Reasons for stopping e-cigarette use among smokers: findings from the 2018 ITC New Zealand Survey

Maddie White, Richard Edwards, James Stanley, Janet Hoek, Andrew M Waa, Janine Ouimet, Anne CK Quah, Geoffrey T Fong

There has been extensive debate about whether vaping products such as electronic cigarettes (ECs) will reduce smoking prevalence, and over what kind of regulatory framework would best promote such an outcome.1,2 In August 2020, the New Zealand Parliament passed the Smokefree Environments and Regulated Products (Vaping) Amendment Act that introduced a new regulatory framework for ECs.3 This framework will be completed by supporting regulations such as those relating to packaging, warning labels, and the nicotine concentration of e-liquids, cartridges and devices.

New Zealand surveys suggest EC use is increasing.4 Daily use is much more common among people who smoke than among non-smokers, and is particularly high among recent quitters compared to several similar countries.5 High prevalence of use among recent quitters supports arguments that ECs could help reduce smoking prevalence, as does the finding that most New Zealanders who smoke and use ECs report using ECs to help cut down or quit smoking.6,7

Although trialling ECs is common, sustained use is less so. A previous analysis of the 2018 International Tobacco Control (ITC) New Zealand study found that 78% of people who smoke had tried ECs but only 8% were daily users.6 Qualitative studies provide some possible insights as to why people do not persist with vaping. For example, some people who continued to smoke after trying vaping reported that they valued smoking-related rituals (eg, lighting, rolling and extinguishing cigarettes) and social interactions they associated with smoking. For some, ECs did not replicate the desired attributes and pleasurable experiences provided by smoking.8,9

Quantitative data on the frequency of attitudes and beliefs that may impede switching from smoking to vaping (or promote smoking relapse) could inform the development of regulations, refinements of policy frameworks, and the implementation of educational interventions to maximise EC use as aids to quitting or as substitutes for smoking. To address this information need, we examined reasons for discontinuing vaping among smokers aged ≥18 years using data collected from June to December 2018 in the ITC New Zealand Survey. Participants were recruited from the New Zealand Health Survey, and data were collected using computer-assisted telephone interviews (CATI).

Participants analysed for this paper were 131 people (63 Māori) smoking at least monthly who reported any EC use during the past 12 months but who were not current users. Participants indicated whether they agreed with 11 separate statements describing their possible reasons for discontinuing EC use. We present agreement (% response = ‘Yes’) with each statement, with prevalences weighted to reflect the New Zealand adult smoking population and to account for differential response and boosted sampling of Māori, Pacific and young adult (18–24 years) groups. Full details of the methods are in the technical report.10

The most common reasons for stopping EC use related to product performance (Table 1). Over half reported that ECs were not satisfying enough (62.5%), failed to deal with cravings to smoke (51.6%), or that they had...
decided that ECs would not help them to quit smoking (56.0%). A similar proportion (63.1%) reported they had decided to quit without using cessation aids, including ECs.

Other reasons for discontinuing EC use were less common. Just under half participants cited concerns about harmfulness (45.4%) and safety of EC devices (44.9%). Over a third (37.0%) gave wanting to stop using nicotine completely as a reason for discontinuing EC use. However, only 3.9% reported concerns about becoming addicted to vaping as a reason for stopping. A minority gave other reasons including ECs being too complicated (33.9%), too expensive (17.6%), or being uncomfortable about using ECs in public (17.4%). Findings were mostly similar between participants who had and hadn’t used nicotine-containing ECs in the previous year.

These are the first population-based data that we are aware of exploring why some New Zealanders who smoke do not persist with using ECs. The most common reasons related to perceived or actual performance of ECs. Due to small numbers there is considerable uncertainty in these estimates (see confidence intervals in Table 1). However,

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**Table 1**: Reasons for stopping using e-cigarettes; agreement among smokers who had stopped vaping stratified by use of nicotine-containing e-cigarettes in previous year.

