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A cross-country comparison of smokers' reasons for thinking about quitting over time: Findings from the International Tobacco Control Four Country Survey (ITC-4C), 2002–2015

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Abstract

Objective—To explore between-country differences and within-country trends over time in smokers' reasons for thinking about quitting and the relationship between reasons and making a quit attempt.

Methods—Participants were nationally representative samples of adult smokers from the United Kingdom (UK, N=4,717), Canada (N=4,884), the United States (US, N=6,703), and Australia (N=4,482), surveyed as part of the International Tobacco Control Four Country Survey between 2002 and 2015. Generalized estimating equations were used to evaluate differences among countries in smokers' reasons for thinking about quitting and their association with making a quit attempt at follow-up wave.

Results—Smokers' concern for personal health was consistently the most frequently endorsed reason for thinking about quitting in each country and across waves, and was most strongly associated with making a quit attempt. UK smokers were less likely than their counterparts to endorse health concerns, but were more likely to endorse medication- and quitline-availability

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Ethics approval: All ITC Surveys were conducted with the approval of the Office of Research Ethics Committee at the University of Waterloo, Canada and the respective internal ethics board for each country.

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reasons. Canadian smokers endorsed the most reasons, and smokers in the US and Australia increased in number of reasons endorsed over the course of the study period. Endorsement of health warnings, and perhaps price, appears to peak in the year or so after the change is introduced, whereas other responses were not immediately linked to policy changes.

Conclusions—Differences in reasons for thinking about quitting exist among smokers in countries with different histories of tobacco control policies. Health concern is consistently the most common reason for quitting and the strongest predictor of future attempts.

INTRODUCTION

Numerous studies using various samples of current and former cigarette smokers identify health concerns as the most common reason for wanting to quit smoking.¹ Other commonly cited reasons for quitting include social concerns, such as modelling behaviour for children or pressure from others to quit, and cost, but prevalence of endorsement of these reasons is typically modest in comparison to prevalence of health concerns. Hummel et al. (2015) evaluated trends in thinking about quitting in six European countries and found that cigarette price increases and warning labels trigger thoughts about quitting.² Absent from the literature, however, is a comprehensive evaluation among the United Kingdom (UK), Canada, the United States (US), and Australia, in smokers' reasons for thinking about quitting situated within the context of the tobacco control policies that were implemented to directly or indirectly impact quit attempt rates in these countries.

Table 1 presents an overview of tobacco control policies that were implemented in the UK, Canada, the US, and Australia between 2001 and 2015. The UK's national tobacco control strategy, first laid out in 1998 with the publication, *Smoking Kills: A White Paper on Tobacco*³, included a commitment for significant increased government investment in media campaigns, increases in tobacco price, reduction in smoking in public places, and increased investment in intensive resources for smoking cessation (including free or subsidized stop-smoking medications and face-to-face behavioral support from trained specialists). Since then, mass media expenditure in the UK rose and peaked in 2004/5, declined and dropped to 0 pounds in 2010/11, then rose until 2012/3 before starting to decline again. Annual tobacco tax increases were at or slightly above inflation rates until 2010, and funding on cessation services in the UK has been declining steadily over recent years with some services closing. During the past 15 years, Canada added pictorial health warnings to cigarette packs and introduced a revised set of larger pictorial warnings covering 75% of the pack in 2012; other policies implemented in Canada included bans on tobacco advertising, bans on smoking in indoor public places, and bans on point of sale tobacco displays. During the same time period, the US implemented a national media anti-smoking campaign direct at youth, created a national network of telephone helplines and raised the federal excise tax on cigarettes; many states in the US also raised cigarette taxes and adopted clean indoor air laws. Australia has been funding a comprehensive national mass-media anti-smoking campaign aimed at raising public awareness of the health risks of smoking since 1997 (Australian National Tobacco Campaign); other policies implemented in Australia included bans on terms like Light and Mild, augmenting cigarette pack warnings with graphic images in 2006, banning smoking in licensed venues in 2006 and 2007 (state by state), a 25%

increase in tax in 2010, and both increasing warning size and mandating standardized packaging in 2012.

