MODELS OF ADDICTIVE BEHAVIOUR

Kendler & Prescott (1998) assessed the role of genetic factors in dependency behaviours. A group of 1,934 female twins, aged 22–62 years, were interviewed about lifetime cocaine usage, with usage, abuse and dependence defined by DSM-IV classification. For usage, concordance rates were 54 per cent for MZ twins and 42 per cent for DZ twins. For abuse, concordance rates were 61 per cent for MZ twins and 8 per cent for DZ twins. For dependence, concordance rates were 35 per cent for MZ twins and 8 per cent for DZ twins. It was concluded that genes contribute to drug usage and the progression from usage to abuse and dependence.

Koski-Jannes (1992) found that addiction is a learned behaviour through animal experimentation, which produces problems of generalisation to humans where dependency behaviours are observed and imitated if a model is seen to be reinforced for such behaviours. The nucleus accumbus brain area is regarded as the universal addiction site.

Classical conditioning sees addictions occurring through an unconditioned stimulus that produces a natural response of pleasure becoming associated with a conditioned stimulus that does not stop them pursuing damaging reinforcements. Long-term negative consequences are observed and imitated if a model is seen to be reinforced for such behaviours. Classical conditioning explains how stimuli associated with dependencies, like drugs and paraphernalia, produce similar pleasurable responses to dependency behaviours themselves.

Klein & Foddy (1985) reported that the nucleus accumbus brain area is the universal addiction site, which supports a cognitive model. This supports the biological model of addiction.

Grant et al. (1996) found positive associations occurred in addicts at the sight of a syringe, illustrating how classical conditioning contributes to dependency. The learning model was further supported by White & Strick (1993) finding rats preferred locations where they previously received amphetamines, demonstrating the role of operant conditioning. Bahr et al. (2005) reported that drug-taking by peers influenced dependency behaviour in addicts, showing how SLT also plays a part.

Operant conditioning sees addictions occurring through operant conditioning where dependency behaviours are observed and imitated if a model is seen to be reinforced for such behaviours.

Cognitive explanations of dependency are incomplete, being based on expectations and beliefs and thus neglecting the important role of biological factors. For instance, although the cognitive model is well able to explain maintenance of dependency and relapses, the biological model is better able to explain initiation of addiction.

The success of cognitive behavioural therapy suggests that dependency behaviours are best explained by the cognitive model. A wealth of evidence based on twin, family and gene mapping studies suggests that there is a biological predisposition to addiction. Classical conditioning is able to explain how stimuli associated with dependence, like drugs and paraphernalia, produce similar pleasurable responses to dependency behaviours themselves.

Additional studies:

- The nucleus accumbus brain area is regarded as the universal addiction site.
- Increased dopamine production also results from addictive behaviours.
- Addicts are perceived as having an impaired pre-frontal cortex that does not stop them pursuing damaging reinforcements.
- Classical conditioning is able to explain how stimuli associated with dependencies, like drugs and paraphernalia, produce similar pleasurable responses to dependency behaviours themselves.

**Description**

The biological model of addiction sees dependency as physiologically controlled, initiation of addiction being determined by genetic vulnerability triggered by environmental stressors, with maintenance of addiction regulated through activation of dopamine. Relapse occurs through physiological cravings, with research indicating that brain circuitry regulating survival behaviours is activated by such cravings. Addicts are perceived as having an impaired pre-frontal cortex that does not stop them pursuing damaging reinforcements. Increased dopamine production also results from addictive behaviours.

The nucleus accumbus brain area is regarded as the universal addiction site.
DeCODE genetics (2008) assessed the association between specific gene variants and smoking behaviour. A survey of 50,000 Icelanders who completed a smoking history questionnaire asked if participants had ever smoked, were still smoking and, if so, how many cigarettes a day were smoked. Over 300,000 single-letter variants of the human genome were analysed in a sub-set of over 10,000 smokers. A common variant in the nicotinic acetylcholine receptor gene cluster on chromosome 15q24 was found that was related to the number of cigarettes smoked daily and with nicotine dependency. It was concluded that there is a genetic link to smoking addiction.

### Biological explanations

Biological explanations see smoking as affecting production of the neurotransmitters dopamine and acetylcholine through stimulation of nicotine receptors in the brain, producing a pleasurable effect in the brain reward system. Neurochemical changes cause desensitisation, leading to increased tolerance and maintenance of smoking. Abstinence creates physiological cravings due to non-stimulation of dopamine receptors, leading to relapses.

