

# Associations Between Noticing Nicotine Vaping Product Health Warning Labels, Harm Perceptions, and Use Among Adult Vapers, Current and Former Smokers. Findings From the 2018 ITC Four Country Smoking and Vaping Survey

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## Abstract

**Background:** The number of countries mandating a nicotine addiction warning label (“warnings”) on nicotine vaping products (NVPs) has been increasing. This study examined associations between noticing NVP warnings, perceptions of NVPs, and intentions to use NVPs.

**Aim and Methods:** Cross-sectional analysis of 12 619 adult NVP users, cigarette smokers, concurrent users of both cigarettes and NVPs, and quitters who participated in the 2018 International Tobacco Control (ITC) Project Four Country Smoking and Vaping Survey (England, Australia, Canada, USA). Logistic regression analyses examined associations between noticing warnings in the past 30 days and perceptions of nicotine harm, NVP harm relative to cigarettes, and NVP addictiveness relative to cigarettes. Associations were also explored between noticing warnings and intentions to use NVPs.

**Results:** Noticing warnings was higher among NVP users (18.8%) than nonusers (2.1%). Noticing warnings was associated with perceiving nicotine to pose little or no harm to health among NVP users, but there was no association among nonusers. There was little evidence of an association between noticing warnings and perceptions of NVP harms relative to smoking among NVP users and non-users. Noticing warnings was associated with perceiving NVPs as less addictive than cigarettes among nonusers but not NVP users. Among exclusive smokers, noticing warnings was associated with intending to start using NVPs. Among NVP users, there was little evidence of an association between noticing warnings and intentions to continue using/stopping NVPs.

**Conclusions:** Noticing NVP warnings was not associated with increased NVP and nicotine harm perceptions or decreased intentions to use NVPs among adult smokers and vapers.

**Implications:** Our findings suggest that noticing NVP warnings may not influence NVP risk perceptions or deter NVP use among adult smokers and vapers. Future research should investigate the impact of warnings on youth and adults who have never smoked or vaped.

## Introduction

Nicotine vaping products (NVPs) are less harmful to health than tobacco cigarettes and can help some smokers to quit.<sup>1–3</sup> However, NVPs’ long-term health risks are not fully known. The European Union (EU) introduced health warning labels (“warnings”) that read “*this product contains nicotine which is a highly addictive substance*” and must cover 30% of the front and back of the pack (see [Supplementary Figure 1](#)) on NVPs and e-liquids as part of the 2014 EU Tobacco Product

Directive (TPD).<sup>4</sup> In England, the warnings began appearing on NVPs in May 2016, with legislation requiring all NVPs to have the warning by May 2017.<sup>5</sup> Taylor et al., found that only 9.4% of adult NVP users and smokers in England in 2018 noticed warnings, with daily NVP users reporting the highest level of noticing (37%).<sup>6</sup> Moreover, there was no significant change in concerns about NVPs between 2016 and 2018 due to noticing the warnings after warnings were introduced in England.<sup>6</sup> However, NVP warnings may nevertheless increase

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false perceptions of NVP harm relative to cigarettes and deter smokers from using them to quit.<sup>7</sup>

Misperceptions that NVPs are equally or more harmful than cigarettes are common and have increased in England and other countries.<sup>3,8,9</sup> These misperceptions are more prevalent among exclusive smokers than NVP users, with exclusive smokers who have accurate perceptions of NVPs being more likely to report using NVPs in the future.<sup>3,10</sup> In the Netherlands, perceptions of addictiveness of NVPs increased among smokers and NVP users after the TPD was mandated.<sup>11</sup> However, it is unclear if these perceptions are attributable to the introduction of NVP warnings, as other TPD measures were implemented over the same period.<sup>11</sup> Experimental research involving brief exposure to TPD NVP warnings is associated with increased concerns about NVP addictiveness but not NVP harm among adult smokers.<sup>12</sup> Moreover, a recent systematic review reported that nicotine addiction messages were associated with greater health and addiction risk perceptions than warnings that discuss the relative risk of e-cigarettes in comparison to cigarettes.<sup>13</sup> It has also been shown that, among adult smokers and NVP users, nicotine addiction warnings may decrease willingness to try NVPs because of their effects on increasing risk perceptions.<sup>14</sup>

Qualitative research suggests that health warnings may discourage smokers from switching to NVPs,<sup>7</sup> and experimental research has found that smokers who view TPD warnings report they would be less likely to purchase and less willing to try NVPs.<sup>15</sup> However, other experimental research has found no effect of TPD warnings on willingness to use or purchase NVPs among smokers.<sup>12</sup> Overall, there is little consistent evidence of the impact of NVP warnings on misperceptions of harm and very little evidence outside of nonrepresentative samples of participants in experimental studies, where different warning messages are shown to subjects to gauge responses. Therefore, comparisons of NVP perceptions and intentions to use NVPs between those who notice and do not notice warnings in the “real world” data could provide insights into whether noticing TPD warnings is associated with perceptions and intention to use NVPs in England.