The International Tobacco Control Four Country Survey (ITC-4C) asks smokers from the UK, Canada, the US, and Australia, about their reasons for thinking about quitting, over the time period when many of these tobacco control policies were implemented in each country. The longitudinal design of the ITC-4 further allows us to evaluate the association between thinking about quitting for a variety of reasons and making a quit attempt at follow-up survey. Within the context of the tobacco control policies implemented in each country, the purpose of this study was to explore (1) between-country differences in smokers' reasons for thinking about quitting, (2) within-country trends in smokers' reasons for thinking about quitting, and (3) associations between reasons for thinking about quitting and making a quit attempt at follow-up wave.

METHODS

Participants

Participants were adults aged 18+ from the UK, Canada, the US, and Australia, who were interviewed as part of the International Tobacco Control Four Country Survey between 2002 and 2015. The ITC-4C is a prospective cohort survey that used random digit dialling to recruit nationally representative samples of approximately 2000 smokers from each country in 2002. Response rates ranged from 26% (US) to 50% (Canada), and prior analyses have demonstrated that the demographic profiles of respondents to this survey were similar to the profiles of those who participated in national benchmark surveys, suggesting that any non-response to this survey is comparable to that of benchmark surveys⁴. Participants were re-contacted approximately annually to complete follow-up surveys and new smokers were recruited each year to offset those lost to attrition (~30% on average⁵). Smokers who subsequently quit smoking were retained in the sample. The study protocol was approved by the institutional review boards/research ethics boards of the University of Waterloo (Canada), Roswell Park Cancer Institute (US), University of Strathclyde (UK), University of Stirling (UK), The Open University (UK), and The Cancer Council Victoria (Australia). Detailed descriptions of the ITC-4C survey have been published elsewhere⁴⁻⁷.

All participants were current smokers at recruitment into the study (i.e. they smoked at least 100 cigarettes in their lifetimes and smoked at least one cigarette in the last 30 days). Evaluation of between-country differences and within country trends in reasons for thinking about quitting included current daily smokers at each wave (N=20,786 individuals and N=47,590 observations), and evaluation of making a quit attempt included current daily smokers at previous wave (N=14,071 and N=18,526 observations).

Measures

Reasons for thinking about quitting—During each survey wave, smokers were asked about various reasons for thinking about quitting: concern for personal health; concern about the effect of cigarette smoke on non-smokers; society disapproves of smoking; price of cigarettes; smoking restrictions at work; smoking restrictions in public places; advice from a

doctor, dentist, or other health professional to quit; free or lower cost stop-smoking medication; availability of telephone helpline/quitline/information line; advertisements or information about the health risks of smoking; warning labels on cigarette packages; setting an example for children. Respondents were asked each item separately, and response options were: not at all, somewhat, or very much, which were dichotomized to indicate whether a reason was endorsed at all (i.e. somewhat or very much) vs. not at all.

Due to the high correlations among reasons, we performed exploratory factor analysis so we could organize our presentation of reasons according to their relatedness. Concern for personal health, setting an example for children, and concern about effect on non-smokers were highly related so we grouped them as ‘Concern/risk’ reasons; smoking restrictions at work, smoking restrictions in public places, and society disapproves of smoking were highly related and were grouped as ‘Public/society’ reasons; free/lower cost stop-smoking medication, availability of telephone helpline/quitline/information line, and doctor/dentist/other health professional advice to quit were related and were grouped as ‘Assistance’ reasons; advertisements/information about health risks and warning labels on cigarette packs were moderately related and were grouped as ‘Information’ reasons, even though they were also somewhat related to the ‘Concern/risk’ reasons; price of cigarettes stood out as being least correlated with the other reasons (Supplemental Table 1). We computed the average percent endorsement for each group of related reasons using predicted values from adjusted regression models as described below in the Analysis section. We also calculated the total number of reasons endorsed in each country.

Nicotine dependence—During each survey, smokers were asked how many cigarettes they smoke per day (CPD), categorised into 1–10, 11–20, 21–30, and 31+, and how soon after waking they have the first cigarette (time to first cigarette, TTFC), categorised into >60 minutes, 31–60 minutes, 6–30 minutes, and 0–5 minutes.

Making a quit attempt—During each follow-up survey, prior year smokers were asked, “Have you made any attempts to stop smoking since we last talked with you?”

