

# Vaping cessation strategies and triggers for relapse amongst people from New Zealand who have vaped

Mehdi Rahimi<sup>1</sup> | Bodo Lang<sup>2</sup> | Lion Shahab<sup>3</sup> | Jamie Brown<sup>3</sup> |  
 Amanda Palmer<sup>4</sup> | Joya Kemper<sup>5</sup>  | Chris Bullen<sup>6</sup>  | George Laking<sup>7</sup> |  
 Vili Nosa<sup>8</sup> | Varsha Parag<sup>9</sup> | Natalie Walker<sup>10,11</sup> 

<sup>1</sup>School of Counselling, Human Services and Social Work, University of Auckland, Auckland, New Zealand

<sup>2</sup>School of Communication, Journalism and Marketing, Massey University, Auckland, New Zealand

<sup>3</sup>Institute of Epidemiology & Health, University College London, London, UK

<sup>4</sup>Department of Public Health Sciences, College of Medicine, Medical University of South Carolina, Charleston, South Carolina, USA

<sup>5</sup>University of Canterbury Business School, University of Canterbury, Christchurch, New Zealand

<sup>6</sup>General Practice and Primary Healthcare, School of Population Health, The University of Auckland, Auckland, New Zealand

<sup>7</sup>Te Aka Māturanga Matepukupuku, Centre for Cancer Research, The University of Auckland, Auckland, New Zealand

<sup>8</sup>Pacific Health, School of Population Health, The University of Auckland, Auckland, New Zealand

<sup>9</sup>National Institute for Health Innovation, School of Population Health, The University of Auckland, Auckland, New Zealand

<sup>10</sup>Social and Community Health, School of Population Health, The University of Auckland, Auckland, New Zealand

<sup>11</sup>College of Medicine and Public Health, Flinders University, Adelaide, Australia

## Correspondence

Natalie Walker, College of Medicine and Public Health, Flinders University, Adelaide, South Australia.  
 Email: [nwalker@flinders.edu.au](mailto:nwalker@flinders.edu.au)

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## Abstract

**Introduction:** In New Zealand (NZ) vapes (e-cigarettes) are a government-endorsed strategy to help people stop smoking, as well as being used recreationally by people who have never smoked. Nicotine vapes are addictive and many users want to quit. We surveyed current and past users of nicotine vapes to gather insights about their vaping cessation reasons and strategies.

**Methods:** In December 2022, we undertook a web-based survey in NZ using market research survey panels. Eligible panellists were aged  $\geq 16$  years, did not currently smoke and had vaped nicotine. Questions focused on demographics, smoking and vaping status, vaping dependence, strategies used to quit vaping, and triggers for vaping relapse.

**Results:** One thousand one hundred nineteen participants completed the survey: 144 had never smoked; 975 used to smoke, 401 currently vaped nicotine, and 718 used to vape nicotine. Participants were predominantly aged  $\geq 25$  years (89%); 63% were female, and 21% were Indigenous Māori and/or Pacific. Predictors of vaping dependence were having smoked or vaped for  $\geq 2$  years and vaping  $>3\%$  nicotine. Reasons for trying to quit vaping included health concerns, disliking

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feeling dependent, and cost. Quitting strategies included stopping abruptly, nicotine tapering and family/friend support. Triggers for relapse were stress, being around others who vaped and nicotine withdrawal.

**Discussion and Conclusion:** In NZ reasons to quit and triggers to return to vaping are similar to quitting smoking. Until more research is available, it seems appropriate to support people who wish to stop vaping with similar strategies used to support people to quit smoking.

#### KEYWORDS

cessation, dependence, relapse, vaping

#### Key Points

- Reasons for trying to quit vaping included current/future health concerns, disliking feeling dependent and the cost of vaping.
- Quitting strategies included just stopping, nicotine tapering and family/friend support.
- Triggers for relapse to vaping were stress, being around people vaping and nicotine withdrawal.
- Findings were generally consistent regardless of demographic group, smoking history, vaping duration, degree of vaping dependence and where considered, vaping identity and attitudes.
- People in New Zealand who vape nicotine and want to quit experience similar challenges to people who smoke tobacco and want to quit, suggesting similar cessation support could be offered.

## 1 | INTRODUCTION

Aotearoa New Zealand (NZ) has a goal to be smokefree by 2025, defined as a daily smoking prevalence of less than 5% for all population groups. To help achieve the goal, alternative sources of nicotine, such as nicotine replacement therapy (NRT) and vapes (e-cigarettes) are widely available in NZ. Vaping is included in NZ's smoking cessation treatment guidelines [1] and promoted as a tool to support quitting tobacco use (e.g., <https://vapingfacts.health.nz>). In the past 8 years, daily smoking has more than halved in NZ amongst those aged  $\geq 15$  years (from 15% in 2015/2016 to 7% by 2023/2024) [2]. Conversely, over the same period, daily vaping has increased (from 1% in 2015/2016 to 11% in 2023/2024) [2]. In 2023/2024, most New Zealanders who vaped daily were aged  $\geq 25$  years, with the prevalence of vaping highest amongst those aged 18–24 (27%) and amongst indigenous Māori (29%) and Pacific peoples (22%) [2].

Once people have switched from smoking tobacco to vaping, the NZ smoking cessation guidelines recommend they stop vaping [1]. This recommendation is based on evidence that smoking is more harmful than vaping, and vaping is more harmful than not vaping [3]. Furthermore, some individuals who vape report symptoms of nicotine dependence [4] and longitudinal studies suggest

vaping may result in some people (who have never smoked) taking up smoking [5, 6]—although these findings should be interpreted with caution [7–9]. Currently, limited trial evidence exists to guide healthcare providers on treatments for people who wish to stop vaping. To date, five vaping cessation trials have been published, but only one was fully powered: a US trial of text messaging in young adults aged 18–24 ( $N = 2588$ ) [10, 11]. The four other trials were exploratory, investigating cytisine ( $N = 160$ ) [12], varenicline ( $N = 140$ ) [13], contingency management ( $N = 27$ ) [14], nicotine tapering and NRT ( $N = 24$ ) [15]. Of the five trials, only two recruited participants aged  $\geq 18$  years [12, 13] (the other three focused on participants under 25 years [11, 14, 15]). Given the above, current vaping cessation recommendations draw heavily from the smoking cessation evidence base [16–18].

Research involving people who used to vape, or have relapsed to vaping, is critical to inform strategies to quit vaping, and to enhance public health. A 2022 review of 79 studies on vaping cessation reported that adults either used no support or tried varenicline, NRT or nicotine tapering to quit [19]. A 2018 NZ study explored reasons for stopping vaping amongst 131 people aged  $\geq 18$  years [20]. However, this study was limited: first, it was undertaken before nicotine salt pod vapes became the dominant vaping product in NZ (organic nicotine salts, such as benzoate,

lactate, levulinate and pyruvate, have superior inhaled bio-availability to freebase nicotine) [21]. Second, strategies participants used to quit vaping were not examined (which would have offered a more nuanced view of vaping experiences). Third, the authors did not interview Pacific people (who have a high prevalence of vaping [2] and make up 9% of the NZ population [22]) and people who vape, but have never smoked (a growing proportion of people in NZ) [23]. Sixty Pacific peoples (aged 17–62 years) provided their views on vaping in a qualitative study (using Pacific research methods) undertaken in NZ between March and May 2022 inclusive [24]. Participants who vaped did want to ultimately achieve a nicotine-free life, motivated by concerns around the health effects of vaping. No other information on vaping cessation was mentioned in the study report.

To address the above evidence gaps, in December 2022, we conducted an online, nationwide, cross-sectional survey to gain insights from New Zealanders, with and without a history of smoking, who currently vaped or used to vape, about their efforts to quit vaping. The main objectives were to identify predictors of vaping dependence; the main reasons for trying to quit vaping and the strategies used (and whether these reasons differ according to demographics, smoking background, vaping duration and level of vaping dependence); and key triggers for relapse to vaping (and the extent to which these triggers differ according to level of education, smoking background, vaping duration, level of vaping dependence, vaping identity and attitudes towards e-cigarettes).

