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Letter

Change in Tobacco and Electronic Cigarette Use and Motivation to Quit in Response to COVID-19

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The recent onset of the coronavirus pandemic (COVID-19) has raised concerns that people who smoke may be at a greater risk of harm from infection[1] given the impact of cigarettes on respiratory disease and immune function.[2] Similarly, there is concern that electronic cigarette (EC) use may increase harm from COVID-19,[1] though evidence is lacking.[3] While a systematic review concluded that cigarette smoking is likely associated with increased harm from COVID-19,[4] a meta-analysis did not.[5] However, as noted by Berlin et al.,[6] the meta-analysis was limited by small sample sizes, resulting in large confidence intervals.[5] Berlin et al. describe findings from case series of smoking and COVID-19 as well as research from a prior coronavirus epidemic (MERS-CoV) that appear to support the association between smoking and adverse outcomes from COVID-19.[6]

Regardless of the evidence on smoking and COVID-19, individual harm perceptions related to the virus may be inducing changes in tobacco use behavior. We recently conducted a cross-sectional web-based survey of dual tobacco cigarette (TC) and EC users to assess how past quit attempts differed between products. We also assessed changes in TC and EC use and motivation to quit due to COVID-19. We recruited participants using Amazon Mechanical Turk, a web-based crowd-sourcing service. Eligible participants were ≥21 years of age, lived in the United States, reported current or past use of TCs and ECs containing nicotine on greater than 50% of days over a period of 30 days, and had attempted to reduce or quit ECs at some point in their life. Of the 593 who screened, 366 (61.7%) were eligible and completed the survey on April 10, 2020.

Participants responded to questions regarding demographics, tobacco use, and reasons for quitting. In addition, we asked participants how concerned about COVID-19 they are for their own health, the health of others, and how much they believed their use of TCs or ECs increased their risk of harm from COVID-19 (0 = Not at all to 10 = Extremely). Participants also reported whether their (1) motivation to quit, (2) use, and (3) access to TCs and ECs has decreased, remained the same, or increased since learning about COVID-19. Our full questionnaire is available upon request. Analysis was conducted using SPSS (IBM Corp, Armonk, NY) and includes the 345 (94.3%) participants with past 30-day TC or EC use.

Participants had a mean age of 35.3 (standard deviation [SD] = 9.9) and were largely white (84.9%), non-Hispanic (80.6%), married (57.4%), and male (69.0%). All had a lifetime history of regular dual use. In the past 30 days, most had used both TCs and ECs (80.9%). Most reported current nondaily use (median = 15 days) of TCs (68.4%) or ECs (75.1%) while 17.7% smoked TCs daily and 19.7% used ECs daily. Participants smoked a median of eight TCs on days smoked. 25.2% smoked TCs and 30.7% used ECs within 30 minutes of waking.

Participants reported a mean concern about COVID-19 of 7.9 (SD = 2.7) for their own health and 8.4 (SD = 2.4) for the health of others (0 = Not at all to 10 = Extremely). They reported similar and positively correlated ($r_s = 0.69$, $p < .001$) concerns that TC smoking (mean = 6.6; SD = 2.6) and EC use (mean = 6.5; SD = 2.9) increased their risk of harm from COVID-19. Changes in motivation to quit TCs and ECs due to COVID-19 were also similar and positively correlated ($r_s = 0.48$, $p < .001$): motivation to quit decreased in 16.2% for TCs and 14.2% for ECs, remained the same in 48.2% for TCs and 48.2% for ECs, and increased in 35.6% for TCs and 37.6% for ECs. Further, 22.9% reported an attempt to quit TCs and 21.2% ECs in order to reduce risk of harm from COVID-19. Changes in use of TCs and ECs were similar and positively correlated ($r_s = 0.68$, $p < .001$): 28.3% (TC) and 24.9% (EC) decreased use, 41.4% (TC) and 46.0% (EC) remained the same, and 30.3% (TC) and 29.1% (EC) increased their use since learning of COVID-19. Access to TCs and ECs following COVID-19 was also similar and positively correlated ($r_s = 0.65$; $p < .001$) with approximately a quarter reporting decreased access (23.6% TC; 27.1% EC), half reporting no change (52.5% TC; 48.0% EC), and a quarter reporting increased access (23.9% TC; 24.8% EC) to these products. There were positive but weak correlations between perceived risk of harm from COVID-19 due to TC or EC use and motivation to quit for both TCs ($r_s = 0.18$, $p < .01$) and ECs ($r_s = 0.18$, $p < .01$). Perceived risk of harm was not associated with change in use or access to TCs or ECs.

Taken together, our findings suggest participants had varying reactions to COVID-19, but their responses were mostly consistent

across TCs and ECs. Though almost half reported no change, COVID-19 prompted about a quarter of respondents to reduce their TC and EC use, and more than a third to increase their motivation to quit. Greater perceived risk was associated with increased motivation to quit both products, and over 20% of respondents reported a quit attempt in order to reduce risk of harm from COVID-19. These findings are consistent with recent quitline data showing increases in phone and web site registrations in March 2020 compared to March 2019.[7] Thus, decreasing risk of harm from the pandemic may be an important motivator for some dual users to quit. On the other hand, about 30% of respondents increased their use and about 15% decreased their motivation to quit. Given the association between negative affect and smoking,[8] one possibility is that some TC and EC users are responding to pandemic-induced stress by increasing their use.

The generalizability of our findings is limited by the fact that we used a sample of Mechanical Turk workers[9] who had a history of attempts to reduce or quit TCs or ECs. Future research is needed to examine change in dual use and quitting in a more representative sample and to examine how COVID-19 affects tobacco use behaviors longer-term. Research is also needed to understand the extent to which TCs and ECs affect risk of harm from COVID-19. Our findings suggest that, for some, COVID-19 may stimulate interest in reducing or quitting tobacco and serve as a novel opportunity to promote cessation or harm reduction during this pandemic.

Supplementary Material

A Contributorship Form detailing each author's specific involvement with this content, as well as any supplementary data, are available online at https://academic.oup.com/ntr.

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Declaration of Interests

EMK, JCW, and ACV have nothing to disclose. CPM's spouse is employed by Perrigo which sells consumer smoking cessation products.

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