Demographics and other covariates—The following covariates were included in adjusted analyses: sex, age group (i.e., 18–29, 30–54, 55+), majority/minority group (based on the standard way of identifying minorities in each country, i.e., racial/ethnic group in the UK, Canada, and the US, and English language spoken at home in Australia), level of education (i.e., “low” if completed high school or less in Australia, Canada, and the US, or secondary/vocational or less in the UK, “moderate” if completed college/university (no degree) in the UK, technical/trade/some university (no degree) in Australia, or community college/trade/technical school/some university (no degree) in Canada and the US, or “high” if completed university or postgraduate in all countries), annual household income (defined as “low” if less than US\$30,000 (Australia, Canada, US) or less than £30,000 (UK), “moderate” if between US\$30,000 and US\$59,999 (or £30,000 and £44,999 in the UK), or “high” if equal to or greater than US\$60,000 (or £45,000 in the UK), time in sample (i.e., the number of waves a respondent participated in the ITC survey), and difference in time between survey waves (because the gap in time between surveys differed by country at the

end of the study period). The exact wording of all items used in the ITC surveys can be found at: www.itcproject.org⁸.

Statistical analyses

Generalized estimating equations (GEEs) were used so that participants from all waves of the study period could be included in analyses at once while statistically controlling for dependence among observations from the same individuals^{9,10}. Regression models specified the unstructured within-person correlation matrix and confidence intervals were calculated using a robust variance estimator. For each analysis, model covariance parameters were set at a maximum of 100 iterations and convergence tolerance for the coefficient vector was set at 1e-6. All analyses were conducted using Stata Version 11¹¹.

Between-country differences in reasons for thinking about quitting—Among current daily smokers, regression analyses were used to model the association between country and endorsement of reasons, aggregated across the study period and adjusted for sex, age group, majority/minority group, income, education, CPD, TTFC, survey wave, time in sample, and difference in time between waves, which are hereafter referred to as ‘covariates.’ For each country, post-hoc estimation was used to generate predicted values of endorsement of each reason and each group of reasons.

Within-country trends in reasons for thinking about quitting—Among current daily smokers, prevalence of endorsement of reasons was plotted by country and by wave, and linear, quadratic, and cubic trends in endorsement of reasons over the course of the study period were evaluated using logistic regression analyses (adjusted for covariates). That is, wave of the study period was the independent variable and endorsement of reasons was the dependent variable; odds ratios for the linear trends indicate the odds of endorsing each reason per one unit increase in wave. When significant non-linear trends were found, we reviewed the prevalence estimates plotted over time alongside the policy changes that took place over time and ran time-limited regression analyses to test whether specific policy changes are associated with changes in endorsement of reasons.

Reasons for thinking about quitting and making a quit attempt—Among current daily smokers at previous wave, regression analyses were used to evaluate the association between the reasons and making a quit attempt, aggregated across the study period and across the four countries. One set of models was adjusted for country and the covariates (Model 1) and a second set of models was adjusted for country, the covariates, and each other reason (Model 2). For each set of models, interactions between country and each reason were tested.

RESULTS

Between-country differences in reasons for thinking about quitting

Table 2 shows country differences in reasons for thinking about quitting aggregated across the study period. The most frequently endorsed individual reasons for thinking about quitting were concern for personal health, price of cigarettes, and setting an example for

children. Smokers in the UK or Canada were more likely to endorse ‘Public/society’ reasons (42.5% and 46.4%, respectively) than smokers in the US (37.0%) or Australia (39.1%). Smokers in the UK or the US were more likely to endorse ‘Assistance’ reasons (39.6% for each country) than smokers in Canada (38.5%) or Australia (37.1%). Canadian smokers were most likely to endorse ‘Concern/risk’ reasons (73.8%), ‘Public/society’ reasons (46.4%), and ‘Information’ reasons (41.3%); Canadian smokers also endorsed the greatest number of reasons (mean=6.3 out of 12). Smokers in the US were most likely to endorse ‘Price’ as a reason for thinking about quitting (74.5%).

Within-country trends in reasons for thinking about quitting

Table 3 shows within-country change in endorsement of reasons for thinking about quitting per wave, and Supplemental Figure 1 shows these data plotted at each wave of the study period for each country. Several reasons were increasingly reported over the 13 years, but there were nearly as many non-linear changes.