## 2 | METHODS

### 2.1 | Eligibility

Participants were eligible if they were  $\geq 16$  years of age, lived in NZ, used to smoke or had never smoked, AND currently used nicotine vapes (but had tried to stop) or used to vape nicotine. People who smoked daily/non-daily were not eligible for the survey. Participants who used to smoke were defined as those who had smoked tobacco cigarettes, roll-your-own tobacco, cigars, cigarillos, pipes and/or shisha or a waterpipe in the past, but did not at the time of the survey. Participants were classified as having ‘never smoked’ if they had never smoked any of the above tobacco products. Participants who ‘used to vape’ were defined as those who had vaped nicotine in the past, but did not at the time of the survey.

### 2.2 | Participant recruitment

Participants were recruited via a NZ market research company (Horizon Research). People aged  $\geq 18$  years

throughout NZ were invited to join Horizon Research panels via email, online advertising, and ‘member-get-member’ referrals. Adult respondents were asked to invite eligible people aged 16–17 in their household to also answer the survey. Horizon Research also drew respondents from Dynata and Kantar market research online panels to achieve the required sample size. Data were collected in December 2022. Ethics approval was granted by the University of Auckland Health Ethics Committee on 21 November 2022 (Ref No. AH25237).

### 2.3 | Outcome measures

We used an online questionnaire to collect screening and outcome data (Appendix 1). The topics covered in the questionnaire are shown in Table 1.

### 2.4 | Sample size

We sought 1100 participants to confer 95% confidence, with a margin of error for proportions of 2–3% and a standard deviation for means of 0.06 to provide robust estimates. Horizon Research sought as many Māori and Pacific respondents as possible to ensure robust results for these groups, given their small population, but high prevalence of vaping [2] and the obligations of the NZ government and health providers to Māori via the Treaty of Waitangi and equity commitments.

### 2.5 | Analyses

The protocol and analysis plan were preregistered (<https://doi.org/10.17605/OSF.IO/A78GE>). We used R version 4.2.1, with all statistics two-tailed, at a 5% significance level. Demographic characteristics were summarised for the entire sample, stratified by smoking and vaping status, with ethnicity prioritised [26] into four groups: Māori, Pacific, NZ/European and Asian/Other. Some question options were merged to ensure equal numbers of participants in each cell, thus enabling more robust analyses. Normally distributed continuous variables are presented as means and standard deviations, or medians and inter-quartiles for skewed data. Categorical variables are presented as frequencies and percentages for the whole sample and stratified by smoking and vaping status. We used chi-square tests to examine whether vaping and smoking status were associated with demographic variables. Responses to the questions about reasons to quit vaping, quit vaping strategies, and triggers for relapse to vaping were ranked according to frequency.

**TABLE 1** Key topics covered in the survey questionnaire.

Topic	Measures
Sociodemographic characteristics	Age, gender, ethnicity, education, area of residence.
Smoking characteristics	Current smoking status (never/past smoking); years smoked; smoking frequency; time to the first cigarette of the day.
Vaping characteristics	Current vaping status (current/past vaping); years vaped; device type (with images shown); nicotine strengths used; flavours used. <i>Note:</i> For people who currently vaped, these questions were framed around 'current use.' For people who used to vape, the questions were framed around use 'just before they quit vaping.'
Dual use	Defined as smoking and vaping in the same day ('When you smoked during the day, did you also vape during the day' with answer options of Yes, Sometimes and No). <i>Note:</i> Participants who responded 'yes' were asked about the effect of vaping on their frequency of smoking (i.e., smoked more tobacco, no change in the amount of tobacco smoked or smoked less tobacco).
Vaping dependence	Measured using a validated 4-item e-cigarette dependence scale [25], with each item scored using a scale ranging from 0 'never' to 4 'almost always'; higher scores indicate higher levels of dependence, with scores ranging from 0 to 16).
Vaping identity	Assessed by agreement with the statement 'Vaping was/is a part of me', measured on a Likert scale of 1 ('not at all') to 5 ('completely agree'). Participants were classified into weak, medium, and strong vaping identities, using 33rd and 66th percentiles.
Attitude towards e-cigarettes	Assessed by agreement with the statement, 'e-cigarettes are less harmful than tobacco' measured using a Likert scale of 1 ('completely disagree') to 5 ('completely agree'). Participants with scores of 1–2 were considered to have a negative attitude towards e-cigarettes, whilst those with a score of 3 were considered to have a neutral attitude, and those with a score of 4–5 a positive attitude.
Vaping quit attempts	Number of serious attempts to quit vaping (defined as deciding to stop to make sure never to vape again).
Vaping quit characteristics	Assessed by two questions: (i) reasons for trying to (or wanting to) quit vaping; (ii) quit support and strategies (response options provided varied based on the participant's vaping status).
Vaping uptake	Assessed by two questions about: (i) reasons for starting to vape (answer options varied based on smoking history); (ii) reasons for continued vaping (amongst people who currently vaped, irrespective of smoking status). <i>Note:</i> Results from these questions will be reported separately in another publication.
Vaping quit attempt triggers and barriers	Assessed by two questions: (i) triggers for relapse to vaping; and (ii) barriers to quitting. These questions had predefined response options plus a free text option to capture emerging themes (i.e., text box for qualitative answers). <i>Note:</i> Question ii will be reported separately in another publication.

A multiple stepwise regression model was run looking at predictors of vaping dependence, with years vaped, years smoked (0 for people who had never smoked), nicotine strength, and attitude towards vapes as key predictors. *R*-squared, unstandardized coefficients, and 95% confidence intervals (CI) are reported.

### 3 | RESULTS

#### 3.1 | Description of survey sample

The survey was undertaken by 1119 participants and 1093 (98%) answered all questions. Missing data were excluded on a 'per analysis' basis, therefore, not all results sum to the total sample size. Sample characteristics are provided in Table 2. Most participants (87%) were people who had previously smoked (of whom

63% used to vape and 37% currently vaped). In the subgroup that had never smoked tobacco (13%), 71% ( $n = 102$ ) used to vape and 29% ( $n = 42$ ) currently vaped. Recruitment of participants under 18 years of age was unsuccessful, with only one such person (who used to smoke and currently vaped) completing the survey. Survey engagement amongst Pacific (5%) and Māori (16%) was below population parity (9% and 20% respectively) [22].

Smoking and vaping outcomes for participants are reported in Table 3. Amongst people who used to smoke, 58% had been smoking for  $\geq 6$  years (65% if they also currently vaped), and more than 70% used to smoke daily (83% if they currently vaped). Just over half (53%) of people who used to smoke had their first cigarette within 30 minutes of waking. Irrespective of current vaping status, almost half of the participants who used to smoke had engaged in dual use all or some of the time. In this

**TABLE 2** Demographic features of survey participants, stratified by smoking and vaping status.

Variable	Categories	Total	Never smoked		Used to smoke		p-value for $\chi^2$
		N = 1119, n (%)	Used to vape N = 102, n (%)	Currently vape N = 42, n (%)	Used to vape N = 616, n (%)	Currently vape N = 359, n (%)	
Gender	Male	395 (35)	33 (32)	14 (33)	234 (38)	114 (32)	0.336
	Female	710 (64)	66 (65)	28 (67)	377 (61)	239 (67)	
	Not-binary	13 (1)	3 (3)	0	5 (1)	5 (1)	
	Prefer not to say	1 (0)	0	0	0	1 (0)	
Age group, years	16–24	126 (11)	33 (32)	13 (31)	48 (8)	32 (9)	<b>0.001</b>
	25–44	603 (54)	51 (50)	24 (57)	328 (53)	200 (56)	
	≥45	390 (35)	18 (18)	5 (12)	240 (39)	127 (35)	
Ethnicity	Māori	181 (16)	16 (16)	6 (14)	85 (14)	74 (21)	<b>0.001</b>
	Pacific	55 (5)	7 (7)	2 (5)	28 (5)	18 (5)	
	NZ/European	756 (68)	55 (54)	25 (60)	438 (71)	238 (66)	
	Asian/other	127 (11)	24 (24)	9 (21)	65 (11)	29 (8)	
Education	No formal	133 (12)	20 (20)	5 (12)	77 (13)	31 (9)	0.070
	Secondary	696 (62)	60 (59)	29 (69)	382 (62)	225 (63)	
	Vocational/ diploma/tertiary	290 (26)	22 (22)	8 (19)	157 (25)	103 (29)	
Place of residence	Large city	656 (59)	65 (64)	28 (67)	339 (55)	224 (62)	0.202
	Regional city/town	351 (31)	29 (28)	12 (29)	207 (34)	103 (29)	
	Rural	112 (10)	8 (8)	2 (5)	70 (11)	32 (9)	

Note: Twenty-six respondents did not answer all questions. Therefore, not all totals add up to 1119. Bold values are statistically significant.

group, 44% had smoked less tobacco when vaping, compared to before they had started vaping.