In contrast to England, NVP warnings were not mandatory in Canada, the US, or Australia during the study period (February–July 2018). Manufacturers in these countries often voluntarily added health warnings or toxin symbols, with 97.9% of a 2016 sample of e-liquids from the US including some type of warning. However, few warnings mentioned whether products contained nicotine or included warnings of addictiveness.<sup>16,17</sup> Both the US (August 2018) and Canada (January 2021) have since mandated nicotine warnings on NVPs, therefore it is possible that manufacturers had already started to introduce warnings onto some products in these countries during the study period.<sup>18,19</sup>

Using data from the International Tobacco Control Policy Evaluation (ITC) Project, this study aims to investigate: (1) associations between noticing NVP warnings and perceptions of nicotine harm, NVP harm relative to cigarettes and NVP addictiveness relative to cigarettes, (2) associations between noticing NVP warnings and (a) intentions to continue using NVPs among NVP users and (b) intentions to start using NVPs among non-NVP users, (3) whether associations between noticing warnings, perception measures and intentions to use NVPs differ between England (where mandatory TPD warnings were introduced) compared to Canada, US,

Australia (where no mandatory warnings existed during this study).

## Methods

### Participants and Design

Data were from the 2018 ITC Smoking and Vaping (ITC 4CV) Survey. The ITC 4CV Survey is an online longitudinal and repeated cross-sectional survey of 18+ adult smokers, vapers, and former smokers from England, Canada, the US, and Australia. Methodological details for each country are outlined in Thompson et al. (2019) and available from the ITC website.<sup>20,21</sup> The sample was comprised of the following: (1) re-contacted smokers and former smokers who had participated in the 2016 ITC 4CV Survey, (2) newly recruited current smokers and former smokers (ie, quit smoking in the previous 24 months) from country-specific panels, regardless of vaping status, (3) recontacted vapers who had participated in the 2016 ITC 4CV Survey, and newly recruited current vapers (at least weekly use) from country-specific panels, regardless of smoking status. The newly recruited smoker and vaper samples in each country were designed to be representative of smokers and at-least-weekly vapers respectively and used either probability-based sampling frames or nonprobability opt-in sampling frames, or a combination of these methods. Data used in this study were collected between February 22 and July 9, 2018.

5985 participants who had previously taken part in the 2016 ITC 4CV were re-contacted for recruitment and 7650 newly recruited participants were added at 2018, providing an overall sample of  $N = 13\ 635$ . Australian participants who were recruited as part of the Australian Dedicated Vapers sample were removed ( $n = 641$ ), as this sample is not representative of Australian NVP users and smokers.<sup>20</sup>

Participants were excluded if they: had never heard of NVPs ( $N = 86$ ); did not respond to questions about education ( $N = 137$ ); did not respond to ( $N = 114$ ) or reported they did not know ( $N = 79$ ) their ethnicity. This left a final analytic sample of  $N = 12\ 619$  participants.

## Measures

### Outcome Measure

#### Noticing NVP Warnings

Participants were asked: “Now thinking about e-cigarettes, in the last 30 days, have you noticed any health warnings on packaging for e-cigarettes, cartridges or e-liquid containers?” Responses were classified as “Yes” or “Otherwise” (“No”, “Don’t know”, “Refused”).

#### Perceived Harm of Nicotine to Health

Participants were asked “How harmful do you think nicotine is—or was, or would be—to your health?” Responses were classified as “Not or slightly harmful” (“Not at all harmful”, “Slightly harmful”), “Otherwise” (“Moderately harmful”, “very harmful” and “extremely harmful”, “Don’t know”, “Refused”).

