

# **PSYC003: Psychological Influences on Health & Behaviour**

**Substance Use & Addiction**

School of Psychology, University of Plymouth

Dr Rob Heirene

May 2023

<https://www.mentimeter.com/app/presentation/altr8mkxrkmrcrsuuk954u2jxs71uapy/v597cedctrfp/edit>

## About me

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## MCQ test

- You will complete this test online at a location of your choosing (at home or on a university computer).
- There will be a 24-hour window during which you complete the test, starting at 12 noon on May 20th, 2023, and closing at 12 noon on May 21st, 2023.
- Once you start the test, you will have one hour to complete it. You cannot pause the test and restart it later, or re-take it within the 24-hour window once you have opened it.
- As this will be an online test, you can choose to have your lecture and/or reading notes with you whilst you complete it. However, you will need to answer a total of 40 questions in 60 minutes, and so I strongly advise you not to rely on solely your notes to help you with the quiz as you will not have sufficient time to scan through them for each question.
- Questions will relate to all material covered in the module. Each person's 40 questions will be randomly selected from a pool of questions of similar difficulty level, and all questions will be randomly ordered for each student (they will not follow the order of topics covered during the module).
- As mentioned, once you open the test you will have 60 minutes to complete it and cannot pause or re-take the test. As such, I would strongly advise that you ensure that you have a stable Internet connection and a charger to hand if you are using a laptop or other portable device to take the test.
- You must complete the test alone and without assistance from another person. Do not take the test alongside another student in the class—as mentioned, you will likely have different questions placed in a random order.

The MCQ test, which is 40% of the final mark, has a deadline of noon on May 21st, and will open 24 hours in advance of this. This will be an online test, and you will have 1 hour to complete the test (or an adjusted time if you are eligible for additional time). You will be able to access the test via this Module page, and you can take the test at any time during the 24 hours that the test is open. However, once you start the test, you must complete it within the allotted time: you cannot pause the test and continue it later. For that reason you must ensure that you are able to identify a time and place that you can work without distraction.

The test will consist of 40 questions covering the academic content of the course - that is **the material covered in the lectures and the associated readings**. It is an open-book test, and so you can use your notes, but you should be careful about relying on being able to "look up" the answers to each question - the questions will be in random order, and you will not have long per question. The intention is to test what you know, not merely what you can look up, and so you should ensure that you understand the material that has been taught. Those who attended the lectures will have already experienced the kinds of question that you will be asked (and will know the level of difficulty involved).

Each student will get a different random selection of questions from a larger pool of questions covering the entire course, and these will be in a random order, which will differ across students. Additionally, the alternative answers to each question will be in a different random order. This means that it will not be possible to rely on other students sharing their answers on social media, (e.g. "the answer to question 1 is C"), because everyone will have a unique set of questions and associated correct answers.

Of course, it goes without saying that the University's rules on academic dishonesty apply to this test, and so anyone found guilty of colluding or cheating on the test will face disciplinary action. Please don't do it.

Tim Hollins

## Recap quiz: Exercise

Interactive task

**2-question MCQ on exercise from our last lecture:**

- Login to Menti and add your answers

Please go to the  
following site &  
enter this number:

6911 2117



<https://www.menti.com/>

# About today's class

## Block 1

- Alcohol & Illicit Drugs
  - Common substances
  - Levels & prevalence of use
  - Health effects of alcohol
  - The alcohol-harm paradox
- Activity: Assessing harmful drinking



~10-minute break



## Block 2

- Addiction
  - What does it mean to be "addicted"?
  - Theories of addiction
  - Behavioural addictions?
  - Behavioural vs. drug addictions
  - Are we pathologizing normal behaviour?



~5-minute break



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Could give a whole module of lectures

# **Block 1**

*Alcohol & Illicit Drugs*

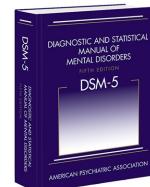
## Alcohol & Illicit Drugs

Common substances

### Diagnostic and Statistical Manual of Mental Disorders (DSM-5)

#### Substance-related and addictive disorders

- **Alcohol**
- **Caffeine**
- Cannabis
- Hallucinogens
- Inhalants
- Opioids
- Sedatives, hypnotics, or anxiolytics
- Stimulants
- **Tobacco**
- Other...



What is the most common addiction in the world?

#### DSM include substance use disorders for the following drugs

**Hallucinogens:** differentiate between a SUD for phencyclidine (PCP) and other types of hallucinogens.

- PCP is strong hallucinogenic often called Angel dust, typically smoked, but can also be swallowed, snorted and injected.
- Originally developed as an anaesthetic but was discontinued in the 60s after it was found to cause agitation and mania, hallucinations, and irrational thinking in patients following its use.
- Other hallucinogenic could include things like LSD and magic mushrooms
- Hallucinogens are a large class of psychoactive drugs that can produce altered states of consciousness characterized by major alterations in thought, mood, and perception, among other changes.

**Inhalants:** often common household/industrial/medical products that can produce vapours that can be inhaled to make people feel intoxicated

- Glue, poppers (amyl nitrite is the most common form; this was originally used as a heart medication that was holding councils that were cracked or popped to release the chemical)

**Opioids:**

- illegal forms: heroin
- Legal forms when prescribed: codeine, tramadol, or fentanyl, hydrocodone, oxycodone, morphine
- Legal forms used in opioid treatment: methadone, **buprenorphine, Subutex, Suboxone**

**Sedative, hypnotic, or anxiolytics:**

- Drugs that typically have a depressive effect on the CNS
- Benzodiazepines like Valium/diazepam

- Barbiturates like Phenobarbital. Historically used as a painkiller and antiseizure medication but has been supplanted by benzodiazepines

#### **Stimulants:**

- Do what it says on the tin
- Cocaine, crack cocaine, amphetamine, methamphetamine

- -----

#### **From another lectures:**

#### **Empathogens**

- **Mephedrone:** usually comes as a powder, crystals, or pills. It was originally marketed online as a plant fertiliser or 'research chemical' (meph, meow/meow-meow, m-cat, drone). Increases dopamine levels hugely like all other stimulants, but also increases and serotonin levels hugely like MDMA. Has a slight hallucinogenic effect.
- **MDMA:** methylenedioxymethamphetamine

#### **Dissociatives**

- **Ketamine:** Ketamine is used by medical practitioners and veterinarians as an anaesthetic (often referred to as horse tranquilizer; Special K, K, ket).

Typically comes in a white powder that's sniffed like cocaine but can be made into pills.  
High usage is associated with a state known as the k-hol: an out-of-body experience. It's an intense sensation of being separate from your body. You lose control over your own body become so profoundly impaired that you're temporarily unable to interact with others—or the world around you.

Clinical trials and studies are assessing ketamine as a treatment for depression. Early indications show good results.

- **Methoxeamine (MXE):** A newer drug that has some hallucinogenic effects similar to ketamine.  
Often sold as a white beige or yellow powder.  
MXE is said to be slower-acting than ketamine, but more potent and long-lasting. It can take anywhere from 5- 90 minutes to feel the effects. This has led to people overdosing, as they have taken additional doses while waiting for the effect to be felt.
- **Nitrous oxide:** often referred to as laughing gas; a safe pain medication given to people for dental surgery and women in labour that has no known negative effects on the baby or mother.

Starting to see lots of people using this recreationally (small metal canisters found everywhere)

#### **cannabinoids**

- Butane hash oil

#### **Hallucinogens**

- **Magic mushrooms:** more than a hundred different mushrooms produce psilocybin. Has a very high affinity for serotonin receptors
- **DMT: N-Dimethyltryptamine** is a very strong psychedelic found in several plants. DMT is one of the major psychoactive compounds found in various shamanistic compounds (e.g., ayahuasca, hoasca) used in South America for centuries and has, more recently found its way into Europe and North America as a recreational drug
- **LSD (lysergic acid diethylamide):** is a synthetic chemical, made from a substance found in ergot, which is a fungus that infects rye (grain). Strong hallucinogenic that is a serotonin agonist and also affects dopamine levels, which is why is thought to be more stimulating than Psilocybin.

LSD was first synthesized by Swiss chemist [Albert Hofmann](#) in 1938  
synthesized from lysergic acid while trying to develop a new [analeptic](#). Hofmann discovered its effects in humans in 1943, after unintentionally ingesting an unknown amount

In the 1950s and early 1960s many psychiatrists were trialing it as a treatment for alcoholism, with promising results

However, during the 1960s LSD became synonymous with the counterculture movement due to its perceived ability to expand consciousness and became viewed as a cultural threat to American values

and the Vietnam war effort

- **Ayahuasca:** (pronounced 'eye-ah-WAH-ska'): A drug offered by Shaman's (natural healers) in South America, it's made into a drink using the leaves and vines of two different plants containing DMT (often mixed with other plants deemed to be traditionally important). There are media claims that tens of thousands of travellers are now flocking to the Amazon to try it because of its supposed healing properties. Many people take it plain that they managed to overcome deep-seated trauma or depression and were able to see life from an entirely different perspective. Some high profile cases of deaths from the drug that have led to concerns.
- **NBOMe (N-Bomb, Bom-25, wizard):** a another relatively new type of drug that comes in the form of a blotting paper similar to LSD, with printed images from popular culture on it. Thought to be responsible for some cases of MDMA deaths.

