

[Comment](#) 14 November 2018

There is no fundamental difference between male and female brains

A lasting desire to find differences in how male and female brains work serves to affirm gender stereotypes, not explain them, says **Dean Burnett**



*No difference here
Peter Cade/Getty*

By Dean Burnett

A study claiming to show “very clear” differences between the brains of men and women was widely reported this week, as such studies invariably are. Yet a close look at the details shows that if any differences exist they are anything but clear.

Despite the large sample size – half a million people – there is much to find fault with the study, from the simple data collection method (a list of 10 agree/disagree questions completed online) to the application of questionable theories and assumptions. These include the empathising-systemising brain theory (the idea that all brains tend towards either empathy or analysis on a binary scale) and the “extreme male” theory of autism, which suggests that typical autistic traits are actually inherently male traits, taken to extremes of expression.

The study, published in *PNAS*, is just the latest – and certainly won't be the last – in a long line of findings that are trumpeted in the media as “proving” that male and female brains are inherently different. The actual evidence [falls way short of such claims](#).

Distinctions do exist. Men and women have genetic differences due to the sex chromosomes, are regulated by different hormones during development, and have [distinct anatomical differences](#). All of this is reflected in the structure of the brain.

But whether these have any direct and significant impacts on the functioning of the mature adult brain is a lot harder to determine. There are just too many other factors and variables that can affect how we use our brains, which cannot be screened out by modern research methods, no matter how rigorous.

Influenced by society

We all grow and develop in a society that imposes countless differences between males and females from the day we are born. Given how our brains grow and form in response to our environment – they are the most “plastic” organ in our bodies by far – any of these could turn out to be a big influence over how our brains work as adults.

Why is so much energy, which could be better used elsewhere, ploughed into an effort to show functional differences between the brains of men and women? Especially when it is far from certain such things even exist?

Read more: [Scans prove there's no such thing as a 'male' or 'female' brain](#)

An optimistic view is that uncovering differences between how male and female brains work could help in the fields of medicine and mental health, user interfaces, workplaces and more. But something being useful to us [is not evidence](#) that it should exist.

A more cynical (and arguably realistic) view is that there is a strong gender imbalance in our society, with men holding the majority of power and control in almost every field. Studies attempting to show that male and female brains are functionally different – and their inevitable wide coverage in the media – often seem like attempts to justify the status quo, rather than question it.

Our brains develop in a culture that keeps insisting men and women are different, and so we behave accordingly. Unfortunately, this includes performing and reporting research which confirms such beliefs.

Journal reference: *PNAS*, [DOI: 10.1073/pnas.1811032115](https://doi.org/10.1073/pnas.1811032115)