#### Perceived Harmfulness of NVPs Relative to Cigarettes

Participants were asked “Compared to smoking cigarettes, how harmful do you think vaping is?” Responses were classified as “Less harmful” (Much less harmful’ and

“Somewhat less harmful”) or ‘Otherwise (“Equally harmful”, “Somewhat more harmful” and “Much more harmful”, “Don’t know”, “Refused”).

#### Perceived Addictiveness of NVPs Relative to Cigarettes

Participants were asked, “Compared to smoking cigarettes, how addictive do you think vaping (using e-cigarettes) with nicotine is?” Responses were classified as “Less addictive” (“Much less addictive”, “Somewhat less addictive”) and “Otherwise” (“Equally addictive”, “Somewhat more addictive”, “Much more addictive”, “Don’t know”, “Refused”).

#### Intention of Using an NVP in the Future

Non-NVP users were asked “How likely are you to use e-cigarettes or e-liquids that contain nicotine in the future? (This means more than just trying them)”. Responses were classified “intend to use” (“Definitely will use”, “Probably will use”) and “Other” (“Might or might not use”, “Probably will not use”, “Definitely will not use”, “Don’t know”, “Refused”).

#### Intention to Continue Using a NVP in the Future

NVP users were asked “Do you plan to keep on vaping, or do you plan to stop using sometime in the foreseeable future?” Responses were classified as “intend to use” (“Definitely keep using”, “Probably keep using”) and “Other” (“Might or might not keep using”, “Probably will stop using”, “Definitely will stop using”, “Don’t know”, “Refused”).

### NVP and Smoking Variables

#### NVP Frequency

Participants were defined as either “Daily NVP users”, “Weekly NVP users” “Monthly or less than monthly NVP users” “Ex or never used an NVP” (See [Supplementary Table 1](#)).

#### Smoking Frequency

Participants were defined as either “Daily smokers” “Weekly smokers” “Monthly or less than monthly smokers” “Ex or never smokers” (See [Supplementary Table 1](#)).

#### Covariates

Covariates included age (18–24, 25–39, 40–54, 55+), sex (male, female), ethnicity (white, other). “White” included participants who identified as White for US, Canada, and England, and English speaking in the home for Australia. “Other” included participants who identified as a different ethnicity in the US, Canada, and England or non-English speaking in at home in Australia. Income (high, moderate, and low), education (high, moderate, and low), friend or family member uses NVPs (yes, no) ([Supplementary Table 1](#)), year of recruitment (2016, 2018). Income was derived from reported yearly household income. Low included those with a household income of up to £15 000 or \$29 999 (CA, US, and AU). Moderate included those with a household income of £15 001–£30 000 or \$30 000–\$59 999 (CA, US, and AU). High included those with a household income of over £30 001 or \$60 000 (CA, US, and AU). Education was derived from reported highest level of education. Low included those with primary or secondary school education. Moderate included those with further training/college qualifications or those who had not completed university. High included those who had completed a university degree.

### Statistical Analysis

All analyses were conducted in SPSS 25. Data were weighted using the complex case function, and a raking algorithm was used to calibrate sampling weights to nationally representative figures in each country.<sup>20</sup>

All analyses were stratified and conducted separately for current NVP users (daily, weekly, monthly, or less than monthly) and non-NVP users (exclusive daily smokers, exclusive weekly smokers, exclusive monthly or less than monthly smokers, exclusive ex-smokers). Dual users of NVP and cigarettes were coded as current NVP users, and included in the current NVP users analyses.

Separate adjusted logistic models regressed each perception measure (nicotine harm, relative harm perceptions of NVPs compared to cigarettes, and relative addictiveness of NVPs compared to cigarettes) on noticing warnings and covariates. Next, a country-by-noticing warnings interaction term was added to the adjusted models with England as reference, and Wald-*F* tests used to examine whether differences in NVP perceptions between those who noticed and did not notice warnings differed across countries.

Adjusted logistic models regressed intentions to continue vaping on noticing among NVP users, and regressed intentions to start using NVPs on noticing among current exclusive smokers. Ex-smokers were removed from the intentions to start using NVP analysis as these participants have already quit smoking and are therefore unlikely to consider using an e-cigarette. Next, a country-by-noticing warnings interaction term was added to the adjusted models with England as reference, and Wald-*F* tests to examine whether differences in intentions to continue or start using NVPs between those who noticed and did not notice warnings varied across countries.

