

# Childless men more at risk of death from cardiovascular disease

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The risk of dying from cardiovascular disease is higher for childless men than for fathers, according to a large study led by a researcher at the Stanford University School of Medicine.

The new study, which will be published online Sept. 26 in [Human Reproduction](#), tracked some 135,000 male members of the American Association of Retired Persons over a 10-year period, in order to determine whether the number of [offspring](#) a man has offers any clues about that man's long-term health. The findings show an association between parental status and [cardiovascular risk](#) and should not be interpreted as proof of a cause and effect.

"This was the largest-ever study in the United States to examine the relationship between [fatherhood](#) and cardiovascular disease," said Michael Eisenberg, MD, assistant professor of [urology](#) at Stanford. Moreover, the study was carefully controlled to minimize confounding variables that might otherwise cloud investigators' capacity to generate meaningful results.

Eisenberg initiated the study while doing his urologic [residency training](#) at the University of California–San Francisco, and carried it through his joining the faculty at Stanford. (The paper's senior author is Mark Pletcher, MD, MPH, associate professor of epidemiology & biostatistics at UCSF.) He had wondered whether infertile men's long-term health outcomes might differ from those of fertile men, and he reasoned that the number of offspring a man fathered could be a rough proxy for

ability to reproduce.

"So we asked: Is not having children a predictor of death from cardiovascular disease?" he said.

To find out, Eisenberg and his associates pored over data compiled from a series of questionnaires that hundreds of thousands of AARP members had completed over a period of about 10 years. The scientists narrowed their health-outcome analysis to some 135,000 married or formerly married men (about 95 percent of them white) who were all over age 50 when the study began. Their median age at the start of the study was 62.7 years old.

To ensure, as much as possible, that the men they were looking at had both the intent and the opportunity to reproduce, Eisenberg and his colleagues restricted their sample population to those who were married or had once been married. To further level the playing field, they also excluded men with any previous history of various health conditions including heart disease, stroke or a related condition, which could have impeded successful reproduction. The resulting subject group was thus in a state of relatively good initial health.

Over the study's duration, the investigators tallied mortality from between 60 and 70 different causes. Deaths were assessed via various methods including through Social Security Administration and other national databases as well as surviving relatives' responses to mailed questionnaires.

Next, all participants living or dead were grouped according to the number of children they had fathered, and mortality rates within each group were calculated. In their statistical analysis, Eisenberg and his colleagues corrected for body-mass index, self-reported activity levels and health status, tobacco and alcohol use, race, age, median household

income, and education.

Over the course of the study, about 10 percent of the men died. About one in every five of those deaths was attributable to cardiovascular disease. That represented a 17 percent increase in the likelihood of a childless man's dying of a condition related to cardiovascular disease, compared with fathers.

The genders of the children a man had fathered made no difference in the likelihood of his succumbing to cardiovascular disease.

There was a somewhat higher overall risk of mortality from all causes among childless men. But this increase was almost entirely attributable to cardiovascular disease, without which no statistically significant uptick would have been seen, Eisenberg said.

Eisenberg, who specializes in male infertility and sexual dysfunction, noted that it was impossible, in this study, to directly assess a man's "reproductive intent." But eliminating unmarried men from his team's analysis brought childlessness a step closer to being a proxy for infertility. The connections between infertility, as observed via that proxy, and predisposition to death from cardiovascular disease raise an important question, Eisenberg said. "Is there a real biological cause behind both? Maybe we should look closer at the childless group." Since fertility issues can surface well before any obvious outward symptoms of cardiovascular disease, such a link could help flag cardiovascular risk sooner, leading to earlier and more effective intervention, he said.

The Eisenberg team's results are being published amid widespread reporting of a smaller recent study of some 600 Philippino fathers. The study showed that men with the highest levels of testosterone, the major male steroid hormone, at the study's start were more likely to find mates and become fathers than those with lower initial levels. The study also

showed that levels of testosterone fell with parenthood.

Eisenberg suggested that if initially low testosterone levels do indeed predispose to fewer offspring, this may reflect broader underlying problems that could lead to a higher risk of [cardiovascular disease](#) in later life. At the same time, many scientists believe the capacity to nurture a child may benefit from a reduction in a man's testosterone levels. But such a parenthood-induced reduction in testosterone levels would no longer imply physiological defects of the sort that may be responsible for relatively low testosterone found in those who go childless. (Eisenberg stressed that his study did not assess [testosterone levels](#) in its subjects or consider whether fathers lived with their children.)

It's possible that many other factors besides testosterone account for fathers' lower cardiovascular risk. "Maybe having children causes men to have healthier behaviors, so fathers will live longer," said Eisenberg. Other studies have shown that [men](#) live longer if they don't live alone.

Provided by Stanford University Medical Center

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