

Twin study examines associations between depression and coronary artery disease

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Major depression and coronary artery disease are only modestly related throughout an individual's lifetime, but studying how the two interact over time and in twin pairs paints a more complex picture of the associations between the conditions, according to a report in the August issue of *Archives of General Psychiatry*. For example, the association between coronary artery disease onset and major depression risk is much stronger over time than vice versa.

"While an association between major [depression](#) and [coronary artery disease](#) has long been noted and recently confirmed, the direction and cause of this association remain unclear," the authors write as background information in the article. High cortisol levels, [inflammation](#) and changes in blood platelet function associated with depression may increase risk for coronary artery disease; coronary artery disease is a stressful event that may increase risk for depression; and shared genetic or environmental factors may underlie both conditions.

Kenneth S. Kendler, M.D., of Virginia Commonwealth University School of Medicine, Richmond, and colleagues studied 30,374 twins (average age 57) from the Swedish Twin Registry. Information was obtained from telephone interviews conducted between 1998 and 2003 and also from Swedish [hospital discharge](#) and death registers.

The results of statistical models over time and of twin pairs yielded several findings, the authors note. "First, the lifetime association between major depression and coronary artery disease in this sample was

modest and did not differ substantially in men and women," they write. "Second, in more informative time-dependent analyses, coronary artery disease onset was associated with a nearly three-fold increased risk for depressive onset in that year and a nearly two-fold increase in subsequent years. The long-term effect of coronary artery disease on risk for major depression did not attenuate over time."

"Third, given an onset of major depression, the risk for coronary artery disease onset was increased 2.5-fold in that year and much more modestly in subsequent years," they continue. "The ongoing increased risk for coronary artery disease after major depression onset did not attenuate over time. Although modest, this future risk for coronary artery disease was strongly related to the severity and recurrence of major depression. Indeed, elevated future coronary artery disease risk was confined to individuals with recurrent episodes of major depression or those who meet more than the minimum number of diagnostic criteria."

In men, the increased risk for major depression was much greater in the year of coronary artery disease onset than in subsequent years. Women experienced a smaller spike in depression risk after diagnosis with coronary artery disease but had nearly the same risk thereafter. "When examined separately, in men, environmental effects, which are often acute, have a large role in major depression-coronary artery disease comorbidity, whereas in women, chronic effects, which are in part genetic, are more important," the authors conclude. "In men, genetic sources of major depression-coronary artery disease comorbidity are more important in younger members of the sample."

More information: Arch Gen Psychiatry. 2009;66[8]:857-863.

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