All models adjusted for age, gender, ethnicity, income, education, NVP frequency, smoking frequency, wave of recruitment, and having a friend or family member who uses NVP. Having a friend or family member who uses NVP was included as it has been reported that nonsmokers are more likely to notice cigarette warning labels if they have family or friends who smoke.<sup>22</sup>

Two sets of sensitivity analyses were also conducted. The first set of analyses examined whether there were differences observed when separating ex-NVP users from never users across all models. Specifically, “ex or never users” was split into “Ex-weekly or more NVP users”, “Ex-NVP triers” and “Never used an NVP”. The second set of analyses examined whether there were differences when excluding those who responded “Don’t know” or “Refused” to outcome measures of perception and intentions to use across all models.

## Results

### Participant Characteristics

[Supplementary Table 2](#) displays participant characteristics. Overall, the average age of participants was 43.8 (SD = 16.5), and there were similar proportions of male (48.6%) and female participants (51.4%). There were also similar proportions of participants who were current NVP users (50.8%) and non-NVP users (49.2%).

### Noticing Warnings

Noticing NVP warnings was more common among current NVP users (18.8%) than non-NVP users (2.1%). Among

current NVP users, daily users noticed warnings more often (28.4%) than weekly (19.7%) and monthly users (9.7%). Among non-NVP users, noticing warnings was most common among monthly smokers (4.9%), followed by weekly (3.9%), daily (2.0%) and ex-smokers (1.4%). Across countries, warnings were noticed most by participants from England (14.2%), followed by the US (11.1%), Canada (8.9%), and Australia (3.5%).

### Perceptions of Nicotine's Harm to Health

Among NVP users, those who noticed warnings were less likely to perceive nicotine as harmful compared to those who did not notice warnings (see Table 1). There was an interaction between noticing warnings and country ( $F(3,6383) = 3.31, p = .019$ ). Such that, the difference in effect of noticing warnings on perceiving nicotine as less harmful was greater in England than in Canada (AOR = 2.08, 95%CI = 1.07–4.03,  $p = .030$ ). The effect of noticing warnings on nicotine perceptions did not vary significantly between the US or Australia when compared to England (US AOR = 0.90, 95%CI = 0.49–1.64,  $p = .733$ ) (Australia AOR = 0.47, 95%CI = 0.17–1.42,  $p = .182$ ) (see Figure 1).

Among non-NVP users, there was little evidence of differences in the perception of nicotine harm between those who had and had not noticed warnings (see Table 1). There was also little evidence of an interaction between noticing warnings and country when examining perceptions of harm relative to cigarettes ( $F_{(3,6153)} = 0.26, p = .856$ ) (see Figure 2).

### Perceptions of NVPs Harm Relative to Cigarettes

Among NVP users, there was little evidence of differences in the perception of NVP harm relative to cigarettes between those who had and had not noticed warnings. Among non-NVP users, no evidence of differences was found in the perception of NVP harm relative to cigarettes between those who did and did not notice warnings (see Table 1 and Figure 1). Among both NVP users and non-NVP users, there was little evidence of an interaction between noticing warnings and country when examining perceptions of harm relative to cigarettes

as the key outcome of interest (NVP users  $F_{(3,6383)} = 1.93, p = .122$ ) (non-NVP  $F_{(3,6153)} = 2.09, p = .100$ ) (see Figure 2).

### Perceptions of NVP Addictiveness Relative to Cigarettes

Among NVP users, there were no significant differences in the perception of NVP addictiveness relative to cigarettes between those who had noticed warnings and those who had not. Among non-NVP users, those who noticed warnings were less likely to perceive NVPs as more addictive than cigarettes compared to those who had not noticed warnings. (see Table 1 and Figure 1). Among both NVP users and non-NVP users there was no evidence of an interaction between noticing warnings and country when examining perceptions of addictiveness relative to cigarettes as the key outcome of interest (NVP users  $F_{(3,6383)} = 0.82, p = .484$ ; non-NVP users:  $F_{(3,6153)} = 0.32, p = .810$ ) (see Figure 2).

### Intentions to Use NVP

Among NVP users, there were no significant differences in intention to continue using NVPs between those who did and did not notice warnings (see Table 2 and Figure 1). There was little evidence of interactions between country and noticing warnings ( $F_{(3,6383)} = 0.62, p = .602$ ). Among exclusive smokers, those who noticed warnings were more likely to intend to use an NVP in the future compared to those who did not notice warnings. Cell counts were too small to run the interaction between noticing warnings and country (see Table 2 and Figure 2).

