

# Analysis shows advantage for picture-based cigarette pack warnings over text warnings

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Credit: Vera Kratochvil/public domain

Pictures illustrating the dangers of cigarette smoking were more effective at strengthening people's intentions to quit smoking than text warnings, a University of North Carolina at Chapel Hill analysis of multiple research studies has found.

The analysis that synthesized the results of 37 different experiments

comparing picture-based and text warnings also found that the pictorial warnings held people's attention longer, evoked stronger emotional reactions, and had a bigger impact on attitudes about [smoking](#). In total, the analysis found that picture-based warnings were more effective than text warnings on 20 of 25 different outcome measures.

The results, published today in the journal *Tobacco Control*, follow growth in the use of picture-based cigarette [health warnings](#) worldwide since their first use in Canada in 2001, said Seth M. Noar, PhD, a member of the UNC Lineberger Comprehensive Cancer Center and a professor in the UNC School of Journalism and Mass Communication. And Noar said the findings could help inform policy in the United States.

In response to requirements of a 2009 federal law, the U.S. Food and Drug Administration issued a rule in 2011 requiring cigarette packs sold in the United States to include color graphic images aimed at depicting the negative health effects of smoking cigarettes along with one of nine new text warnings. Although the U.S. Court of Appeals for the District of Columbia Circuit blocked the specific graphic warnings selected by the FDA from moving forward in response to a legal challenge from tobacco companies, the agency is expected to try again to comply with the law.

"We found that pictorial warnings are much more effective than text warnings," Noar said of the findings of the UNC-Chapel Hill analysis. "This has important implications for what policy the United States should implement."

The analysis synthesized the results of 37 experiments that had all tested the impact of picture-based versus text warnings. The studies were conducted in 16 different countries, and as a whole, included 33,613 people, ranging from smokers to non-smokers and adolescents to adults.

The UNC-led analysis offered a comprehensive look at the findings of a range of studies, Noar said.

Overall, he said that, across the set of studies, there was strong evidence for the effectiveness of picture-based over text warnings. Pictorial warnings had a bigger impact on 20 outcome measures—including increasing intentions not to start smoking, intentions to [quit smoking](#), getting and keeping people's attention, triggering people to think about the negative impacts of smoking, and for credibility.

"Pictorial warnings made people look at smoking in a more negative way and increased their intentions to quit smoking. This is very important, as these variables are associated with later attempts to quit smoking," Noar said.

The analysis also found four measures for which there was no advantage or disadvantage to pictorial warnings over text, including measures of self-efficacy to quit smoking and warning recall. They also found one measure that favored text warnings over pictorial – the study found that pictorial warnings triggered more psychological reactance than text warnings. In short, that measure gauged whether participants felt irritated or annoyed by the pictorial warnings.

Most of the studies included in the UNC-led analysis did not analyze the impact of pictorial warnings on actual behavior, Noar said. More work needs to be done looking at the effects of pictorial warnings on smoking behavior as part of controlled experiments, he said.

"This literature has not yet answered the question of whether pictorial warnings get people to stop smoking," he said. "We need more studies that follow people over time to get a better understanding of the extent to which pictorial warnings do or do not change actual smoking behavior."

**More information:** "Pictorial cigarette pack warnings: a meta-analysis of experimental studies." *Tob Control* 6 May 2015 [DOI: 10.1136/tobaccocontrol-2014-051978](https://doi.org/10.1136/tobaccocontrol-2014-051978)

Provided by University of North Carolina at Chapel Hill School of Medicine

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