A Level Psychology

Year 2

Topic: Addiction

What's on the specification?

• Describing addiction: physical and psychological dependence, tolerance and withdrawal syndrome.

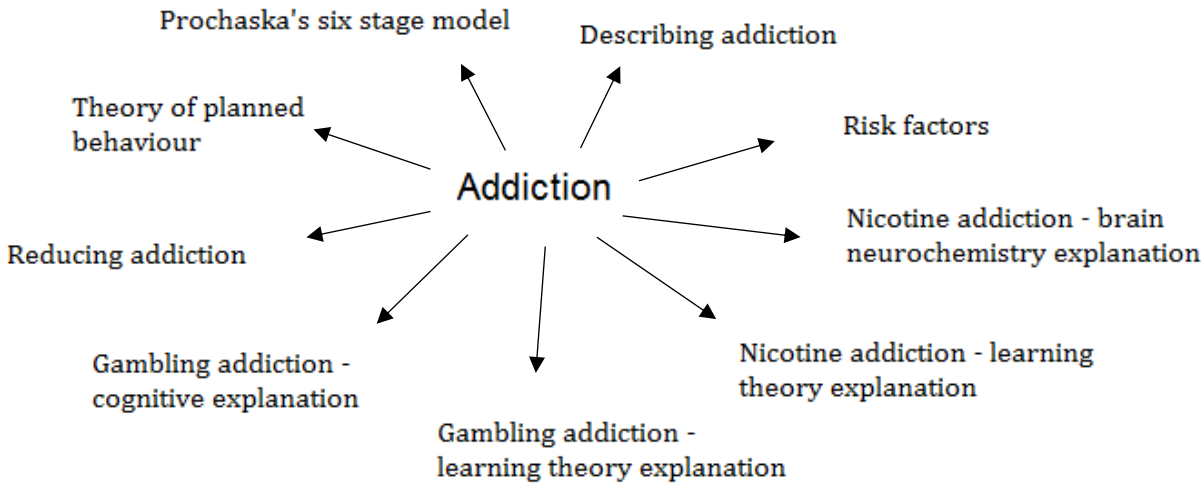
• Risk factors in the development of addiction, including genetic vulnerability, stress, personality, family influences and peers.

• Explanations for nicotine addiction: brain neurochemistry, including the role of dopamine, and learning theory as applied to smoking behaviour, including reference to cue reactivity.

• Explanations for gambling addiction: learning theory as applied to gambling, including reference to partial and variable reinforcement; cognitive theory as applied to gambling, including reference to cognitive bias.

• Reducing addiction: drug therapy; behavioural interventions, including aversion therapy and covert sensitisation; cognitive behaviour therapy.

• The application of the following theories of behaviour change to addictive behaviour; the theory of planned behaviour and Prochaska's six-stage model of behaviour change.



Describing Addiction

Define addiction:

What is dependence?

- **Physical dependence** is defined in terms of withdrawal. It's only possible to establish for certain that someone is physically dependent on a substance when they abstain from it. Physical dependence is said to have occurred when a withdrawal syndrome is produced by stopping the drug (see below).

- **Psychological dependence** refers to the compulsion to experience the effects of the drug, usually in terms of an increase in pleasure or a lessening in discomfort. Either way, taking the drug is followed by a reward. The consequence of psychological dependence is that the person will continually take the drug until it becomes a habit, despite the harmful consequences.

Addictive behaviours: Tolerance and withdrawal

- Tolerance

- Withdrawal

Laura is a long-term smoker who has always found having a cigarette relaxing – it calms her nerves and helps her to cope with stress. But she has found over the months that her daily intake has gradually crept up, and she doesn't get quite the same pleasure from smoking as she once did. However, she still gets cravings when she has to go a couple of hours without one.

Explain what is happening to Laura using the concepts of dependence and tolerance

Mick spends a lot of money playing online fruit machines for several hours most days. Although he's a bit worried he might be addicted, he loves the thrill and excitement of playing and it takes his mind off the stresses of his everyday life. But there are times when Mick can't get online, so he starts to feel irritable, anxious and jittery, just constantly thinking about fruit machines.

Explain Mick's behaviour using the concept of withdrawal syndrome

Risk factors in developing an addiction

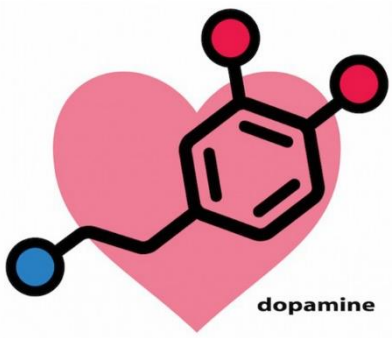
What makes some people more vulnerable to addiction than others? You need to know **five** risk factors:

- Genetics
- Stress
- Personality
- Family
- Peers

Genetics
Some people appear to be born with a genetic vulnerability to substance abuse.
For example:
Slutske et al (2010) – Gambling:

Vink et al (2005) – Nicotine:

It is also suggested that individuals who are vulnerable to drug addiction suffer from abnormally **low levels of dopamine** and a decreased ability to activate dopamine receptors in the reward centre of the brain. This means that anything that increases the amount of dopamine can produce strong feelings of euphoria. This is consistent with research findings, for example:
Blum et al (1990):



AO3

Stress

Stress as a risk factor for substance abuse is well established. People deal with stressful events in their life by engaging in behaviour that make them feel better or help them forget the stress. For example:

Self medication

The self-medication model proposes that some individuals intentionally use different forms of unhealthy behaviour to 'treat' the psychological symptoms they are experiencing from stressors in life.