The most frequently used vaping device was a rechargeable pod device (used by 56% of participants), with modifiable devices ('mods') the least used (14%). Sealed disposable devices were more popular amongst participants who had never smoked (~50%, compared with 25% amongst participants who used to smoke). Exploratory analyses identified younger people were more likely to use disposable devices (16–24 years: 52%, vs. 25–44 years: 44%; ≥45 years: 30%). A quarter of participants (predominantly people who used to vape) did not know what nicotine strength they used. Of those who knew the nicotine strength, more used lower strength nicotine (50% used ≤1.2%, vs. 25% using >1.3%). However, 19% (67/359) of people who currently vaped and had never smoked used high nicotine (≥3.6%) vapes. Fruit-flavoured nicotine liquid was the most popular across all subgroups.

Most people (64–75%) who used to vape had vaped for ≤1 year, but most people (60–64%) who currently vaped had done so for 2–5 years. As expected, the mean score for vaping dependence was higher amongst participants who currently vaped compared with participants

who used to vape. Irrespective of smoking history or current vaping status, most (77%) participants had made between one and three serious attempts to quit vaping. Compared with participants who no longer vaped, more people who currently vaped had a positive attitude towards e-cigarettes and a strong vaping identity.

### 3.2 | Predictors of vaping dependence

The key predictors of vaping dependence were having smoked for ≥2 years, vaping for ≥2 years, and use of nicotine strengths greater than 0.3%, whilst not knowing the nicotine strength negatively predicted vaping dependence (Table 4).

### 3.3 | Reasons for trying to quit vaping

The three most common reasons for trying to quit vaping were: health concerns ( $n = 516$ , 47%, 95% CI 44–50%), a dislike of feeling dependent on vaping ( $n = 424$ , 39%, 95% CI 36–42%), and the cost of vaping ( $n = 293$ , 27%, 95% CI 24–30%). Apart from minor changes in the order,

TABLE 3 Smoking and vaping outcomes.

	Total	Never smoked (N = 144)		Used to smoke (N = 975)		p-value for $\chi^2$
	N = 1119, n (%)	Used to vape N = 102, n (%)	Currently vape N = 42, n (%)	Used to vape N = 616, n (%)	Currently vape N = 359, n (%)	
Smoking duration						<b>0.001</b>
≤1 year	160 (16)	–	–	134 (22)	26 (7)	
2–5 years	253 (26)	–	–	154 (25)	99 (28)	
≥6 years	562 (58)	–	–	328 (53)	234 (65)	
Smoking frequency						<b>0.001</b>
Daily	708 (73)	–	–	409 (66)	299 (83)	
Non-daily	267 (27)	–	–	207 (34)	60 (17)	
Time to first cigarette						<b>0.001</b>
Within 5 min	169 (17)	–	–	89 (14)	80 (22)	
6–30 min	349 (36)	–	–	209 (34)	140 (39)	
31–60 min	160 (16)	–	–	87 (14)	73 (20)	
60 min	297 (31)	–	–	231 (38)	66 (18)	
Dual use						<b>0.001</b>
Yes	140 (14)	–	–	84 (14)	56 (16)	
Sometimes	287 (30)	–	–	199 (33)	88 (25)	
No	544 (56)	–	–	329 (54)	215 (60)	
Tobacco smoked in the 'dual using' group <sup>a</sup>						<b>0.615</b>
Less	263 (62)	–	–	176 (62)	87 (61)	
The same	125 (29)	–	–	85 (30)	40 (28)	
More	37 (9)	–	–	22 (8)	15 (11)	
Vaping device						–
Rechargeable pod	619 (56)	62 (62)	22 (52)	313 (52)	222 (62)	
Disposable device	301 (27)	43 (43)	21 (50)	146 (24)	91 (25)	
Modifiable device	152 (14)	10 (10)	7 (17)	87 (14)	48 (13)	
Rechargeable tank	302 (27)	18 (18)	8 (19)	207 (34)	69 (19)	
Nicotine strength <sup>b</sup>						–
Didn't know	262 (23)	34 (33)	4 (10)	196 (32)	28 (8)	
≤0.3%	289 (26)	23 (23)	9 (21)	178 (29)	79 (22)	
0.4–1.2%	271 (24)	17 (17)	10 (24)	130 (21)	114 (32)	
1.3–3.5%	157 (14)	14 (14)	7 (17)	67 (11)	69 (19)	
≥3.6%	127 (11)	12 (12)	12 (29)	36 (6)	67 (19)	
Flavours						–
Mint/menthol	328 (30)	23 (23)	12 (29)	191 (32)	102 (29)	
Tobacco	268 (24)	15 (15)	7 (17)	166 (27)	80 (22)	
Fruit	544 (49)	68 (68)	25 (60)	290 (48)	161 (45)	
Combination	204 (18)	23 (23)	7 (17)	115 (19)	59 (17)	
Other	42 (4)	2 (2)	0 (0)	24 (4)	16 (4)	
Years vaped						<b>0.001</b>
≤1 year	591 (53)	77 (75)	16 (38)	389 (64)	109 (30)	
2–5 years	491 (44)	25 (25)	25 (60)	213 (35)	228 (64)	

TABLE 3 (Continued)

	Total	Never smoked (N = 144)		Used to smoke (N = 975)		p-value for $\chi^2$
	N = 1119, n (%)	Used to vape N = 102, n (%)	Currently vape N = 42, n (%)	Used to vape N = 616, n (%)	Currently vape N = 359, n (%)	
≥6 years	33 (3)	0 (0)	1 (2)	10 (2)	22 (6)	
Vaping dependence <sup>c</sup>						<b>0.001</b>
Mean (SD)	6.02 (3.74)	4.19 (3.88)	7.45 (3.56)	5.09 (3.54)	7.96 (3.16)	
Number of serious quit attempts						<b>0.001</b>
1 attempt	562 (50)	60 (60)	12 (29)	334 (55)	156 (44)	
2 attempts	287 (26)	21 (21)	20 (48)	144 (24)	102 (29)	
3 attempts	162 (14)	15 (15)	7 (17)	75 (12)	65 (18)	
4 attempts	26 (2)	2 (2)	0	12 (2)	12 (3)	
≥5 attempts	58 (5)	0	3 (7)	35 (6)	20 (6)	
Attitude towards vapes <sup>d</sup>						<b>0.001</b>
Negative	342 (31)	29 (30)	11 (26)	224 (37)	78 (22)	
Neutral	414 (38)	45 (46)	18 (43)	213 (35)	138 (39)	
Positive	337 (31)	24 (24)	13 (31)	165 (27)	135 (38)	
Vaping identity <sup>e</sup>						<b>0.001</b>
Weak	594 (54)	68 (69)	16 (38)	381 (63)	129 (36)	
Medium	313 (28)	22 (22)	12 (29)	148 (24)	131 (37)	
Strong	197 (18)	9 (9)	14 (33)	77 (13)	97 (27)	

Note: Twenty-six respondents did not answer all questions. Therefore, not all totals add up to 1119. Bold values are statistically significant.