Cognitive explanations see smokers possessing irrational thoughts, like believing smoking improves concentration. Such dysfunctional ideas become self-fulfilling, creating a repeating cycle of giving in to cravings. Learning explanations see initiation of smoking as best explained through social learning theory (SLT) by the observation and imitation of models through vicarious reinforcement, while operant conditioning explains maintenance of smoking behaviour through consistent reinforcements.

### Positive evaluation

- Research into smoking behaviour has given a much deeper and sophisticated understanding of smoking behaviour, for example, that certain individuals are more at risk of dependency. This has allowed the development of treatments which are more effective in helping people to quit. Both biological and psychological therapies have proven effective, such as nicotine replacement and counselling, which suggests that smoking dependency has several valid explanations.
- Dopamine production has been linked with gambling dependency, which may lead to an effective treatment for the condition through dopamine-based drugs. Such a treatment could also be effective against other dependencies, as dopamine appears linked to most addictive behaviours.

### Negative evaluation

- Most research has concentrated on heavy smokers, which may give a distorted view of smoking behaviour. Shiffman (2009) found that two-thirds of smokers only indulge occasionally in certain situations, such as after a meal. This implies they are not dependent and that therefore smoking is not universally addictive.
- Research into problem gambling and indeed any form of dependency behaviour incurs ethical concerns of harm and could lead to increased dependency. It is arguable whether such dependent individuals can truly give informed consent.

### Focal study

DeCODE genetics (2008) assessed the association between specific gene variants and smoking behaviour. A survey of 50,000 Icelanders who completed a smoking history questionnaire asked if participants had ever smoked, were still smoking and, if so, how many cigarettes a day were smoked. Over 300,000 single-letter variants of the human genome were analysed in a sub-set of over 10,000 smokers. A common variant in the nicotinic acetylcholine receptor gene cluster on chromosome 15q24 was found that was related to the number of cigarettes smoked daily and with nicotine dependency. It was concluded that there is a genetic link to smoking addiction.

### Additional studies

- NIDA (2005) reported that 90 per cent of American smokers started in adolescence, mainly due to observing and imitating peers, suggesting that SLT was responsible for initiation.
- Ewing et al. (1994) found that smoking was maintained in monkeys through its reinforcing effect, as monkeys pressed a lever to receive nicotine at a similar rate as for saccharine, which implies operant conditioning was responsible.
- Anholt et al. (2003) found evidence of obsessive-compulsive thinking in dependent gamblers, supporting a cognitive explanation.

- Roy et al. (2004) found higher dopamine levels in chronic casino gamblers and higher noradrenaline levels in chronic blackjack players that suggested a biological explanation for addiction.
- Clark et al. (2003) found that gambling near-misses were perceived by gamblers as having several elements of smoking near-misses: they were seen as typical rewards, with heightened brain activity occurring in the striatum and insula cortex — areas receiving dopamine input — which are associated with other types of dependency. This suggests that cognitive, learning and biological explanations can be combined to explain gambling dependency.
RISK FACTORS IN THE DEVELOPMENT OF ADDICTION AND MEDIA INFLUENCES ON ADDICTIVE BEHAVIOUR

Description

Individuals have different levels of vulnerability to addiction, with both biological and environmental factors contributing to vulnerability levels. Personality is one such factor, with neurotic and psychopathic personality types especially at risk, though research does not support the existence of an addictive personality. Peer influence is important, especially during adolescence, through normative social influence. This is where individuals conform to dependency behaviours to be accepted and through operant conditioning, where dependency behaviours are reinforced by the group. Age also affects vulnerability, with early onset of dependency behaviours linked to reduced likelihood of abstaining and increased likelihood of developing other addictions. There is increased vulnerability too during old age, possibly due to increased stressors and lifestyle changes. Stress is positively correlated with vulnerability to dependency and the stress produced by attempting to maintain abstinence can lead to relapse. The media communicates information about addictive behaviours through public formats, affecting individual’s perceptions and behaviour towards dependency. The media is also accused of presenting role models who promote positive images of addictive behaviours, which can exert a harmful effect through observation and imitation of such models. In addition, the media is accused of misrepresenting the risks of addiction through indulging in dependency behaviours, which influences individuals to participate in such behaviours, as they underestimate the chances of addiction. There is also the growing phenomenon of psychological dependency to media itself, through the expanding provision of ever-more forms of social media, such as television, mobile phones and social networking sites.