### Depressants

- **KAVA:** A plant-based drug use as a sedative and muscle relaxant like alcohol. Pacific Islanders crushed, chewed and ground the root and stump of the shrub, then soaked it in cold water to produce a drink for ceremonies and cultural practices. Many Pacific Islanders who have settled in Australia have continued drinking kava or using kava extracts. It was introduced to the first nations people of North Australia in the 1980s as a substitute role

- **GHB or gamma hydroxybutyrate** – depressant usually taken in liquid form but can be injected

### Stimulants

- **Khat:** Chewed or smoked (some sprinkle it into tea). Viewed like having a cup of coffee in many cultures (Tea of the Arabs, somali tea); native to east Africa and the Arabian peninsula. Gives a sense of euphoria and more focus and attention. Kind of like a very strong cup of coffee! Used among militia and terrorist groups and some concerning health effects.
- **Synthetic cathinones:** Bath salts: human made stimulants chemically related cathinone, a substance found in khat plant!

## Alcohol & Illicit Drugs

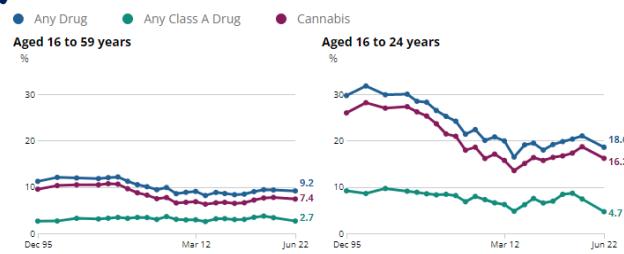
Prevalence of use: Illicit drugs

### Drug misuse in England and Wales: Year ending June 2022 ([Report](#)):

- ~1 in 11 adults (16-59), or 9.2% (~3 million people) reported that they used drugs in the last year
- ~1 in 5 adults (16-24), or 18.6% (~1.1 million people) reported that they used drugs in the last year

### Smoking, drinking and drug use among young people in England ([2021; Report](#)):

- 10.4% of those aged 11-15 reported past-year drug use



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### Drug misuse in England and Wales: Year ending June 2022 ([Report](#)):

- Class A drugs include cocaine, ecstasy, heroin, LSD, magic mushrooms and crystal meth.
- Cannabis has been consistently the most used illicit substance since 1995 when the surveys began
- prevalence of last year ecstasy use was at its lowest level since the data were first collected at 0.7% of adults

### Figure: Class A drug use in the last year has decreased

Proportion of adults aged 16 to 59 years and 16 to 24 years reporting use of any drug, any Class A drug and cannabis in the last year, England and Wales, year ending December 1995 to year ending June 2022

### Smoking, drinking and drug use among young people in England ([2021; Report](#)):

- 18% of pupils reported ever taking drugs (this was 24% in 2018)
- 10.4% had taken drugs in the last year, down from 17% in 2018
- Decrease in smoking from 16% in 2018 to 12% in 2021

## Alcohol & Illicit Drugs

Levels of use: Alcohol

### Australia

Each week, **adults** should drink no more than:

- 10 standard drinks a week
- 4 standard drinks on any one day

A standard drink contains 10 g of pure alcohol  
(1 week = 100g)

### United Kingdom

Each week, **adults** should drink no more than:

- 14 units a week
- 4 standard drinks on any one day

A unit contains 8g of pure alcohol (1 week = 112g)

*"no level of regular alcohol consumption improves health"*

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According to the UK guidelines, 8 g of pure alcohol is around the amount of alcohol an average adult liver can break down in an hour, although this will vary from person to person

Annoyingly, different countries seem to have different terms and use different values of alcohol for each unit.

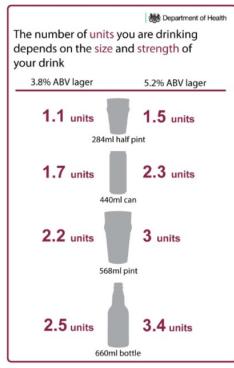
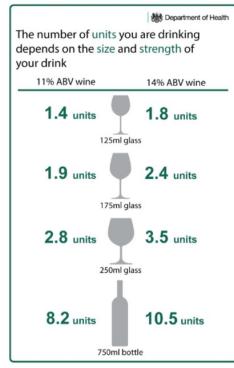
Both the UK and Australia say that no amount of alcohol is safe for children under 18

and for pregnant or breastfeeding women both seem to suggest not drinking rather than outright prohibit it or say it's completely unsafe

## Alcohol & Illicit Drugs

### Levels of use: Alcohol

#### Alcohol unit reference

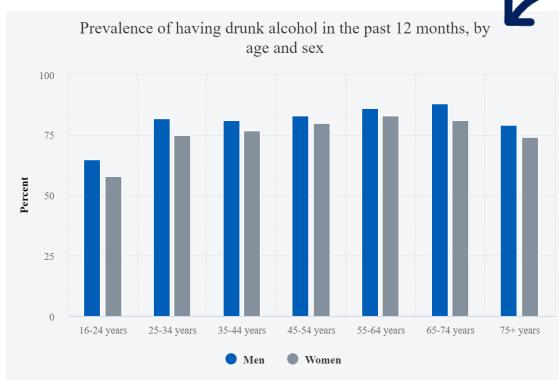


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From the UK guidelines site, for illustrative purposes

## Alcohol & Illicit Drugs

### Prevalence of use: Alcohol



### Health survey for England 2021

#### (Report):

- 79% of adults (16+) report drinking in the last 12 months
- 49% report drinking at least once a week
- >14 units weekly: men (27%) and women (15%)
- >50 units weekly: men (5%) and women (3%)

### Smoking, drinking and drug use among young people in England (2021):

- 40% of young people (11-15) report never having an alcoholic drink

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### Health survey for England 2021 (Report):

- Published in December 2022

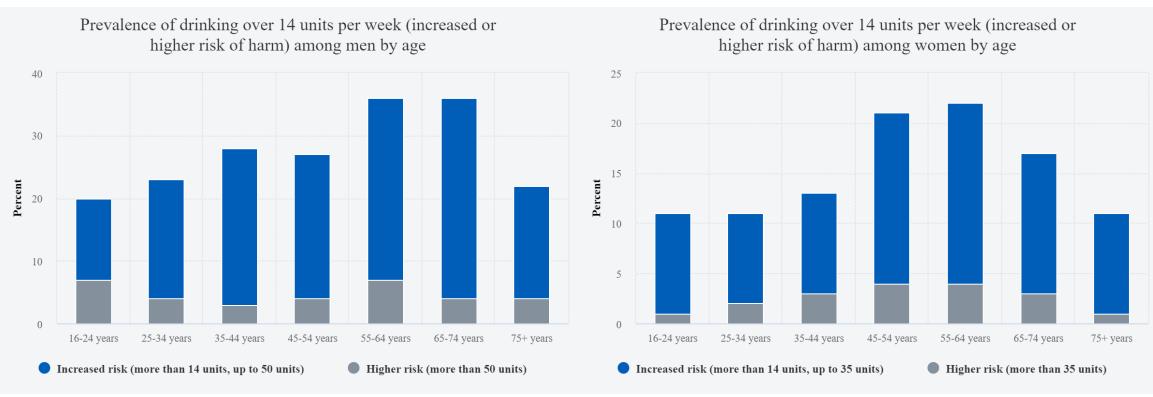
### Smoking, drinking and drug use among young people in England (2021; Report):

- 40% said they'd never had an alcoholic drink, with increasing prevalence with age
- 6% said they usually drank alcohol at least once per week, the same as 2018

## Alcohol & Illicit Drugs

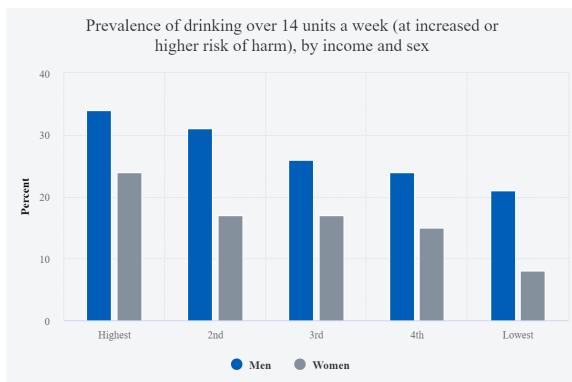
Prevalence of use: Alcohol

**Health survey for England 2021 ([Report](#))**



## Alcohol & Illicit Drugs

### Prevalence of use: Alcohol



### Health survey for England 2021 ([Report](#)):

#### Take home messages:

- Far too many adults exceed the recommended alcohol consumption guidelines
- Men appear to drink more than women
- Younger people are drinking less
- Positively, there's been a general decline in alcohol consumption over the last ~15 years

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### Health survey for England 2021 ([Report](#)):

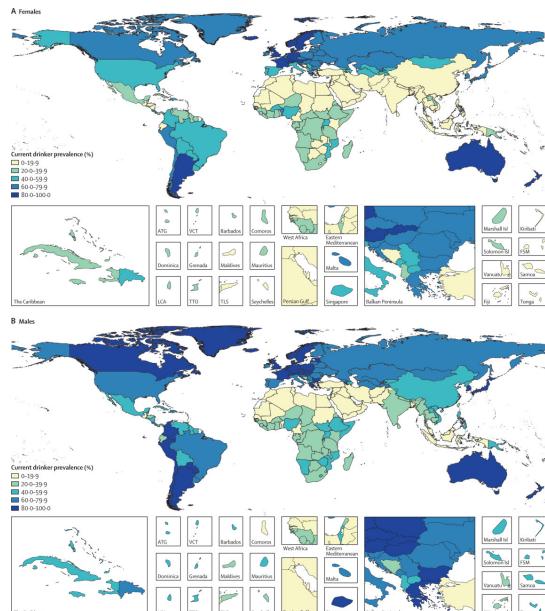
- In 29, 28% of people aged 16 to 24 said that they had drunk any alcohol in the last 12 months. This increased to 38% in 2021.
- This could be due to the different methodology used: questionnaires were used in 2019 and a telephone interview was used in 2021
- In 2009, 37% of adults drank more than four units (3 for women) on any day in the last week. This decreased to 30% in 2019.

