

SUD/MAT - Managing Concurrent Alcohol Use Disorder and OUD

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Financial Disclosures

- None

Today's Agenda

- I. Introduction
- II. Biology
- III. Psychology
- IV. Sociology
- V. Spirituality
- VI. Review of Recent Literature

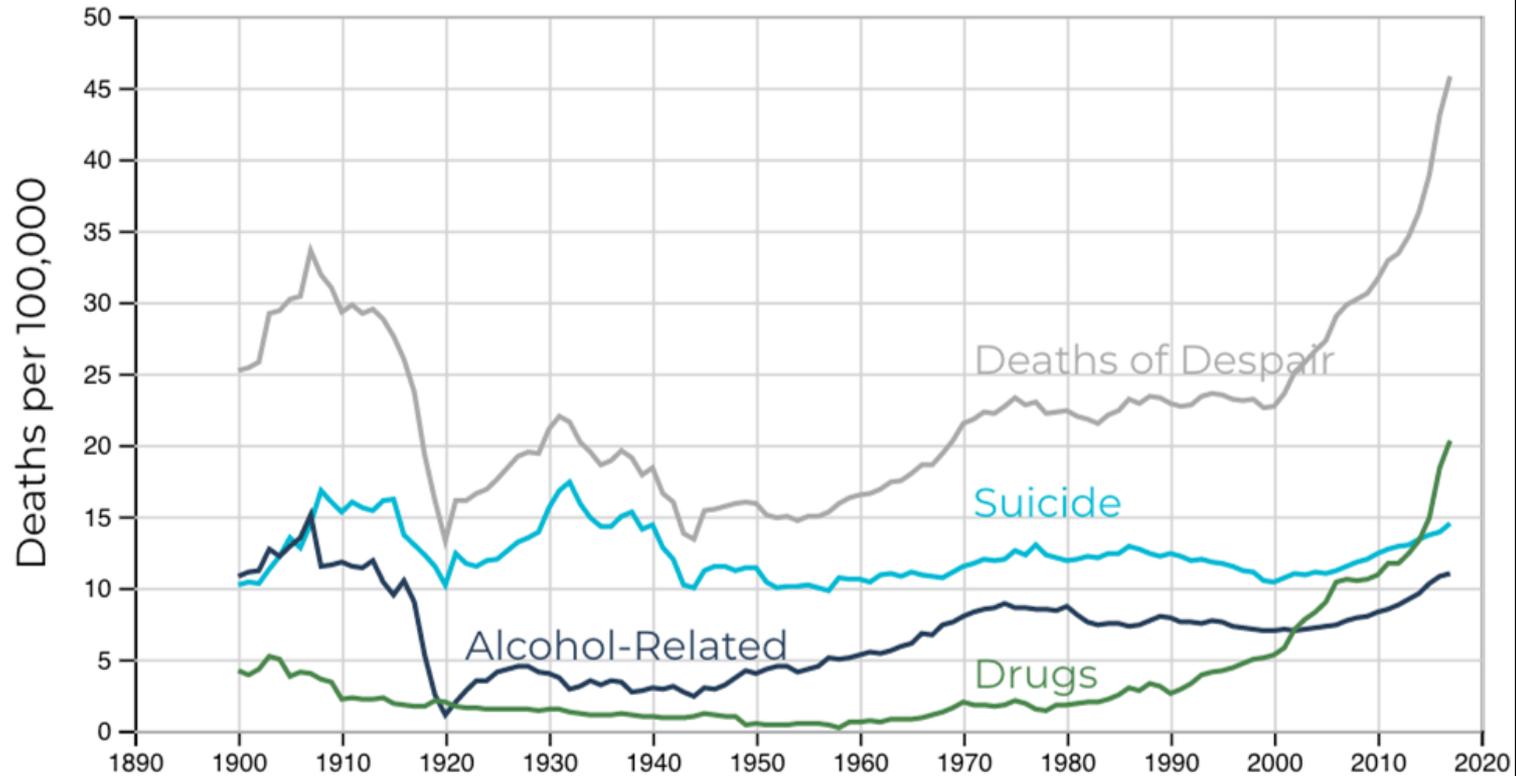
I. Introduction

Addiction

ASAM's redefined definition (9/15/19):

*Addiction is a **treatable, chronic** medical disease involving complex interactions among **brain circuits, genetics, the environment, and an individual's life experiences**. People with addiction use substances or engage in **behaviors** that become **compulsive** and often continue despite harmful consequences.*

US Combined # of Deaths from Drugs, ETOH, and Suicide



Source: Social Capital Project analyses of CDC data. For details, see the [appendix](#).