Abbreviation: SD, standard deviation.

<sup>a</sup>In those who said 'yes' or 'sometimes' to dual-use.

<sup>b</sup>People could choose several strengths. The data presented are based on the highest strength reported for each participant.

<sup>c</sup>Measured using the validated 4-item e-cigarette dependence scale [25], with each item scored using a Likert scale of 0 ('never') to 4 ('almost always'). Higher scores indicate higher levels of dependence, with scores ranging from 0 to 16.

<sup>d</sup>Based on a Likert scale of 1 ('completely disagree') to 5 ('completely agree') regarding the statement 'e-cigarettes are less harmful than tobacco.' Scores: 1–2 = negative, 3 = neutral, and 4–5 = positive.

<sup>e</sup>Based on a Likert scale of 1 ('not at all') to 5 ('completely agree') regarding the statement 'Vaping was/is a part of me.' Scores: 1–2 = weak, 3 = medium and 4–5 = strong.

these were consistently the top three reasons irrespective of demographics, smoking background, vaping duration or level of vaping dependence (Table S1). The minor order changes related to different levels of some baseline characteristics, for example, 'I don't like feeling dependent' was more commonly chosen in younger age groups, compared to older age groups. Furthermore, 'current/future health concerns' and 'not liking feeling dependent' were less endorsed by those with lower dependence.

### 3.4 | Strategies used to quit vaping

The most common strategy used to quit vaping was just stopping ( $n = 600$ , 55%, 95% CI 52–58%), followed by reducing the strength of nicotine used ( $n = 251$ , 23%, 95% CI 20–25%), and support from friends and/or family

( $n = 207$ , 19%, 95% CI 17–21%). The order of these findings was generally consistent across the majority of the investigated subgroups (Table S2). The order of the second and third main strategies switched for people with no formal education, people who had never smoked, and people who had vaped for  $\leq 1$  year. Participants with a high level of nicotine dependence were more likely to use a nicotine reduction strategy to quit. 'Just stopping' was more commonly endorsed by people who had a low level of nicotine dependence, had vaped for less than a year, and lived in a rural area (Table S2).

### 3.5 | Key triggers for relapse to vaping

Universal drivers to relapse amongst people who vape nicotine were feeling stressed ( $n = 194$ , 49%, 95% CI 44–

**TABLE 4** Regression model of vaping dependence by smoking duration, vaping duration, attitude towards vapes and nicotine strength.

Predictor	Levels	$\beta$ (95% CIs)	<i>p</i>
Smoking duration	Never smoked	Reference	
	≤1 year	-0.10 (-0.86, 0.64)	0.776
	2–5 years	0.77 (0.1, 1.45)	<b>0.025</b>
	≥6 years	0.89 (0.28, 1.51)	<b>0.004</b>
Vaping duration	≤1 year	Reference	
	2–5 years	2.07 (1.64, 2.50)	<b>0.001</b>
	≥6 years	2.74 (1.53, 3.94)	<b>0.001</b>
Attitude towards e-cigarettes <sup>a</sup>	Negative	Reference	
	Neutral	-0.22 (-0.69, 0.26)	0.365
	Positive	-0.12 (-0.62, 0.38)	0.636
Nicotine strength	≤0.3%	Reference	
	0.4–1.2%	1.28 (0.74, 1.83)	<b>0.001</b>
	1.3–3.5%	1.72 (1.08, 2.35)	<b>0.001</b>
	≥3.6%	2.14 (1.46, 2.83)	<b>0.001</b>
	Don't know	-1.13 (-1.68, -0.57)	<b>0.001</b>

Note: Analyses are not controlled for any baseline factors. Bold values are statistically significant.

Abbreviation: CI, confidence interval.

<sup>a</sup>Based on a Likert scale of 1 ('completely disagree') to 5 ('completely agree') regarding the statement 'e-cigarettes are less harmful than tobacco.' Scores: 1–2 = negative, 3 = neutral and 4–5 = positive.

54%), being around others who vaped ( $n = 162$ , 41%, 95% CI 36–46%), and symptoms of nicotine withdrawal ( $n = 149$ , 37%, 95% CI 33–42%). Although these findings were consistent across the majority of subgroups investigated, drinking alcohol was a key trigger for people who had never smoked, had a higher education, had vaped for ≤1 year, had a low/medium level of dependence, a weak/medium level of vaping identity, or a neutral/positive attitude to vaping (Table S3). Participants with a higher level of education or a strong vaping identity noted that feeling anxious/depressed triggered relapse to vaping. Finally, long-term users of vapes (≥6 years) reported a key trigger was the 'sense of loss' in stopping vaping.

## 4 | DISCUSSION

This survey identified that in a NZ population of people who were current or former users of nicotine vapes (with or without a history of tobacco use), vaping dependence was predicted by long-term use of tobacco or vapes, and use of higher strength nicotine vapes. People who had successfully or unsuccessfully quit vaping were primarily motivated to do so by concerns around the potential health risks of continued vaping, the dislike of feeling dependent, and ongoing costs. Quitting vaping and smoking shared similarities, with

multiple quit attempts made by some before successfully stopping, and the commonly used quit smoking strategy of 'going cold turkey'. A unique aspect of vaping is that it allows users to successfully apply a nicotine reduction strategy to help them quit. Key triggers for relapse to vaping were similar to those for relapse to smoking.

Support to quit vaping strategies should focus on managing stress, mental health and nicotine withdrawal, and avoidance of environments where people vape and/or alcohol is consumed. These findings highlight that vaping cessation support does not necessarily need to be tailored based on demographics, smoking history, vaping duration or vaping dependence. Finally, certain people are able to successfully quit vaping with no support (such as those with low levels of nicotine dependence, or those who have only vaped for a short period of time). We also note that dependence is a consideration when quitting vaping [27], yet the proportion of the sample who reported dependence was low.

This study provides the first in-depth data for NZ on strategies used by people who used to vape or had relapsed to vaping (irrespective of their history of tobacco use) to quit vaping, and was undertaken at a time when nicotine salt pod vapes were dominant in the NZ market. Importantly, the research had an equity focus and provides some of the first data on vaping cessation amongst

Māori and Pacific peoples (although participation rates by these populations were not as high as hoped).

Findings from this survey are consistent with the limited international research that exists on this topic. The similarities between quitting vaping and smoking have been previously observed. For example, in a content analysis of 1228 Reddit posts, the main reasons for wanting to stop vaping were negative physical consequences (e.g., tight chest) and feeling 'stuck' due to nicotine addiction [27]. This study also found key triggers for relapse to vaping were withdrawal symptoms and intensity of addiction. A Canadian qualitative study (seven focus groups) of 41 people aged 16–29 years who vaped and wanted to quit reported cost and dependence as key drivers for trying to quit, although concerns around industry influence were also strong [28]. Two important differences were noted between motivations to stop vaping and smoking, specifically wanting to stop vaping was due to a 'lack of trusted information on vaping' whilst for smoking it was due to being perceived as less acceptable socially [28]. Consequently, the authors argued that delivery of vaping cessation support within existing smoking cessation services may not be appropriate for youth and young adults given the 'strong stigma against smoking and an apparent desire to disassociate vaping from smoking' [28]. It remains unknown whether the same views are held by a similar population in NZ, highlighting the need for research to explore this issue (again with a strong equity focus, and findings interpreted through an appropriate cultural lens).

The strategies used by NZ participants to quit vaping were also similar to those noted in other studies. For example, a US survey of 204 people who both smoked and vaped reported that the most common strategies to quit vaping were cutting down (68%), seeking advice from a doctor (28%), quitting 'cold turkey' (24%), using NRT (24%), and switching to vapes with less nicotine (24%) [29]. Similarly, in the before-mentioned content analysis of Reddit posts, most users preferred to quit through gradual reduction (e.g., tapering the nicotine content) with key facilitators being distraction techniques (e.g., gaming and mindfulness exercises) and having a positive mindset [27]. Finally, a 2022 US survey ( $N = 1563$ ) of predominately female university students aged 18–24 years found most quit attempts amongst people who vaped were unassisted [30].

