Biological explanation of Addiction

Investigates brain, endocrine and genes, Biology causes thoughts, feelings and behaviours through neurotransmitter pathways.

AO2: accounts for nature side of debate. Falsifiable can be scientifically treated. Practical applications associated with treatments. Ignores individual differences and culture. Not 100% biological makes it reductionist/not 100% concordance rate.

Genetic explanations of smoking addiction:

Compared data on MZ and DZ twins and found a significant genetic influence on the use of tobacco and alcohol and other drugs. Maes investigated genetic component of risk in tobacco addiction, used 142 MZ twins and DZ twins between ages 8-16 and found a significant genetic influence in the use of all three drugs. Kendler et al compared tobacco use on reared together and reared apart twins and found that those reared apart after 1940's both men and women had a significant genetic influence on use of tobacco. Although he tried to separate the influence of genes and environment-some of the children were separated at 11 so had spent some time together. Thorgeirsson study suggest genes play a role in addiction to smoking. Smoking history questionnaire given to 50,000 Icelanders. 10,000 PP's gave DNA samples, found a particular pattern of gene variation which was more common in those who developed lung cancer and were dependant of fags. Found the number smoked per day high association with nicotine dependence. Research didn’t find genes played a role, those with A1 variant find it harder to give up.

Genetic explanations of Gambling addiction:

Shah found evidence of genes associated with gambling in men. Black found that 1st degree relatives of pathological gamblers were more likely to have pathological gambling than were more distant relatives, demonstrates strong genetic link. Thought it necessarily gambling behaviour is inherited but rather certain personality traits. One personality trait that may be inherited is sensation seeking. One personality trait that may be inherited is sensation seeking. Zuckerman claimed there are individual differences in the need for optimal amounts of stimulation. Sensation seekers lower appreciation of risk and anticipate arousal as more positive than low sensation seekers. Suggested a relationship between sensation-seeking and gambling, individuals entertain the risk of momentary loss for the positive reinforcement produced by states of high arousal during uncertainty as well as positive arousal of winning. Pathological gambler seen as needing this stimulation.

Bonnaire: French pathological gamblers, bet on horses are higher sensation-seekers than nonpathological gamblers. Recruited from 5 race tracks, divided using DSM-IV and another screening tool and pathological gamblers (42PP's). Sensation seeking assessed using Zuckermans sensation seeking scale. Pathological gamblers higher sensation-seeking scores than regular gamblers. Had higher overall scores for sensation-seeking scores than regular gamblers. They had higher overall scores and for the factors of disinhibition and boredom susceptibility. No correlation found between sensation-seeking score and the number of ordinary games played.

Role of brain chemistry:

Addiction – addictive drugs stimulate reward circuit in brain, releases dopamine, which leads to a pleasurable reward. Therefore, operant conditioning explanations may have a link with biological explanations as the rewarding experience may be a biological nature. Nicotine affects brain chemistry by activating nicotinic acetylcholine (nArchRs) in the brain leads to release of dopamine in the brain reward centre. Creates temporary feelings of pleasure for the smoker, they are short lived, smokers start to experience the impairment of mood and concentration within hours of their