Upward trends—In the UK, there were upward trends in endorsement of smoking restrictions in public places and at work. In Canada, there was an overall upward trend for the group of ‘Assistance’ reasons, with an individual upward trend for availability of free/lower cost SSMs. In the US, there were overall upward trends for the sum of reasons endorsed, the group of ‘Public/society’ reasons, and the group of ‘Assistance’ reasons, with individual upward trends for smoking restrictions at work, availability of free/lower cost SSMs, availability of a telephone helpline/quitline, and advice from a health professional. In Australia, there were overall upward trends for the sum of reasons endorsed, the group of ‘Assistance’ reasons, and the group of ‘Information’ reasons, with individual upward trends for smoking restrictions at work, availability of free/lower cost SSMs, availability of a telephone helpline/quitline, advice from a health professional, and warning labels on cigarette packs. Specific policy-related upward trends tended to occur in countries where relevant policies were implemented during the middle to end of the study period.

Downward trends—In the UK, there was an overall downward trend for the group of ‘Concern/risk’ reasons and the group of ‘Information’ reasons, with individual downward trends for concern for health of others, advertisements about health risks, and warning labels on cigarette packs. In Canada, there was an overall downward trend for the group of ‘Information’ reasons with individual downward trends for advertisements about health risks, warning labels on cigarette packs, and the price of cigarettes. These policy-related downward trends tended to occur where relevant policies were implemented during the beginning of the study period. There were no downward trends in the US or Australia.

Non-linear trends—Various non-linear changes in endorsement of reasons were observed in different countries over the course of the study period, as identified in Table 3 and depicted in Supplemental Figure 1. Some of these shifts in reasons align with related policy changes; in Australia, the rise in endorsing warning labels as a reason between 2005/06 and 2006–07, and again between 2010/11 and 2013/15, corresponds with when new stronger warnings were added, and in the latter case, standardised packaging (AOR=2.20, $p<.001$ and AOR= 1.56, $p<.001$, respectively, for time-limited regression analysis of the change in

endorsing warning labels immediately before and after policy change occurred, data not shown); in Canada, the rise in endorsing warning labels between 2010/11 and 2013/15 corresponds to the addition of new picture warnings and increase in warning size (AOR=1.35, $p<.001$ for change in endorsement immediately before and after policy change occurred, data not shown); in Australia, endorsing price rose markedly immediately after the large tax increases in 2010 (AOR=1.77, $p<.001$ for change in endorsement immediately before and after policy change occurred, data not shown) and also rose in the UK in 2010 when tobacco tax increases started to exceed inflation rates (AOR=1.56, $p<.001$ for change in endorsement immediately before policy change until the end of the study period, data not shown). None of the other non-linearities can be readily linked to policy changes.

Reasons for thinking about quitting and making a quit attempt

Table 4 shows associations between endorsing reasons and making a quit attempt at follow up wave. The group of 'Concern/risk' reasons was most strongly associated with making a quit attempt, particularly 'Concern for personal health,' with those endorsing this reason having a nearly two-fold greater odds of making a quit attempt without adjustment for other reasons, and a nearly 70% greater odds of making a quit attempt after adjusting for every other reason; the strength of this relationship was consistent across the four countries. The group of 'Assistance' reasons and the group of 'Information' reasons were each positively associated with making a quit attempt after adjusting for all reasons not included in the respective group.

Individual reasons positively associated with making a quit attempt after adjustment for all other reasons included: advice from a health professional, advertisements about health risks, warning labels, setting an example for children, society disapproves, and availability of helpline/quitline. The strength of these associations was generally consistent across the four countries, though there were exceptions for advice from a health professional and setting an example for children, both of which were more strongly associated with making a quit attempt in the US than in the UK. Lastly, there was a 9% greater odds of making a quit attempt for each increase of one in the total number of reasons endorsed.

DISCUSSION

Results from this study show that between 2002 and 2015, smokers' concern for personal health was the most frequently endorsed reason for thinking about quitting in the UK, Canada, the US, and Australia, and across all reasons to quit smoking, concern for personal health had the strongest association with making a quit attempt at follow-up wave. These findings are consistent with numerous studies citing concern for one's health as the number one reason smokers report for wanting to quit¹, former smokers report for having quit¹², and quit attempters report as their trigger for attempting to quit¹³.

