

# Depression associated with increased risk of stroke and stroke-related death

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An analysis of nearly 30 studies including more than 300,000 patients finds that depression is associated with a significantly increased risk of developing stroke and dying from stroke, according to an article in the September 21 issue of *JAMA*.

"[Stroke](#) is a leading cause of death and permanent disability, with significant [economic losses](#) due to functional impairments. Depression is highly prevalent in the [general population](#), and it is estimated that 5.8 percent of men and 9.5 percent of women will experience a [depressive episode](#) in a 12-month period. The lifetime incidence of depression has been estimated at more than 16 percent in the general population," according to background information in the article. Whether depression increases the risk of stroke has been unclear.

An Pan, Ph.D., of the Harvard School of Public Health, Boston, and colleagues conducted a systematic review and a meta-analysis of prospective cohort studies to describe the association between depression and risk of total and subtypes of stroke. The researchers conducted a search of the medical literature and identified 28 prospective cohort studies that met criteria for inclusion in the analysis. The studies, which included 317,540 participants, reported 8,478 stroke cases during a follow-up period ranging from 2 to 29 years.

The researchers found that when the data from the studies were pooled, analysis indicated that depression was associated with a 45 percent increased risk for total stroke; a 55 percent increased risk for fatal

stroke; and a 25 percent increased risk for [ischemic stroke](#). Depression was not associated with an increased of [hemorrhagic stroke](#).

The corresponding absolute risk difference associated with depression based on the most recent stroke statistics for the United States was estimated to be, per 100,000 individuals per year, 106 cases for total stroke, 53 cases for ischemic stroke, and 22 cases for fatal stroke.

The researchers speculate that depression may contribute to stroke through a variety of mechanisms, including having known neuroendocrine (relating to the nervous and endocrine systems) and immunological/inflammation effects; poor health behaviors (i.e., smoking, physical inactivity, poor diet, lack of medication compliance) and obesity; having other major comorbidities, such as diabetes and hypertension, both of which are major risk factors for stroke; and antidepressant medication use, which may contribute to the observed association.

"In conclusion, this meta-analysis provides strong evidence that depression is a significant risk factor for stroke. Given the high prevalence and incidence of depression and stroke in the general population, the observed association between depression and stroke has clinical and public health importance. More studies are needed to explore the underlying mechanisms and elucidate the causal pathways that link [depression](#) and stroke."

**More information:** JAMA. 2011;306[11]:1241-1249.

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