, and cooperation. He also addresses the ill effects of alcohol on human physiology and psychology, as well as society, mostly citing distillation a sub-physiology in our relationship[ with the chemical.

# Thank You!



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