The tobacco control policies that have been implemented in each of these countries during the study period (see Table 1) provide some context for interpreting the between-country differences and within-country changes in smokers' reasons for thinking about quitting over time. We observed a non-linear trend for 'Concern/risk' reasons in the UK such that endorsement of these reasons tended to rise until 2005/06, declined for several years, and

then began to rise again after 2010/11 (Supplemental Figure 1). These changes can likely be attributed to the dramatic changes in media expenditures in the UK during this time, which rose and peaked in 2004/05, dropped to £0 in 2010/11, and then started to rise again. We also observed overall upward trends in thinking about quitting due to smoking restrictions in the UK, consistent with the implementation of smoking bans in the UK during the course of our study period.

Several tobacco control policies were implemented in Canada during the course of our study period including bans on tobacco advertising, smoking in indoor public places, and point of sale tobacco displays, and we found that smokers in Canada endorsed an average of 6.3 reasons out of the 12 reasons evaluated, with greater number of reasons endorsed being associated with greater odds of making a quit attempt. Canada introduced a revised set of pictorial health warnings covering 75% of the front and back of cigarette packs in 2012, a policy that has been shown to be associated with increased motivation to quit^{14–16}, but we observed a steep increase in Canadian smokers' thinking about quitting due to warning labels after 2008, which precedes the introduction of the new labels, so not all of the increase can be attributed to the new warnings.

During the course of our study period, the US created a national network of telephone helplines and raised the federal excise tax on cigarettes, and many states also raised cigarette taxes and adopted clean indoor air laws, all of which are positively associated with quitting thoughts/behaviors^{17–21}. Our data show that, indeed, there were overall upward trends in endorsement of 'Public/society' and 'Assistance' reasons during the course of the study period. Interestingly, we observed a spike between 2008 and 2011 in the prevalence of US smokers reporting that warning labels on cigarette packs made them think about quitting. Although pictorial warnings were never added to cigarette packs in the US, this corresponds to the time when the US Food and Drug Administration was granted regulatory authority over tobacco products and issued regulations to add pictorial health warnings to cigarette packs²².

For Australia, Supplemental Figure 1L shows a steep increase in endorsing the price of cigarettes reason following the tobacco tax increase of 25% in 2010. Cigarette price/tax increases are a key component of tobacco control strategies, and these data demonstrate that the greatest increases in price are associated with the greatest increases in thoughts about quitting, but this motivator diminishes over time (e.g., Supplemental Figure 1L, Canada), suggesting that large and repeated increases in price are needed to sustain their impact. In Australia, we also observed a steep increase in thinking about quitting due to cigarette pack warnings following the introduction of graphic health warnings to 30% of the front and 90% of the back of cigarette packs in 2006 and then another steep increase following the introduction of larger graphic health warnings (75% of the front and 90% of the back) of cigarette packs coupled with standardized or plain packaging requirements in late 2012.

The findings we report here are generally consistent with those reported by Hummel et al., who evaluated policy triggers for thinking about quitting in several European countries and found that price was the trigger most commonly endorsed across countries.² Price was also the policy-specific reason that we found to be most commonly endorsed in the UK, Canada,

the US, and Australia, but we also report similarly high endorsement of concern/risk reasons in all four countries (which were not assessed by Hummel et al.). We also observed changes in some non-policy-specific reasons over the course of our study period including a noteworthy upward trend in thinking about quitting due to receipt of advice to quit from a health professional among smokers in the US and Australia. Further, this reason was relatively strongly associated with making a quit attempt, particularly in the US, demonstrating the importance of health professionals ensuring they give smokers appropriate advice.

Early data from the ITC-4C (2002–2005) showed that smokers in the UK were less likely to attempt to quit than smokers in Canada, the US, or Australia²³, which seems to line up with the current finding that smokers in the UK are less likely than their counterparts in the other three countries to endorse concern for personal health as a reason for thinking about quitting, which is the reason most strongly associated with making a quit attempt. However, further research is needed to determine whether there are differences among these countries in cognitive or behavioural factors such as quitting self-efficacy and nicotine dependence, and how such differences may relate to quit attempt rates in each country. Additional limitations of the current study include relatively low survey response rates (though prior analyses have shown that our participant characteristics correspond well to characteristics of responders to national benchmark surveys), and an average attrition rate of approximately 30% (though we adjusted our analyses for characteristics known to vary with respect to retention). Balanced against our study limitations is our use of a large nationally representative sample of smokers from four countries who were surveyed over the course of more than a decade, our use of GEEs, which accounted for repeated analyses of the same respondents at different points in time, and our ability to examine changes both between and within countries.

