

Graphic warning labels improve smokers' recall of warning and health risks related to smoking

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In a first of its kind study in the U.S., researchers at the Perelman School of Medicine at the University of Pennsylvania have shown that the addition of graphic warning labels on cigarette packaging can improve smokers' recall of the warning and health risks associated with smoking. The new findings are published online-first in the *American Journal of Preventive Medicine*.

In past studies in Europe and Canada, graphic warning labels have proven to be effective in eliciting [negative responses](#) to smoking, increasing reported intention to quit smoking in smokers, and modifying beliefs about smoking dangers. However, these previous research results have generally been conducted using large, population-based studies that could be confounded by concurrent tax increases or anti-smoking [media campaigns](#) that coincide with the introduction of new warning labels.

"An important first step in evaluating the true efficacy of the warning labels is to demonstrate if smokers can correctly recall its content or message," said Andrew A. Strasser, PhD, associate professor, Department of Psychiatry at Penn and lead author of the new study. "Based on this new research, we now have a better understanding of two important questions about how U.S. smokers view graphic warning labels: do smokers get the message and how do they get the message."

In the study, 200 current smokers were randomized to view either a text-

only warning label advertisement, which was unaltered and utilized the Surgeon General's warning and [Federal Trade Commission](#) (FTC) testing information that has appeared on cigarette advertisements since 1985; or a graphic warning label version that contained a graphic image (depicting a hospitalized patient on a ventilator) and a [health warning](#) with larger text, similar to what has been proposed by the FDA to be adopted in the U.S.

In order to gauge how the participants viewed the layout of the advertisements, the research team utilized sophisticated eye-tracking technology. With this equipment, they were able to measure dwell time (total time viewing various parts of the ad, including the text or graphic warning), time to first viewing of portions of the ad to assess how attention is drawn, and fixations or the number of times they viewed each area of the ad (including the text or graphic warning). After reading the ads, each study participant also had to rewrite the warning label text to demonstrate their recall of the information.

Researchers found a significant difference in percentage correct recall of the warning label between those in the text-only versus graphic warning label condition, 50 percent vs. 83 percent. In addition, the quicker a smoker looked at the large text in the graphic warning, and the longer they viewed the graphic image, the more likely they were at recalling the information correctly.

The researchers say that the new data demonstrates that drawing attention to the warning label can improve recall of health relevant information, which may extend to improving risk perception of smoking. Additionally, attracting attention to the warning before viewing the advertisement body may change the framing of the message in the advertisement body, causing viewers to approach it with greater caution. Finally, time to first viewing has practical application to real-world settings where people may allocate only a few seconds to a print

advertisement. Further study on the size, font, color, and location of text may identify the most effective way to draw attention.

"In addition to showing the value of adding a graphic warning label, this research also provides valuable insight into how the warning labels may be effective, which may serve to create more effective warning labels in the future," said Dr. Strasser. "We're hopeful that once the graphic warning labels are implemented, we will be able to make great strides in helping people to be better informed about their risks, and to convince them to quit smoking."

The 2009 Family Smoking Prevention and Tobacco Control Act mandated the FDA to require graphic warning labels on cigarette packages. Originally mandated to appear on cigarette packages in September 2012, the implementation of these [warning labels](#) has been held up in court.

Strasser and colleagues note that the current study was designed to gauge short-term recall of the graphic warning information and that additional research addressing long-term recall and behavior changes are currently underway at Penn.

Provided by University of Pennsylvania School of Medicine

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