

The Relationship of Smoking Behavior and Death in Persons 40 to 70 Years of Age

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The full report is titled "Smoking and Deaths between 40 and 70 Years of Age in Women and Men." It is in the 21 March 2006 issue of *Annals of Internal Medicine* (volume 144, pages 381-389). The authors are S.E. Vollset, A. Tverdal, and H.K. Gjessing.

What is the problem and what is known about it so far?

The World Health Organization has identified smoking as the major preventable cause of human death worldwide. About 5 million people die of smoking-related illness each year. Many studies show that smokers are more likely to die of certain types of cancer and cardiovascular disease than nonsmokers of similar age. However, few studies provide accurate estimates of how much smoking increases the risk for death, especially among women. Good information would be useful to doctors and others when trying to motivate smokers to quit and nonsmokers to not start smoking.

Why did the researchers do this particular study?

To examine the relationship between deaths in persons 40 to 70 years of age and smoking behaviors in a large sample of men and women.

Who was studied?

24,505 Norwegian women and 25,034 Norwegian men who were born between 1925 and 1941 and were participating in a study of cardiovascular risk factors

How was the study done?

During 1974 to 1978, the researchers collected health information, including smoking behaviors, from all study participants. Participants completed follow-up examinations about 5 years and 10 years after the initial examination. Death certificates provided information on death and cause of death through the year 2000. The researchers then examined relationships between death and smoking behaviors and estimated the benefits of quitting smoking at various ages.

What did the researchers find?

During the study, 2333 women and 4680 men died between the ages of 40 and 70 years. Death rates were much higher among those who smoked 20 or more cigarettes per day than among people who never smoked. During the study, 26% of women who were heavy smokers died compared with only 9% of women who were nonsmokers. Among men, 41% of heavy smokers and only 14% of nonsmokers died. At each age and at each level of smoking, male smokers had higher death rates than female smokers. Lung cancer deaths were the same in men and women smokers, but male smokers had a higher risk for cardiovascular death than women with similar smoking behaviors. The lower baseline risk for cardiovascular disease in women than in men at similar ages explains these differences. Not surprisingly, the younger smokers were when they quit, the more they lowered their risk for death. However, even among the oldest participants, quitting smoking had a benefit.

What were the limitations of the study?

The study included only Norwegians. The researchers had information on smoking behavior at only 3 time points; smoking behaviors may have changed during the final years of follow-up.

What are the implications of the study?

In men and women, smoking strongly increases and quitting smoking decreases the risk for death between 40 and 70 years of age. The higher death rates among male smokers compared with female smokers seem to be due to lower baseline risk for cardiovascular disease in women compared with men. Lung cancer deaths were similar between male and female smokers.

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