CONCLUSIONS

Smokers' concern for personal health is the most frequently endorsed reason for thinking about quitting in the UK, Canada, the US, and Australia, and it is strongly associated with making a quit attempt. Various changes in endorsement of other reasons over the course of the study period were observed in these countries, some of which are likely linked to policy changes. Also, increases in the number of reasons endorsed was associated with increases in the likelihood of making a quit attempt, which suggests a benefit for tobacco control efforts that broaden the number of reasons smokers think about quitting.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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WHAT THIS PAPER ADDS

- Cigarette smokers commonly cite health concerns, social concerns, and cost as reasons for wanting to quit smoking
- Tobacco control policies have been implemented to increase quit rates in the United Kingdom (UK), Canada, the United States (US), and Australia
- Absent from the literature is a comprehensive multinational evaluation of smokers' reasons for thinking about quitting situated within the context of the tobacco control policies that were implemented to directly or indirectly increase quitting
- Our findings show that between 2002 and 2015, smokers' concern for personal health was consistently the most frequently endorsed reason for thinking about quitting in each country and across waves, and was most strongly associated with making a quit attempt
- Endorsement of health warnings, and perhaps price (particularly in Australia), appears to peak in the year or so after the change is introduced, whereas other responses were not immediately linked to policy changes

Table 1

Tobacco control policies in the UK, Canada, the US, and Australia between 2001 and 2015[#]

ITC survey wave	Wave 1		Wave 2		Wave 3		Wave 4		Wave 5		Wave 6		Wave 7		Wave 8		Wave 9		
Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015				
United Kingdom			Increase in size of health warnings on cigarette packs; Ban on tobacco advertising, promotion, and domestic sponsorship	Regulation of point of sale advertisements	Mass media expenditure peaked in 2004/5, dropped to £0 in 2010/11, then rose again until 2012/3		Ban on smoking in indoor public places		Pictorial warnings on 40% of back of cigarette packs	Increase in tobacco tax to exceed inflation rate; Ban on tobacco product placement on TV/on-demand programs			Ban on tobacco displays in large shops		Ban on tobacco displays in all shops; Ban on smoking in private vehicles with children				
Canada	Pictorial health warnings on 50% of front and back of pack		Ban on arts and events sponsorship				Agreement to stop using light/mild descriptors on cigarettes	Ban on retail displays of cigarettes (10 provinces and territories)	Ban on tobacco advertising in most print media	Ban on indoor smoking in all provinces and territories; Ban on retail displays in all provinces and territories; Ban on smoking in cars with children (9 provinces and territories)		16 new picture-based health warnings; Warnings labels cover 75% of front and back of pack; 8 new picture-based messages inside pack; Quitline number and web address added to warnings		Ban on smoking in cars with children (10 provinces/territories)					
<i>Tob Control.</i> Author manuscript; available in PMC 2016 November 01.																			

Tob Control. Author manuscript; available in PMC 2016 November 01.

Adapted from "Timeline of Tobacco Control Policies and ITC Surveys" available at www.ITCproject.org

