



# Challenges in communicating the benefits of switching from cigarettes to e-cigarettes: Responses from eight adult focus groups with varying smoking experience

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## ABSTRACT

This study explored the effectiveness of nuanced messages, described in our study as warnings, that seek to convey the potential benefits of switching from cigarettes to e-cigarettes for adults. The messages were designed to convey the potentially complex idea that e-cigarettes are likely less harmful than combustible cigarettes but that e-cigarettes still present a risk. Eight adult focus groups (N = 37) with varying smoking profiles responded to a set of messages that are used by government agencies and non-government organizations to convey the benefits of switching and ongoing risk associated with e-cigarette use. Results indicate that a suggestion of health benefits from exclusive use of e-cigarettes was met with skepticism from users of e-cigarettes and combustible cigarettes, and generated confusion about what these benefits were. Messages suggesting that individuals who have switched to e-cigarettes should not switch back to combustible cigarettes elicited the strongest statements of doubt and mistrust among focus group participants, regardless of smoking status. Participants representing all smoking profiles agreed with the message suggesting that switching from combustible cigarettes to e-cigarettes still exposes the user to ongoing health risks. Our focus group discussions suggest that adult smokers may not interpret nuanced messages about harm reduction in a way that will encourage switching behavior.

## 1. Introduction

Smoking continues to be the leading cause of preventable death in the United States (CDC, 2022a), though smoking rates have declined significantly over the last several decades. Current smoking among U.S. adults declined from 20.9% in 2005 to 12.5% in 2020 (Cornelius et al., 2022; United States Surgeon General, 2014). The decline in smoking rates contrasts with an increase in alternative product use, including the use of e-cigarettes. In 2018, 14.9% of adults had ever used an electronic cigarette (e-cigarette), and 3.2% were current e-cigarette users (Villarreal et al., 2020). About half of adults who used e-cigarettes also smoked regular cigarettes, a behavior known as “dual use” (CDC, 2020).

According to the CDC, in 2020, 3.7% of U.S. adults were current e-cigarette users (Cornelius et al., 2022; CDC, 2022b).

These smoking and e-cigarette trends raise a host of public policy questions related to the relative health risks of using these products. A report by the Royal College of Medicine finds that, while the possibility of harm from long-term e-cigarette use cannot be dismissed due to inhalation of ingredients other than nicotine, the health risk is likely to be very small, and substantially smaller than that arising from smoking combustible cigarettes (Royal College of Physicians, 2016). While debate about this report continues, the growth in e-cigarette use among American adults (and youth) has prompted a renewed interest in—and concern about—the *harm reduction approach*, which aims to curb the

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smoking epidemic by encouraging adult smokers to switch to lower-risk tobacco products such as e-cigarettes (Abrams et al., 2018).

The contrasting trends of cigarette and e-cigarette use also pose challenges to the government in how best to communicate to smokers that there are likely health benefits from switching to e-cigarettes while also communicating that e-cigarettes pose some health risks so that non-smokers, especially youth, do not onset into vaping. Comparing messages from the UK and the U.S. is illustrative of the different approaches taken to educate smokers. The U.S. CDC has adopted the following type of statement: “In order for adult smokers to achieve any meaningful health benefits from e-cigarettes, they would need to fully switch to e-cigarettes and stop smoking cigarettes and other tobacco products completely” (CDC, 2020). The UK Health Security Agency (the UK version of the CDC) says the following: “Vaping isn’t completely risk free but is far less harmful than smoking tobacco. There is no situation where it would be better for your health to continue smoking rather than completely switching to vaping” (UK Health Security Agency, 2020). The UK uses less hedged language in encouraging switching behavior and directly communicates that e-cigarettes are less harmful than cigarettes. The U.S. government and other U.S. public health agencies are not as direct, though the messaging does imply harm reduction under conditions of complete switching. Given the various approaches to describing the benefits of switching, it is important to understand how these types of messages are perceived by consumers.

It is also important to note that direct and implied messages about the benefit of switching from cigarettes to e-cigarettes circulate alongside significant misinformation about the relative risks of e-cigarettes. A significant portion of the U.S. population now believes that e-cigarettes are *more* harmful to health than combustible cigarettes, especially after the 2019 EVALI (Electronic Vaping Associated Lung Injury) development. No public health authorities, to our knowledge, concur with this assessment. EVALI was ultimately deemed to have been caused by marijuana vaping products (not nicotine based products) sold on the black market (Zulfiqar & Rahman, 2022). Prior to EVALI, Huang et al. (2019) documented that the proportion of U.S. adults who perceived e-cigarettes to be as harmful as or more harmful than traditional cigarettes increased substantially from 1.3% in 2012 to 4.3% in 2017. Dave et al. (2020) find relative harm perceptions changed dramatically after EVALI. Wackowski et al. (2022), Kreslake et al. (2022) and Moustafa et al. (2021) also find increased risk perceptions of e-cigarettes among youth and young adults after EVALI.