## Alcohol & Illicit Drugs

Prevalence of use: Alcohol

### Global patterns in use (Griswold et al., 2018):

- 32.3% (uncertainty range: 30-35.2) of the global population were current drinkers
- Rates higher in men than women
- Rates higher among high SDI countries



Griswold et al. (2018)

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Used 694 data sources

Again, there was a difference between men and women, with 39% of males being current drinkers and 25% of females being current drinkers

The figure shows the each standardised prevalence of current drinking for females (A) and males (B) in 2016 across 195 locations

SDI: Social demographic index data – rates higher among hi SDI an overall measure of development, based on educational attainment, fertility, and income per capita.

## Alcohol & Illicit Drugs

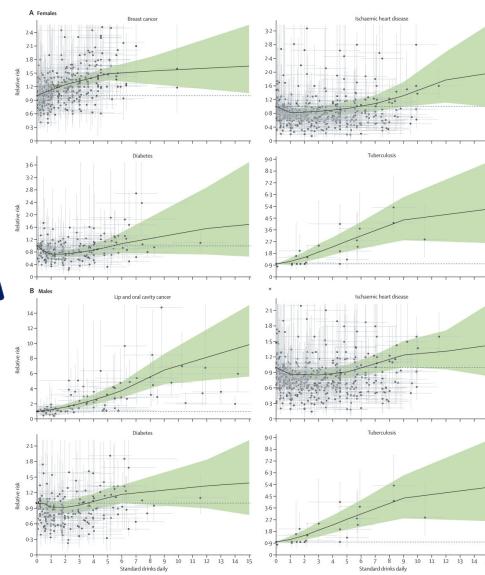
### Health effects of alcohol

#### WHO (2018):

- Harmful use of alcohol is a causal factor in more than 200 disease and injury conditions
- 5.1% of global disease burden attributable to alcohol

#### Global patterns in alcohol attributable deaths and disease burden in 2016 (Griswold et al., 2018):

- 2.8 million deaths (2.2% of all female deaths and 6.8% for male deaths)
- Accountable for 1.6% of total DALYs for females and 6% among males
- 7<sup>th</sup> leading risk factor for premature death and disability



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WHO: Cancers, liver disease in particular, but many others, including falls and brain damage – plug relevant research and blog post

Study of 694 data sources of individual and population level alcohol consumption, along with 592 prospective and retrospective studies of the risk of alcohol use

Candid 495 locations from 1990 to 2016 for people between the ages of 15 and 95 years old

For females, the alcohol attributable burden increase with age

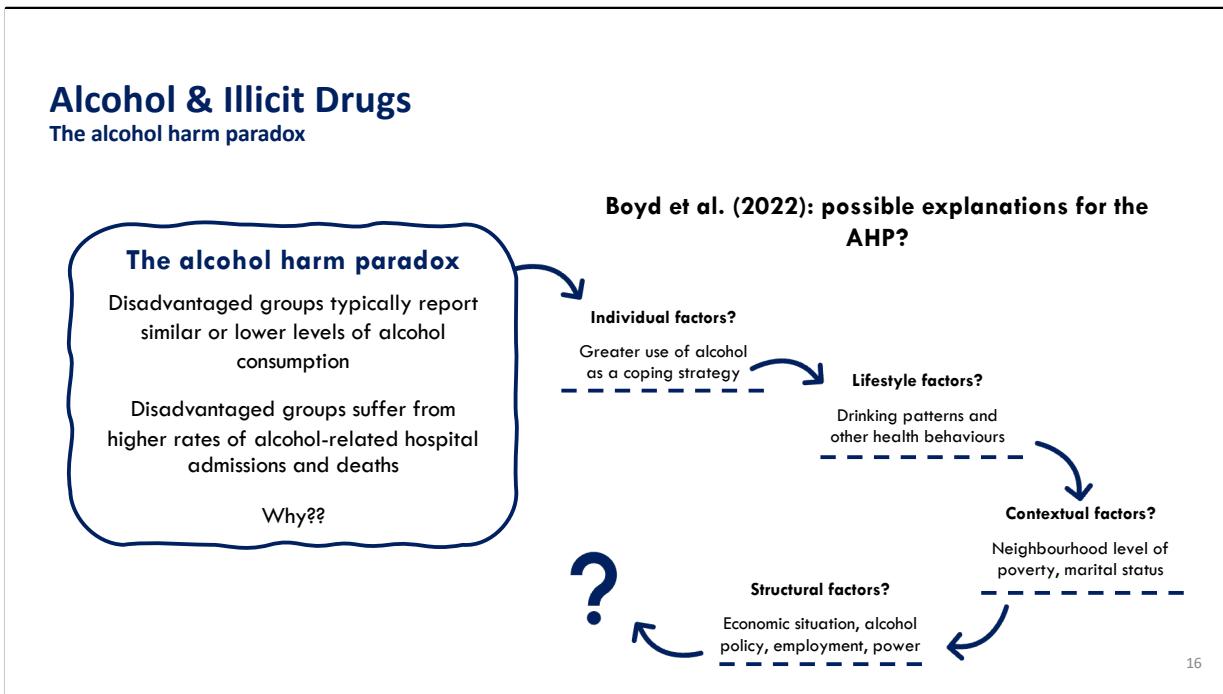
For males, the burden increased until between 55 and 65 years of age, after which the burden decreased

Graph shows increasing rates for breast cancer, ischaemic heart disease, diabetes, tuberculosis in females ( first four panels) and males

Could discuss this topic all day but we haven't got much time

## Alcohol & Illicit Drugs

### The alcohol harm paradox



The relationship between consumption isn't uniformly linear across all populations

Alcohol-related mortality rate among the most deprived is 5.5 times higher than the least disadvantaged

This relationship has been found internationally in the UK, Australia, Netherlands, Finland

Contributes to increasingly widening health inequalities

Available evidence indicates that neither average alcohol consumption nor heavy drinking patterns can explain differences in alcohol attributable outcomes between Socio-economic groups

**Boyd and colleagues** conducted a large systematic review of the alcohol harm paradox recently, with the aim of trying to identify why this happens (79 studies)

**Individual factors:** Greater use of alcohol as a coping strategy among people of lower socio-economic status. No studies actually tested whether differences in coping strategies could explain the AHP, it was all speculation.  
Doesn't really tell us why this paradox happens still

**Lifestyle factors:** **studies did actually try and test for these effects.** Some studies find that when they account for differences in alcohol use patterns then the effect diminishes, but others find this is only very minimal. People of lower socio-economic status do appear to have heavier drinking sessions when they do drink  
Some evidence that people of lower socio-economic status have multiple unhealthy behaviours like poor diet and poor sleep patterns, although again when accounting for these it doesn't seem to fully reduce the gap in health outcomes between lower and higher socio-economic status groups

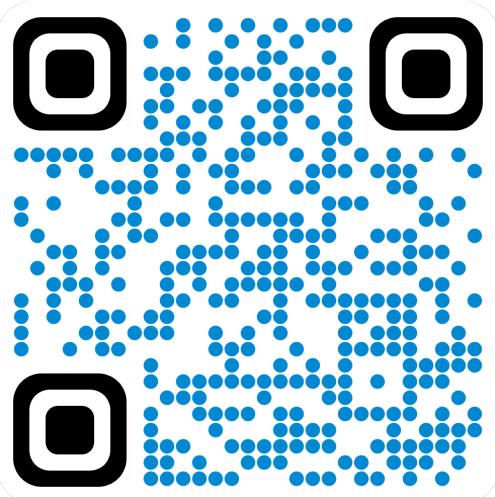
**Contextual factors:** Some indication that living in a neighbourhood with high levels of poverty was associated with more alcohol related harm, and being married was associated with less. Again, these don't tell us why this effect happens

**Structural factors:** the were number of structural factors were hypothesised to have effects on alcohol-related harm, including economic, alcohol policy, employment levels and types, power disparities, but none of the papers attempted to assess whether the structural factors could account for the paradox

Overall, the authors said the research in this area has failed to account for some of the key areas that could explain this paradox, including levels of social support and access to healthcare

## Alcohol & Illicit Drugs

Assessing harmful drinking



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<https://auditscreen.org/check-your-drinking/>

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1113175/Alcohol-use-disorders-identification-test-AUDIT\\_for-print.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1113175/Alcohol-use-disorders-identification-test-AUDIT_for-print.pdf)

## Alcohol & Illicit Drugs

### Assessing harmful drinking

#### AUDIT: Alcohol Use Disorder Identification Test

Most commonly used alcohol screening instrument worldwide

##### Assesses:

- Alcohol use (how often and how much)
- Harms (e.g., unable to fulfil duties)
- Dependence (e.g., unable to stop drinking)

**Table 2.** Total AUDIT score subdivisions with associated levels of risk and suggested interventions

Tier	AUDIT score	Risk level	Intervention
1	0–7	Abstinence/non-hazardous use	Alcohol education
2	8–15	Medium risk/hazardous use	Simple advice & education
3	16–19	Harmful use/possible dependence	Simple advice, brief counselling & continued monitoring
4	≥20	Severe alcohol dependence	Specialist referral for diagnostic evaluation & treatment

John, Newstead, Heirene, Hodgson, & Roderique-Davies (2021)

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These questions were all taken from the AUDIT – alcohol use disorders identification test.