Table 2

Endorsement of reasons that led smokers to think about quitting, by country

Reasons to think about quitting	United Kingdom		Canada		United States		Australia	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Concern/risk reasons								
Concern for personal health	74.0	(73.9–74.2)	82.5	(82.4–82.6)	80.6	(80.5–80.7)	80.0	(79.9–80.2)
Setting example for children	70.3	(70.1–70.5)	73.4	(73.3–73.6)	71.4	(71.2–71.6)	70.0	(68.8–70.2)
Concern for health of others	59.3	(59.1–59.5)	65.5	(65.4–65.6)	62.3	(62.1–62.5)	59.0	(58.9–59.2)
Mean of concern/risk reasons	67.9	(67.7–68.1)	73.8	(73.7–73.9)	71.4	(71.3–71.6)	69.7	(69.5–69.8)
Public/society reasons								
Smoking restrictions in public	46.4	(46.2–46.6)	50.0	(49.9–50.1)	41.9	(41.8–42.1)	42.7	(42.6–42.8)
Smoking restrictions at work	35.4	(35.2–35.6)	38.0	(37.9–38.1)	28.4	(28.3–28.6)	27.7	(27.5–27.8)
Society disapproves	45.6	(45.4–45.7)	51.3	(51.1–51.5)	40.7	(40.5–40.8)	46.9	(46.7–47.1)
Mean of public/society reasons	42.5	(42.3–42.6)	46.4	(46.3–46.5)	37.0	(36.9–37.2)	39.1	(39.0–39.2)
Assistance reasons								
Free/lower-cost SSMs	44.8	(44.6–45.0)	40.3	(40.1–40.4)	41.2	(41.0–41.4)	43.3	(43.1–43.4)
Availability of helpline/quitline	26.7	(26.6–26.9)	21.9	(21.7–22.0)	21.2	(21.1–21.4)	24.8	(24.7–24.9)
Health professional advice	47.3	(47.2–47.5)	53.5	(53.3–53.6)	56.3	(56.2–56.5)	43.2	(43.1–43.4)
Mean of assistance reasons	39.6	(39.5–39.8)	38.5	(38.4–38.7)	39.6	(39.4–39.7)	37.1	(37.0–37.3)
Information reasons								
Advertisements about risks	41.3	(41.1–41.5)	46.1	(45.9–46.2)	40.0	(39.8–40.1)	44.2	(44.0–44.4)
Warning labels on cigarette packs	35.6	(35.4–35.8)	36.5	(36.4–36.6)	24.1	(23.9–24.3)	33.4	(33.2–33.6)
Mean of information reasons	38.5	(38.3–38.6)	41.3	(41.2–41.4)	32.0	(31.9–32.2)	38.8	(38.6–39.0)
Price reason								
Price of cigarettes	66.6	(66.5–66.8)	73.4	(73.2–73.6)	74.5	(74.4–74.6)	72.8	(72.7–73.0)
Total number of reasons	5.93	(5.92–5.95)	6.32	(6.31–6.33)	5.83	(5.81–5.84)	5.88	(5.86–5.89)

Notes. Estimates adjusted for sex, age group, majority/minority group, education, income, CPD, TTFC, time in sample, and difference in time between waves;

Sample sizes for 'Concern for personal health' are UK: N=4717 ind, 11442 obs; CA: N=4884 ind, 11966 obs; US: N=6703 ind, 12812 obs; AU: 4482 ind, 11370 obs. Ns vary slightly for other reasons

Table 3

Linear trends in endorsement of reasons that led smokers to think about quitting, by country

Reasons to think about quitting	United Kingdom		Canada		United States		Australia	
	AOR	95% CI	AOR	95% CI	AOR	95% CI	AOR	95% CI
Concern/risk reasons								
Concern for personal health	0.97 ^a	0.93–1.00	1.00	0.96–1.04	1.00	0.95–1.04	1.02	0.98–1.07
Setting example for children	0.97	0.93–1.00	1.05	1.01–1.09	1.01	0.98–1.05	1.04	1.01–1.08
Concern for health of others	0.92 ^a	0.89–0.95	1.01	0.97–1.04	0.99	0.95–1.02	1.01	0.98–1.04
Mean of concern/risk reasons	0.99 ^a	0.98–0.99	1.00	1.00–1.01	1.00	0.99–1.01	1.01	1.00–1.01
Public/society reasons								
Smoking restrictions in public	1.05	1.02–1.09	0.97 ^a	0.94–1.00	1.04	1.00–1.07	1.04	1.01–1.08
Smoking restrictions at work	1.06	1.03–1.10	1.02	0.99–1.06	1.05	1.01–1.09	1.06	1.02–1.10
Society disapproves	0.97 ^a	0.94–1.01	0.96 ^a	0.93–0.99	1.03	1.00–1.07	0.99 ^a	0.96–1.02
Mean of public/society reasons	1.01 ^a	1.00–1.01	1.00 ^a	0.99–1.00	1.01	1.00–1.02	1.01 ^a	1.00–1.01
Assistance reasons								
Free/lower-cost SSMs	0.98 ^a	0.95–1.02	1.06 ^a	1.02–1.09	1.07 ^a	1.04–1.11	1.09 ^a	1.06–1.13
Availability of helpline/quitline	0.96 ^a	0.92–0.99	1.03	0.99–1.06	1.14 ^a	1.09–1.18	1.09	1.05–1.13
Health professional advice	1.03	0.99–1.06	1.03	1.00–1.06	1.05 ^a	1.02–1.09	1.10 ^a	1.07–1.14
Mean of assistance reasons	1.00 ^a	0.99–1.00	1.01 ^a	1.00–1.01	1.02 ^a	1.01–1.02	1.02 ^a	1.02–1.03
Information reasons								
Advertisements about risks	0.94 ^a	0.91–0.97	0.95 ^a	0.92–0.98	1.00	0.97–1.03	1.01	0.98–1.05
Warning labels on cigarette packs	0.93	0.90–0.96	0.95	0.92–0.98	1.02	0.98–1.06	1.16 ^a	1.12–1.20
Mean of information reasons	0.99 ^a	0.98–0.99	0.99 ^a	0.98–0.99	1.00	1.00–1.01	1.02 ^a	1.01–1.03
Price reason								
Price of cigarettes	0.96	0.93–1.00	0.87 ^a	0.84–0.91	1.00	0.96–1.03	0.96	0.92–0.99
Total number of reasons								
Mean total number of reasons	0.95 ^a	0.89–1.00	0.980	0.93–1.04	1.08 ^a	1.02–1.15	1.14	1.08–1.21

