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How smokers respond to pictorial cigarette warnings depends on how much control they think they have over their habit

Many are too addicted to even try to quit

In newly released research with over 3,000 cigarette smokers, a team at the Annenberg Public Policy Center of the University of Pennsylvania and at the Psychology Department of the Ohio State University has found that the new pictorial warnings proposed by the FDA do make smokers worried about their habit and motivate many of them to try to quit. However, only the smokers who think they can quit respond with increased intentions to try. In the online sample of smokers in the research, this was about a third of smokers.

“The findings respond to critics of more graphic warning labels who say that they will not help smokers to quit” noted Dan Romer, the lead investigator in the study. “In contrast to the skeptics, the research confirms that for a large proportion of smokers, picture warnings are more effective than just relying on print alone.”

The need for stronger health warnings is clear inasmuch as there are as many smokers in the U.S. today as there were back in the 1960s at the height of the epidemic. Although the proportion of adults who smoke has declined by more than half since then, population growth and the inability of smokers to quit keeps the number of smokers high. Only about 5% of smokers are successful in quitting in any given year. Nevertheless, making an attempt to quit is necessary in order to do so.

The study was published in *PLOS ONE* (<http://dx.plos.org/10.1371/journal.pone.0054937>), an international open-access peer-reviewed journal. In the study, smokers were randomly exposed to a pack of unbranded cigarettes with either a text warning that was presented on the side of the pack or a picture warning that included the same text but covered the front half of the pack in the format proposed by the FDA. Three messages were tested: smoking causes cancer, smoking is addictive, and smoking during pregnancy can harm your baby.

The study used a novel decision model that takes into account both the smoker’s desire to quit and the smoker’s belief that he or she can actually do that, a belief known as self-efficacy for quitting. The model accurately predicted smokers’ intentions to try to quit by incorporating both of these concerns. Unfortunately for smokers, those who most want to quit are also the least likely to believe they can do so.

A surprising finding predicted by the model is that in general, smokers with both low and high self-efficacy for quitting are less likely to try to quit than those with only a moderate level of self-efficacy. However, when exposed to a picture warning, smokers with higher self-efficacy were most likely to change their intentions to quit. Smokers with low self-efficacy who are also most addicted to their habit appeared to become even more discouraged by the picture warnings and showed a slight decrease in their intentions to quit.

The warnings proposed by the FDA are currently held up by federal courts that agreed with suits brought by the tobacco industry claiming the proposed warnings exceed Constitutional limits on the government's power to control commercial speech. The suits also question the effectiveness of the warnings to alter smoking behavior, since research conducted by the FDA and others indicates that although the picture warnings elicit a stronger emotional response than text-only warnings, they do not on average change their intentions to quit smoking.

“The present research clarifies the conditions under which smokers respond favorably to pictorial warnings,” noted Romer, “and shows that they will be most effective for those smokers who think they have enough control over their habit to do something in response. It is probably unrealistic to expect the warnings to be effective for all smokers, especially those whose addiction reduces their belief that they can quit.”

The study also tested the effect of adding more information to the warning as is done in other countries, such as Canada. For example, instead of just saying that smoking is addictive, the additional text says that “Studies have shown that tobacco can be harder to quit than heroin or cocaine,” a message that has been used in Canada. This additional information helped to make the warnings even more effective for smokers with a sense of control over their habit.

“The warnings proposed by the FDA did not include such additional information,” added Romer. “Our findings suggest that this strategy may be even more effective than just showing a picture. But we only showed smokers the warning one time, and more research will be needed to determine whether the additional information helps beyond what the picture conveys. Future research conducted by our team will test the longer term effects of the warnings.”

The **Annenberg Public Policy Center** (<http://www.annenbergpublicpolicycenter.org/>) was established in 1994 to educate the public and policy makers about the media's role in advancing public understanding of political and health issues at the local, state and federal levels. The Adolescent Communication Institute was established in 2002 to focus on strategies that promote the mental and behavioral health of adolescents.

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