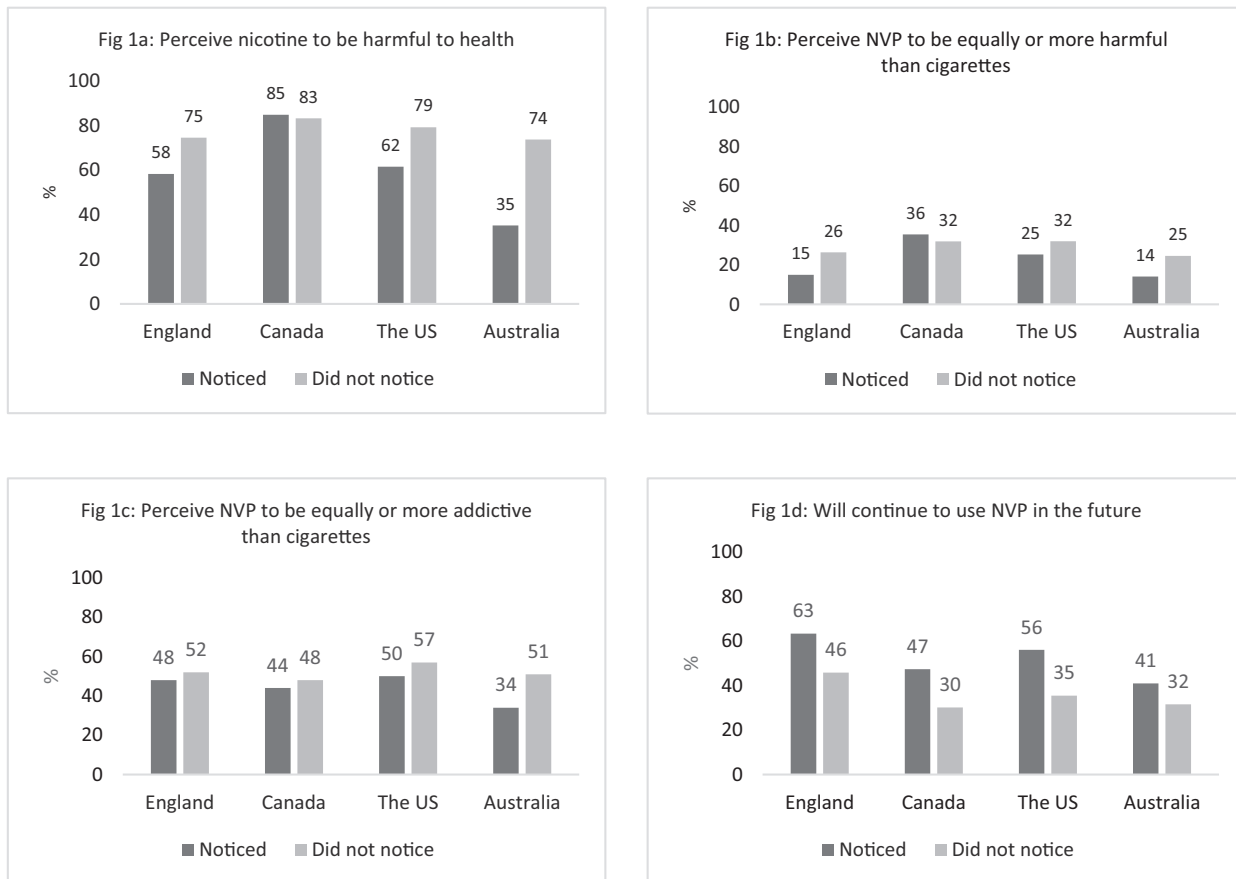
### Sensitivity Analyses

There was no change in the interpretation of results when separating out “ex or never users” into “Ex-weekly or more NVP users” “Ex-NVP triers” “Never used an NVP” (Supplementary Table 7). Similarly, there was no change in the interpretation of results when excluding respondents who selected “Don’t Know” or “Refused” to the perception and intentions to use outcome measures (Supplementary Table 8).