Developed by the WHO and has been used worldwide since 1989 – available in more than 40 languages

**Measures alcohol intake:** How often do you have a drink containing alcohol? How often do you have six or more drinks on one occasion?

**Potential dependence on alcohol:** During the past year, how often have you found that you are not able to stop drinking once you've had started? During the past year, how often have you needed a drink in the morning to get yourself going after a heavy drinking session?

**Experience of alcohol-related harms:** During the past year, how often have you had feelings of guilt or remorse after drinking? Have you or someone else been injured as a result of your drinking?

**The range of possible scores is from 0 to 40** where 0 indicates an abstainer who has never had any problems from alcohol.

A score of **1 to 7** suggests low-risk consumption according to World Health Organization (WHO) guidelines.

Scores from **8 to 14** suggest hazardous or harmful alcohol consumption

A score of **15 or more** indicates the likelihood of alcohol dependence (moderate-severe alcohol use disorder).

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<https://auditscreen.org/>

## Block 2

### Addiction

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This section will be quite clinically focused but contains content that is crucial to understanding addiction and substance misuse.

## Addiction

What does it mean to be “addicted”?

“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.”

(ASAM, 2020)

### Discussion point

How would you describe what an addiction is?



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So, how do we define addiction?

We have JUST ONE definition here from the American Society of addiction medicine which takes a very medical approach, defining it as....

There is a clear focus on addiction being a “disease” with neurobiological underpinnings.

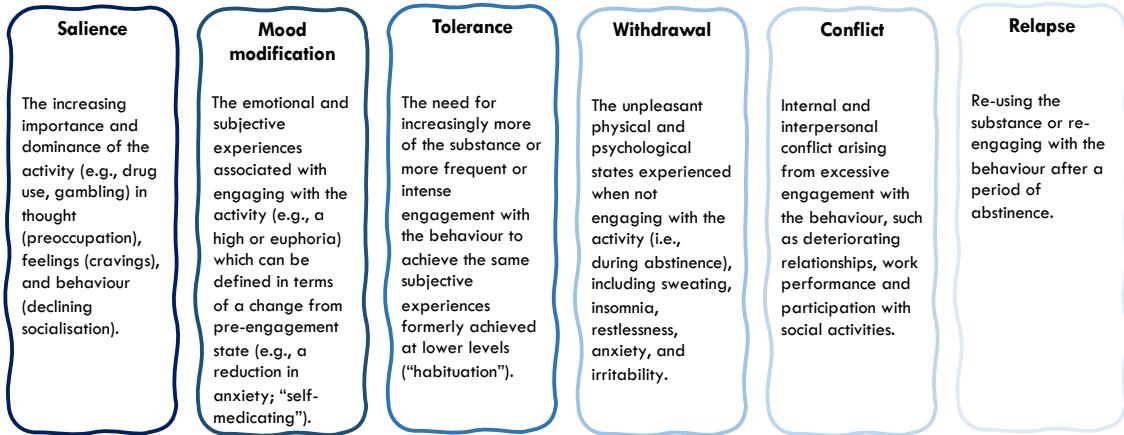
It's different from another type of general life experience, from hobbies and likes, and is something that someone is suffering from rather than choosing to do

This recent definition is more detailed and there is the notable additions of a person’s environment and life experiences as playing a role (compared to an older one by the ASAM)

## Addiction

What does it mean to be “addicted”?

**Components model (Griffiths, 2005):** A person is only addicted if they meet the following six criteria:



One approach is to focus on the symptoms or experiences of those with addictions

One set of well-established core addiction symptoms comes from the components model proposed by professor Mark Griffiths in 2005.

He argues that a person is only addicted to gambling or smartphones or skiing or whatever it may be if they meet 6 criteria that are common to all addictions:

Conflict: it could be argued that this component would not apply to some addictions, namely caffeine and smoking addictions, which are highly common in today's society but do not tend to lead to major conflict in a person's life.

Perhaps the same could also be said in regards to parts of the definition of salience, that these addictions would not meet that criterion

RELAPSE: which could be argued to be synonymous with impaired control over the behaviour, a commonly emphasised feature of addictions

## Addiction

What does it mean to be “addicted”?



**Sussman & Sussman (2011):** All forms of addiction

share five common elements:

- (1) Appetitive effects
- (2) Preoccupation with the behaviour
- (3) Temporary satiation
- (4) Loss of control
- (5) Negative consequences associated with the behaviour.

- Compulsivity & cue sensitivity (Incentive sensitisation theory; Berridge et al., 1989, 2011, & 2016; Perales et al., 2020)
- Opposing affective cycles, increasingly worsening withdrawal, & tolerance (opponent process theory; Solomon & Corbit, 1974)

Several other researchers have attempted to define the key symptoms of addictive disorders, and I will cover a select few of these here:

First, **Sussman and Sussman** undertook a somewhat systematic search of the addictions literature and came to the conclusion that all addictions share 5 common symptoms or signs:

- (1) the behaviour is engaged in so as to achieve some form of appetitive effect [e.g., reduction in pain, enjoyment, arousal, fantasy] so, positive or negative reinforcement
- (2) a preoccupation with the behaviour, including cravings and (strangely) tolerance and withdrawal symptoms,
- (3) there's temporary satiation (the sense of gratification, relief or balance achieved from engaging in the behaviour that follows a period of subjective discomfort [withdrawal], resulting in a temporary state of satiation or reduction in appetite for the behaviour),
- (4) loss of control over the behaviour or impaired decision making
- (5) negative consequences associated with the behaviour, say physical, vocational, or psychological harms,

Several authors and theories place **compulsivity and cue sensitivity at the heart of addictive disorders, including the incentive sensitisation theory that we don't have time to fully discuss, but according to this theory and** other proponents of this perspective someone who is addicted displays compulsive behaviours, or a strong need or compulsion to engage in the behaviour, and this compulsion is often triggered by stimuli related to the behaviour, be it gambling or alcohol use.

Again harking back to last week's lecture, the Opponent Process theory of addiction would propose that addictive disorders are characterised by opposing affective states, from euphoria to dysphoria, and a related process of tolerance.

BUT. TOLERENCE != addiction. We all develop tolerances to things...

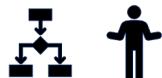
# Addiction

## Theories of addiction

### Traditional distinction between:



- **Medical/disease model:** Impaired control over urges/ cravings:
  - Clear biological effects of drug use
  - Reduced stigma, blame
  - Importance of treatment/ rehabilitation emphasized



- **Rational choice model:** Characterised by voluntary behaviour under control:
  - Increased personal responsibility
  - Increased sense of control & decision making
  - Many cases cease without treatment (e.g., Robins et al., 1974)

Okay, so to briefly distinguish to the two approaches, the medical or disease model of addiction views drug use in those who are addicted as compulsive, and that they lack of control over the behaviour.

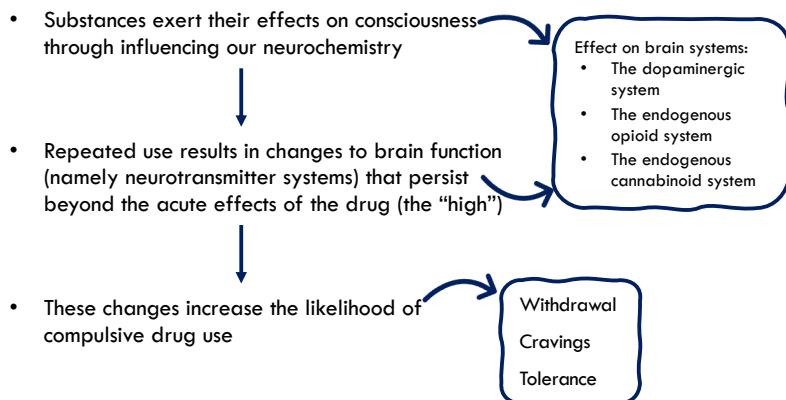
It emphasises the biological effects of drugs, and seeks to reduce the stigma around those with addictions, and in turn highlight the need for treatment over punishment—an issue for hospitals not prisons

In contrast, rational choice models of addiction emphasise personal responsibility and poor decision-making in the addictive process, and they adduce evidence of people recovering from addictions without any formal treatment to support the view that people always have control over their substance use

## Addiction

### Theories of addiction: Biological explanation

#### The ‘hijacked’ brain?



Okay, so one of the fundamental pillars of the medical model comes from the biological explanation of addiction.

We know that the psychoactive effects of substances are the result of their influence on our natural neurochemistry, increasing or upregulating the effects of certain neurotransmitters, and decreasing or down regulating the effect of others. And although drugs are exogenous substances (external to the body) they all act upon the existing architecture, influencing or mimicking endogenous neurotransmitters for transient period of time.

But according to the biological explanation of addiction, repeated use of substances lead to long-term changes in brain function that exist even after the "high" subsides.

It is these neurological changes that lead to further use and eventually compulsive use of the drug, causing classical symptoms of addiction like withdrawal experiences, cravings or urges, and tolerance, or the need for increasing amount of the substance to achieve the same level of stimulation or high.