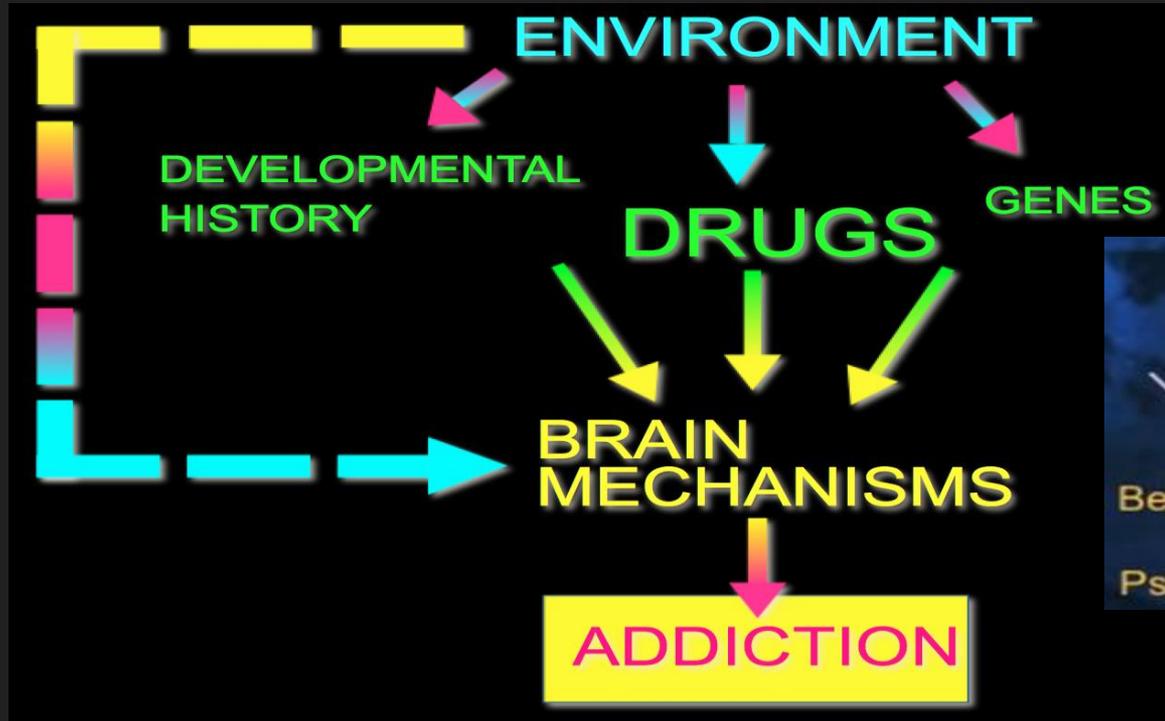
HEROIN

FENTANYL

CARFENTANYL

II. BIOLOGY

Multiple Factors are Involved in Addiction



Reward Pathway

Neurons start in the midbrain

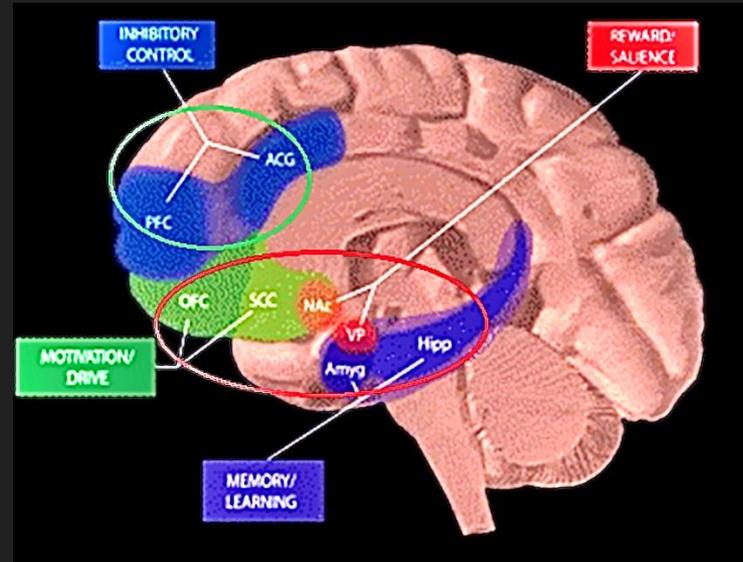
Release dopamine in the nucleus accumbens

Baseline: steady dopamine

Drugs: burst of dopamine

Responsible for “hedonic tone”

New circuits created from prefrontal cortex (glutamate)



All of these brain regions must be considered in developing strategies to effectively treat addiction.

Acute Drug Effects

Extra dopamine release changes in cell signaling

D1 DA receptor stimulation

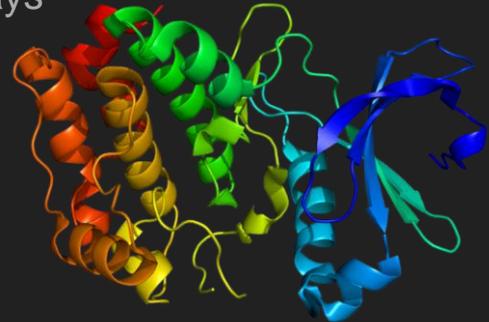
cAMP-dependent protein kinase (PKA)