**Table 1.** Associations Between Noticing NVP Warnings and Perceptions of NVPs/Nicotine in 2018 ( $N = 12\ 619$ )

	Current NVP users ( $n = 6422$ )			Non-NVP user ( $n = 6197$ )		
	%(N)	OR (95% CI)	$p$	%(N)	OR (95% CI)	$p$
<i>Perceive nicotine to be harmful to health</i>						
<i>Noticed warning</i>						
Did not notice	78.1% (2759)	1.00	REF	84.0% (6887)	1.00	REF
Noticed	61.8% (432)	0.69(0.52–0.92)	.011	85.5% (147)	1.16(0.58–2.33)	.677
<i>Perceive NVP to be equally or more harmful than cigarettes</i>						
<i>Noticed warning</i>						
Did not notice	28.9% (1023)	1.00	REF	54.7% (4439)	1.00	REF
Noticed	20.7% (145)	0.93(0.71–1.23)	.626	54.7% (94)	1.10(0.73–1.67)	.654
<i>Perceive NVP to be equally or more addictive than cigarettes</i>						
<i>Noticed warning</i>						
Did not notice	52.9% (1868)	1.00	REF	79.5% (6513)	1.00	REF
Noticed	48.4% (338)	0.98(0.76–1.26)	.848	59.1% (102)	0.39(0.24–0.64)	<.001

All analyses are weighted. NVP users includes those who were current NVP users. Non NVP users include those who exclusively smoke or have quit smoking and/or NVP use. All analyses were adjusted for the following covariates: country, age, gender, ethnicity, education, income, NVP frequency, smoking frequency, having family or friends who use an NVP, wave of recruitment.



All data are weighted. NVP users include daily, weekly, and monthly or less than monthly NVP users

**Figure 1.** Perceptions of and intentions to use NVP by noticing warnings and across countries among current NVP users. All data are weighted. NVP users include daily, weekly, and monthly or less than monthly NVP users.

