

# Gut health and mood genetically entwined

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University of Queensland researchers have confirmed a link between depression and stomach ulcers, in the world's largest study of genetic factors in peptic ulcer disease.

By studying [health data](#) from nearly half a million people, Professor Naomi Wray from UQ's Institute for Molecular Bioscience and Queensland Brain Institute and Dr. Yeda Wu from the IMB have provided clues to how the gut and brain work together.

Dr. Wu said the research supported a holistic approach to caring for patients with gastrointestinal diseases like [peptic ulcers](#), which affect between five and 10 percent of people at some time in their lives.

"As a [medical student](#), I noticed how some patients' gastrointestinal symptoms improved after psychotherapy or psychiatry treatment," Dr. Wu said.

"This study linking major depression with an increased risk of gastrointestinal disorders also explains the co-morbidity of the conditions."

Stress was thought to be the leading cause of peptic ulcer disease until it was linked to the bacteria *H. pylori* by Australian Nobel Prize winners Barry Marshall and Robin Warren.

Dr. Wu said medication had since reduced the disease's prevalence, but the importance of other risk factors including lifestyle and psychological factors now needed to be re-emphasized.

"To identify why some people develop ulcers, we studied health data from 456,327 individuals from the UK Biobank and identified eight genetic variations associated with the risk of getting peptic ulcer disease," Professor Wray said.

"Six of the eight variations can be linked to why some people are more prone to *H. pylori* infection, which would make them more susceptible to peptic ulcer disease."

Professor Wray said an existing peptic ulcer treatment targeted one of these genetic variations, so identifying other associated genes could offer opportunities for new treatments.

"Access to vast health and genomic data sets allows researchers to advance understanding of many complex diseases and traits," she said.

"Resources such as the UK Biobank have made it possible to now study the genetic contribution to common diseases, such as peptic ulcer disease, and understand the risks more fully," Professor Wray said.

"If we can provide genetic risk scores to patients, it could be part of a prevention program to help reduce the rates of peptic ulcer disease."

This research is published in *Nature Communications*.

**More information:** Yeda Wu et al. GWAS of peptic ulcer disease implicates *Helicobacter pylori* infection, other gastrointestinal disorders and

depression, *Nature Communications* (2021). DOI:  
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