Phosphorylation of CREB

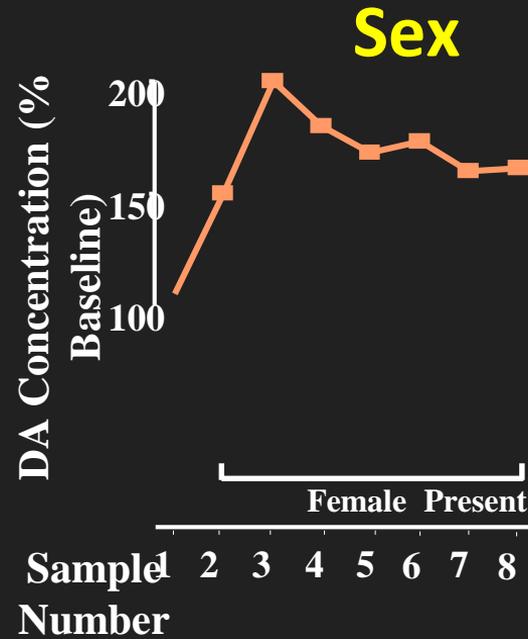
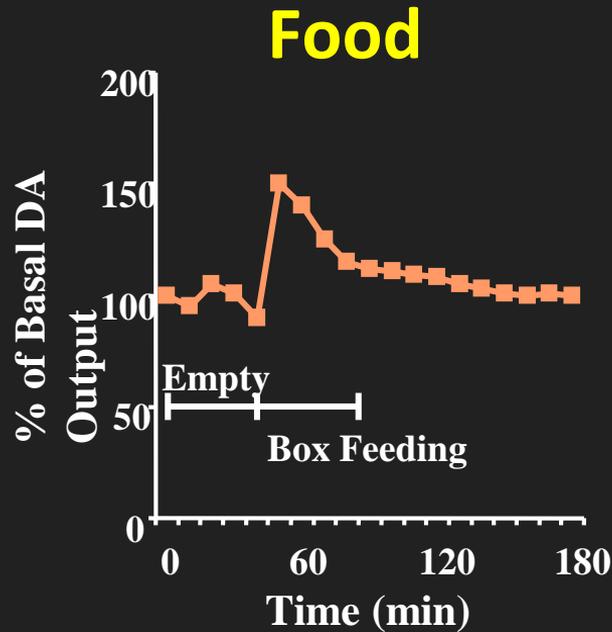
Immediate early gene products such as cFos

Short-term neuroplastic changes for a few hrs/days

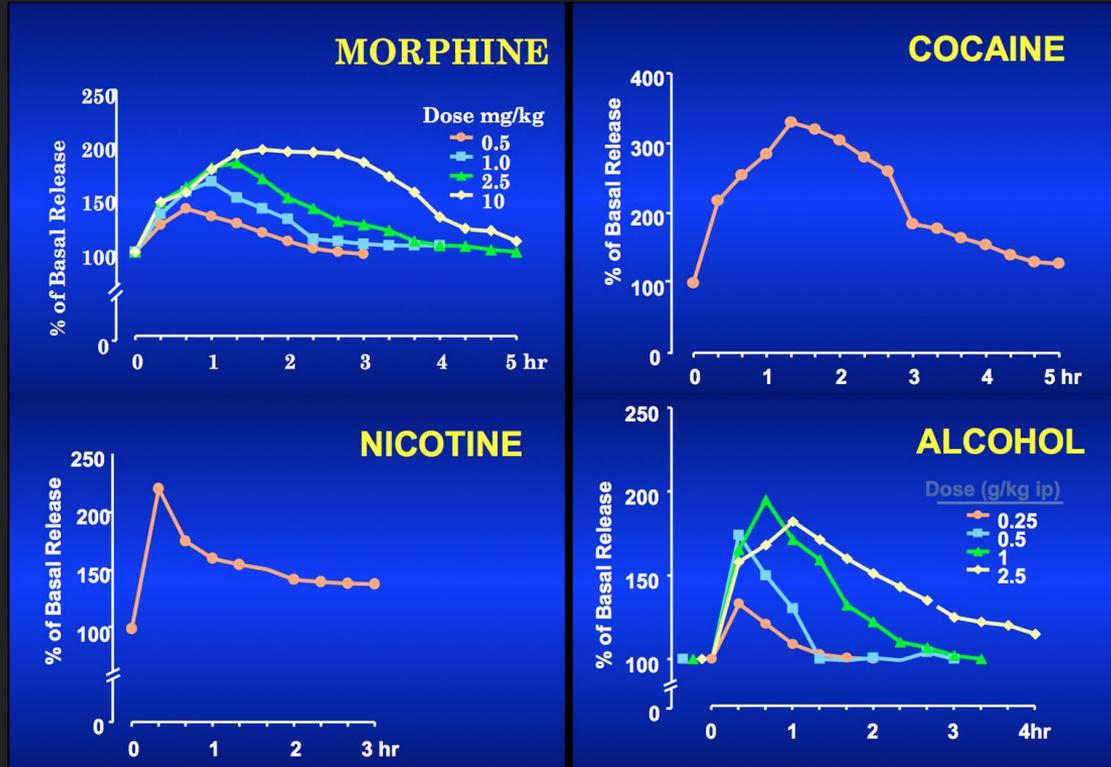
...but none of this explains long-lasting behavioral changes