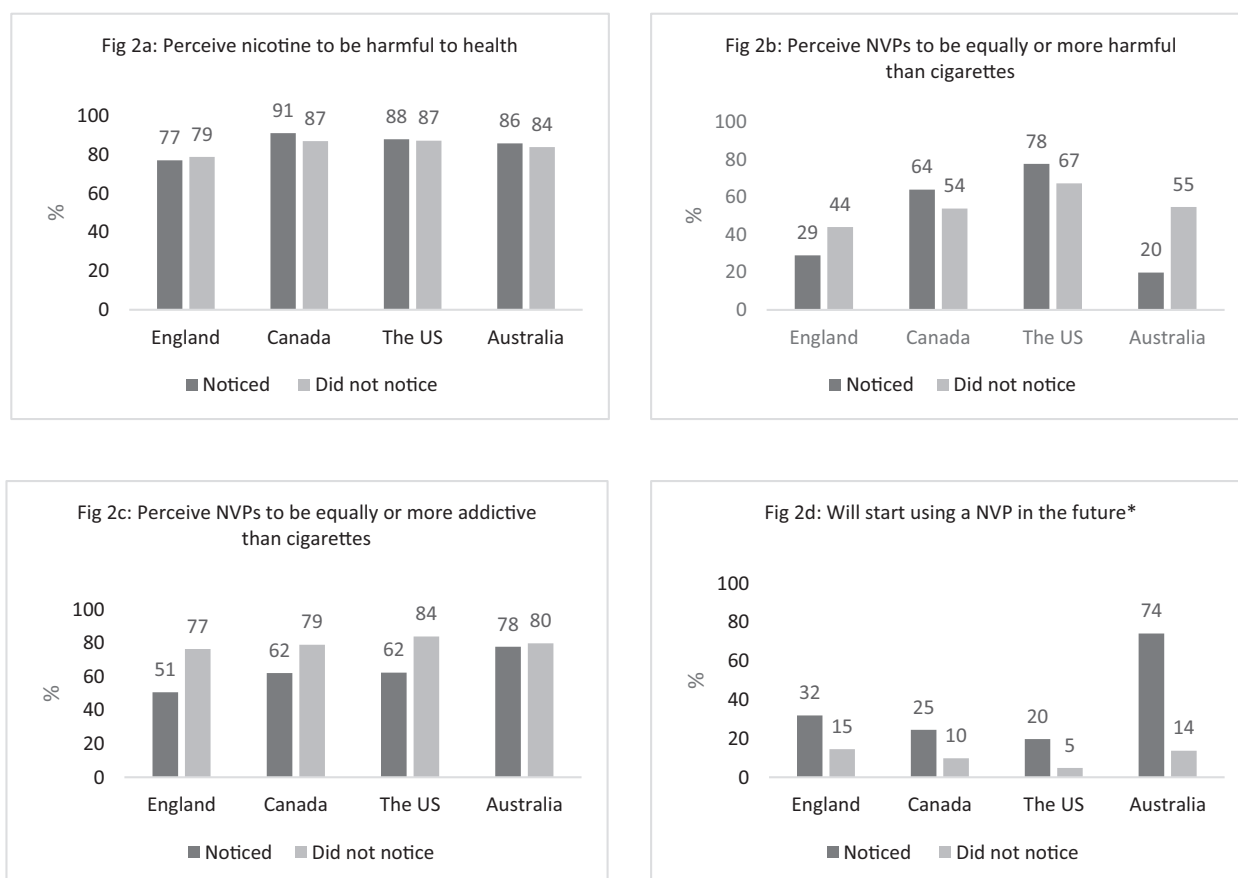
## Discussion

Noticing of NVP warnings was overall low. NVP users reported noticing warnings more than smokers, and those from England reported noticing warnings more than Canada, the US or Australia, albeit reported noticing was still low among these groups. Across both NVP users and non-NVP users, perceptions of nicotine harm and harm and addictiveness of NVPs relative to cigarettes were no greater among respondents who noticed warnings compared to those who did not. Among NVP users, the association between noticing warnings and lower perceptions of nicotine harm was found to be greater in England than Canada, but there was no difference between England and either the US or Australia. Similarly, we did not observe any differences in the associations between noticing warnings and perceptions of harm and addictiveness of NVPs relative to cigarettes between England and other countries. Noticing warnings was not associated with a difference in intentions to use NVPs among NVP users. However, noticing warnings was associated with intentions to start using NVPs in the future among exclusive smokers. This suggests that TPD warnings may have had little influence on perceptions of nicotine harm and harm and addictiveness of NVPs relative to cigarettes or the intention to use NVPs among both NVP users and smokers.

We found little association between noticing warnings and any of the perception measures we evaluated, including perceptions of nicotine harm and relative harm and addictiveness

of NVPs versus cigarettes. It is possible that this is because the warnings did not provide new information to NVP users and smokers, as many adult smokers and NVP users are already aware that NVPs generally contain nicotine and that nicotine is addictive.<sup>7,23</sup> Addiction-related harm has also been reported as the least discouraging harm of NVP use when compared to other health harms, such as lung disease.<sup>23</sup> Our findings suggest that addiction warnings may have little effect on future intentions to use NVPs among NVP users. Our findings have shown that intentions to start using NVPs were higher among smokers that noticed NVP warnings. Qualitative research has found that smokers deliberated and acquired knowledge about NVPs when deciding to use NVPs.<sup>24</sup> Therefore, it is likely that our findings reflect intentions to use NVPs among a subgroup of individuals who are more likely to notice warnings (eg, smokers who are interested in starting to vape; smokers whose network members vape), rather than the influence of warnings on intentions to use NVPs.

Our findings differ from previous experimental research among adult smokers in England, which found that TPD NVP warnings increased harm and addiction perceptions.<sup>12</sup> Our findings suggest that this brief exposure in a short-term experiment may lack ecological validity, which is a key of strength of our study. Thus, differences in study design or outcomes assessed may explain the discrepancy observed across these studies.



All data are weighted. Non-NVP users include exclusive daily, weekly, monthly, or less than monthly and ex smokers.

\*Fig 2d only includes current exclusive daily, weekly, monthly, or less than monthly smokers.

**Figure 2.** Perceptions of and intentions to use NVPs by noticing warnings and across countries among Non-NVP users. All data are weighted. Non-NVP users include exclusive daily, weekly, monthly, or less than monthly and ex smokers. \*Fig 2d only includes current exclusive daily, weekly, monthly, or less than monthly smokers.

**Table 2.** Associations Between Noticing NVP Warnings and Intentions to Use NVPs, in 2018 (n = 11 429)

	Current NVP users (n = 6422) <sup>a</sup>			Smokers (n = 5007) <sup>b</sup>		
	%(N)	OR (95% CI)	p	%(N)	OR (95% CI)	p
<b>Noticing warnings</b>						
Did not notice an NVP Warning	37.7% (1333)	1.00	REF	10.7% (610)	1.00	REF
Noticed an NVP warning	57% (399)	1.28(0.97–1.70)	.085	26.5% (38)	2.71(1.54–4.79)	.001

All analyses were adjusted for the following covariates: country, age, gender, ethnicity, education, income, NVP frequency, Smoking frequency, having a family or friends who use an NVP, wave of recruitment.

