

This assignment covers addictive behaviours, the neurobiology of addiction, and brain injury associated with addiction. Each question has its own specific background that I have written to help your understanding of the question. Please ensure that you read the background carefully before you address each question. Each question also has recommended reading(s). You can find these on the reading list for the unit (in the 'Readings' tab on Blackboard). The readings specific to the assignment are under the heading 'Assignment Readings'.

Brain and Behaviour Assignment

Question 1: Behavioural Addiction

Marks: This question is worth 25 marks

Background: When asked to think of an 'addiction' people typically think of substance abuse, such as drugs or alcohol. However, some behaviours that are not substance-based are now formally acknowledged as addictions and are called 'behavioural addictions'.

Suggested Reading: Grant et al. (2010).

Question 1: What is a behavioural addiction? Describe the similarities behavioural addiction has with substance addiction.

Question 2: The Neurobiology of Addiction

Marks: This question is worth 20 marks

Background: Many addictive substances can lead to changes in dopamine levels in the brain. For example, both cocaine and alcohol are associated with elevated levels of baseline striatal dopamine. Although other neurotransmitter systems have been implicated, there is strong evidence that substance addiction primarily involves the dopamine (dopaminergic) system. The dopaminergic system also seems to play a key role in behavioural addictions, especially pathological gambling.

Suggested Readings: van Holst et al. (2018), DSM-V (2013) criteria for Pathological Gambling, Nutt et al. (2015)

Question 2: What do the findings of van Holst et al. (2018) tell us about dopamine in the brains of pathological gamblers?

Question 3 (parts a and b): Brain Injury, Cognition, and Communication

Marks: Question 3a is worth 25 marks. Question 3b is worth 5 marks.

For question 3b you do not need to provide references, as these will be your own strategies. **Background:** Addiction can damage the brain in different ways, including neurotoxicity, traumatic brain injury, and stroke. One part of the brain particularly vulnerable to damage is the frontal lobe, which is involved in executive functions (EFs). There are three 'core' executive functions; inhibition, working memory, and cognitive flexibility (also referred to as set shifting and/or switching) and these are vital for everyday behaviours such as reasoning, problem solving, and planning. EFs impact upon all aspects of human life, including communication. Executive functions that support social communication are often impaired in individuals with damage to the frontal lobes. Much of our knowledge about the role of the frontal lobe is based on research in those with frontal lobe damage, such as those with aphasia related to a stroke.

Suggested Readings: Diamond (2013), Rende (2000), Purdy and Koch (2006), Purdy (2002), Chiou and Kennedy (2009)

Question 3a: What is cognitive flexibility and what role does it play in successful communication?

Question 3b: Imagine you are talking to a client who has frontal lobe damage and impaired cognitive flexibility. Describe two strategies you might employ to facilitate communication with them.

Other marks will be awarded as follows:

English Expression (sentence/paragraph construction, flow of information): 10 marks APA Formatting (including referencing): 15 marks