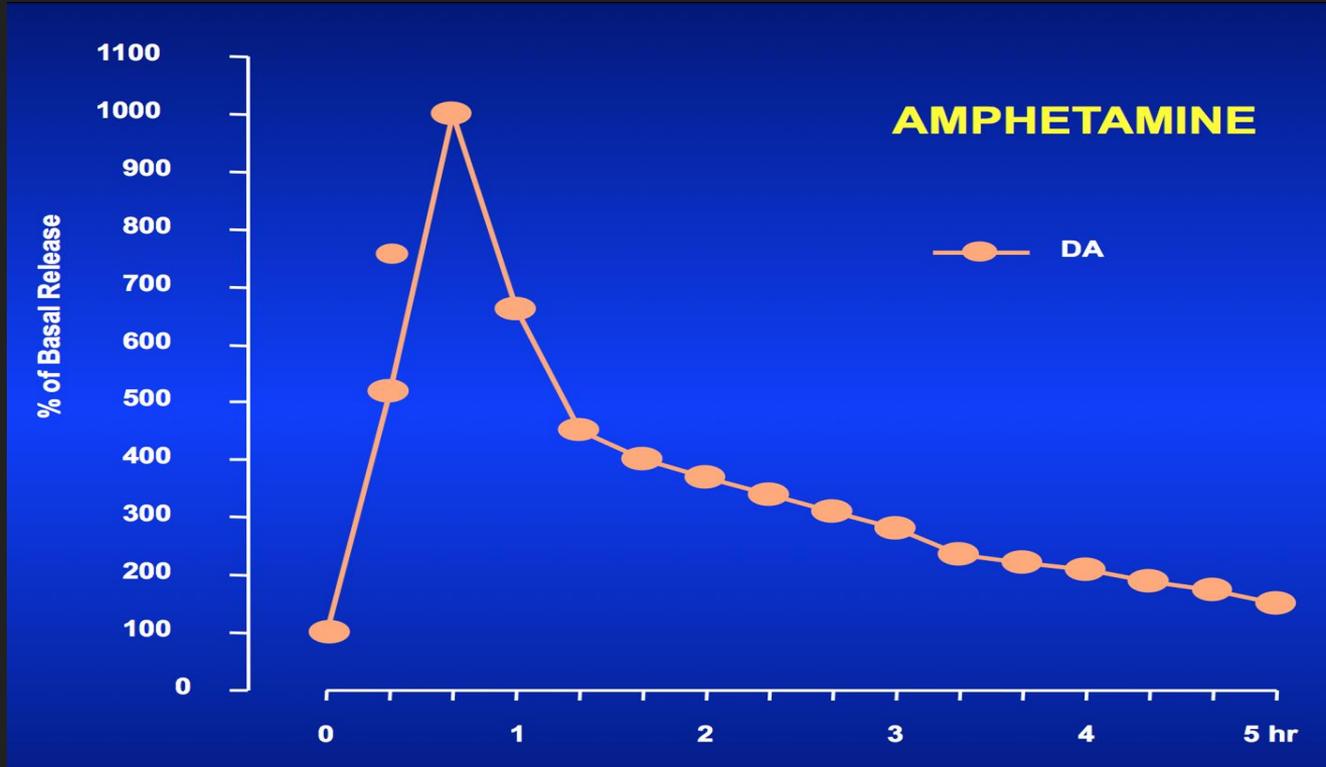
Natural Rewards and Dopamine Levels



Effects of Drugs on Dopamine Levels

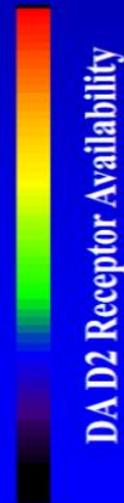
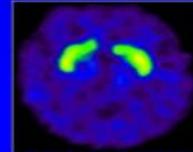
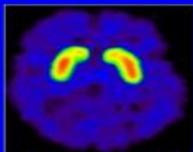
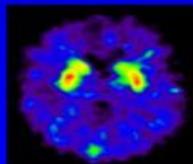
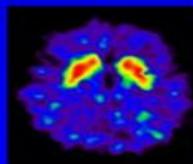
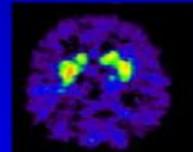
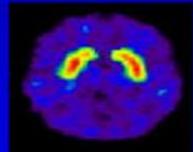
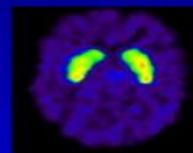
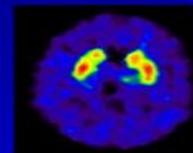


Effects of Drugs on Dopamine Levels

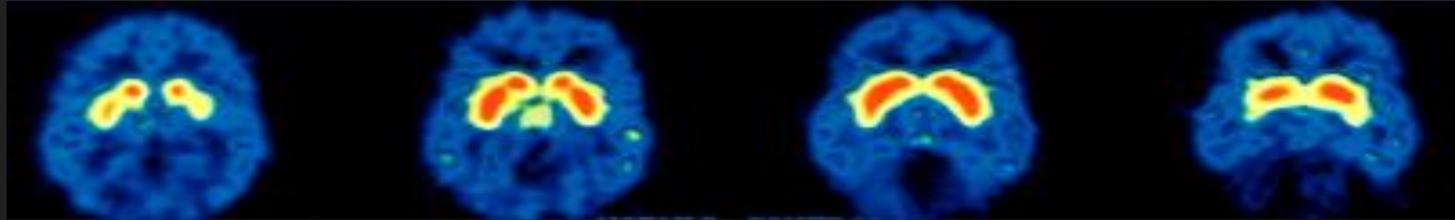


And to make matters worse...