Notes. GEE modelling used; AOR=Adjusted Odds Ratio; Analyses adjusted for sex, age group, majority/minority group, education, income, CPD, TTFC, time in sample, and difference in time between waves;

Sample sizes for 'Concern for personal health' are UK: N=4717 ind, 11442 obs; CA: N=4884 ind, 11966 obs; US: N=6703 ind, 12812 obs; AU: 4482 ind, 11370 obs. Ns vary slightly for other reasons

Presence of a non-linear trend, $p < 0.01$

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Table 4
Making a quit attempt as a function of endorsement of reasons that led smokers to think about quitting

Reasons to think about quitting	Endorsed reason	% attempt	Model 1		Model 2	
			AOR	95% CI	AOR	95% CI
Concern for personal health	No	28				
	Yes	44	1.98	1.85–2.11	1.68	1.56–1.81
Price of cigarettes	No	37				
	Yes	43	1.29	1.22–1.36	1.06	1.00–1.13
Setting example for children	No	36				
	Yes	44	1.36	1.29–1.43	1.09 ^a	1.02–1.16
Concern for health of others	No	37				
	Yes	44	1.29 ^a	1.22–1.35	1.01	0.96–1.08
Health professional advice	No	37				
	Yes	45	1.40 ^{a,b}	1.34–1.47	1.16 ^a	1.10–1.23
Society disapproves	No	38				
	Yes	45	1.29	1.23–1.35	1.08	1.02–1.14
Smoking restrictions in public	No	39				
	Yes	44	1.25	1.19–1.31	1.05	0.99–1.11
Advertisements about risks	No	37				
	Yes	46	1.40	1.34–1.47	1.13	1.06–1.20
Free/lower-cost SSMs	No	39				
	Yes	44	1.27	1.21–1.33	1.03	0.97–1.09
Smoking restrictions at work	No	40				
	Yes	43	1.16	1.10–1.22	0.92	0.86–0.97
Warning labels on cigarette packs	No	39				
	Yes	47	1.38	1.31–1.45	1.09	1.02–1.16

Reasons to think about quitting	Endorsed reason	% attempt	Model 1		Model 2	
			AOR	95% CI	AOR	95% CI
Availability of helpline/quiltline	No	40	ref		ref	
	Yes	46	1.34	1.27–1.42	1.08	1.01–1.16
Sum of reasons endorsed [#]			1.09	1.08–1.10		

Notes. GEE modelling used; AOR=Adjusted Odds Ratio; Outcome assessed at wave following wave at which reasons for thinking about quitting and covariates were assessed;

¹Model 1 analyses adjusted for country, sex, age group, majority/minority group, education, income, CPD, TTFC, survey wave, time in sample, and difference in time between waves;

²Model 2 analyses adjusted for variables included in Model 1 *and* each reason for thinking about quitting; Ns for 'Concern for personal health' are UK: N=3186 ind, 8215 obs; CA: N=3072 ind, 7875 obs; US: N=3040 ind, 6808 obs; AU: 3159 ind, 8327 obs, and vary slightly for other reasons

^aAssociation is stronger in the US than in the UK (p<.01)

^bAssociation is stronger in the US than in Australia (p<.01)

[#]Sum of reasons endorsed AOR indicates the increase in likelihood of making a quit attempt per an increase of one for total number of items endorsed