Additional studies

- Chen et al. (1994) found that adolescent ghettos bad boys had a negative influence on life, characterized by low self-esteem, loneliness, dependency, and delinquent behaviour, which social learning theory and the existence of an addictive personality.
- Ntoumanis & Arre (2000) found that peer group use of drugs was a good predictor of drug use in adolescents, illustrating how peers affect vulnerability to dependency through social learning theory via observation and imitation.
- Griffiths (1997) reported that more people from lower class than middle and upper class background participants in national lotteries around the world. Since people from lower class watch more television, it suggests that media influence, in the form of television marketing of such lotteries, has a marked impact on fostering habits.
- Grunsecker et al. (2005) reported that drug-taking in movies was characterized in a positive way, and that it led to negative consequences, which supports the idea that the media promotes dependency behaviours and misrepresents their dangers.

Figure 11.3 Internet addiction disorder is a serious and growing form of addiction.

Positive evaluation

- As recovered addicts often develop dependencies on harmful and beneficial behaviours, like religion and fitness regimes, it supports the notion that personality is linked to vulnerability to addiction.
- Public health initiatives that seek to address dependency behaviours are more effective if they are specifically targeted at specific age groups, such as the young and the elderly, as they are particularly vulnerable to developing addictions.
- The media can also exert positive influences concerning addiction, such as using positive role models who abstain from dependency behaviours, as well by educational means through truly representing the dangers of indulging in such behaviours.

Negative evaluation

- Evidence linking stress to vulnerability to dependency is correlational and does not show causality. It may be that increased stress is an effect of being addicted, rather than a cause of dependency.
- Social media addiction is an increasing problem in the workplace. Farber (2007) reported that many employees display a persistent need to access social media sites, demonstrating how addiction to media has negative effects.
- If addicts are demonised in the media, it negatively affects their chances of receiving the social support necessary to assist them quitting.

Focal study

Block (2008) investigated the risks of internet addiction disorder (IAD). Using data provided by the South Korean government it was found that IAD is one of the most serious public health issues; 210,000 children aged 6–19 are at risk of addiction and require treatment. Of those requiring treatment, 80 per cent need hospitalisation. Since the average South Korean high school student spends 23 hours a week on computer games, which has a serious effect on work output, it is believed another 1.2 million are at risk of addiction and require counselling. The findings show the severity and increasing nature of IAO.
The theory of planned behaviour (TPB) is an extension of the theory of reasoned action, which sees attempts to abstain from dependency behaviours as due to factors supporting decision making, rather than predisposing factors. However, TPB has an added component where addicts need confidence in their abilities and available resources to quit. TPB has three components:

1. **Behavioural beliefs**, involving the subjective probability that behaviour will produce abstention.
2. **Normative beliefs**, involving the degree of perceived social pressure to quit.
3. **Control beliefs**, involving individual beliefs about the ability to abstain.

TPB assesses an individual’s motives for continuing dependency and their resolve to abstain. The higher their level of perceived behavioural control, the more likely they will quit. With types of intervention, the main biological treatment is drug therapy, which assists with cravings and withdrawal symptoms and is more effective when combined with cognitive-behavioural therapy. Psychological interventions include those based on the learning model, like aversion therapy based on classical conditioning and contingency management (CM) based on operant conditioning. Cognitive interventions focus on identification and elimination of false beliefs so that willpower is increased to give greater control over dependencies. Public health interventions promote change in whole groups and work best when targeted at vulnerable groups. Techniques include social inoculation, providing counterarguments and supportive self-statements to resist temptation, fear arousal, strengthening the persuasiveness of arguments against dependencies and targeting risk groups, aimed at identifying and focusing on the vulnerable. Public health interventions occur through medical advice, the workplace, community-based programmes and government interventions (such as the smoking ban).
PSEUDOSCIENCE AND THE SCIENTIFIC STATUS OF PARAPSYCHOLOGY