And the central tenet of this position is that these neurobiological adaptations and their outward manifestations cause and characterise addiction; hence the “hijacked” brain notion that has been popularly espoused by some.

---

endogenous cannabinoids are molecules made by your body. They're similar to cannabinoids, but they're produced by your body.

Experts have identified two key endocannabinoids so far:

- anandamide (AEA)

- 2-arachidonoylglycerol (2-AG)

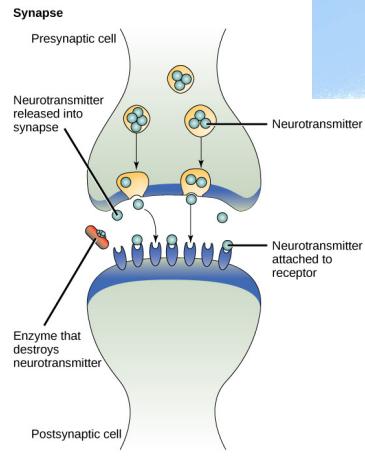
Still determining exact role but linked to many, many things, including sleep, pain, metabolism, appetite, stress, liver function, mood.

## Addiction

### Theories of addiction: Biological explanation

- Consuming alcohol affects:
  - GABA (gamma-aminobutyric acid)
  - Glutamate
  - Dopamine
  - Serotonin
  - Endogenous opioids...
- Defining changes to GABA and glutamate systems

– GABA ↑      + Glutamate ↓



There is substantial evidence for this biological explanation of addiction across substances.

Alcohol alone affects the following neurotransmitters....

The effect on GABA and glutamate systems are particularly pronounced.

**GABA** is the primary inhibitory neurotransmitter, which means it **decreases** the action potential of a neuron. When the action potential drops below a certain level, known as the threshold potential, the neuron **will** not generate action potentials and thus not excite nearby neurons.

**Glutamate**, on the other hand, is the primary excitatory neurotransmitter, meaning it **increases** the neuron's action potential.

When we drink alcohol it results in an up regulation of GABA function and down regulation of glutamate, hence why alcohol is **classified as a central nervous system depressant**.

If we drink chronically, and excessively over time, our bodies, being the clever

machines that they are, adapt to these effects on our neurotransmitter systems by increasing the number of a specific type of glutamate receptor, allowing neurons to better utilise the decreased amount of glutamate available.

Anyway, so remember chronic alcohol use leads our body to increase the number of receptors available for glutamate to bind to. But when people **stop drinking alcohol, there is a sudden resurgence of available glutamate; this combined with the increased number of receptors results in a toxic state known as glutamate excitotoxicity**, which is strongly linked to the severe withdrawal episodes experienced by those with alcohol addictions, and can actually result in long-term brain damage if not treated appropriately.

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Notes: *A single neuron may have thousands of other neurons synapsing onto it. Some of these release activating (or depolarizing) neurotransmitters; others release inhibitory (or hyperpolarizing) neurotransmitters*

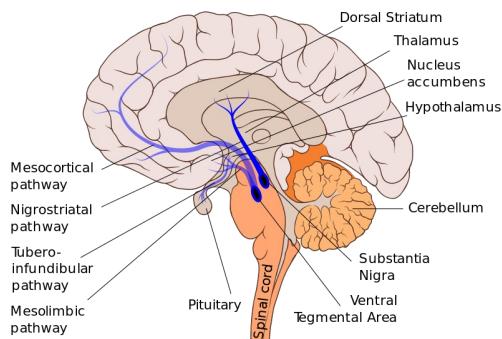
So, we know that neurons **communicate with each other through neurotransmitters crossing the divide between them known as the synaptic cleft**.

There are several process involved in this, first the **neurotransmitters are released from synaptic vessels, they move across the synaptic cleft until they reach the specific receptor to which they bind, like a key in a lock**, resulting in increases or decreases in the action potential of the postsynaptic neuron, depending on the neurotransmitter.

**Some transmitters never make it to a receptor and are reabsorbed into the presynaptic neuron in a process known as reuptake.**

## Addiction

### Theories of addiction: Biological explanation



Source: [Wiki Commons](#)

Concentrations of dopamine increase following the use of most drugs, including:

**Alcohol, Nicotine, Cannabis,  
Opioids, Cocaine, Amphetamines**

*"Although the reinforcing value of drugs and the development of addiction involve multiple areas and neurotransmitter systems that differ by drug-of-abuse, the DA system is of central importance to all"* (Taber et al., 2012)

So that's alcohol, but I'm sure you've all heard more about the role of dopamine in addiction.

Dopamine is **colloquially known as the pleasure neurotransmitter**, and is mostly involved in learning and reinforcement in relation to primary rewarding behaviours (food, sex etc.), although it is also involved in motor control, hence why a deficiency in certain regions results in Parkinson's disease.

And it is thought to be crucial in the reinforcing effects of most drugs. Confirming this, neuroimaging research shows that the dopaminergic systems are heavily involved in all addictive disorders. The two primary systems are the....

### Mesolimbic pathway

### Mesocortical pathway

All drugs of abuse activate the mesolimbic dopamine pathway, and they appear to result in longer, more prolonged activations of dopaminergic systems than natural stimuli.

<https://www.sciencedirect.com/topics/neuroscience/mesolimbic-pathway> :

THAT SAID, dopamine appears to be most important for addictions to stimulant drugs and alcohol (that is, its most stimulated by these drugs), and less important for cannabis and opioid addiction.

- "The mesolimbic and mesocortical pathways, two of the brain's major dopaminergic pathways, have been implicated as key circuits that are disrupted

in addictive behaviors (Blum et al., 2012). Both pathways originate primarily in the ventral tegmental area (VTA); the mesolimbic pathway projects to the nucleus accumbens, and is a part of complex circuits involving the amygdala, hippocampus, and the bed nucleus of the stria terminalis (Fig. 2A). In contrast, the mesocortical pathway projects primarily to the prefrontal cortex”

---

Dopaminergic system and reward processing. Dopaminergic neurons are located in the midbrain structures **substantia nigra (SNc)** and the **ventral tegmental area (VTA)**. Their axons project to the **striatum (caudate nucleus, putamen and ventral striatum including nucleus accumbens)**, the **dorsal and ventral prefrontal cortex**. The mesolimbic dopamine pathway mediates the psychopharmacology of reward, whether that is a natural high or a drug-induced high, and is sometimes referred to as the pleasure center of the brain, with dopamine as the pleasure neurotransmitter.

Alcohol also promotes the production of dopamine within the mesolimbic dopamine pathway (see picture), a process which is thought to underlie to some degree or another almost all types of addiction, as well as non-pathological reward-seeking behaviours such as our search for food, sex and sensation seeking activities

<https://neuro.psychiatryonline.org/doi/full/10.1176/appi.neuropsych.24.1.1>

DA neurons increase activity in response to unexpected rewards and to stimuli that predict receipt of a reward (expectation or anticipation). During conditioned-learning, the increased activity in DA neurons shifts from the time of reward-receipt to the time of the reward-predicting stimulus. Activity is only increased by rewards if they are greater than predicted (positive prediction error). DA neurons also decrease activity when reward-expectation is not met (negative prediction error). If receipt of a reward is delayed, activity in these neurons decreases at the time the reward was expected, but did not occur, and increases when the reward is actually received. Much of behavior is guided by prediction of the future, based on past experiences.

Backup image: [https://www.shutterstock.com/image-photo/molecular-structure-model-structural-chemical-formula-1497032951?irgwc=1&utm\\_medium=Affiliate&utm\\_campaign=Pixabay+GmbH&utm\\_source=44814&utm\\_term=https%3A%2F%2Fpixabay.com%2Fimages%2Fsearch%2Fdopamine%2F](https://www.shutterstock.com/image-photo/molecular-structure-model-structural-chemical-formula-1497032951?irgwc=1&utm_medium=Affiliate&utm_campaign=Pixabay+GmbH&utm_source=44814&utm_term=https%3A%2F%2Fpixabay.com%2Fimages%2Fsearch%2Fdopamine%2F)

## Addiction

### Theories of addiction: Biological explanation

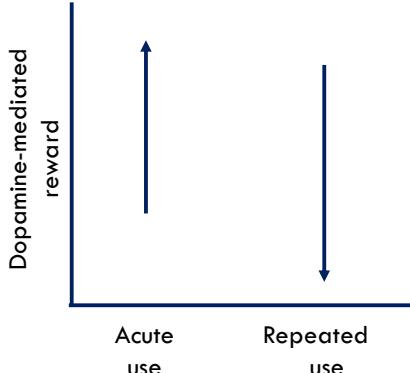
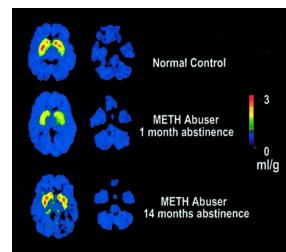
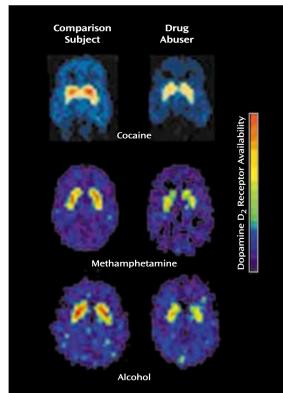


FIGURE 4. Lower Striatal Dopamine D<sub>2</sub> Receptor Binding in Drug Users During Withdrawal From Cocaine, Methamphetamine, and Alcohol Than in Normal Comparison Subjects



Source: Volkow et al. (2001)

Source: Goldstein & Volkow (2011)

A key observation in relation to drug use and dopamine is that... Downregulation of dopamine system with repeated administration.