Strengths of the research include the large sample size, the high response rate, and opportunity for a wide cross-section of the NZ vaping community (including Indigenous Māori, Pacific, people who have never

smoked and adults aged  $\geq 16$  years) to share their experiences with vaping cessation. Findings will help inform public health messaging and support around vaping cessation, and the design of future vaping cessation interventions to be tested in clinical trials. A number of limitations are acknowledged. First, the survey represents participant views from a country with a strong tobacco end-game plan where vaping is a key element, and thus findings may not be as generalisable to countries with different tobacco and vaping policy and e-cigarette availability. Second, no minimum level of vaping intensity or duration was used for the definition of vaping, so a person who had merely tried vaping nicotine on one or two occasions was eligible to participate (although this was unlikely to have occurred given the dependence scores of participants). Third, we used a 'non-probabilistic' sampling method to recruit members, which may affect the generalisability of our findings. We are not aware of any national, 'probability sampled' online panels in NZ. Finally, some subgroups had small numbers (i.e., people who vaped for  $\geq 6$  years; those that had never smoked, but currently vaped), and the opportunity to hear the youth, Pacific and Māori voice in this research was absent or low. These findings highlight the need for different and more culturally appropriate research processes to reach these populations (e.g. the before-mentioned Pacific vaping report [24]), to ensure their experiences and opinions are heard.

## 5 | CONCLUSION

Findings from this cross-sectional survey suggest several promising avenues to support vaping cessation. Vaping as an exit strategy from smoking should be offered to people who smoke and have failed with other methods. Once vaping is taken up, it should be promoted as a short-term, step-down tactic (e.g., 3–12 months). Such a strategy aligns with those provided in the UK, Canadian, and NZ vaping cessation guidance [16–18].

## AUTHOR CONTRIBUTIONS

BL, LS, JB, AP, JK, CB, GL, VN, VP and NW were involved in securing funding for this research, all authors contributed to the development of the study materials and statistical analysis plan, MR undertook the analyses with oversight from VP, and all authors contributed to the writing of the paper.

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### CONFLICT OF INTEREST STATEMENT

All authors, with the exception of Dr Rahimi, report receiving grants from the Health Research Council of NZ during the conduct of the study, outside of the submitted work. Drs Walker and Shahab report receiving personal fees from a grant funded by the US National Cancer Institute as part of their role as members of the external Scientific Advisory Committee outside the submitted work. Drs Walker and Bullen report receiving funds from a National Institute for Health and the Food and Drug Administration, USA Tobacco Regulatory Science (R01) grant. Dr Walker is involved in a grant (in-kind) supported by the National Health and Medical Research Council of Australia. Dr Bullen reports contracts for research with the NZ Ministry of Health, honoraria for talks, and expenses to attend meetings from the University of Edinburgh and University of Queensland. Drs Walker and Shahab have acted as paid reviewers for grant awarding bodies. Dr Shahab has acted as a paid consultant for health-care companies. All authors declare no financial links with tobacco companies, e-cigarette manufacturers, or their representatives. Dr Brown has received unrestricted funding to study smoking cessation from Pfizer and J&J, which manufacture medically licensed smoking cessation medications. Dr Bullen reports expenses to attend meetings from Kenvue Asia. Dr Shahab has received honoraria for talks, an unrestricted research grant, and travel expenses to attend meetings and workshops from Pfizer. The market research companies involved in participant recruitment and delivery of the survey to participants do not have any investments in the vaping or tobacco industry. Horizon has not undertaken any research for the tobacco industry; however, they have hosted one survey for a company involved in the vaping industry. Dynata has not hosted surveys for the tobacco or e-cigarette industry; however, Kantar has.

### DATA AVAILABILITY STATEMENT

Requests for access to the individual participant data or study documents will be considered where the proposed use aligns with public good purposes, does not conflict with other requests or planned use by the research team, and the requestor is willing to sign a data access agreement.

### ORCID

Joya Kemper  <https://orcid.org/0000-0002-1778-8346>

Chris Bullen  <https://orcid.org/0000-0001-6807-2930>

Natalie Walker  <https://orcid.org/0000-0001-5939-5009>

### REFERENCES

1. Ministry of Health. The New Zealand guidelines for helping people to stop smoking. Wellington: Ministry of Health; 2021.
2. Ministry of Health. *New Zealand Health Survey 2023/24*. Wellington: Ministry of Health; 2023. <https://www.health.govt.nz/statistics-research/surveys/new-zealand-health-survey>. Accessed 14 Jan 2024
3. McNeill A, Simonavičius E, Brose LS, Taylor E, East K, Zulkova E, et al. *Nicotine Vaping in England: An Evidence Update Including Health Risks and Perceptions, September 2022. A Report Commissioned by the Office for Health Improvement and Disparities*. London: Office for Health Improvement and Disparities.
4. Palmer AM, Toll BA, Carpenter MJ, Donny EC, Hatsukami DK, Rojewski AM, et al. Reappraising choice in addiction: novel conceptualizations and treatments for tobacco use disorder. *Nicotine Tob Res*. 2022;24:3–9.
5. Mason A, Riordan BC, Winter T, Conner TS, Sibley CG, Scarf D. Effects of vaping on uptake and cessation of smoking: longitudinal analysis in Aotearoa New Zealand adults. *Drug Alcohol Rev*. 2023;42:1587–94.
6. Reynolds CME, Mack JB, O'Connor L, McAvoy H. The effects of vaping on children and adolescent health: a review of systematic reviews. *Lancet*. 2024;404(S1):S87.
7. Shahab L, Brown J, Boelen L, Beard E, West R, Munafò MR. Unpacking the gateway hypothesis of e-cigarette use: the need for triangulation of individual- and population-level data. *Nicotine Tob Res*. 2022;24:1315–8.
8. Hughes J, Sykes G, Hughes K, O'Reilly M, Goodwin J, Sutton C, et al. From gateways to multilinear connections: a qualitative longitudinal investigation of the relationships between vaping and smoking among adolescent users. *Int J Drug Policy*. 2021;97:103341.
9. Dautzenberg B, Legleye S, Underner M, Arvers P, Pothegadoo B, Bensaidi A. Systematic review and critical analysis of longitudinal studies assessing effect of e-cigarettes on cigarette initiation among adolescent never-smokers. *Int J Environ Res Public Health*. 2023;20:6936.
10. Graham AL, Amato MS, Cha S, Jacobs MA, Bottcher MM, Papandonatos GD. Effectiveness of a vaping cessation text message program among young adult e-cigarette users: a randomized clinical trial. *JAMA Intern Med*. 2021;181:923–30.
11. Graham AL, Cha S, Papandonatos GD, Amato MS, Jacobs MA, Abrams LC, et al. E-cigarette and combusted tobacco abstinence among young adults: secondary analyses