Description

Pseudoscientific refers to alleged sciences and scientific practices of no scientific basis. Many sceptics see anomalistic psychology – the study of extraordinary phenomena – as being pseudoscientific, misleading the public into believing false claims, like the existence of ghosts. Parapsychology is the scientific study of paranormal phenomena and has evolved from Victorian spiritualism to a discipline characterised by stringent controls and objectivity. However, sceptics perceive paranormal phenomena as scientifically impossible and reject the legitimacy of parapsychology. Many see this rejection of psychic phenomena as scientifically inappropriate and believe that the possibility of evidence for their existence must not be rejected. Some parapsychologists argue that the case for paranormal phenomena is already proven. Honorton (1974) developed the ganzfeld technique to assess extra-sensory perception (ESP), where a receiver, under conditions of sensory deprivation, attempts to telepathically receive one of four images ‘communicated’ by a sender. Significant results were found, but sceptics found procedural flaws that led to tighter controls. Significant results were again claimed by believers of ESP, but sceptics generally fail to replicate such findings. Psychokinesis (PK) is the process of moving and/or affecting objects mentally with no physical contact. Macro-PK involves large effects, like spoon bending, while micro-PK involves small effects, like influencing dice throws. Bio-PK involves influencing living systems. Like with ESP, PK research involves strict controls involving an automated protocol with random targets determined by machines and results recorded without human intervention to make bias and fraud an impossibility. Significant results are claimed, which sceptics continue to oppose.

Additional studies

- Honorton & Bem (1994) found that 309 ganzfeld studies conducted under strict controls without human intervention to prevent accidental information transfer, replicated the significant findings of earlier studies, suggesting that ESP is an actual effect.
- Palmer (2001) critiqued the ganzfeld method, demonstrating that ESP findings are susceptible to biased sampling.
- Nelson & Radin (1999) found a meta-analysis of 832 PK experiments, a significant effect. This was supported by Jahn et al. (2005), who conducted over 1,000 experiments involving millions of trials to again find a significant effect, which suggests that under certain conditions PK effects are real.
- Hansel (1989) suggested that when strict criteria for PK studies were applied, like the use of randomised targets and independent recorders, no study produced a significant effect. This implies that flawed methodology is responsible for apparent PK effects.

Figure 12.1: Micro-psychokinesis involves large effects, like spoon bending.
Description

A coincidence occurs through a cognitive bias of perceiving unrelated accidental events as cause, with the perception of coincidence leading to superstitions and fatalism, where events are seen as predetermined and uncontrollable. Coincidences also arise because of short-cuts in information processing in an attempt to simplify understanding. Probability judgements concern how people misjudge the probability of unrelated events being connected, seeing instead such events as being affected by paranormal influence, like believing that dreams come true. There are several cognitive factors involved in people’s misperceptions of probability judgements that explain why coincidences are misperceived as paranormal forces: Intuitive thinking styles, concerning individuals who lack reasoning and critical evaluation of events, such that they believe thoughts can influence events and that biological processes have intentions and goals, like believing willpower can cure ill-health.

Additional studies

- Falk (1982) found that when weird coincidences happen, individuals tend to over-emphasise such events and ignore other non-confirmatory experiences, demonstrating a bias in cognitive processing.
- Zuck & Gross (1989) calculated that the apparently significant event of thinking about a person five minutes before learning that person had just died would occur in America 3,000 times a year, illustrating how seemingly random events can be perceived as causal, even logical.
- Reiss & Groome (2003) found that the number of people required for there to be a 1 in 2 chance of two people sharing a birthday was underestimated, demonstrating how people misinterpret the probability of events occurring.
- Genovese (2005) found that believers in the paranormal correlated with cognitive errors and intuitive thinking styles, suggesting cognitive factors affect paranormal beliefs.
- Blackmore & Troscianko (1985) found that believers in the paranormal were poorer at generating random numbers, which implies that believers are affected by cognitive illusions that lessen ability to assess the probability of events.
Description

Superstitions are irrational beliefs that objects, actions or circumstances not logically related to a course of events influence outcomes. Superstitions are associated with magical thinking and ritual behaviours, which if adhered to are seen as guaranteeing desired results. They self-deceive individuals into believing that they have control over events and may involve personality factors, as they are most apparent in those with a high need for certainty. Superstitions are also explicable by operant conditioning and can be socio-cultural constructions passed on from one generation to another. Magical thinking involves believing the mind to have a direct influence on events through channelled energy forces that serve to represent culturally specific and culturally universal symbolism.