There is a decrease or “blunting” effect whereby dopamine expression is reduced in response to rewarding stimuli

One related observation in those with addictions is that the Dopamine D<sub>2</sub> receptors in the striatum are typically damaged or fewer in numbers, as can be seen in this image comparing controls with addicted subjects.

- One study has even shown that the non-alcoholic relatives of alcoholics who are “protected” appear to have higher than normal D<sub>2</sub> receptor availability, suggesting they’re protective of addiction (Volkow, et al., 2006; cited at end)

Interestingly, many of the changes in dopamine systems we see in these neuroimaging studies resolve over time with abstinence implicating drug use as the CAUSE of the changes.

THIS 2<sup>ND</sup> IMAGE REFERS to dopamine transporter density, which have been used as markers of DA terminals in the brains of METH abusers.

Although, there is also some clear evidence that D<sub>2</sub> receptor function and presence are influenced by genetic variants which predisposes people to addictions and engaging in risk-seeking behaviour.

Dopaminergic system and reward processing. Dopaminergic neurons are located in the midbrain structures **substantia nigra (SNc)** and the **ventral tegmental area (VTA)**. Their axons project to the **striatum (caudate nucleus, putamen and ventral striatum including nucleus accumbens)**, the **dorsal and ventral prefrontal cortex**. The mesolimbic dopamine pathway mediates the psychopharmacology of reward, whether that is a natural high or a drug-induced high, and is sometimes referred to as the pleasure center of the brain, with dopamine as the pleasure neurotransmitter.

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## Addiction

Theories of addiction: Is addiction a “brain disease”?

### The Brain Disease Model of Addiction

- Evidence of neurobiological adaptations in those with substance use disorders (beyond neurotransmitter systems)
- Helps to remove the stigma of “addicted by choice”?
- Conceptualising as a disease argues against criminalisation for use
- Highlights importance of treatment/intervention to support recovery

Alan I. Leshner, Ph.D.

### Addiction Is a Brain Disease, and It Matters

Scientific advances over the past 20 years have shown that drug addiction is a chronic, relapsing disease that results from the prolonged effects of drugs on the brain. As with many other brain diseases, addiction has embedded behavioral and social-context aspects that are important parts of the disorder itself. Therefore, the most effective treatment approaches will include biological, behavioral, and social-context components. Recognizing addiction as a chronic, relapsing brain disorder characterized by compulsive drug seeking and use can impact society's overall health and social policy strategies and help diminish the health and social costs associated with drug abuse and addiction.

So, with this increasing understanding of the underlying neurobiology of addiction, one important question addictions researchers have been asking for the last 30 years is: is addiction a brain disease?

In 1997, the then director of the US National Institute on drug abuse, Alan Leshner famously asserted that addiction is a brain disease (paper in image) in a now-seminal paper this has been the source of much discussion and debate

- There was even mention of addiction as the disease earlier than this, right back to the 1940s with the work of Elvin Morton Jellinek, a pioneer of modern addiction studies, who was one of the first to label alcohol addiction as a disease.

There are certainly some benefits to considering addiction is a brain disease

Hospitals not prisons

# Addiction

## Theories of addiction: Is addiction a “brain disease”?

### Addiction is not a brain disease (and it matters)

Neil Levy \*

Florey Institute of Neuroscience and Mental Health, The University of Melbourne, Parkville, VIC, Australia

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The claim that addiction is a brain disease is almost universally accepted among scientists who work on addiction. The claim's attraction rests on two grounds: the fact that addiction seems to be characterized by dysfunction in specific neural pathways and the fact that the claim seems to be the compassionate response to people who are suffering. I argue that neural dysfunction is not sufficient for disease: something is a brain disease only when neural dysfunction is sufficient for impairment. I claim that the neural dysfunction that is characteristic of addiction is not sufficient for impairment, because people who suffer from that dysfunction are impaired, sufficiently to count as diseased, only given certain features of their context. Hence addiction is not a brain disease (though it is often a disease, and it may always involve brain dysfunction). I argue that accepting that addiction is not a brain disease does not entail a moralizing attitude toward people who suffer as a result of addiction; if anything, it allows for a more compassionate, and more effective, response to addiction.

Keywords: addiction, disease, well-being, agency, dysfunction

### Concerns with the Brain Disease Model

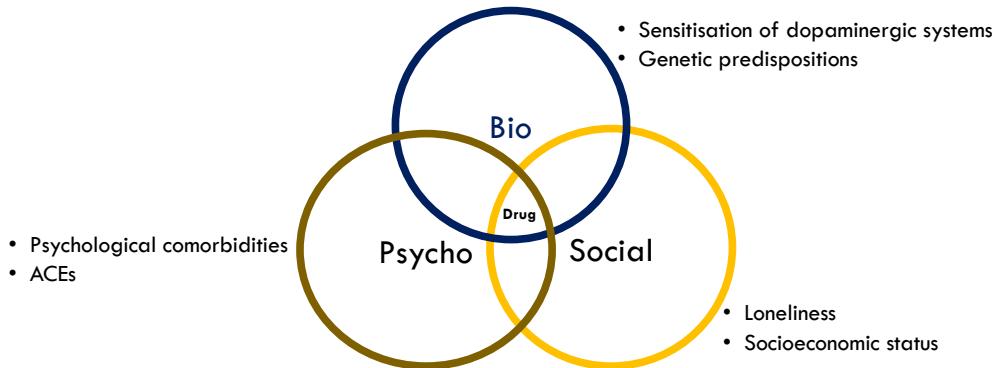
- Minimizes important social & environmental stresses like loneliness, poverty, violence, & other psychological & environmental factors
- Deflects responsibility over actions: ‘*My brain made me do it!*’
  - *Self-control & free-will central to philosophical debates in addiction*
- Promotes a fatalistic outlook
- Unhelpful perspective for therapy?

However, the brain disease label is the source of much contention within the addictions field.

Critics of this perspective argue that....

## Addiction

Theories of addiction: Biopsychosocial model



Fortunately, the dominant theoretical framework in addiction science is the *biopsychosocial framework, and not simply a biological perspective. Even some of the most hard-nosed proponents of the disease model espouse this view.*

*According to the biopsychosocial conceptualisation.... Addiction results from a multifactorial interaction between various factors.*

Much more aligned with our focus on health psychology

FOUNDATION OF HEALTH PSYCHOLGY

## Addiction

Theories of addiction: Biopsychosocial model

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### Toward a Syndrome Model of Addiction: Multiple Expressions, Common Etiology

Howard J. Shaffer, PhD, CAS, Debi A. LaPlante, PhD, Richard A. LaBrie, EdD, Rachel C. Kidman, BA,  
Anthony N. Donato, MPP, and Michael V. Stanton, BA

**Core tenets of the Syndrome Model:**

- Each addictive disorder is a distinctive manifestation of the same underlying syndrome
- The Syndrome results from the interaction between common biopsychosocial factors
- The objects or foci of addiction are less important than we have previously assumed
- Not all symptoms are present in every manifestation

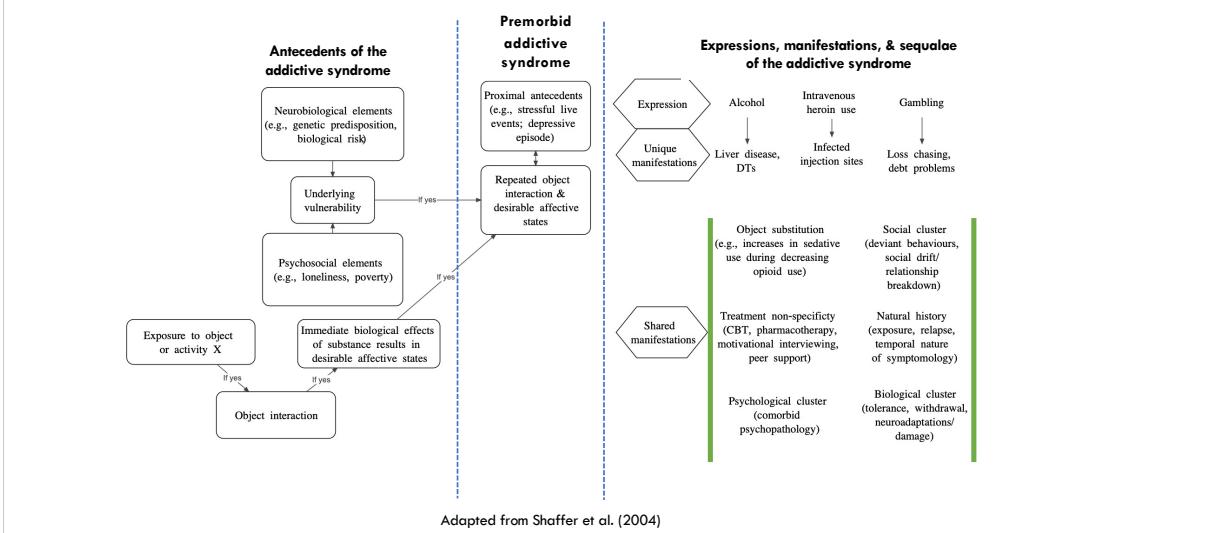
Perhaps one of the most complete and useful biopsychosocial theories of addiction is the syndrome model, proposed by a group of addictions researchers in Harvard University that we actually work quite closely with in our clinic.