- from a U.S.-based randomized controlled trial of vaping cessation. *Prev Med.* 2022;165:107119.
12. Rigotti NA, Benowitz NL, Prochaska JJ, Cain DF, Ball J, Clarke A, et al. Cytisinicline for vaping cessation in adults using nicotine E-cigarettes: the ORCA-V1 randomized clinical trial. *JAMA Intern Med.* 2024;184:922–30.
  13. Caponnetto P, Campagna D, Ahluwalia JS, Russell C, Maglia M, Riel PM, et al. Varenicline and counseling for vaping cessation: a double-blind, randomized, parallel-group, placebo-controlled trial. *BMC Med.* 2023;21(1):220. <https://doi.org/10.1186/s12916-023-02919-2>
  14. Palmer AM, Tomko RL, Squeglia LM, Gray KM, Carpenter MJ, Smith TT, et al. A pilot feasibility study of a behavioral intervention for nicotine vaping cessation among young adults delivered via telehealth. *Drug Alcohol Depend.* 2022;232:109311.
  15. Sahr M, Kelsh S, Blower N, Sohn M. Pilot study of electronic nicotine delivery systems (ENDS) cessation methods. *Pharmacy.* 2021;9:21.
  16. Health Canada. *Vaping Cessation Resource*. Toronto: Centre for Addiction and Mental Health. 2022.
  17. Ross L, Papadakis S. Supporting clients who want to stop vaping. National Centre for Smoking Cessation and Training. 2022. <https://www.ncsc.co.uk/library/view/pdf/Supporting-stopping-vaping-2023.pdf>. Accessed 26 May 2025
  18. Fu J, Syeda A, Bullen C. Guidance for health workers in Aotearoa New Zealand on supporting people to stop vaping and using vaping to stop smoking. Wellington: Health NZ; 2024.
  19. Palmer AM, Price SN, Foster MG, Sanford BT, Fucito LM, Toll BA. Urgent need for novel investigations of treatments to quit e-cigarettes: findings from a systematic review. *Cancer Prev Res.* 2022;15:569–80.
  20. White M, Edwards R, Stanley J, Hoek J, Waa AM, Ouimet J, et al. Reasons for stopping e-cigarette use among smokers: findings from the 2018 ITC New Zealand survey. *N Z Med J.* 2020;133:117–21.
  21. Christen SE, Hermann L, Bekka E, Vonwyl C, Hammann F, van der Velpen V, et al. Pharmacokinetics and pharmacodynamics of inhaled nicotine salt and free-base using an e-cigarette: a randomized crossover study. *Nicotine Tob Res.* 2024;26:1313–21.
  22. Statistics New Zealand. New Zealand 2023 Census of Population and Dwellings. <https://www.stats.govt.nz/information-releases/2023-census-population-counts-by-ethnic-group-age-and-maori-descent-and-dwelling-counts/>. Accessed 3 Dec 2024
  23. Ministry of Health. Smoking status of daily vapers. Wellington: Ministry of Health; 2023.
  24. Health New Zealand|Te Whatu Ora. Pacific peoples' nicotine-free futures: understanding Pacific peoples' perceptions and practices of vaping. 2023. <https://www.smokefree.org.nz/resources/understanding-pacific-peoples-perceptions-and-practices-of-vaping-report>. Accessed 26 May 2025
  25. Morean ME, Krishnan-Sarin S, Sussman S, Foulds J, Fishbein H, Grana R, et al. Psychometric evaluation of the e-cigarette dependence scale. *Nicotine Tob Res.* 2019;21:1556–64.
  26. Ministry of Health. HISO 10001:2017 ethnicity data protocols. Wellington: Ministry of Health; 2017. Available from: [https://www.tewhatoora.govt.nz/assets/Our-health-system/Digital-health/Health-information-standards/hiso\\_10001-2017\\_ethnicity\\_data\\_protocols\\_21\\_apr.pdf](https://www.tewhatoora.govt.nz/assets/Our-health-system/Digital-health/Health-information-standards/hiso_10001-2017_ethnicity_data_protocols_21_apr.pdf). Accessed 14 Jan 2024
  27. Struik L, Yang Y. E-cigarette cessation: content analysis of a quit vaping community on Reddit. *J Med Internet Res.* 2021;23:e28303.
  28. Sanchez S, Kaufman P, Pelletier H, Baskerville B, Feng P, O'Connor S, et al. Is vaping cessation like smoking cessation? A qualitative study exploring the responses of youth and young adults who vape e-cigarettes. *Addict Behav.* 2021;113:106687.
  29. Klemperer EM, Villanti AC. Why and how do dual users quit vaping? Survey findings from adults who use electronic and combustible cigarettes. *Tob Induc Dis.* 2021;19(12):12. <https://doi.org/10.18332/tid/132547>
  30. Laura J, Holt LJ. Emerging adults' experiences with e-cigarette cessation. *Subst Use Misuse.* 2024;59:405–10.

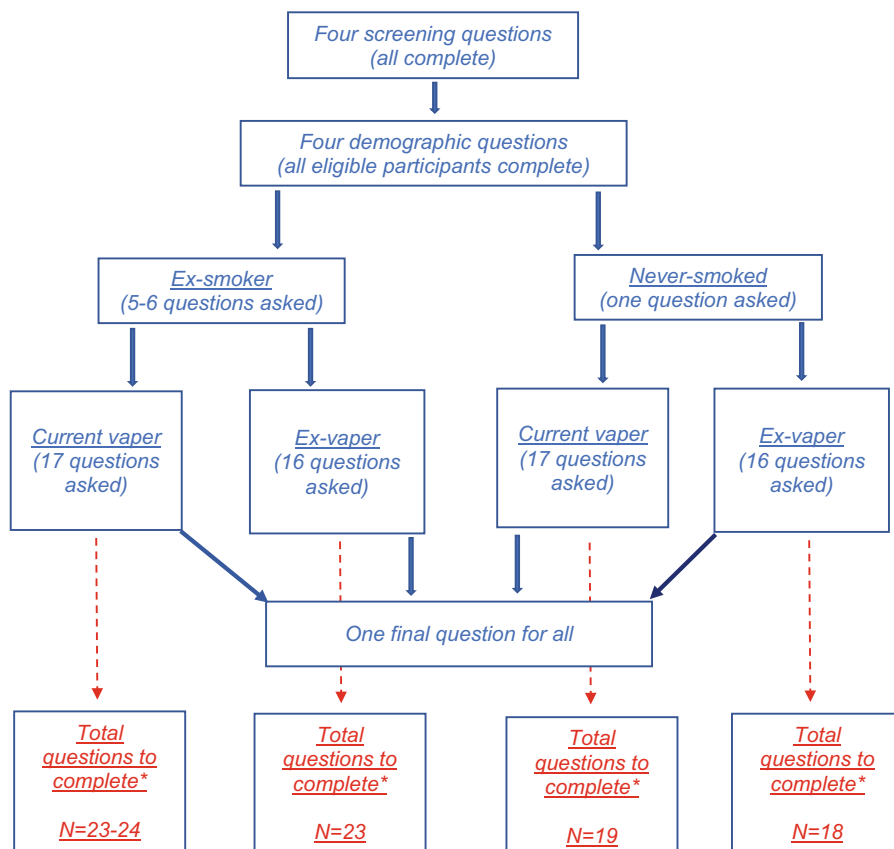
## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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## APPENDIX 1: SURVEY OF STRATEGIES TO QUIT NICOTINE VAPING

*[Text in blue or red italics is not seen by participants. Explanation of branching logic shown below to highlight the total number of questions asked of each group. \* = Total questions asked, excluding screening and demographic questions]*



### Survey of strategies to quit nicotine vaping

We are interested in your opinions and use of e-cigarettes. E-cigarettes are sometimes referred to as ‘vapes’ and using an e-cigarette is often called ‘vaping.’ E-cigarettes heat a liquid (sometimes called ‘e-juice’), turning it into an aerosol (vapour) that the user breathes in. Some vapes look like pens or a USB stick. Vapes may or may not contain nicotine, and may be flavoured.

Before you start the survey please read the information sheet to find out more about the study [link provided]. You can download and save this information sheet if you wish.

This anonymous survey is expected to take 5-7 minutes to complete, and your participation is voluntary. Whether or not you take part is your choice. You may decline to participate. You can withdraw your

participation at any time by exiting the survey or closing your web browser. Any responses entered up to the point of withdrawal will be retained in the survey. Data from this survey will be retained indefinitely for future research.

To find out if you are eligible to take the survey please complete the following four screening questions. Please note that by completing the screening

questions you are giving your consent for your responses to be recorded.

### Screening questions

#### 1. Which age groups are you in?

- < 16 years *[Exclude]*
- 16-17 years
- 18-24 years
- 25-34 years
- 35-44 years
- 45-54 years
- 55-64 years
- 65-74 years
- 75 years or over

## 2. Do you live in New Zealand (Choose one only)?

- Yes  
 No *[Exclude]*

## 3. Before we get to the questions about vaping, please tell us if you have ever smoked tobacco in cigarettes, roll-your owns, cigars, cigarillos, pipes, and/or shisha or a waterpipe? Choose one only.