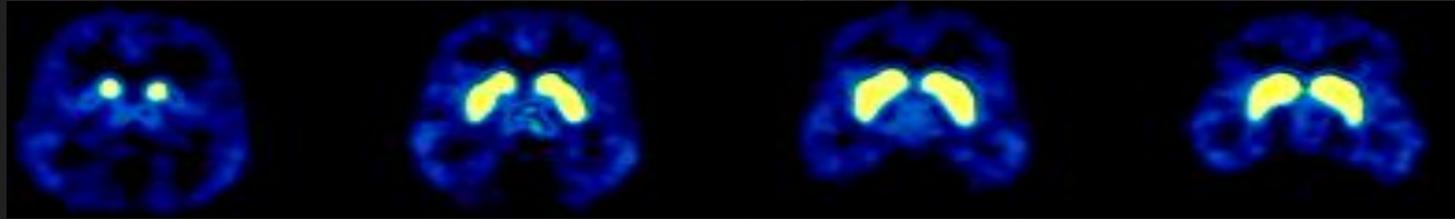
Dopamine D2 Receptors are Decreased by Addiction



Effect of Cocaine Abuse on Dopamine D2 Receptors



normal subject



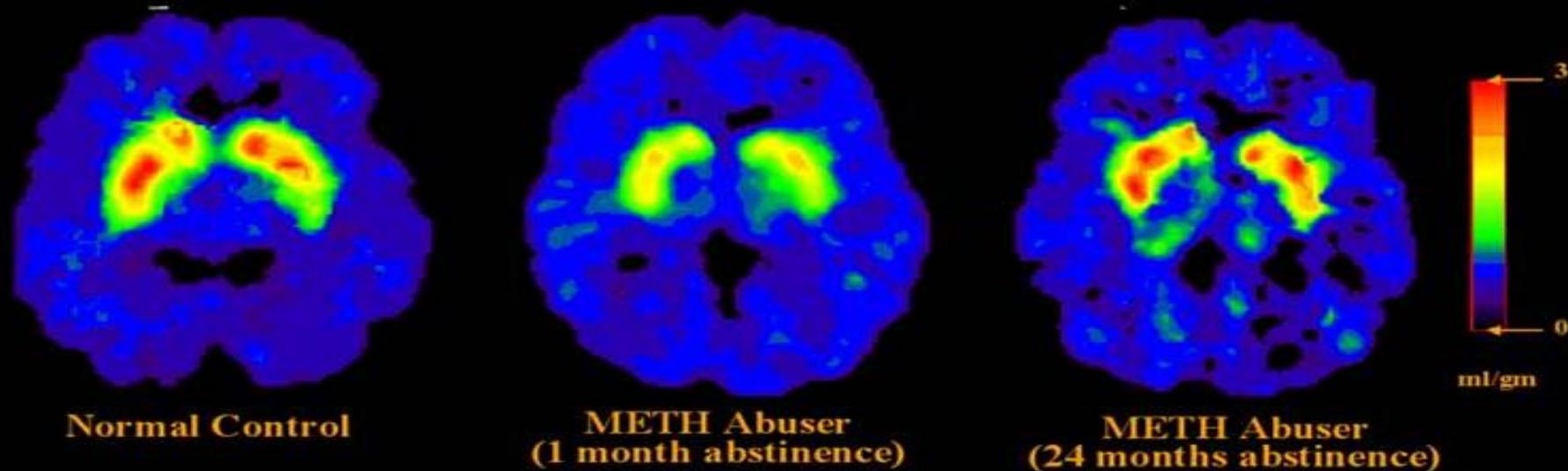
cocaine abuser (1 month post)



cocaine abuser (4 months post)



Figure 2. Partial Recovery of Brain Dopamine Transporters in Methamphetamine (METH) Abuser After Protracted Abstinence



Source: Volkow, ND et al., *Journal of Neuroscience* 21, 9414-9418, 2001.