According to this theory:

- Addiction is a syndrome with multiple possible expressions;
- each expression is similar in terms of the antecedents, the underlying aetiology, the maintaining factors, symptoms experienced, the course of disorder, and effective treatment options
- And if all addictions are a common syndrome, then the specific activity or drug a person's addicted to doesn't matter.
- So they argue that we shouldn't ask whether certain activities are addictive, as almost any activity or substance with hedonic properties could become the focus of an addiction given the right circumstances, the focus is less relevant as the syndrome remains the same.

# Addiction

## Theories of addiction: Biopsychosocial model



## Part 2: Behavioural Addictions

33

## Addiction

Behavioural addictions: Can we be addicted to anything?

### 6 Signs You're Addicted To Investing

By James Kerin | Updated March 30, 2017 — 4:49 PM EDT

Stock trading has long been reserved for those Type A personalities who are strong, driven and smart. For many, it's a win-at-all-cost game which means logging long hours in front of a computer screen, researching and trading stocks. But while a strong work ethic should be applauded, there's a fine line between working hard and being addicted to trading. And that line can mean the difference between making sound investment decisions and gambling away money. Although it may be hard to identify someone who is **addicted to trading**—after all they aren't falling down drunk or calling in sick all the time—some telltale signs can clue you in.

#### MODERN MEDICINE

### Internet addiction is sweeping America, affecting millions

- Like alcohol and drugs, the internet provides a high, resulting in problematic overuse.
- For the first time, a study on internet addiction — focusing specifically on online gaming — is being funded by The National Institutes of Health to determine the best form of treatment. It kicks off this week.

### 'I'm an addict and IVF is my drug': Meet the couple whose obsession is costing them everything

Jo and Chris Logston have been through six draining rounds of IVF at a cost of £35,000—but they have no intention of giving up just yet



### Addicted to tanning: When it's about more than achieving 'a healthy glow'



So, if you follow the popular media you must be starting to think by now that we are all addicted to something.

Almost on a weekly basis there's some new article claiming someone's addicted to yoga or tetris or whatever it may be....

These are just some of the many many claims of "addiction" in news headlines that grab people's attention

Investing, IVF, Internet addiction, and tanning to name a few.

Tiger king -- binge watching

## Addiction

Behavioural addictions: Can we be addicted to anything?

### The Media Have a Trump Addiction

Who's covering that story?

By Tom Engelhardt

MARCH 22, 2018



*"A very serious disease is affecting our nation's cable news anchors: an addiction to reporting non-stop on Donald Trump. Sure, it's fun to report on Trump every now and again. Everything's good in moderation! But for some people, normal coverage just isn't enough. It's gotten so bad that -- even in the face of issues like gun control and income inequality -- news anchors are pushing important topics to the back burner, just so they can report wall-to-wall on Trump's blowhard gimmicks".*

[Source](#)

One of my favourites: Trump addiction, which I'm hoping was said more tongue-in-cheek than seriously.

## Addiction

Behavioural addictions: Can we be addicted to anything?



news | review

### New addictions for a different crowd

Adam Lucifer

**Y**ou'd have times as changing at Manly Croquet Club when players start rocking up on electric guitars.

Grace McNaught, 33, and Cam Currie, 35, are leading a pack of younger people to take up the sport, described as smoke-free meets chess on grass. After years in their scooters outside the 115-year-old club's back door, a pack of guitars can't keep them away just off the Harris Farm roundabout. The young, recently-arrived northern beaches couple explain why this is the sport that has hooked them. "We were going for a walk around the neighbourhood and saw the

club and wanted to know more and wanted to get involved in the community, so we came to one of the social days and immediately got addicted," Mr McNaught, a clinical psychologist, said. "It's a lot like mini golf. You have to use strategy to get around the course and fire your brain. What's cool to like? You're outside in such nice surroundings and can also enjoy a social drink with friends."

Mr Currie, who works in IT and is helping the club get up to speed with its website, was similarly enamoured with the game and its environment. He said: "I had this some old person image until they dropped some of the pretense and brought in younger players, who then found the same thing is starting to happen here. I actually think it's better than bowls because there is more strategy involved. We were looking for a place to go and look at where we go to play."

Manly Croquet Club president Geoff Jones said: "Cam doesn't shy away from the fact new players are required to keep the organisation

afford. It costs around \$30,000 annually to maintain the three lawns and there are currently 81 members paying an annual membership fee for him and his wife as club members." Mr Currie said: "Would be great to see more people to recruit younger players. It would be great to see more people but younger players bring fresh enthusiasm. We think it's a great place to go to play and it's a very sociable club."

There is even a choice between association croquet (the traditional game) or polo (for more experienced players). For information on membership, call 0404 675 733. Currie on 0404 675 733.

NEWCOMERS: Grace McNaught and Cam Currie at the Manly Croquet Club. Picture: Geoff Jones

180 YEARS Australian Unity Real Wellbeing

## Addiction

### Behavioural addictions: Can we be addicted to anything?

FULL-LENGTH REPORT

Journal of Behavioral Addictions 7(1), pp. 158–170 (2018)

DOI: 10.1556/2006.7.2018.15

First published online February 19, 2018

#### Instagram addiction and the Big Five of personality: The mediating role of self-liking

KAGAN KIRCABURUN<sup>a</sup>\* and MARK D. GRIFFITHS<sup>b</sup>

<sup>a</sup>Faculty of Education, Department of Computer and Instructional Technologies, Duzce University, Duzce, Turkey

<sup>b</sup>International Gaming Research Unit, Psychology Department, Nottingham Trent University, Nottingham, UK



Computers in Human Behavior

Volume 61, August 2016, Pages 478-487

Full length article

#### The Social Media Disorder Scale

Regina J.J.M. van den Eijnden<sup>a</sup> Jeroen S. Lemmens<sup>b</sup> Patti M. Valkenburg

Show more

<https://doi.org/10.1016/j.chb.2016.03.038>

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Study

April 2010

FREE

#### Addiction to Indoor Tanning

#### Relation to Anxiety, Depression, and Substance Use

Catherine E. Moshé, PhD; Sharon Danoff-Burg, PhD

Author Affiliations | Article Information

Arch Dermatol. 2010;146(4):412-417. doi:10.1002/archdermatol.2009.385

#### Abstract

**Objective** To assess the prevalence of addiction to indoor tanning among college students and its association with substance use and symptoms of anxiety and depression.

292

Current Psychiatry Reviews, 2012, 8, 292-298

#### Internet Addiction: A Brief Summary of Research and Practice

Hilarie Cash<sup>a</sup>, Cosette D. Rae<sup>a</sup>, Ann H. Steel<sup>a</sup> and Alexander Winkler<sup>b</sup>

<sup>a</sup>reSTART Internet Addiction Recovery Program, Fall City, WA 98024; <sup>b</sup>University of Marburg, Department for Clinical Psychology and Psychotherapy, Gunzenbergstraße 18, 35032 Marburg, Germany

**Abstract:** Problematic computer use is a growing social issue which is being debated worldwide. Internet Addiction Disorder (IAD) rains lives by causing neurological complications, psychological disturbances, and social problems. Surveys in the United States and Europe have indicated alarming prevalence rates between 1.5 and 8.2% [1]. There are several studies on IAD and its consequences, but there is a lack of research on treatment. This paper summarizes some reviews [6-8] addressing the treatment of IAD. The aim of this paper is to give a preferably brief overview of research on IAD and theoretical considerations from a practical perspective based on years of daily work with clients suffering from Internet addiction. Furthermore, with this paper we intend to bring a practical experience to the debate about the eventual inclusion of IAD in the next version of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM).

**Keywords:** Addiction, Computer, Internet, reSTART, Treatment

And it's not just the popular media, the expanding application of the term addiction is seen in the academic literature too.

And there is a bit of a chicken and egg situation going on, sometimes the first mention is in media and then in academic papers, and sometimes it's other way around

We have Instagram addictions, general social media addictions, serious studies of tanning addiction, and of internet addiction

# Addiction

## Behavioural addictions



**Behavioural addiction, nonchemical addiction, non-drug addiction, non-substance addiction...**

### Definitions:

- Repetitive persistent behaviours resulting in significant harm or distress that causes functional impairment (Marks, 1990)
- "A repeated behaviour leading to significant harm or distress. The behaviour is **not reduced by the person and persists over a significant period of time**. The harm or distress is of a functional nature" (Kardefelt-Winther et al., 2017)

### Entire new (sub)field:

- Addictive Behaviors, Psychology of Addictive Behaviors
- 2012: JBA established achieving a high impact factor of now ~5!

Okay, so these addictions are known under several different labels, including....

An early definitions of this type of addiction describes the concept reasonably well, although this definition could easily cover compulsive behaviours as observed in obsessive compulsive disorder or during psychotic episodes.

Interestingly, nearly 30 years later and the definition remains almost identical!

This isn't some obscure area scientific endeavour,

There are entire journals dedicated to studying behavioural addictions, most notably Journal of behavioural addictions which probably contains the Broadest array of behavioural addiction studies.

## Addiction

### Behavioural addictions

## Gambling disorder

### History & classification

#### DSM-III (1980) to - IV-R (2000): Pathological Gambling

Impulse control disorder: Not Elsewhere Classified, along with:

- Kleptomania (*compulsive shoplifting*)
- Pyromania (*compulsive fire-setting*)
- Trichotillomania (*compulsive hair-pulling*)

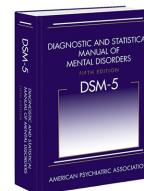


#### DSM-5 (2013): Gambling disorder

Introduced a new category:

- Substance-related and addictive behaviours
- Non-substance-related disorder

Reclassified pathological gambling as gambling disorder



Okay, now we know a little bit about behavioural or non-drug addictions in general, let's consider some specific types of behavioural addictions in more detail.

