

Unequal healthcare funding provokes 'moral disgust', pioneering brain scan research shows

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Areas of the brain associated with social and moral disgust are triggered when health care funding is split unequally, researchers from the UK and Australia have found.

The study, which is the first to use fMRI scans to examine what happens in the brain when people are tasked with making difficult decisions about [health care spending](#), found that the anterior insula was activated when people felt an unfair choice had been proposed.

The anterior insula is involved in processing humans' sense of physical disgust - like when we are exposed to foul smells or unpleasant images - but is also triggered when we feel a strong sense of moral outrage – for example, at the perceived breach of social or ethical norms.

The study was carried out by neuroscientists, psychologists and economists from the University of Lincoln, the Open University, University of Oxford, and the Exeter Magnetic Resonance Research Centre in the UK, and Flinders University in Australia.

The researchers posed a series of hypothetical questions to 30 study participants, asking whether different scenarios for allocating millions of pounds in funding between different social groups were 'fair' or 'unfair'. It included questions about spending on health care, superfast broadband and housing benefit. The [social groups](#) were defined by criteria including

age, marital status and income.

Results from the experiment, reported in the *Journal of Neuroscience Psychology and Economics*, showed that brain processes involved in making decisions of fairness were significantly different for medical compared to non-medical scenarios. Participants were much more likely to perceive uneven distributions of health care funding as unfair.

The study also showed that when participants did approve of unequal distributions of resources in any setting, they appeared to suppress their 'disgust' response to make rational, utilitarian choices. Brains scans showed activation of the inferior frontal cortex – an area of the brain associated with response inhibition – when participants were pre-briefed on the principle that resources might need to be distributed unequally to maximise the benefit. This suppression was much less prevalent in the medical scenarios.

Co-author Professor Timothy Hodgson, Head of the University of Lincoln's School of Psychology, said: "Important health care decisions like funding allocations are often measured by a system called Quality Adjusted Life Years (QALY), which prioritises choices that deliver the maximum benefit to the greatest number of people.

"The problem is those decisions are often viewed negatively by members of the general public, who instead believe that everybody has a right to receive medical care and anything that violates this principle is unfair and immoral.

"Given enough information people may be more inclined to support [health care](#) decisions based on QALYs, but this requires cognitive effort to override a more emotion-based bias towards absolute equality and universal rights."

The findings are consistent with the existing body of research in behavioural psychology which suggests decision-making involves complex interactions between two distinct systems of the brain: one rational and one emotional. They represent a preliminary first step for cognitive neuroscience into the field of health economics – an area of major socioeconomic importance.

More information: "An fMRI Investigation of Moral Cognition in Healthcare Decision Making," *Journal of Neuroscience, Psychology, and Economics*, [dx.doi.org/10.1037/npe0000038](https://doi.org/10.1037/npe0000038)

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