Explanations- OCD

Genetic and Neural Explanations

Learning objectives:

To outline and evaluate the strengths and limitations of the neural and biological explanation of OCD

Biological explanations of OCD

Genetic hypothesis

Neural explanations

Methods of investigating the influence of genes

There are different methods for investigating the genetic basis of behaviour:

- **twin studies- MZ v DZ twins**
- **family studies- 1st generation relatives**
- **adoption studies- adopted child and biological parents**
- selective breeding

They are looking for a high concordance rate of the disorder between relatives

Biological explanations of OCD

Genetic hypothesis

Candidate genes-

genes which create a vulnerability to OCD

5HT1-D beta is implicated in the efficiency of transport of serotonin across synapses

Polygenic

several genes are involved

Taylor (2013) (meta-analysis)

230 different genes may be involved in OCD

Different types of OCD

The origin of OCD has different causes

One group of genes may cause OCD in one person and another group of genes may cause the disorder in another person = aetiologically heterogeneous

Different types of OCD may be the result of particular genetic variations

Neural explanations

Genetic Hypothesis- AO3

Strength

Supporting evidence for the genetic hypothesis of OCD.

Lewis (1936) Assessed OCD patients and found that 37% had parents with OCD; 21% had siblings with OCD.
Nestadt (2000); 11.7% concordance rate between OCD sufferers and their first degree relatives, compared to a 2.7% concordance rate across the general population.
Miguel (2005), found that identical (monozygotic) twins have a 53-87% concordance rate whilst non identical twins (dizygotic) have a 22-47% concordance rate.

Validates and increases our confidence in the genetic hypothesis for OCD

Furthers our understanding into the genetic influence of OCD

Limitations

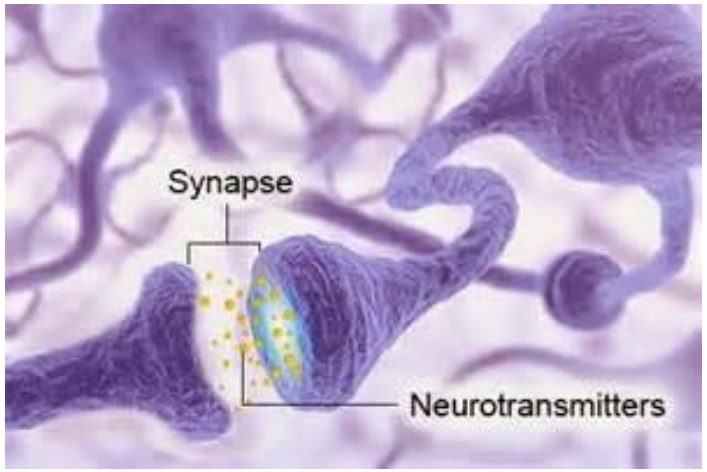
Methodological issues with twin studies, it is difficult to separate the genetic and environmental factors in MZ twins, MZ twins may have exactly the same environment unlike DZ who are male and females and likely to be socialised differently (gender socialisation). This could affect the validity of the genetic hypothesis as it is likely that a shared environment will act as a confounding variable. For this reason it is important to consider that OCD may not be 100% genetic. This is further emphasised by the diathesis stress model which claims that genes leave some people more vulnerable to a psychological disorder like OCD but it is not certain they will develop it without being exposed to a stressor. This is evident from Cromer et al (2007)who found that over ½ OCD patients had traumatic events in their past and OCD was more severe in those with more than one trauma

Additionally stating that OCD may be polygenic lowers the predictive validity of OCD as no one candidate gene has been identified as causing OCD. This is a limitation as there are many possible genes, therefore it is unlikely to be useful.

Neurotransmitters

https://www.youtube.com/watch?v=haNoq8UbSyc

1. What are neurons?
2. How do they exchange messages?
3. What do they carry messages about?
4. How many neurotransmitters are there?
5. What is the role of Serotonin?