The most-recognised behavioural addiction is gambling disorder and so that's a good place to start. It was the first behavioural addiction to be recognised in both the DSM and ICD,

Although in the previous versions of the DSM it was known as pathological gambling and was classified as an impulse control disorder, along with disorders like kleptomania, pyromania, and trichotillomania.

Still, the symptoms of pathological gambling in this edition did mirror those of substance use disorders.

2013 big advancement in the recognition of "behavioural addictions" – landmark change

Why change in name and grouping?

Pathological – "Officially changing the name to "Gambling Disorder" is a welcome revision for many researchers and clinicians who have expressed concern that the label "pathological" is a pejorative term that only reinforces the social stigma of being a problem gambler"

([https://icrg.org/sites/default/files/uploads/docs/white\\_papers/nrcg\\_wpdsm5\\_may2013.pdf](https://icrg.org/sites/default/files/uploads/docs/white_papers/nrcg_wpdsm5_may2013.pdf))

## Addiction

### Behavioural addictions

#### (Internet) Gaming disorder

##### History & classification

Earlier versions of DSM and ICD: No mention

2008: Internet gaming recognised by Chinese government as a disorder with policies & treatment services provided in later years

2013, DSM-5: Internet Gaming Disorder included in Section III  
**(Conditions for Further Study)**

2018, ICD-11: Officially recognised as a **disorder** (*Gaming disorder*) prompted by a large evidence base of (*questionable?*) research demonstrating gaming addiction & related harms

Moving on, now we'll briefly cover Internet gaming disorder.

First, a little on its history.

WHO "The inclusion of gaming disorder in ICD-11 follows the development of treatment programmes for people with health conditions identical to those characteristic of gaming disorder in many parts of the world, and will result in the increased attention of health professionals to the risks of development of this disorder and, accordingly, to relevant prevention and treatment measures." 0

# Addiction

## Behavioural addictions

Kardefelt-Winther et al. (2017): What is **not** an addiction?

A behavioural addiction is:

- “A repeated behaviour leading to significant harm or distress. The behaviour is **not reduced by the person and persists over a significant period of time**. The harm or distress is of a functional nature”



It **isn't** a behavioural addiction if:

1. The behaviour is better explained by an underlying disorder (e.g., a depressive disorder or impulse control disorder). X
2. The functional impairment results from an activity that, although potentially harmful, is the consequence of a wilful choice (e.g., high level sports). X
3. The behaviour can be characterised as a period of prolonged intensive involvement that detracts time and focus from other aspects of life, but does not lead to significant functional impairment or distress for the individual.
4. The behaviour is the result of a coping strategy. X

## Addiction

### Behavioural addictions

#### Are we pathologizing everyday behaviours?

- Rapid escalation of behaviours becoming labelled as 'addictions' (Billieux et al., 2015)
- Medicalization/pathologizing of reward seeking behaviours by attaching medical names, diagnostic instruments, & suggested treatments
- Many "behavioural addictions" simply maladaptive coping or emotional dysregulation? (Perales et al., 2020)
- Are behavioural addictions & drug addictions the same?
  - How can we tell if someone has an addiction?

*"considerable resources are being diverted to conduct research on excessive behaviours that lack indications of functional impairment, psychological distress or a clear separation from normative behaviour in context... [and] if this expansion does not end, both the relevance and credibility of this field might be questioned."*

Kardefelt-Winther et al. (2017)

So, as we've discovered, the term addiction is being increasingly applied to various rewarding behaviours

Naturally, concerns have been raised that we may be over-pathologizing every day behaviours, just because somebody exercises a lot does that mean they have an addiction? The same with spending time on your phone? Or tanning a lot.

Could we actually better characterise these behaviour patterns as maladaptive coping strategies or, relatedly, a disorder of emotional regulation?

One of the key concerns is that if we call everything an addiction then the term will lose meaning when it's properly applied to more established addictions like alcohol, methamphetamine or gambling disorders, where the addiction is serious and even life-threatening

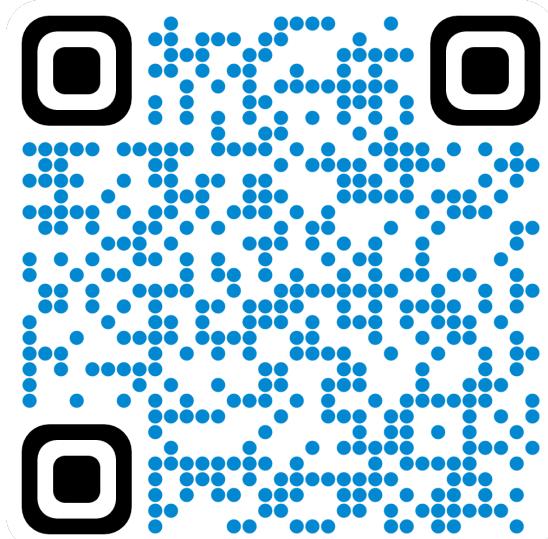
Considering this, an important question to ask is are these behaviour patterns actually addictions in the same sense as someone who's addicted to alcohol or heroin?

A good starting point for answering this question is to define the core symptoms of addiction, then we can start to look whether each of these purported behavioural addictions could qualify as a true addiction

## Addiction

### Behavioural vs. drug addictions

Are behavioural and drug addictions characterised by/  
diagnosed according to similar symptoms?



[Link](#)

Okay, now we've covered some of the core symptoms of addictions, let's look at how behavioural and drug addictions compare in terms of their symptomology.

I've picked alcohol and gambling addictions as the archetypal drug and behavioural addictions, respectively, and I've included both the DSM and ICD's list of symptoms for both conditions.

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<https://rob-heirene.super.site/what-does-it-mean-to-be-addicted-part-1>

## Addiction

Behavioural vs. drug addictions



### Similarities

- Similar (although not identical) symptomology (Griffiths, 2017)
- Similar neurobiological effects & risk factors (D2 receptors, frontal matter structure and perfusion, Leeman & Potenza, 2013)
- Evidence of heritability (Leeman & Potenza, 2013)
- Phenomenology
- Treatment options



### Differences

- Absence of exogenous substance with psychoactive effects
- Absence of damaging biological effects (cognitive dysfunction, biological/physiological sequelae)
- No severe withdrawal syndrome
- Withdrawal & tolerance less relevant (Kardfelt-Winther et al., 2017)

Genetic vulnerability for gambling disorder. Although whether this is actually due to environmental factors and not specific genetic traits I believe that remains uncertain. Even if there is a clear genetic link, as with most of these things, it's unlikely that there's a specific gene that makes people become problem gamblers, instead there may be a gene or combination of genes that have broader effect on psychological and/or emotional function which increase the likelihood of someone becoming a problem gambler, especially when combined with other risk factors such as adverse life experiences or high-levels of alcohol use. So, there's an indirect association, rather than a clear causal genetic link.

So the most obvious difference is **the absence of an exogenous substance with psychoactive effects** and the role this plays in characterising addiction

**Absence of damaging biological effects (cognitive dysfunction, sequelae):** so the memory problems or physical health complaints like liver disease are not present in behavioural addictions, which are to some extent characteristic of substance addictions

**No severe withdrawal syndrome:** so some withdrawal symptoms may be experienced, including cravings and negative affect, but the severe withdrawal syndromes observed following alcohol or opioid withdrawal that are characterised by

vomiting, chills, fevers, and so on, won't be experienced.

**Withdrawal & tolerance less relevant:** it's been suggested that withdrawal and tolerance are less common in behavioural addictions, and even if they are observed, they're less relevant for characterising the disorder in this context, which is something that we'll return to you in a few slides..

## Addiction

### Behavioural addictions

#### Pros & cons of labelling disordered behavioural patterns as “behavioural addictions”



##### Pros

- Medicalisation prompts development of treatments
- Greater research focus(?)
- Recognition/ validation of true conditions that people suffer from



##### Cons

- Diluting the significance of the term “addiction”
- Category becomes too internally heterogeneous (*is addiction still the right term?*)
- Pathologizes normal behaviour?
- Wasted time + resources?

## Addiction

Behavioural addictions: Some of the more bizarre ones so far...

Binge flying (Cohen et al., 2011) — coined by the popular media & studied academically



Selfies (Nagalingam et al., 2015)



Fortune-telling (Grall-Bronnec et al., 2015)



Salsa/ballroom dancing (Maraz et al., 2015)

The few studies of **binge flying** started after the term was coined by a reporter for the observer trying to describe our obsession with International travel.

Even Mark Griffiths, our behavioural addictions proliferator, takes some issue with this—in a blog article he says that he has no issue with the general concept of a flying addiction, but questions what people are actually addicted to? Is it travelling to new places? Is it actually being in the plane? If the latter then I think all those who suffer from binge flying are going first class to actually enjoy time on a plane!

And then we have selfie addiction, which I don't know too much about, but seems to me to be mostly likely a manifestation of some other psychological or cognitive dysfunction or vulnerability

Then the last two are my personal favourites...

And the best for last...

## Credits & Sources

If an image in this slideshow does not have a link to the source posted below it, then I have either taken the picture myself or taken it from the site [www.unsplash.com](http://www.unsplash.com) and clicking the image will take you to the original source on *unsplash*.

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