## 2. Study focus

Given the complex information environment, it is important to know how adult smokers will react to messages focused on the possible health benefits of switching from cigarettes to e-cigarettes. Our qualitative study focuses on how adult consumers would respond when shown, as a required statement, messages developed by the CDC and the American Cancer Society (ACS).

## 3. Methods

Data are drawn from a qualitative focus-group study of e-cigarette advertising and warning messages. A research firm with expertise in qualitative methods (C + R Research) recruited participants from a national database and conducted the focus group interviews. Due to the COVID-19 pandemic, the focus groups were conducted through a live video- and audio-enabled online platform during the summer of 2020. Participants were offered \$100 for their participation. All study protocols were approved by the authors’ university Institutional Review Board. Participants (N = 37) were drawn from three groups of smokers: Dual users of cigarettes and e-cigarettes (N = 12, 2 groups); Former combustible cigarette smokers who switched entirely to e-cigarettes (N = 7, 2 groups); Current users of only combustible cigarettes (N = 18, 4 groups).

The focus group study tested 21 hypothetical warning statements. Participants also saw e-cigarette advertisements containing the current FDA-mandated warning. Here we report only on responses to the three hypothetical warning statements that focused on the absolute/relative risk of e-cigarettes/combustible cigarettes. The other 18 warning statements focused on the ingredients in e-cigarettes, health impacts of e-cigarette use, developmental impacts of using e-cigarettes, addictiveness of e-cigarettes, and potential unknown risk of using these products. All participants viewed at least one warning in each category, and the order in which participants viewed warning statements was randomly assigned. After contextual review, the authors concluded that comments described here were in response to the three warnings under investigation, but it is always possible that participants were commenting on a different message included in the broader study.

The following statement was made to each participant group: “I’m going to show you several different statements that health officials are thinking about requiring e-cigarette advertisements to include.” Then, for each warning, participants were asked: “What is this warning trying to tell you?”; “What did you like or dislike about this warning?”; “What does this warning suggest you may want to do, or not do?”; and “How convincing is this warning?”.

We obtained the three warning statements we report on in this study from public communications of the CDC and the ACS. These three statements include implicit rather than explicit warnings, and one of these warnings suggests behavioral change.

Warning 1: “For adult smokers to achieve health benefits from e-cigarettes, they would need to stop smoking cigarettes and using other tobacco products entirely.” This statement, from the CDC website, contains an implicit message that there are health benefits from switching entirely from combustible cigarettes to e-cigarettes (CDC, 2022).

Warning 2: “Former cigarette smokers who have switched to e-cigarettes should not switch back to regular cigarettes.” This statement, obtained from the same CDC website, contains an implicit message regarding the relative risk of e-cigarette use compared to combustible cigarette use (i.e., reduction of harm).

Warning 3: “Smokers who switch to e-cigarettes still expose themselves to potentially serious ongoing health risks.” This statement was obtained from the 2018 ACS (American Cancer Society, 2022) message addressing the absolute risk of all tobacco use. Their rationale for this statement was that all tobacco products, including e-cigarettes, pose a risk to the health of the user.

## 4. Results

In response to the two warnings containing the suggestion of a relative health benefit from exclusive use of e-cigarettes (Warnings 1 and 2), participants who used either combustible or e-cigarettes, but not dual users, doubted the validity of the claim of health benefits from switching to e-cigarettes and expressed confusion about what these benefits were. Several of these participants also doubted there were any benefits from using a nicotine-containing product. For example, one of these participants stated, “I’m not going to get anything good from smoking e-cigarettes.” The expressed skepticism that e-cigarettes could be less harmful could be skepticism of the reference to health “benefits” from using e-cigarettes. If the message referred to “reduced risks” instead of “health benefits” the level of skepticism could potentially have been reduced. In contrast, dual users were more likely to accept the premise that switching to e-cigarettes would bring health benefits.

The hypothetical warning label suggesting that individuals who have switched to e-cigarettes should not switch back to regular combustible cigarettes (Warning 2) elicited the strongest statements of doubt and mistrust among focus group participants regardless of smoking status. This warning led participants to question why one should not switch back to combustible cigarettes, and what the harms of doing so would be. One participant asked for more information, saying, “tell me what the harms would be if I switch back-and-forth.” Another participant noted, “I

don't think there is enough information from science to base this warning on."