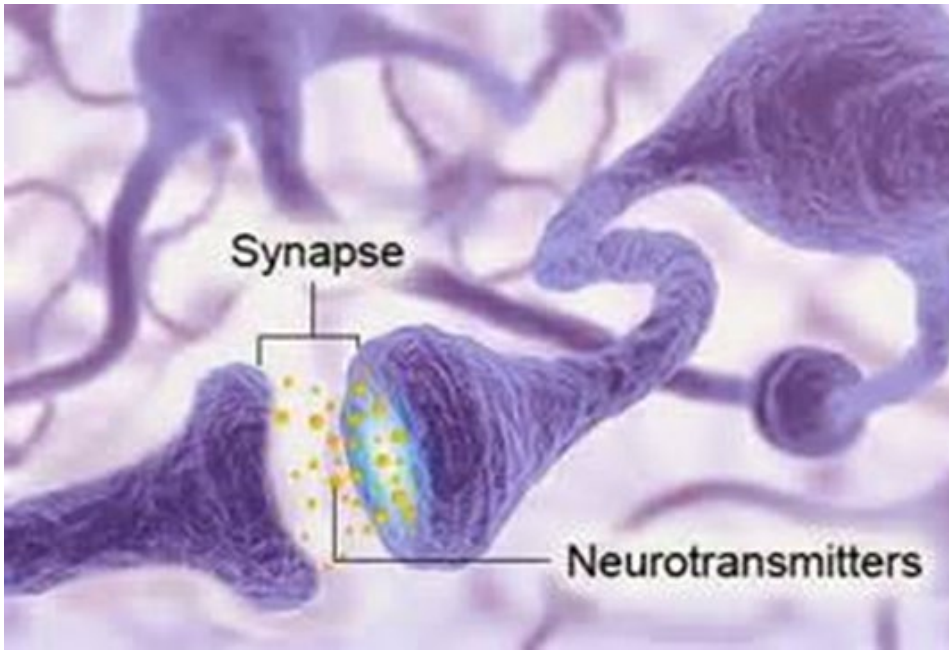


Neural explanations for OCD

Two very important neurotransmitters are:

Dopamine – regulating mood, rewards/pleasure, motivation, movement, and much more

Serotonin - regulating mood, emotion, appetite, motivation, and much more



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Neural explanations

The genes associated with OCD are likely to affect levels of neurotransmitters as well as structures of the brain

Serotonin

- Neurotransmitter responsible for mood
- Low levels may explain OCD

Decision making system

- Some types of OCD involve impaired decision making
- Abnormal functioning of the lateral (side bits) of the frontal lobes of the brain
- Frontal lobe is responsible for decision making
- There is also evidence to suggest that an area call the left parahippocampus gyrus associated with processing unpleasant emotions function abnormally in OCD

Neural Explanation- AO3

Strength

Supporting evidence for the neural explanation of OCD.

Antidepressants work on serotonin system. These drugs are effective in reducing symptoms of OCD. Suggest serotonin is involved in OCD.

Max (1994) has found that disconnecting the basal ganglia from the rest of the brain can reduce OCD symptoms.

Cavedini et al 2002

Decision making neural system function inadequately in OCD patients

Validates and increases our confidence in the genetic hypothesis for OCD

Furthers our understanding into the genetic influence of OCD

Limitations

Co-morbidity, where a patient suffers from two disorders at the same time, is a common issue in patients with OCD, they are usually diagnosed with depression. Depression disrupts serotonin, therefore the chemical Imbalance found in OCD sufferers may be because of depression and not OCD. This limits the neural explanation for OCD as it fails to explain why the same chemical imbalance in found in both OCD and depression when they are two separate disorders.

The neural explanation is correlational and not causal.

Evidence to suggest OCD patients have abnormal levels of neurotransmitters or abnormal brain structure but this does not mean this is what causes OCD. Therefore other factors, such as learnt behaviour/ trauma may have a role to play in the cause of OCD, which will make the neural explanation only a partial explanation.

Homework

1. Consolidation cards

OCD- characteristics

OCD- explanations incl AO3

OCD- treatments incl AO3