interoception

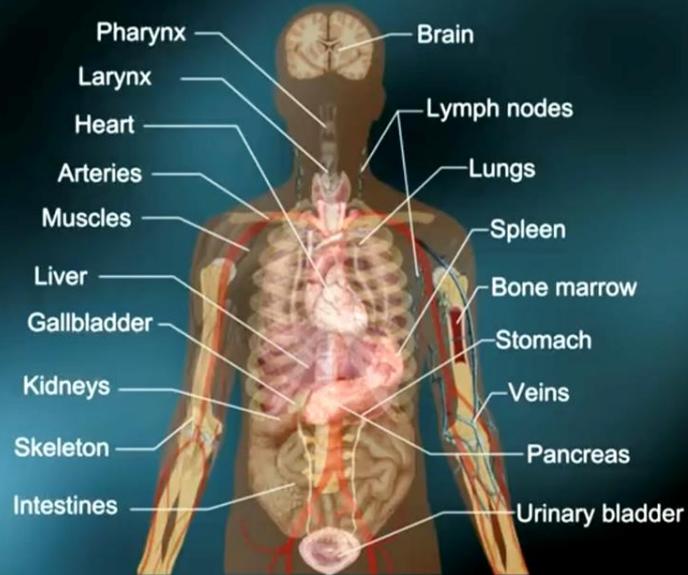
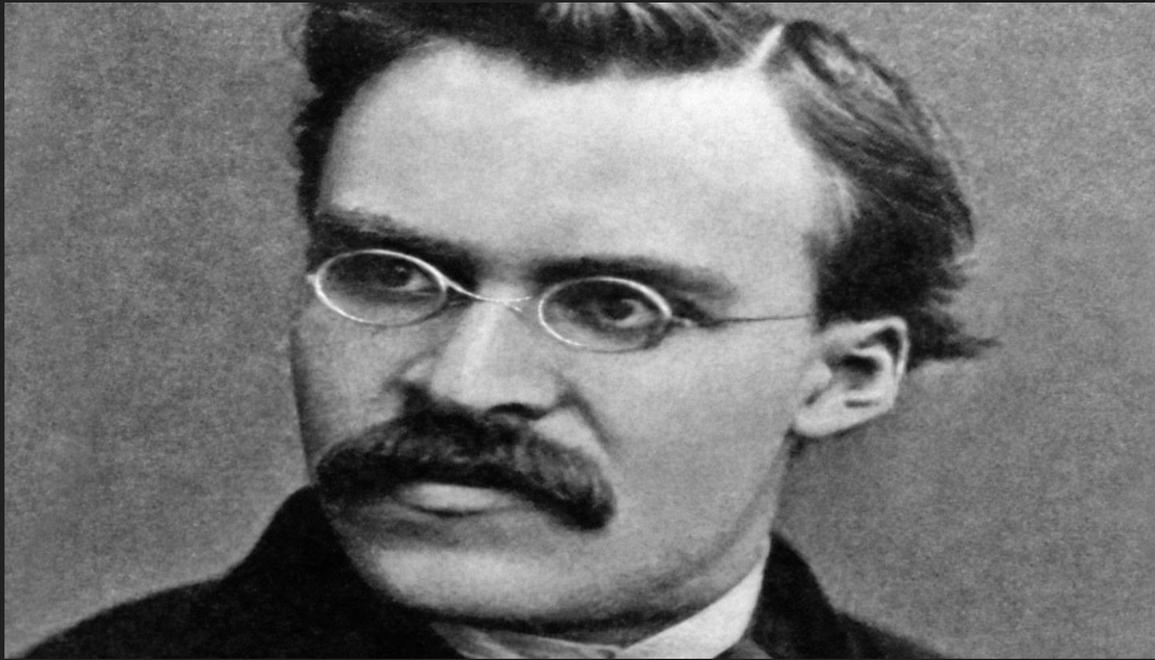


image credit: Mikael Häggström, with permission.

III. PSYCHOLOGY



“For one thing is needful: that a human being attain his satisfaction with himself...only then is a human being at all tolerable to behold. Whoever is dissatisfied with himself is always ready to revenge himself therefore.”

8 Universal Needs



Safety

Identity

Love

Causality

Temporal continuity

Generativity

Affirmation

Freedom

Addiction and Psychology

Addictive behaviors are anxious attempts to **get rid of** strong, negative emotional states
Provides **immediate relief or distraction** from something that seems unbearable



Issues with Treating Addiction

Difficult to treat because at the core, there is PAIN

Mind altering substances anesthetize self-states

Trauma

Relational Trauma: Exposure to chronic misattunement and prolonged states of dysregulation in the context of the early attachment relationship.

Psychotherapy



Helps an individual attain a **deeper understanding** of themselves, their unconscious desires, motivations, and conflicts

Psychotherapy

However, awareness alone does **not** lead to change

Must be in the context of a relationship

Repetition Compulsion

Transference/Countertransference Matrix – to repeat unhelpful and self-damaging behaviors **or** not to

Questions to Ask Your Clients

What are you running from? What is so hard to tolerate when you're fully present?

What was going on before you relapsed/slipped?

What is your understanding of your psychiatric condition (dual diagnosis)?

What is your understanding of addiction?

Do you think you need to be in treatment?

Intentions = Results

Motivational Interviewing: REDS

- Roll with **R**esistance
- Express **E**mpathy
- Develop **D**iscrepancy
- Support **S**elf-Efficacy



Motivational Interviewing

Interpersonal **style**

Subtle balance of directive and **client-centered** components

Shaped by a **guiding** philosophy and understanding of what triggers change

Eliciting behavior change by helping clients to explore and **resolve ambivalence**

What Motivational Interviewing is NOT

Argues that the person has a problem and needs to change

Offers **direct advice** or prescribes solutions to the problem without the person's **permission** or without actively encouraging the person to make their **own choices**

Uses an **authoritative/expert stance** leaving the client in a passive role

What Motivational Interviewing is NOT

Does **most of the talking** or functions as a unidirectional information delivery system

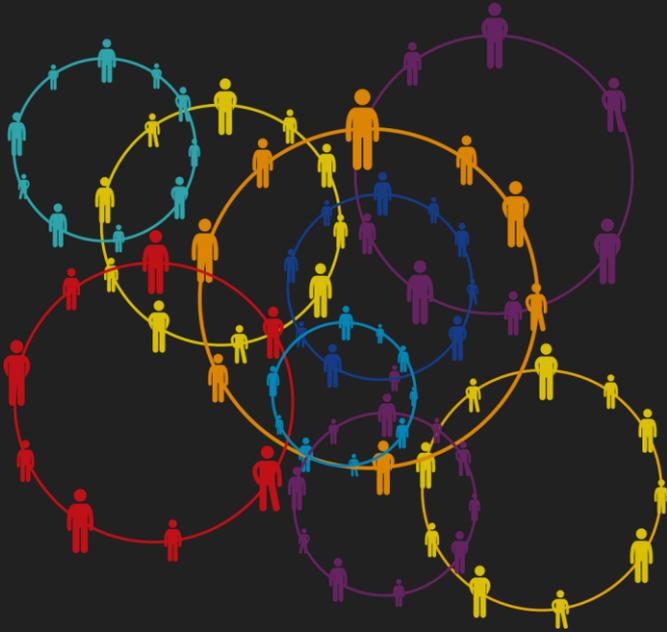
Imposes a diagnostic **label**

Behaves in a **punitive** or coercive manner



IV. SOCIOLOGY

Sociological Forces



Addiction is a harmful behavior that affects **both** individuals and groups.