- I have never smoked tobacco *[classified as never smoker]*  
 I used to smoke tobacco, but don't now *[classified as ex-smoker]*  
 I currently smoke, but not every day *[Exclude]*  
 I currently smoke every day *[Exclude]*

## 4. Now, we are interested in vaping. Have you ever vaped nicotine? Choose one only

- I have never vaped nicotine *[Exclude]*  
 I used to vape nicotine, but don't now *[classified as ex-vaper]*  
 I currently vape nicotine and have tried to stop *[classified as current vaper]*  
 I currently vape nicotine and have not tried to stop *[Exclude]*

*[After completing the first four questions above, the following message will be shown to those that are ineligible]*

Based on your answers, you are not eligible to participate in this study because [insert reasons why they were excluded]. We thank you for answering the questions and showing an interest in our study. We wish you well. If you currently smoke and would like some support to stop smoking, please contact the national Quitline on 0800 778 778.

*[After completing the first four questions above, the following message will be shown to those that are eligible]*

Thank you for answering these questions. It looks like you are eligible to participate in this study. You will now be asked to answer the survey questions. By answering the questions you are giving your consent for your responses to be recorded. You can withdraw your participation at any time by exiting the survey or closing your web browser.

## Demographic questions

### 1. What gender do you most identify with? Choose one only.

- Male  
 Female  
 Non-binary  
 Prefer not to say

### 2. Which of the following groups best describe your ethnicity? Tick all that apply.

- New Zealand European  
 Māori  
 Samoan  
 Cook Island Māori  
 Tongan  
 Niuean  
 Other Pacific (e.g. Tokelauan)  
 Chinese  
 Indian  
 Other (please state): \_\_\_\_\_

### 3. Which of these options best describes your highest educational qualification? Choose one only.

- No formal school qualification  
 NCEA Level 1 or School Certificate  
 Sixth form/UE/NCEA Level 2  
 University Bursary or 7th form  
 Vocational qualification (includes trade certificates, diplomas etc)  
 Undergraduate (Bachelor) degree  
 Postgraduate degree (Masters' degree or PhD)  
 Prefer not to say

### 4. How would you generally describe the area you are living in now? Choose one only.

- Large city (e.g. Auckland, Hamilton, Tauranga, Wellington, Christchurch, Dunedin)  
 Regional city (e.g. Whangarei, Gisborne, New Plymouth, Napier, Hastings, Palmerston North, Whanganui, Nelson, Timaru, Invercargill)  
 Regional town  
 Rural but not remote  
 Rural remote

*[The following question set will be shown to ex-smokers only (irrespective of vaping status), i.e. people who have never smoked tobacco would NOT answer the following questions]*

1. **Thinking back to when you used to smoke tobacco, how many years had you been smoking continuously? Choose one only.**

- Less than a year
- 1 year
- 2 years
- 3 years
- 4 years
- 5 years
- 6 to 10 years
- 11 to 15 years
- 16-20 years
- More than 20 years

2. **Thinking about when you used to smoke tobacco, did you smoke every day or only some days? Choose one only.**

- Every day
- Only some days

3. **How soon after you woke-up from sleeping did you smoke your first cigarette? Choose one only.**

- Within 5 minutes
- 6-30 minutes
- 31-60 minutes
- More than 60 minutes

4. **Now thinking about vaping, what were your main reasons for starting vaping? Tick all that apply.**

- To help me stop smoking
- Vaping is cheaper than smoking
- Vapes are easier to get hold of than tobacco cigarettes
- Current/future health concerns
- Social pressure to vape
- Being faced with restrictions on where I could smoke
- Advice from a medical professional, such as a nurse or doctor
- Seeing vaping online in an advert
- Seeing vaping on social media (e.g., Facebook, TikTok)
- Curiosity – I just wanted to try vaping
- I was given a free promotional sample
- Something else (please say): \_\_\_\_\_

5. **When you smoked during the day, did you also vape during the day? Choose one only.**

- Yes
- Sometimes
- No

6. **[If they answered 'yes' or 'sometimes' to Q5 above] When you vaped during the day, did your use of tobacco during the day change? Choose one only**

- I smoked more tobacco
- There was no change in how much tobacco I smoked
- I smoked less tobacco

*[The following question will be shown to never-smokers only, irrespective of vaping status, i.e. people who are ex-smokers would NOT answer the following questions]*

1. **What were your main reasons for starting vaping? Tick all that apply.**

- Social pressure to vape
- Curiosity – I just wanted to try vaping
- I think they look cool
- They are easy to get hold of
- I hoped they would help suppress hunger
- Seeing vaping online in an advert
- Seeing vaping on social media (e.g., Facebook, TikTok)
- I was going to try smoking but thought vaping would be safer
- I was given a free promotional sample
- Something else (please say): \_\_\_\_\_

*[The next question set will be shown to current vapers only, irrespective of smoking status, i.e. people who are ex-vapers would NOT answer the following questions]*

1. **How many years have you vaped? Choose one only.**

- Less than a year
- 1 year
- 2 years
- 3 years
- 4 years
- 5 years
- 6 to 10 years
- More than 10 years

Please answer the following four questions.

2. **I find myself reaching for my e-cigarette without thinking about it. Choose one only**
- Never  
 Rarely  
 Sometimes  
 Often  
 Almost always
3. **I drop everything to go out and buy e-cigarettes or e-juice. Choose one only**
- Never  
 Rarely  
 Sometimes  
 Often  
 Almost always
4. **I vape more before going into a situation where vaping is not allowed. Choose one only**
- Never  
 Rarely  
 Sometimes  
 Often  
 Almost always
5. **When I haven't been able to vape for a few hours, the craving gets intolerable. Choose one only**
- Never  
 Rarely  
 Sometimes  
 Often  
 Almost always

6. **What type of vape are you currently using. Tick all that apply.** *[Some common brand names and images are shown as prompts]*

- A rechargeable device with pods that are replaced or refilled
- A disposable device (the whole device is thrown away after use)
- A modifiable device (also known as mods or box kits, which can be manually customised)
- A rechargeable device with a refillable tank (also called vape pens)
- Other (please describe): \_\_\_\_\_

7. **Are you using a nicotine salt? Choose one only**

- I don't know  
 Yes  
 Sometimes  
 No

8. **What strength nicotine are you currently using? Tick all that apply.**

- I don't know  
 0 mg or 0% (no nicotine)  
 1-3 mg or 0.1%-0.3%  
 4-6 mg or 0.4%-0.6%  
 7-12 mg or 0.7%-1.2%  
 13-18 mg or 1.3-1.8%

- 19-24 mg or 1.9%-2.4%  
 25-30 mg or 2.5-3%  
 31-35 mg or 3.1-3.5%  
 36-40 mg or 3.6-4.0%  
 41-45 mg or 4.1-4.5%  
 46-50 mg or 4.6-5.0%  
 Great than 50mg or greater than 5%

9. **What e-juice flavour are you currently using? Tick all that apply.**

- Mint/Menthol  
 Tobacco  
 Fruit  
 Combination (such as mint + fruit)  
 Other (please say what flavour) \_\_\_\_\_

10. **On a scale of 1 to 5, where 1 is not at all and 5 is very much, how much do you agree with the statement: 'Vaping is part of me.'**

Not at all					Completely agree	
1	2	3	4	5		

11. **Which of the following reasons are important in keeping you vaping? Tick all that apply.**

- I enjoy it  
 I like the variety of flavours available  
 I like having options around the nicotine strength I can use  
 It gives me confidence, e.g., it helps make it easier to socialise  
 It helps my concentration  
 It gives me something to do  
 It helps me cope with stress  
 It helps me cope with pain  
 It keeps my weight down  
 It helps me feel less anxious and/or depressed  
 Something else (please say): \_\_\_\_\_

12. **What are your main reasons for trying to quit vaping? Tick all that apply.**

- The cost of vaping  
 They are too hard to get hold of  
 No-one around me vapes  
 I don't like feeling I'm dependent on them  
 Current/future health concerns  
 The vape I have is not that satisfying