Traumatic stress

People exposed to severe stress are more vulnerable to addiction. For example, Robins et al (1974)

Kessler et al (1995)

AO3

Personality
Research suggests that certain personality characteristics can predict addictive behaviour. Krueger et al (1998)

Research also suggests that there is a relationship between addiction and personality disorders such as **anti-social personality disorder**. A review of research in this area found that the following:

Group	**Prevalence of personality disorder**
Alcoholics	
Cocaine addicts	
Opiate addicts	

AO3

Family
Parents act as social models for their children, and research has shown that adolescents with substance abusing parents are more likely to abuse drugs themselves.

Reith and Dobbie (2011)

Parents can also act as a risk factor through their parenting style, particularly in terms of the degree of parental *control* and parental *warmth*. 'Authoritative' parents show warmth but also exert appropriate control, and this form of parenting is linked with high levels of psychological resilience and low levels of substance abuse in children.

AO3

Peers

Peers can exert their influence by introducing individuals to risky behaviours or pressuring them to take part.

Mary O'Connell et al (2009) suggest that there are three major elements to peer influence as a risk factor for **alcohol** addiction:

1. An at-risk adolescent's attitudes and norms about drinking *develop* by associating with peers who use alcohol
2. These experienced peers then provide more *opportunities* for the at-risk individual to use alcohol.
3. The individual ends up over-estimating how much their peers are drinking, which means they drink *more* to keep up with the perceived norm.

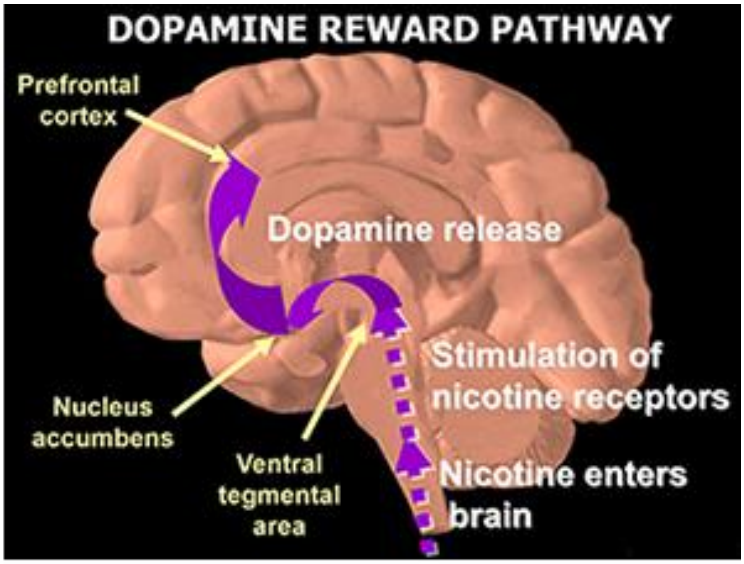
AO3

Nicotine Addiction: Brain Neurochemistry Explanation

The role of dopamine

Nicotine becomes addictive because it activates areas of the brain that regulate feelings of pleasure, i.e. the 'reward pathways'.

Nicotine binds to receptors on neurons in a region of the brain called the ventral tegmental area (VTA). These neurons trigger the release of dopamine in a nearby region of the brain called the nucleus accumbens (NAc). As well as *directly* causing the NAc to release dopamine, nicotine also stimulates the release of **glutamate**, which then triggers additional release of dopamine.



The role of glutamate, GABA and MAO

Glutamate speeds up the activity of neurons, and GABA slows down neuron activity.

Zickler (2003) discovered that nicotine's effects on glutamate and GABA are responsible for the longer-lasting pleasurable effects of nicotine.

Nicotine causes glutamate to speed up dopamine release, but nicotine also prevents GABA from slowing it down after dopamine levels have been raised. This combination of dopamine release and GABA inhibition results in increased dopamine and therefore increased reward and pleasure.

Cigarette smoke also contains an as yet unknown substance which blocks the action of an enzyme called MAO. MAO is normally responsible for breaking down dopamine after it has had its effects. Therefore, blocking MAO results in even higher dopamine levels, strengthening the smoking habit by maintaining the feelings of pleasure.

Draw a diagram to illustrate this process:

Brain neurochemistry – AO3:

Nicotine Addiction: Learning Theory Explanation

Nicotine addiction is characterised by three phases: initiation, maintenance and relapse (cue reactivity)

Initiation
Modelling and vicarious reinforcement

1

Operant conditioning

Maintenance
Positive reinforcement

2

Negative reinforcement

Relapse – cue reactivity
Classical conditioning

3

Learning theory – AO3:

Study	Description	Supports or contradicts?	Sum up in 3 words
Karcher & Finn (2005)			
Shiffman and Waters (2004)			
Wiers et al (2013)			
Lopez et al (1994)			