Sociological forces can cause entire **groups of people** to be more **vulnerable** to addiction.

Sociology & Addiction

An understanding of **social and cultural forces** does help to answer, “How do people get addicted?”

Culture

Family

Social Support



Cultural Identity Theory

The social factors that predispose and influence drug consumption, abuse, and addiction include:

Micro-Social

- Individual marginalization
- Ego-identity discomfort
- Loss of control in defining an identity

Mezzo-Social

- Social marginalization
- Identification with a drug subcultural group

Macro-Social

- Socioeconomic status

Family & Peers

Family and peers: where a person learns **attitudes and behavior**.

An individual largely learns to use drugs through mechanisms of **imitation and reinforcement**.

You are more likely to become addicted if you start taking drugs in **adolescence or childhood**.

Living Environment



Different studies show a **positive** correlation between the **environment/neighborhood** in which a person lives and **drug consumption**.

Living Environment

- **STRESS**
- **ABUSE**
- **DRUG AVAILABILITY**

V. SPIRITUALITY

Addiction and Spirituality

From this reshaping and building in recovery, a **new self** emerges and a journey of discovery begins.

A critical event in this process is the inclusion of **spirituality**.

The **search for** values, meaning, purpose, and a sense of transcendence is an opportunity for **personal accountability, social integration, positive thinking, and emotional balance**.

Addiction and Spirituality

We **search for meaning** in our own lives – we must acknowledge that our patients undergo such a search **too**

When an individual suffering from addiction turns to recovery, this can give rise to **new** ways of thinking, feeling, and seeing the world.

Spirituality



Any behavior, either cognitive or overt, that facilitates, improves, deepens, or enhances our ability to “relate positively” to ourselves, others, and/or a higher power.

Benefits

Provides a **moral framework** for giving **meaning to life**

Promotes **wholeness** and **well-being**

Can be viewed as **transpersonal** and an integral part of personal **emotional/mental** health

Emphasis on **humility**, **gratitude**, **connectedness** with oneself and others, and present-moment **awareness**

Silencing the Mind

Ideally, the person:

feels more comfortable with self

more connected and at home in the world

more open to others

relates to others with humor, altruism, and hope

becomes more honest, more engaged, more patient, humbler, and grateful

more mature, psychologically and emotionally

HAS A SENSE OF BEING CARED FOR

The 12-Step Recovery Program Model

Have been around for more than 80 years as a core of rehabilitation programs

Success rate between 5 – 10%

What is working - Fellowship

VI. Review of Recent Literature

Objective:

Those with comorbid substance use disorders (SUDs) are a particularly vulnerable group. Information regarding the nature of these comorbidities and how they relate to receipt of substance use treatment could reduce the treatment gap that exists among those with comorbid SUDs.

Method:

Public-use data from the 2015–2017 National Surveys on Drug Use and Health was used to analyze past-year SUD comorbidity combinations among 12 substances and the relationship between these combinations with past-year treatment in adults ($N = 128,740$).

Results:

In all, 7.9% of adults had at least one SUD in the past year (6.7% had one SUD, 0.9% had two SUDs, and 0.3% had three or more). Conditioning on specific SUDs, the prevalence of having additional SUDs ranged from 14.9% (alcohol) to 85.1% (hallucinogens). The four most common SUD combinations all included alcohol use disorder. Alcohol and marijuana use disorder was the most common comorbidity combination and had the lowest receipt of treatment. Compared to those with one SUD, adjusted odds of receiving treatment were almost two times greater for those with two SUDs, and more than four times greater for those with three or more SUDs. Treatment prevalence was lower for those who had higher family income and education, were not employed full time, were married, were younger than age 26 years or older than age 50 years, and were Asian.

Von Gunten, C. D., & Wu, L. T. (2021). Comorbid Substance Use Disorder Profiles and Receipt of Substance Use Disorder Treatment Services: A National Study. *Journal of studies on alcohol and drugs*, 82(2), 246-256.