- I find the vape too difficult to use
- Pressure from others to stop vaping
- Being faced with restrictions on where I can vape
- Advice from a health care provider
- I was motivated after seeing and/or hearing a quit vaping message
- For religious / spiritual reasons
- Something else (please say): \_\_\_\_\_

13. **How many serious attempts have you made to quit vaping? By serious attempt I mean you decided that you would try to make sure you never vaped again? Choose one only.**

- 1 attempt
- 2 attempts
- 3 attempts
- 4 attempts
- 5 or more attempts

14. **Which, if any, of the following did you try to help you stop vaping during your most recent serious attempt? Tick all that apply.**

- Nothing
- Support from other ex-vapers
- Support from my friends and/or family
- Support from my work place
- Support from Quitline or another smoking cessation service
- I tried reducing the strength of the nicotine over time
- Nicotine patches
- Champix (varenicline)
- Cytisine
- An app - please name the app(s): \_\_\_\_\_
- Prayer
- Something else (please say): \_\_\_\_\_

15. **What are the main 'triggers' that lead you back to vaping? Tick all that apply.**

- Nicotine withdrawal symptoms (irritability, headache, constipation, cravings to vape)
- When I drink alcohol
- Being around people who are vaping
- Being around people who are using tobacco
- Feeling stressed
- Feeling anxious and/or depressed
- Seeing vapes for sale in a shop
- A strong need to have something in my hand
- A sense of loss – it feels like something is missing
- Feeling lonely and/or bored
- Something else (please say): \_\_\_\_\_

16. **If you met a vaper who wanted your advice on how to try and stop vaping, what advice would you give them? [free text].**
17. **What advice would you give to people who are looking to start vaping? [free text].**

*[The next question set will be shown to ex-vapers only, irrespective of smoking status, i.e. people who are current vapers would NOT answer the following questions]*

1. **How many years did you vape for? Choose one only**

- Less than a year
- 1 year
- 2 years
- 3 years
- 4 years
- 5 years
- 6 to 10 years
- More than 10 years

**Thinking back to when you used to vape....**

- |   |   |
|---|---|
| <p>2. <b>...did you find yourself reaching for your e-cigarette without thinking about it? Choose one only</b></p> <p>3. <b>.....did you drop everything to go out and buy e-cigarettes or e-juice? Choose one only</b></p> <p>4. <b>.....did you vape more before going into a situation where vaping was not allowed? Choose one only</b></p> <p>5. <b>...when you hadn't been able to vape for a few hours, was craving intolerable? Choose one only</b></p> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Never</li> <li><input type="checkbox"/> Rarely</li> <li><input type="checkbox"/> Sometimes</li> <li><input type="checkbox"/> Often</li> <li><input type="checkbox"/> Almost always</li> </ul> <ul style="list-style-type: none"> <li><input type="checkbox"/> Never</li> <li><input type="checkbox"/> Rarely</li> <li><input type="checkbox"/> Sometimes</li> <li><input type="checkbox"/> Often</li> <li><input type="checkbox"/> Almost always</li> </ul> <ul style="list-style-type: none"> <li><input type="checkbox"/> Never</li> <li><input type="checkbox"/> Rarely</li> <li><input type="checkbox"/> Sometimes</li> <li><input type="checkbox"/> Often</li> <li><input type="checkbox"/> Almost always</li> </ul> <ul style="list-style-type: none"> <li><input type="checkbox"/> Never</li> <li><input type="checkbox"/> Rarely</li> <li><input type="checkbox"/> Sometimes</li> <li><input type="checkbox"/> Often</li> <li><input type="checkbox"/> Almost always</li> </ul> |
|---|---|

6. **What type of vapes were you using just before you quit vaping? Tick all that apply. [Some common brand names and images shown as prompts]**

- A rechargeable device with pods that are replaced or refilled

- A disposable device (the whole device is thrown away after use)
- A modifiable device (also known as mods or box kits, which can be manually customised)
- A rechargeable device with a refillable tank (also called vape pens)
- Other (please describe): \_\_\_\_\_

**7. Were you using a nicotine salt just before you quit vaping? Choose one only**

- I don't know
- Yes
- Sometimes
- No

**8. What strength nicotine were you using in your vapes just before you quit vaping? Tick all that apply.**

- I don't know
- 0 mg or 0% (no nicotine)
- 1-3 mg or 0.1%-0.3%
- 4-6 mg or 0.4%-0.6%
- 7-12 mg or 0.7%-1.2%
- 13-18 mg or 1.3-1.8%
- 19-24 mg or 1.9%-2.4%
- 25-30 mg or 2.5-3%
- 31-35 mg or 3.1-3.5%
- 36-40 mg or 3.6-4.0%
- 41-45 mg or 4.1-4.5%
- 46-50 mg or 4.6-5.0%
- Great than 50mg or greater than 5%

**9. What flavour were you using in your vapes just before you quit vaping? Tick all that apply.**

- Mint/Menthol
- Tobacco
- Fruit
- Combination (such as mint + fruit)
- Other (please state) \_\_\_\_\_

**10. On a scale of 1 to 5, where 1 is not at all and 5 is very much, how much do you agree with the statement: 'Vaping was part of me.'**

Not at all					Completely agree
1	2	3	4	5	

**11. What were your main reasons for wanting to quit vaping? Tick all that apply.**

- The cost of vaping
- They are too hard to get hold of
- No-one around me vaped
- I didn't like feeling dependent on them
- Current/future health concerns
- The vape I had was not that satisfying
- I found the vape too difficult to use
- Pressure from others to stop vaping
- Being faced with restrictions on where I could vape
- Advice from a health care provider
- I was motivated after seeing and/or hearing a quit vaping message
- For religious / spiritual reasons
- Something else (please say): \_\_\_\_\_

**12. How many serious attempts did you make to quit vaping before you were successful? By serious attempt I mean you decided that you would try to make sure you never vaped again. Choose one only.**

- 1 attempt
- 2 attempts
- 3 attempts
- 4 attempts
- 5 or more attempts

**13. Which, if any, of the following helped you succeed with quitting vaping? Tick all that apply.**

- Nothing - I just stopped
- Support from other ex-vapers
- Support from my friends and/or family
- Support from my work place
- Support from Quitline or another smoking cessation service
- Support from a vape shop
- I reduced the strength of the nicotine I used over time
- Nicotine patches
- Champix (varenicline)
- Cytisine
- An app - please name the app(s): \_\_\_\_\_
- Prayer
- Nothing - I lost my vape and/or my vape broke and I didn't replace it

- Nothing - I was in a place for a long period where I couldn't vape and/or couldn't get access to vapes (e.g., in hospital, in prison, on a boat out at sea for a long period, etc)
- Something else (please say): \_\_\_\_\_

14. **What were the main barriers for you around quitting vaping? Tick all that apply.**

- I really enjoyed vaping
- Vaping gave me something to do
- I was concerned about weight gain if I stopped vaping
- I was concerned I might start or relapse back to smoking
- I was too stressed to stop
- I was too anxious and/or depressed to stop
- Vaping helped me cope with pain, so I was worried the pain may get worse if I stopped
- Peer pressure to keep vaping
- Vaping provided opportunities to socialise, so I was worried this may become more difficult
- It was hard to manage nicotine withdrawal symptoms (e.g., irritability, headache, constipation, cravings to vape)

- I was concerned I wouldn't be able to concentrate without it
- Something else (please say): \_\_\_\_\_

15. **If you meet a vaper who wanted your advice on how to stop vaping, what advice would you give them? [free text].**

16. **What advice would you give to others who are looking to start vaping? [free text].**

[Question for all eligible participants]

1. **One last question, on a scale of 1 to 5, where 1 is 'completely disagree' and 5 is 'completely agree', how much do you agree with the statement: 'E-cigarettes are less harmful than tobacco.'**

Completely disagree				Completely agree
1	2	3	4	5

*Thank you for taking the time to complete this survey.  
If you currently vape and would like some support to stop vaping, please contact the national Quitline on 0800 778 778.*