BIOLOGICAL PSYCHOLOGY · IAL WPS02 · A LEVEL 9PS0

Raine et al. (1997)

Brain abnormalities in murderers indicated by positron emission tomography.

Aim	To see whether murderers pleading not guilty by reason of insanity (NGRI) show brain dysfunction, especially in the prefrontal cortex.
Sample	41 murderers (39 men, 2 women) pleading NGRI; 41 controls matched for age and sex.
Procedure	Glucose tracer injected; 32-minute continuous performance task; PET scan of glucose metabolism.
Findings	Lower activity in the prefrontal cortex, superior parietal gyrus, left angular gyrus and corpus callosum. Abnormal asymmetry (less left, more right) in the amygdala, thalamus and medial temporal lobe.
Conclusion	Brain dysfunction may predispose some people to violence; it does not show that biology alone causes violence.

Strength: PET is objective, the task was standardised and controls were matched, so the study is replicable and differences are less likely to be due to age or sex.

Weakness: NGRI murderers are a narrow group, so findings may not generalise to all violent offenders; the data are correlational, so cause cannot be inferred.

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Brendgen et al. (2005)

Examining genetic and environmental effects on social aggression.

Aim	To find out how far genes and environment explain social and physical aggression in young children.
Sample	234 pairs of 6-year-old twins (MZ and DZ) from the Quebec Newborn Twin Study.
Procedure	Teachers and classmates rated each child's social aggression (rumours, exclusion) and physical aggression (hitting).
Findings	Physical aggression largely genetic (roughly 50–60%). Social aggression mostly environmental (about 20% genetic). The overlap between the two types was mainly genetic.
Conclusion	Physical aggression has a stronger genetic basis than social aggression.

Strength: teacher and peer ratings give two independent measures, increasing reliability.

Weakness: twin studies assume MZ and DZ twins share equally similar environments; if not, genetic estimates are inflated.

Compare them

- **Similarity:** both support a biological contribution to aggression.
- **Difference:** Raine measured the brain directly (PET); Brendgen inferred genetic influence from twins.
- **Difference:** Raine used adult murderers; Brendgen used 6-year-olds in everyday school settings.

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