<table>
<thead>
<tr>
<th>Reasons for stopping</th>
<th>% of all participants (95% CI) n=131</th>
<th>% of participants who had used nicotine-containing ECs in last year (95% CI) n=83*</th>
<th>% of participants who had used only nicotine-free ECs in last year (95% CI) n=40*</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-cigarette performance issues</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Decided to quit smoking without any cessation aids, including ECs</td>
<td>63.1 (50.1, 74.5)</td>
<td>58.1 (42.2, 72.5)</td>
<td>75.3 (52.3, 89.5)</td>
</tr>
<tr>
<td>Did not find them satisfying enough</td>
<td>62.5 (48.8, 74.5)</td>
<td>66.0 (49.0, 79.6)</td>
<td>54.4 (29.8, 77.0)</td>
</tr>
<tr>
<td>Decided they would not help quit smoking</td>
<td>56.0 (42.8, 68.4)</td>
<td>56.1 (40.0, 71.0)</td>
<td>55.8 (31.6, 77.6)</td>
</tr>
<tr>
<td>ECs did not deal with cravings to smoke</td>
<td>51.6 (38.6, 64.4)</td>
<td>53.8 (38.2, 68.7)</td>
<td>46.1 (22.6, 71.5)</td>
</tr>
<tr>
<td>Health, safety and harmfulness concerns</td>
<td></td>
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<tr>
<td>Concerned ECs may be harmful</td>
<td>45.4 (32.8, 58.6)</td>
<td>51.8 (36.2, 67.0)</td>
<td>30.0 (11.6, 58.3)</td>
</tr>
<tr>
<td>Concerned about safety of using ECs</td>
<td>44.9 (32.4, 58.1)</td>
<td>44.2 (29.3, 60.1)</td>
<td>46.7 (23.7, 71.2)</td>
</tr>
<tr>
<td>Wanted to stop using nicotine completely</td>
<td>37.0 (25.2, 50.6)</td>
<td>35.2 (21.5, 51.9)</td>
<td>41.3 (19.8, 66.7)</td>
</tr>
<tr>
<td>Felt was becoming addicted to vaping</td>
<td>3.9 (1.1, 13.1)</td>
<td>4.8 (1.1, 18.5)</td>
<td>1.7 (0.2, 13.8)</td>
</tr>
<tr>
<td>Other reasons</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECs are too much hassle or too complicated</td>
<td>33.6 (22.3, 47.2)</td>
<td>30.1 (17.3, 47.0)</td>
<td>42.0 (20.4, 67.3)</td>
</tr>
<tr>
<td>ECs cost too much</td>
<td>17.9 (8.8, 32.9)</td>
<td>19.8 (8.8, 38.7)</td>
<td>12.7 (2.3, 47.6)</td>
</tr>
<tr>
<td>Felt uncomfortable using them in public</td>
<td>17.4 (9.6, 29.5)</td>
<td>18.4 (9.3, 33.2)</td>
<td>14.9 (3.4, 46.5)</td>
</tr>
</tbody>
</table>

Note: Percentages are weighted percentages. 95% CI=95% confidence interval. * Eight participants did not respond to the question about use of nicotine-containing ECs in the last year.
similar findings have been reported in the US, England, Canada and Australia, where the most frequent reasons for stopping include not helping with cravings, being insufficiently satisfying, not mimicking the experience of smoking and not helping with quitting.11–13 These studies, including ours, are limited by using data from 2–4 years ago; user perceptions of satisfaction may change over time if, for example, newer devices such as pod vapes using nicotine salts are simpler to operate and provide improved nicotine delivery. Hence research on experiences with EC use needs to be ongoing and report the most recent data possible. Further research could investigate how perceptions and beliefs vary by demographic factors such as age group and ethnicity, and also explore experiences with different types of vaping products.

The findings could inform interventions to maximise ECs' positive impacts on quitting smoking. For example, perceptions of poor EC performance may be caused partially or wholly by poor device or e-liquid selection (eg, inappropriate nicotine concentration) or by inadequate advice and support about the use of ECs. Public education (eg, through the ‘Vaping Facts' website - http://vapingfacts.health.nz/) could reduce poor experiences with ECs by advising people who smoke who are considering using ECs to visit a specialist vape store. Staff in these stores could provide expert advice is available about the devices and e-liquids that are best suited to their needs, and most likely to help them quit smoking or act as a substitute for smoking. Training smoking cessation provider staff to give appropriate advice and support to people quitting using vaping products could also help enhance EC users' experiences.

Public education could also be used to manage expectations about ECs by communicating that the vaping experience may not fully mimic smoking. Education could also address unwarranted or excessive concerns about the safety of vaping devices and harmfulness of vaping.

ECs will only make a substantial contribution to achieving the Smokefree Aotearoa 2025 goal of minimal smoking prevalence if large numbers of people who smoke quit smoking using ECs or switch to using only ECs. Better understanding and continued monitoring of beliefs about barriers to sustained EC use among people who smoke could inform future policy and practice, and help ensure that appropriate measures are introduced that promote effective use of ECs by people who smoke whilst discouraging use among non-smokers, particularly youth.
Competing interests:

GTF has served as an expert witness on behalf of governments in litigation involving the tobacco industry.

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