

By studying Google search data, researchers discovered Americans had more health concerns during the recession

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During the Great Recession (2008 - 2011), a greater-than-expected number of Americans searched for information on stress-related symptoms. Credit: Chiew Pang/Flickr Creative Commons

We ring in the New Year with hopes of being healthy, wealthy, and wise.

A new study led by San Diego State University School of Public Health research professor John W. Ayers suggests that from a public health standpoint, health and wealth may be connected.

Ayers and his team examined the Google search patterns of Americans during the recent Great Recession and discovered that during that period, people searched for keywords related to stress-related health symptoms much more frequently than they would have if the recession hadn't taken place.

"There were 200 million excess health queries during the Great Recession," Ayers said.

While it's impossible to ascertain the motives of everyone who searched those terms, it's likely that most of these excess symptom searches reflect people who experienced these symptoms and sought out health information, Ayers said.

By looking for these more-frequent-than-expected [search terms](#) and matching them up to world events, Ayers added, [public health](#) officials can conduct population health surveillance on an unprecedented scale.

In the new study, published today in the *American Journal of Preventive Medicine*, Ayers and his colleagues identified five root words associated with psychosomatic symptoms: chest, headache, heart, pain, and stomach. Controlling for search terms that might return false positives (such as "tool chest"), the researchers looked at how frequently people in the United States searched for those root terms during the Great Recession, here defined as December 2008 through 2011, and came up with a list of 343 commonly searched symptoms.

Next, the researchers calculated what the values for those symptoms' search frequency over the same period would have been if there had

been no Great Recession, correcting for such variables as the growing availability of Internet availability and increased usage.

Comparing those values to people's actual search behavior revealed that certain symptoms were searched for with far more frequency during the recession. Searches for "stomach ulcer symptoms" were 228 percent higher than would be expected and "headache symptoms" were 193 percent higher.

Aggregating the [symptoms](#) into themes, the researchers found that several broad categories of health concerns stuck out: Queries about headaches were 41 percent higher than expected; for hernia, 37 percent; for chest pain, 35 percent; and for arrhythmia, 32 percent. Back pain, gastric pain, joint pain, and toothache also popped up with greater-than-expected frequency among the search terms.

"The Great Recession undoubtedly got inside the body via the mind, namely through stress," Ayers said. "For example, the experiences of the unemployed may be stressful, but also those not directly affected by unemployment may become fearful of losing their jobs."

Benjamin Althouse, an epidemiologist and Omidyar Fellow with the Santa Fe Institute and one of the study's coauthors, said that by monitoring health-related search terms, [public health officials](#) could recognize burgeoning epidemics such as stress-related chest pain and direct resources to help people reduce their stress or take other precautionary measures. This technique is quicker, cheaper, and more efficient than traditional survey methodology, he added.

"The status quo approaches to public health surveillance are both contrived and expensive," Althouse said. "Internet search queries may be a significantly more precise metric, suggesting precisely when and how the population's health is changing."

Ayers added that search engines like Google could even interpret these searches and suggest links to Internet-based treatment options.

"The web is a stigma-reducing and cost-reducing venue to reach patients who [search](#) for, but do not otherwise receive, treatment because they cannot afford medications or copayments," Ayers said.

More information: [www.ajpmonline.org/webfiles/im ...
6-stamped-010714.pdf](http://www.ajpmonline.org/webfiles/im...6-stamped-010714.pdf)

Provided by San Diego State University

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