Magical thinking therefore exists as a shared belief system, uniting people within cultural groupings. It involves the law of similarity, where events resembling each other are perceived as connected in a causal way that defies scientific investigation, and the law of contiguity, which sees things that have been in contact with each other, as retaining their connections when separated. Personality factors have been investigated to assess their role in anomalous experience, with neuroticism perceived as associated with beliefs in the paranormal, possibly because, as superstitions and magical thinking, they decrease anxiety. Defensiveness, where there is cognitive resistance to perceiving situations and information as threatening, is also linked to anomalous experience, while extraversion has been specifically linked to the possession of ESP abilities.
Benson et al. (2006) assessed whether prayer had no effect on recovery of receiving prayers. It was concluded that compared to 52 per cent of those uncertain about receiving prayers, 59 per cent developed complications occurred in 52 per cent who did receive prayers compared to 51 per cent of those who did not. Of those certain of receiving prayers, 50 per cent developed complications compared to 52 per cent of those uncertain of receiving prayers. It was concluded that praying had no effect on recovery.

Additional studies

Braud & Schlitz (1988) found that psychic skin responses were elevated when healers were asked to focus on pictures of patients unaware that this was occurring. This suggests there are different sub-types of OBEs.

Blanke et al. (2005) found that stimulation of the right temporal-parietal brain area produced OBE simulations in participants with imagery of OBEs, suggesting a biological basis to the phenomenon.

Green (1968) found 75 per cent of OBEs occur with low arousal, such as when in bed, and 25 per cent occur with high arousal, such as when rock climbing. This suggests there are different sub-types of OBEs.

Schwartz et al. (2004) found an accuracy level of 83 per cent in mediums compared to 36 per cent in controls, when interviewing a woman who had experienced six significant losses in ten years. The woman only answered ‘yes’ or ‘no’ to reduce the possibility of intuitive reasoning. This implies a genuine psychic effect.

Ruschke & Schwartz (2007) found that mediums were better at ‘reading’ people who had lost loved ones than non-mediums, under conditions of strict experimental control, which suggests mediums can receive messages from the spirit world.

Description

Psychic healing involves restoration of health through spiritual practices, often by physical contact (known as therapeutic touch), though psychic healing also occurs without physical contact and over large distances. Charismatic and religious figures often claim such talents, which assists in gaining revered and elevated status. Sometimes psychic healers channel their ‘powers’, for example through crystals tapping into energy sources, though research does not back this claim. Out-of-body experiences (OBEs) and near-death-experiences (NDEs) involve a perception of floating outside one’s body and are linked, as people having NDEs often experience OBEs too. OBEs can be parasomatic, where individuals have a body other than their own or somatic, where individuals perceive they have no body. Most OBEs happen in bed and are believed to transpire during a period between REM sleep and arousal, where sleep paralysis occurs and dream images combine with sensory input. Psychic mediums exist cross-culturally often as religious figures, like shamans, who claim to be intermediaries between the living and spirit worlds, carrying messages between the two, generally by altering their consciousness. They can help people come to terms with the death of loved ones. Physical mediums are visible to an audience, as at a séance, communicating to the spirit world through audible and visual figures, as well as raps. Mental mediums involve mediums using clairvoyance, where a medium sees a spirit, clairaudience, where a medium hears a spirit, clairsentience, where a medium feels the thoughts of a spirit, clairkinesis, where a medium can move objects, clairvoyant, where a medium sees spirit communicators speak through a medium.

Positive evaluation

• Mollica (2005) argues that psychic healers benefit those in cultures where the practice is culturally familiar during catastrophes like earthquakes, as they provide psychological first-aid that is not intrusive or anxiety-producing, in the way that traditional medicine in such situations can.

• Psychic mediumship can be seen to perform an important part of the grieving process after the death of loved ones, communicating between the spirits of the dead and their living human associates. Whether genuine or not, the process helps to reassure that the departed are ‘at peace’ and enables people to come to terms with their loss.

Negative evaluation

• Blackmore (1991) argues that NDEs are not evidence of ‘life after death’, but instead inform more about the biological nature of consciousness and the brain.

• Lester (2005) reported that studies of psychic mediumship lack proper research design and elimination of error sources to be deemed valid.

• The Catholic Church, after a review of scientific literature, banned the practice of therapeutic touch, demonstrating the practice to have little support even among religious believers.

Additional information

• Mollica (2005) argues that physical presence and physical contact is known as therapeutic touch.