BIOLOGICAL APPROACH

Topic 1: The brain and behaviour.

Key Idea: There is a correlation between brain structure/activity and human behaviour. A change in one will lead us to expect a change in the other.

KEY STUDY: *Fisher et al. (2005). Reward, motivation, and emotion systems associated with early-stage intense romantic love*

Links to

- **Neurotransmitters and their effect on behaviour.** Dopamine contributes to the arousal of being in love.
- **Human Relationships.** Fisher et al. used fMRI scanning in a small-scale study to investigate brain regions associated with 'being in love'.

Background

An approach to explaining attraction which focuses on the workings of neurotransmitters, the chemical messengers in the brain, which are responsible for emotional responses to a range of stimuli.

Aim

To investigate the brain systems involved in early-stage intense romantic love.

Participants

10 females and 7 males who were students at New York State University via a self-selecting sampling method, aged from 18-26 years old (mean age 20). All participants reported being 'in love' (a range of 1-17 months with a mean of 7 months).

Procedure

Participants were placed in an fMRI scanner and shown a photograph of their loved one followed by a distraction task and then a 'neutral' photograph of an acquaintance with whom they had a non-emotional relationship.

Results

Brain area	Associated with specific neurotransmitter	Associated behaviour
Right ventral tegmental areas (midbrain)	Dopamine	Reward and motivation
Right caudate nucleus (midbrain)	Dopamine	Reward and motivation

Conclusion

The results suggest that people in the early, intense stages of romantic love access the areas of the brain most associated with motivation and reward, giving rise to the idea that people become 'addicted to love'. Fisher et al (2005) suggest that dopaminergic reward pathways contribute to the

'general arousal' component of romantic love and that romantic love is primarily a motivation system, rather than an emotion, making it a biological process rather than a cognitive one.

Evaluation of Fisher et al. (2005)

Strengths

✓ This is a highly controlled clinical method of obtaining data and Fisher and her colleagues checked objectivity at every stage of the procedure. This standardised procedure means that the study is replicable, which increases its reliability.

✓ Identification of the reward centre of the brain as being active during the fMRI gives support to the idea that human beings may have evolved a brain system which ensures that they become 'hooked' on an individual, which increases the possibility of them reproducing. This gives Fisher et al.'s theory of love being addictive some validity.

Limitations

X The small sample size of 17 participants means that the results are not very meaningful and may not be robust in terms of statistical analysis. The size of the sample also limits generalisability of the findings.

X It is overly reductionist to use brain scans to determine how romantic love is experienced: there may be a range of other factors involved, such as similarity, same upbringing, shared ideals, cultural influences.

Reference

Aron, A., Fisher, H., Mashek, D. J., Strong, G., Li, H., & Brown, L. L. (2005). Reward, motivation, and emotion systems associated with early-stage intense romantic love. *Journal of neurophysiology*, *94*(1), pp. 327-337.