

Living in poor neighborhood a risk factor for out-of-hospital cardiac death

September 20 2011, by Emily Caldwell

People living in poor neighborhoods are at higher risk of dying of heart disease outside a hospital than are people who live in wealthier neighborhoods, research suggests.

The researchers analyzed the association between neighborhoods of differing [socioeconomic status](#) and out-of-hospital deaths caused by coronary [heart disease](#) in four U.S. communities between 1992 and 2002. In each community, and among whites and African Americans, those living in the poorer neighborhoods had a higher risk for these deaths.

Neighborhood socioeconomic status can be determined by a number of measures, generally including residents' household or family income, education levels and occupations.

The data were obtained from a national study monitoring the risk of heart disease in four communities: Washington County, Md.; Minneapolis, Minn.; Jackson, Miss.; and Forsyth County, N.C.

According to the [American Heart Association](#), almost 80 percent of cardiac arrests that take place outside a hospital occur at home and are witnessed by a family member. Yet only 6.4 percent of [sudden cardiac arrest](#) victims survive. Almost 60 percent of the deaths examined in this study were classified as sudden cardiac deaths.

Though the study did not examine the reasons for the differing levels of

risk, previous research has suggested that [health disparities](#) based on socioeconomic status typically relate to differing levels of access to health care, the presence or absence of environmental stressors, and the level of social support among neighborhood residents.

"From a public health perspective, it's useful to monitor these associations over time to see what's happening," said Randi Foraker, an assistant professor of epidemiology and [cardiovascular medicine](#) at Ohio State University and lead author of the study. "Perhaps there's something on a community level that could be done to help reverse those trends and take those inequities away."

The study is published in a recent issue of the journal *Annals of Epidemiology*.

The researchers obtained data on 3,743 out-of-hospital deaths from death certificates that had been classified as fatal coronary heart disease events. Of those, 2,191 were classified as sudden cardiac deaths, meaning death occurred within one hour after symptoms began.

The data came from the Atherosclerosis Risk in Communities (ARIC) study sponsored by the National Heart, Lung and Blood Institute.

The addresses from the death certificates were used to determine where the people had lived in each community.

The scientists used a number of measures to determine whether the neighborhoods delineated by the 2000 U.S. Census were considered of low, medium or high socioeconomic status. These measures included median household income, the percentage of residents below the poverty level, the percentage of female-headed households and the percentage of college-educated and high school-educated residents. An additional composite index took into account six indicators of socioeconomic

status.

"No matter what study community they were in, persons living in lower socioeconomic status neighborhoods were dying outside the hospital at a greater rate compared to those living in higher socioeconomic status neighborhoods," Foraker said.

The magnitude of this effect was greater among women in all cases, she noted. A statistical analysis indicated that no matter what measure was used to define the level of socioeconomic status, black women and white women were more strongly affected than were black men and white men, respectively, by the association between lower socioeconomic status and higher risk for [coronary heart disease](#) death outside a hospital.

"Socioeconomic status appears to exert a stronger influence on these out-of-hospital deaths on women than on men," Foraker said. "This might mean that women could be more susceptible to problems with access to care and a lack of social support than are men, given those findings."

By using multiple measures of socioeconomic status in this study, Foraker said she and colleagues have settled a research question for further monitoring of health disparities.

"No matter what measure we used, the analysis told the same story. That's important for monitoring these disparities over time. So we captured 10 years of data, but those who want to take a look at a different span of 10 years could use just one of these measures rather than a complicated index," she said.

Foraker plans to shift her research focus to examine heart failure hospitalizations among patients living in lower socioeconomic status neighborhoods, and whether better use of outpatient care might reduce these hospitalizations. "I'm predicting that better utilization of the system

could keep people healthier and out of the hospital," she said.

Provided by The Ohio State University

Citation: Living in poor neighborhood a risk factor for out-of-hospital cardiac death (2011, September 20) retrieved 25 April 2024 from <https://medicalxpress.com/news/2011-09-poor-neighborhood-factor-out-of-hospital-cardiac.html>

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