

Are Women More Emotional Than Men?

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Are Women More Emotional Than Men? This idea that men and women think, talk, and understand things differently has existed for decades—inspiring books, college courses, research studies, and countless sitcoms. The truth is much more complicated and nuanced, of course.



If you're a neuroscientist with a penchant to be profiled in the news, one almost sure-fire way to get there is to study sex differences in the brain and then make some grand conclusions about how women are more emotional than men.

But if you are a person who is intellectually-curious and interested in understanding what science can actually tell us about ourselves, while avoiding hype and hyperbole, you'd best apply your skepticism and set the bar for evidence way up high when you read a popular press article documenting the latest study on sex differences.

Also See: [Is Your Brain Too Smart For Magic Tricks?](#)

Three Important Regions Of The Brain

The similarities between the brains of men and women far outweigh the differences and the differences are hard to tease apart from different environments. There are three regions in the brain that, on average, have different volumes in men and women, after correcting for body size that I would like to talk about: **the amygdala**, an almond-shaped structure that plays a key role in the emotional modulation of memory; **the hippocampus**, whose job is to lay down new long-term memories and to navigate through space; and **the corpus callosum**, the fiber tract that joins the left and right hemispheres.

Why We Remember Emotional Events

Let's start with the amygdala. The amygdala is why we remember details of events that were very emotional: where you were when you heard about 9/11, for example.

The amygdala is larger in men than in women. The hippocampus is larger in women than in men. The corpus callosum... well it depends on how you measure it. Each of these regional differences is in fact far more complicated than it first seems.

We used to think that the amygdala was primarily concerned with negative emotions, especially fear. But with more data, there is now good evidence that the region leaps to action when we are experiencing strong emotions, regardless of their valence. And when the amygdala is active, we tend to form stronger and more vivid memories of whatever we are experiencing.

Flashbulb Memory

You might have heard the term flashbulb memory: this is a characterization of a memory that you might have that seems to be particularly vivid – as though a moment in time has been captured by the flash of a camera. We'll consider the accuracy of flash bulb memories in a later lecture, but for now, suffice it to say that the amygdala plays a role in telling the hippocampus, the region that lays down new long-term memories, to pay attention.

There are studies documenting behavioral differences in the recall of emotional events by men and women: women seem to have stronger and more detailed memories of emotional events and are able to bring them to mind more quickly. So the idea is that the increase in memory strength that happens with emotion is bigger in women than in men, on average.

Also See: [How Different Are Male And Female Brains?](#)

And while this memory enhancement sounds like a benefit, it might also be one of the reasons why women tend to be diagnosed more frequently with disorders like depression, anxiety and PTSD. And there's some evidence that memory for things that happened just before an emotional event is worse in women than in men.

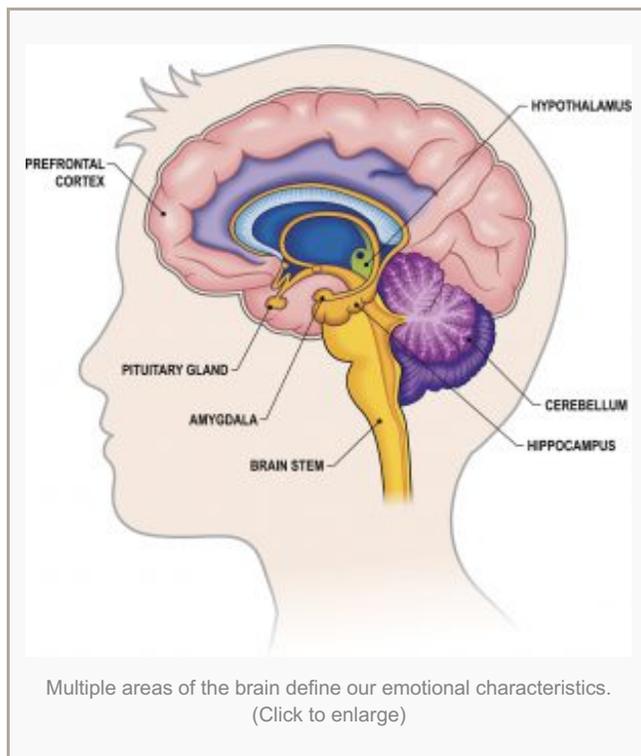
You might also have heard that men and women differ in terms of how their brains are 'wired'. Usually, when we talk about wiring, we mean how the different parts of the brain are connected. And you've probably heard the idea that the two hemispheres are more tightly connected in women than in men.

...on average, women's brains have proportionally more gray matter than men's brains [Click To Tweet](#)

But on average, women's brains have proportionally more [gray matter](#) than men's brains and men's brains actually have a larger percentage of [white matter](#). And as we've discussed elsewhere, white matter is the stuff that connects neurons. Moreover, when we look at the corpus callosum—which is the largest bundle of white matter in the brain—the connectivity story gets even more complicated.

A Bridge Between Hemispheres

The corpus callosum is the fiber tract that joins the left and right hemispheres in the brain and is often cited as one of the regions that shows robust sexual dimorphisms: women tend to have larger and more bulbous corpus callosa than men, and this finding has been interpreted as showing that women have more communication between



hemispheres, and think more holistically. In 1982, a study published in the eminent journal *Science* first reported this difference.

Then, in 1991, a second paper came out in the highly reputable *Journal of Neuroscience* indicating that it's more bulbous in women, but more tubular in men and the total area is the same.

Then, a meta-analysis in 1997 found no significant sex differences across 49 studies of the corpus callosum.

Finally, a study in 2003 in India showed that in Indian brains, the corpus callosum is longer in males than in females and that it increases with age in males, but not in females.

Also See: [Do Brain Games Make You Smarter?](#)

What these studies show is that measuring brain volumes, even in the same region, is complex and that variability with age, culture, and other factors muddies the waters significantly.

And, the corpus callosum seems to be especially prone to neuroplasticity: musicians, for example, after much training, have been shown to have larger corpus callosa than non-musicians.

[Musicians have been shown to have larger corpus callosa than non-musicians. Click To Tweet](#)

And yet, when those first studies came out in 1982, many scientists and journalists were quick to tell a good just-so story: of course women have greater connectivity between their hemispheres – they think more holistically and intuitively. And of course men's brains are more modular – they look for solutions to problems and focus on one thing at a time.

Some of these differences in connectivity have also been used to promote the left/right brain myth: that because women are supposed to have greater interaction between the hemispheres, they have greater access to the non-dominant, intuitive and emotional right hemisphere, while men are more dominated by their logical, analytical left hemisphere.

No matter whether you are male, or female, the brain is a complex organ that we have only begun to fully understand. While there are many obvious differences between the sexes, neuroscientists are only just scratching the surface of how our physiology affects the many nuances of our behavior and characteristics.

What do you think? Are the differences between men and women based solely on brain physiology, or are social factors more of an influence? Tell us in the comment section below!

From the lecture Series [Brain Myths Exploded: Lessons from Neuroscience](#) presented by professor Indre Viskontas, Ph.D.