In addition to the expressed need for more information on why switching back is detrimental to one's health, Warning 2 also inspired doubt regarding the motivation for putting such a statement on an e-cigarette warning label. One participant asked, "Are they saying that because they want me to continue buying e-cigarettes?" Another suggested a more sinister motivation for the warning saying, "Is the government in the pocket of e-cigarette producers that they want you to stay with their product?" The fact that this warning takes the form of a command (telling users what they "should" do), also raised the issue of individual rights, with one participant saying, "The statement implies you are taking away my right to choose what product I want to use."

Participants representing all three smoking profiles agreed with the hypothetical warning label suggesting that switching to e-cigarettes from combustible cigarettes still exposes the user to ongoing health risks (Warning 3). Participants noted that e-cigarette use is still unhealthy. One current user of e-cigarettes who had been a user of combustible cigarettes said, "The statement could be a wakeup call to people who think that e-cigarettes are not harmful." Another participant in this group noted that e-cigarette use could not only exacerbate current health conditions but could cause new ones over time. They said, "Smoking e-cigarettes can give you conditions you never had before." Most participants, regardless of their smoking profile, regarded this warning statement as true and convincing, with one stating they perceived them to be equally harmful, "Warning sounds like pick your poison, both [combustible and e-cigarettes] are bad for you."

## 5. Discussion

Designing statements that effectively convey to adult consumers the benefits of switching from cigarettes to e-cigarettes will become increasingly important as FDA continues to authorize the marketing of a subset of e-cigarette products. FDA may soon need to grapple with regulatory decisions regarding what messages to permit for these products and what warnings to require. Our qualitative findings suggest that the nuanced and qualified statements embedded in many of the current public health statements in the U.S. are not likely to be effective. They are confusing when presented to smokers and may not adequately convey the reduction of harm associated with switching.

Our findings need to be put in proper context. There is already a significant amount of misinformation about the relative risks of e-cigarettes, in part, because of the EVALI events of 2019. Lung injuries were initially attributed to all vaping products and the term EVALI was used to describe this phenomenon. A federally-funded research working group soon determined that Vitamin E acetate used primarily in THC products had caused the injuries. Yet the term EVALI is still used. Seventy-five experts have asked the CDC to rename EVALI to prevent consumers from continuing to associate lung injuries indiscriminately with all vaping products (Pesko et al., 2021). This information environment might explain why our study participants were confused by the hedged and nuanced CDC-type statements about health benefits from switching and were more receptive to the ACS statement that e-cigarettes still cause harm. We note that other CDC statements about the benefits of e-cigarettes were not tested in our study. It is unknown how participants would have responded if they saw additional or alternate statements provided by the CDC, such as statements noting that e-cigarettes contain fewer toxic chemicals than cigarettes.

It may be that explicit statements concerning the health benefits or reduced risk from switching to e-cigarettes are necessary to effectively communicate with consumers. In some harm reduction scenarios, the government has been clearer in its statements of relative risk, even under conditions of scientific uncertainty about long-term health effects. For example, in disseminating the risks and benefits of COVID vaccines, the U.S. government tended to use explicit statements of the relative benefits of getting the vaccine compared to other actions consumers could take to mitigate risk. Bold statements of the relative safety of

vaccines were disseminated in part to overcome existing misinformation thought to encourage vaccine hesitancy. As an example, the CDC states "Serious side effects that could cause a long-term health problem are extremely rare following any vaccination, including COVID-19 vaccination. The benefits of COVID-19 vaccinations outweigh the known and potential risks" (CDC, 2022c). Further research could examine how smokers would respond to messages clarifying the net benefits to smokers of using e-cigarettes instead of combustible cigarettes. The qualitative results presented in this paper offer evidence to inform the rapidly expanding research agenda on tobacco harm reduction.

## Declaration of Competing Interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: This study was funded by a grant from the National Cancer Institute Grant No 5R01CA246605-03. "The E-Cigarette Population Paradox: Testing Effects of Youth-Targeted Population Warnings for E-Cigarettes Among Two Key Populations." <https://maps.cancer.gov/overview/DCCPSGrants/abstract.jsp?apllid=10242804&term=CA246605>. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript. One of the co-authors, Alan Mathios, has received support on another project related to e-cigarettes which is funded by a grant to Cornell University from the Foundation for a Smoke Free World. No funds from this other grant were used in any way for this study. We have no additional statements of conflict of interest to disclose for any of the other co-authors.

## Data availability

Data will be made available on request.

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