Background and aims Most people with alcohol use disorder (AUD) are never treated. Internet-based interventions are effective in reducing alcohol consumption and could help to overcome some of the barriers to people not seeking or receiving treatment. The aim of the current study was to compare internet-delivered and face-to-face treatment among adult users with AUD. **Design** Randomized controlled non-inferiority trial with a parallel design, comparing internet-delivered cognitive-behavioural therapy (ICBT) ($n = 150$) with face-to-face CBT ($n = 151$), at 3- and 6-month follow-ups. **Setting** A specialized clinic for people with AUD in Stockholm, Sweden. Participants were recruited between 8 December 2015 and 5 January 2018. **Participants** A total of 301 patients [mean age 50 years, standard deviation (SD) = 12.3] with AUD, of whom 115 (38%) were female and 186 (62%) were male. **Intervention and comparator** Participants were randomized in blocks of 20 at a ratio of 1 : 1 to five modules of therapist-guided ICBT or to five modules of face-to-face CBT, delivered over a 3-month period. The same treatment material and the same therapists were used in both groups. **Measurements** The primary outcome was standard drinks of alcohol consumed during the previous week at 6-month follow-up, analysed according to intention-to-treat. The pre-specified non-inferiority limit was five standard drinks of alcohol and $d = 0.32$ for secondary outcomes. **Results** The difference in alcohol consumption between the internet and the face-to-face group was non-inferior in the intention-to-treat analysis of data from the 6-month follow-up [internet = 12.33 and face-to-face = 11.43, difference = 0.89, 95% confidence interval (CI) = -1.10 to 2.88]. The secondary outcome, Alcohol Use Disorder Identification Test score, failed to show non-inferiority of internet compared with face-to-face in the intention-to-treat analysis at 6-month follow-up (internet = 12.26 and face-to-face = 11.57, $d = 0.11$, 95% CI = -0.11 to 0.34). **Conclusions** Internet-delivered treatment was non-inferior to face-to-face treatment in reducing alcohol consumption among help-seeking patients with alcohol use disorder but failed to show non-inferiority on some secondary outcomes.

Johansson, M., Sinadinovic, K., Gajecki, M., Lindner, P., Berman, A. H., Hermansson, U., & Andréasson, S. (2021). Internet-based therapy versus face-to-face therapy for alcohol use disorder, a randomized controlled non-inferiority trial. *Addiction*, 116(5), 1088-1100.

Excessive alcohol consumption is involved in 1/10 of deaths of U.S. working-age adults and costs the country around \$250,000,000 yearly. While Alcohol Use Disorder (AUD) pathology is complex and involves multiple neurotransmitter systems, changes in synaptic plasticity, hippocampal neurogenesis, and neural connectivity have been implicated in the behavioral characteristics of AUD. Depressed mood and stress are major determinants of relapse in AUD, and there is significant comorbidity between AUD, depression, and stress disorders, suggesting potential for overlap in their treatments. Disulfiram, naltrexone, and acamprosate are current pharmacotherapies for AUD, but these treatments have limitations, highlighting the need for novel therapeutics. Ketamine is a N-methyl-D-Aspartate receptor antagonist, historically used in anesthesia, but also affects other neurotransmitters systems, synaptic plasticity, neurogenesis, and neural connectivity. Currently under investigation for treating AUDs and other Substance Use Disorders (SUDs), ketamine has strong support for efficacy in treating clinical depression, recently receiving FDA approval. Ketamine's effect in treating depression and stress disorders, such as PTSD, and preliminary evidence for treating SUDs further suggests a role for treating AUDs. This review explores the behavioral and neural evidence for treating AUDs with ketamine and clinical data on ketamine therapy for AUDs and SUDs.

Worrell, S. D., & Gould, T. J. (2021). Therapeutic Potential of Ketamine for Alcohol Use Disorder. *Neuroscience & Biobehavioral Reviews*.

Aims: Nonmedical prescription sedative/tranquilizer (e.g., benzodiazepines) use (NMSTU) increases risk of overdose when combined with opioids and/or alcohol. Yet, little is known about NMSTU among those with alcohol and opioid use disorders. We aimed to characterize NMSTU and sedative/tranquilizer use disorder among adults with alcohol use disorder (AUD) and/or opioid use disorder (OUD) in a general population sample.

Methods: We conducted analyses of 2008–2014 National Survey on Drug Use and Health data; adults with past-year AUD-only (n = 27,416), OUD-only (n = 2142), and co-occurring AUD and OUD (n = 1483) were included (total N = 31,041). Multivariable logistic regression models were utilized to examine correlates of past-month NMSTU and past-year sedative/tranquilizer use disorder. Focal independent variables were polysubstance use (i.e., number of substances used in the previous year) and psychiatric distress.

Results: Among those with AUD-only, 27.1% reported lifetime NMSTU, 7.6% reported past-year NMSTU, 2.7% reported past-month NMSTU, and 0.6% met criteria for past-year sedative/tranquilizer use disorder. Corresponding prevalence rates among those with OUD-only were 69.5%, 43.0%, 22.6%, and 11.3%. Those with co-occurring AUD and OUD displayed the highest rates of NMSTU (e.g., 27.5% with past-month NMSTU) and sedative/tranquilizer use disorder (20.2%). Across groups, more severe polysubstance use and psychiatric distress were associated with increased risk of NMSTU and sedative/tranquilizer use disorder.

Conclusions: Results of this analysis indicate that > 25% of adults with AUD and approximately 70% of those with OUD report lifetime NMSTU. Among these populations, individuals with more polysubstance use and greater psychiatric distress might benefit from targeted interventions to reduce NMSTU.

Votaw, V. R., Witkiewitz, K., Valeri, L., Bogunovic, O., & McHugh, R. K. (2019). Nonmedical prescription sedative/tranquilizer use in alcohol and opioid use disorders. *Addictive behaviors*, 88, 48-55.