

# Americans misinformed about smoking

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Smoking harms nearly every organ in the body and causes many diseases. Credit: CDC/Debora Cartagena

After voluminous research studies, numerous lawsuits and millions of deaths linked to cigarettes, it might seem likely that Americans now properly understand the risks of smoking.

But they don't, according to Stanford scholars Jon Krosnick and Neil Malhotra. Their recent study shows that despite most Americans' recognizing that smoking can lead to life-threatening diseases, they don't

understand how much that risk increases.

"Smoking is outlawed in public places in the U.S., and the number of people smoking has declined over decades," said Krosnick, a professor of communication and political science at Stanford and the study's lead author. "Yet people continue to initiate the habit of smoking, and many smokers do not try to quit."

Why?

The researchers said they believe that people's perceptions about the link between smoking and disease may play a significant role. Their study, published Aug. 14 in *PLOS ONE*, analyzed data from survey interviews of more than 13,000 U.S. adults, including smokers and non-smokers, about the prospects of developing lung [cancer](#).

## **Risky behavior**

In some previous studies on this topic, researchers had asked survey respondents to report how likely they thought it is that smokers and non-smokers will develop lung cancer. The difference between those two risks is one way to gauge how much of an increase in risk people perceive. For example, if a respondent thought smokers had a 30 percent chance of developing lung cancer and non-smokers a 10 percent chance, that person thinks that [smokers](#) are 20 percentage points more likely to develop cancer.

But the researchers realized that some people might not be thinking about risk that way. Instead, the researchers proposed, people might perceive risk as the ratio of the two numbers, like answering the question, "How many times more likely to get lung cancer is a smoker than a non-smoker?" This ratio is called the "relative risk." In the 30 percent vs. 10 percent example, a person thinks of the smoker as three

times more likely to develop lung cancer.

This seemingly small change in analytic approach has big consequences: most Americans overestimate the difference between the two rates of lung cancer – suggesting that people overestimate the risk of smoking – but the vast majority underestimate the relative risk. In essence, they are underestimating how much more likely it is for a smoker to develop lung cancer than a non-smoker.

The authors suggest that a person's decision about whether to smoke is partly based on how they think about the risks. So, if people naturally think about such dangers in terms of a ratio, then perhaps rates of smoking would be reduced if Americans are properly informed about such ratios.

To discern how people naturally think about risk, the researchers explored people's decisions to start and stop smoking. Those who perceived more relative risk of [lung](#) cancer from smoking – the ratio – were less likely to start and more likely to quit smoking. In contrast, people who perceived more of a difference between the two cancer rates were no more or less likely to start or stop smoking.

"The past literature has focused on the wrong type of risk," Krosnick said. "People seem to think naturally about relative risk."

## **The good news**

Knowing that people's risk perceptions underestimate danger, designers of [public health campaigns](#) might consider communicating in ways that directly address such perceptions, Krosnick said.

For example, cigarette package labels in the U.S. include warnings from the Surgeon General of the United States that smoking can cause

specific health problems without providing numeric figures to quantify the impact. In contrast, cigarette labels in Australia include quantitative data such as, "Tobacco smoking causes more than four times the number of deaths caused by car accidents."

"Telling [people](#) how many times that a person's chances of getting [lung cancer](#) increase due to [smoking](#) may help the public make more informed choices," Krosnick said.

The findings also suggest, said Malhotra, a professor of political economy in the Graduate School of Business, that continued government oversight is necessary.

"Since Americans underestimate the relative risk, it indicates some regulation of the industry is in order," he said.

**More information:** Jon A. Krosnick et al. Perceptions of health risks of cigarette smoking: A new measure reveals widespread misunderstanding, *PLOS ONE* (2017). [DOI: 10.1371/journal.pone.0182063](#)

Provided by Stanford University

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