<sup>a</sup> NVP users included those who currently use an NVP.

<sup>b</sup> Smokers included those who currently smoke but do not use an NVP, Ex-smokers were excluded.

<sup>c</sup> Will continue to use a NVP in the future includes those who responded that they would definitely or probably continue to use NVP for the foreseeable future. Other (might or might not keep using, probably will stop using, definitely will stop using, don't know, refuse') used as reference group.

<sup>d</sup> Will start using a NVP in the future included those who responded that they would definitely or probably use an NVP in the future.

Other (might or might not use, probably will not use, definitely will not use, don't know, refused) used as reference group.

As NVPs have been shown to be less harmful to health than tobacco cigarettes and to help some smokers to quit,<sup>1,25</sup> harm reduction strategies may benefit from warnings that do not increase perceptions of NVP risk or reduce intentions to use NVPs among current and former smokers for the purpose

of quitting smoking. Youth show similar levels of noticing warnings; however, cross-sectional research reports that frequent warning exposure increases harm perceptions of NVPs among youth who currently vape.<sup>26,27</sup> Therefore, future longitudinal research is needed using to investigate the impact of

NVP warnings on youth, and adults who do not smoke or use an NVPs, as these groups are a key audience for these warnings.<sup>4</sup> Moreover, longitudinal research is needed to evaluate the impact that NVP warnings have on subsequent NVP use, and to examine the effects of different types of NVP warnings as more countries introduce these measures. For example, the impact of relative risk messaging, which has been rated as more effective in motivating smokers to switch to NVPs<sup>28</sup>; and the impact of warning design, such as color and font, which research suggests impacts recall.<sup>29</sup>

This study has several limitations. First, it is a cross-sectional study; as such, casual associations cannot be inferred. Second overall noticing of warnings was low and so there were small cell counts for the analysis of smokers, which may have limited statistical power. However, strengths include the use of nationally representative samples and data from four countries with divergent NVP policies.

Overall, mandatory TPD NVP warnings were not associated with increased perceptions of nicotine harm or NVP relative harm and addictiveness in England among NVP users and smokers. NVP warnings were also not associated with decreased intentions to continue using or start using NVPs among current users and smokers; on the contrary, noticing NVP warnings were associated with increased intentions to start using NVP among current smokers. Overall, NVP warnings had little impact on perceptions of nicotine harm, NVP harm/addictiveness, and intentions to use NVPs among adult vapers and smokers.

## 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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## Ethics Clearance

The survey protocols and all materials of Wave 2 ITC Four Country Smoking and Vaping Survey, including the survey questionnaires, were cleared for ethics by Office of Research Ethics, University of Waterloo, Canada (ORE#20803/30570, ORE#21609/30878); Research Ethics Office, King's College London, UK (RESCM-17/18-2240); Human Research Ethics, Cancer Council Victoria, Australia (HREC1603) and, Human Ethics, Research Management Office, University of Queensland, Australia (2016000330/HREC1603); and Institutional Review Board Medical University of South Carolina (waived due to minimal risk). All participants provided consent to participate.

## Declaration of Interests

GTF, DH, and JFT have served as expert witnesses or consultants on behalf of governments in litigation involving the tobacco

industry. KMC has served as a paid expert witness in litigation filed against cigarette manufacturers. The views expressed in this article are those of the authors and not necessarily those of the NIHR, or the UK Department of Health and Social Care.

## Data Availability

The data are jointly owned by a third party in each country that collaborates with the International Tobacco Control Policy Evaluation (ITC) Project. Data from the ITC Project are available to approved researchers 2 years after the date of issuance of cleaned datasets by the ITC Data Management Centre. Researchers interested in using ITC data are required to apply for approval by submitting an International Tobacco Control Data Repository (ITCDR) request application and subsequently to sign an ITCDR Data Usage Agreement. To avoid any real, potential, or perceived conflict of interest between researchers using ITC data and tobacco-related entities, no ITCDR data will be provided directly or indirectly to any researcher, institution, or consultant that is in current receipt of any grant monies or in-kind contribution from any tobacco manufacturer, distributor, or other tobacco-related entity. The criteria for data usage approval and the contents of the Data Usage Agreement are described online (<http://www.itcproject.org>). The authors of this paper obtained the data following this procedure. This is to confirm that others would be able to access these data in the same manner as the authors. The authors did not have any special access privileges that others would not have.

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