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Don't throw the baby out with the bath water: Commentary on Kok, Peters, Kessels, ten Hoor, and Ruiter (2018)

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Kok, Peters, Kessels, ten Hoor, and Ruiter's (2018) make excellent points about the importance of self-efficacy, the possibility of reactance, and consideration of other methods to encourage smoking cessation. However, they incorrectly conclude that pictorial warning labels do "not support positive effects of fear appeals." Instead, a strong base of converging evidence supports effectiveness of pictorial warning labels, with similar results shown for improving knowledge and encouraging smoking cessation (through either quit intentions or behavior change) in controlled experiments including recent clinical trials and large international observational studies (e.g., Brewer et al., 2016; Evans et al., 2015; Noar et al., 2016a, 2016b; Romer et al., 2018).

Behavioral intentions are valid

Kok et al. claim that behavioral intentions are biased in the presence of defensive reactions; their claim's basis is weak. They cited two papers that employed small study samples (<60 participants split between conditions). In one article, participants randomized to a pictorial warning label condition or a text-only condition were exposed to one label per week for four weeks (Malouff et al., 2012). Pictorial warning labels increased quit intentions immediately after the last exposure, but smoking rates were unaltered four weeks later; a non-significant smoking-rate-change finding is unsurprising given the minimal exposures, small sample size, and the difficulty of quitting smoking. The second article cited by Kok et al. (Taubman - Ben-Ari et al., 2000) demonstrated that a threat appeal decreased behavioral intentions to drive recklessly in one study, but increased reckless-driving behaviors on a SEGA-game-machine simulator in another. It is unclear how to apply findings from these studies to pictorial warning labels given the questionable relevance of a simulated driving game among Israeli army soldiers aged 18 to 21 years old and the lack of information regarding self-efficacy given that low self-efficacy was the cornerstone of Kok et al.'s claim. The authors did not provide sufficient evidence to dismiss behavioral intentions as evidence. Behavior is important, but evidence based on behavioral intentions and cessation converges with respect to the effectiveness of pictorial warning labels (e.g., Brewer et al., 2016; Evans et al., 2015; Noar et al., 2016a,b; Romer et al., 2018). A better question concerns when behavioral intentions predict behaviors; for example, intention stability and strength, affective reactions, and motivational coherence moderate this relation (Conner, McEachan, Lawton, & Gardner, 2016; Cooke & Sheeran, 2004; Sheeran & Conner, 2017; Sheeran & Webb, 2016).

Multiple functions of affect

With their sole focus on behavior, Kok et al. also overlook the multiple functions that emotional reactions have in judgments and decisions about smoking (Peters, 2006; Peters, Lipkus, & Diefenbach, 2006). Three of these functions are illustrated in a recent clinical trial of smokers randomized to four weeks of naturalistic exposure to their own cigarette brand with either text-only messages, pictorial warning labels (images with the identical text), or pictorial warning labels with elaborated risk text (Evans et al., 2015). For example, negative emotion elicited by the pictorial warning labels acted as information, increasing smoking risk perceptions and quit intentions in turn (Evans et al., 2015, 2017). Greater perceptions of risk have been significantly associated with behaviors in meta-analyses (Brewer et al., 2007; Sheeran, Harris, & Epton, 2014). Second, negative emotion elicited by pictorial warning labels acted more directly to motivate quit intentions and cessation (Evans et al., 2015) as well as nonsmokers' avoidance of uptake (Romer & Jamieson, 2001); the core of an emotion is thought to be an action tendency (Frijda, 1986). Finally, emotion prompted thinking; in smoking, it acts as a spotlight in a two-stage process in which the emotional reaction aroused by pictorial warning labels causes the smoker/vulnerable nonsmoker to focus on new information consistent with those feelings (in this case, health-risk information). Then, the new information (rather than initial feelings) guides further judgments and decisions. Pictorial warning label-elicited negative emotion thus highlighted health-risk information, promoted greater processing and acceptance of the warnings, which, in turn, increased smoking risk perceptions and quit considerations (Evans et al., 2015). Pictorial warning labels also better supported health knowledge over time vs. text-only messages among adult smokers and teen smokers/vulnerable smokers (Peters et al., 2018). Knowledge, admittedly, is insufficient, but it is a necessary building block to making good evidence-based decisions. An understanding of available options is important in order to choose well between them; smokers' knowledge of tobacco's health risks is low, and most adults can only name between one and four of the many smoking-related diseases (Evans et al., 2015; Smith et al., 2010). Additionally, greater knowledge was associated with higher risk perceptions and greater quit intentions (Peters et al., 2018). These critical effects of pictorial warning labels highlight that emotional appeals can encourage a fact-based decision process (Peters, Evans, Hemmerich, & Berman, 2016). Kok et al.'s claim of pictorial warning labels' ineffectiveness is inconsistent with current behavioral evidence.

Pictorial warning labels are only one step

Kok et al. are likely correct that pictorial warning labels work better with some kind of efficacy support as has been attempted in the U.S. and elsewhere (e.g., R.J. Reynolds v FDA, 2012). Reactance can occur and appears to reduce effects of pictorial warning labels on risk perceptions and quit intentions (Hall et al., 2017). We need more research on who reacts, what are the effects of reactance, and how can they be overcome.

Pictorial warning labels, however, are only one piece of a larger system of education- and cessation-related efforts emerging from governments, not-for-profits, for-profits, social networks, and individuals. As usefully suggested by Kok et al., other interventions may work or work better or, we would add, work synergistically with pictorial warning labels.

Study of the larger system of interventions is needed. Systematically understanding barriers and incentives to smoking and smoking cessation may enable us to discover more innovative and successful systems of methods to increase cessation and reduce uptake (see e.g., Lewin, 1951). Such an approach does not mean that we throw the baby (pictorial warning labels) out with the bathwater. As a major cause of morbidity and mortality and a complicated psychological process, smoking requires a nuanced and systemic approach. The answer is complicated, as is so often the case with good questions. Kok et al.'s suggestion that we should continue to look for new and innovative ways to assist smokers, and vulnerable non-smokers, is well taken.

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