

Gender impacts brain activity in alcoholics

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Compared to alcoholic women, alcoholic men have more diminished brain activity in areas responsible for emotional processing (limbic regions including the amygdala and hippocampus), as well as memory and social processing (cortical regions including the superior frontal and supramarginal regions) among other functions.

In 2015, the National Survey on Drug Use and Health Alcoholism found 15.1 million adults have Alcohol Use Disorder (AUD). Although it is among the leading maladies worldwide, the abnormalities in emotional processing that underlie the problem are not well understood. To date, most published works describing brain abnormalities associated with AUD do not address [gender differences](#), but have relied primarily upon research with alcoholic men or combined gender groups.

Previous research among alcoholics has found particular regions of the brain have muted responses to highly charged visual imagery. This study identified how the abnormalities associated with alcoholism in these brain regions differed for men and women.

Researchers from Boston University School of Medicine (BUSM), in conjunction with the VA Boston Healthcare System and Massachusetts General Hospital, used [functional magnetic resonance](#) imaging (fMRI) to measure the difference in [brain activity](#) between highly charged visual images and neutral images. "Our findings indicate that the experiences and mechanisms of AUD and addiction differ for men and women," explained corresponding author Kayle S. Sawyer, Ph.D., from the department of anatomy and neurobiology at BUSM.

According to the researchers, both the general public and medical professionals typically treat AUD as a homogenous disease, without distinguishing between men and women. "This study provides insights into [emotional processing](#) in alcoholism by examining the influence of gender on brain activation."

Although additional research is needed, the authors believe these findings may one day lead to prevention and treatment strategies specifically tailored by gender.

These findings appear online in *eLife*.

More information: Kayle S Sawyer et al, Alcoholism gender differences in brain responsivity to emotional stimuli, *eLife* (2019). [DOI: 10.7554/eLife.41723](https://doi.org/10.7554/eLife.41723)

Provided by Boston University School of Medicine

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