

Study of veterans details genetic basis for anxiety, links anxiety and depression

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Numerous genetic studies are now underway using data from VA's landmark Million Veteran Program, which currently has upwards of 800,000 participants. Credit: Robert Lisak

A massive genomewide analysis of approximately 200,000 military

veterans has identified six genetic variants linked to anxiety, researchers from Yale and colleagues at other institutions report Jan. 7 in the *American Journal of Psychiatry*.

Some of the variants associated with [anxiety](#) had previously been implicated as [risk factors](#) for [bipolar disorder](#), posttraumatic stress disorder, and schizophrenia.

The new study further contributes the first convincing molecular explanation for why anxiety and depression often coexist.

"This is the richest set of results for the genetic basis of anxiety to date," said co-lead author Joel Gelernter, the Foundations Fund Professor of Psychiatry, professor of genetics and of neuroscience at Yale. "There has been no explanation for the comorbidity of anxiety and depression and other [mental health disorders](#), but here we have found specific, shared genetic risks."

Finding the genetic underpinnings of mental health disorders is the primary goal of the Million Veteran Program, a compilation of health and genetic data on U.S. [military veterans](#) run by the U.S. Veterans Administration. The research team analyzed the program's data and zeroed in on six variants linked to anxiety. Five were found in European Americans and one found only in African Americans.

"While there have been many studies on the genetic basis of depression, far fewer have looked for variants linked to anxiety, disorders of which afflict as many as 1 in 10 Americans," said senior author Murray Stein, San Diego VA staff psychiatrist and Distinguished Professor of Psychiatry and of family medicine and public health at UCSD.

Some variants were linked to genes that help govern gene activity or, intriguingly, to a gene involved in the functioning of receptors for the

sex hormone estrogen. While this finding might help explain why women are more than twice as likely as men to suffer from anxiety disorders, researchers stressed that the variant affecting estrogen receptors was identified in a veteran cohort made up mostly of men, and said further investigation is necessary.

Another of the newly discovered anxiety gene variants, MAD1L1, whose function is not fully understood, was also highly notable. Variants of this gene have already been linked to bipolar disorder, [posttraumatic stress disorder](#), and schizophrenia.

"One of the goals of this research is to find important risk genes that are associated with risk for many psychiatric and behavioral traits for which we don't have a good explanation," said Yale's Daniel Levey, a postdoctoral associate and co-lead author of the study.

To do the study, Yale's researchers teamed up with colleagues at the Veteran Affairs Connecticut Healthcare System, VA San Diego Healthcare System, and the University of California San Diego.

Said Gelernter, "This is a rich vein we have just begun to tap."

Provided by Yale University

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