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Beyond Light & Mild: Cigarette Brand Descriptors and Perceptions of Risk in the International Tobacco Control (ITC) Four Country Survey

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Abstract

Aims—To examine perceptions of risk related to type of cigarette brand.

Design and Setting—Cross-sectional findings from Wave 5 of the ITC Four Country Survey, conducted with nationally representative samples of smokers in 2006.

Participants—8,243 current and former adult (≥ 18 years) smokers from Canada (n=2,022), US (n=2,034), UK (n=2,019), and Australia (n=2,168).

Measurements—Outcomes included beliefs about the relative risks of cigarettes, including perceptions of "own" brand. Correlates included socio-demographic, smoking-related covariates and brand characteristics.

Findings—One-fifth of smokers incorrectly believed that "some cigarette brands could be less harmful" than others. False beliefs were higher in both the US and UK compared to Canada and Australia. Smokers of "light/mild", "slim", and, 100mm/120mm cigarettes were more likely to believe that some cigarettes could be less harmful (OR=1.29, 95%CI=1.12-1.48) and that their own brand might be a little less harmful (OR=2.61, 95%CI=2.01-3.41). Smokers of "gold",

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"silver", "blue", "purple" brands were more likely to believe their "own brand might be a little less harmful" compared to smokers of "red" or "black" brands (OR=12.48, 95%CI=1.45-107.31).

Conclusions—Despite current prohibitions on the words "light" and "mild", smokers in Western countries continue to falsely believe that some cigarette brands may be less harmful than others. These beliefs are associated with descriptive words and elements of package design that have yet to be prohibited, including the names of colours and long, slim cigarettes.

Keywords

tobacco; smoking; packaging; perceptions of risk; brand descriptors; health policy

INTRODUCTION

Tobacco use is responsible for one in ten global deaths and remains the leading cause of preventable death. At present, over 5 million people die every year from tobacco use and it is estimated that this number will rise to 8 million by the year 2030[1].

All conventional cigarette brands present the same level of risk to smokers, including so-called "lower tar" cigarettes[2,3]. Previous research indicates that many smokers perceive these "lower tar" products, commonly labelled as "light" and "mild" brands to be less harmful. The terms "light" and "mild" have now been banned in more than 50 countries[4,5,6,7,8,9,10]; however, recent evidence suggests that removing these terms from packs resulted in only modest reductions in false beliefs about the risks of different cigarette brands[11]. One potential explanation is that manufacturers have replaced "light" and "mild" with words such as "silver" and "white".[9] In the United States, for example, Marlboro Light and Ultralight have recently become Marlboro Gold and Silver following federal regulations prohibiting the terms "light," "mild" and "low tar" in 2010.

As the terms "light" and "mild" become obsolete as pack descriptors, evidence is needed on consumer perceptions of the broader set of brand descriptors now appearing on cigarette packaging. Experimental studies conducted in Canada, the US and the UK, suggest that consumers perceive colour descriptors in the same way as the "light" and "mild" descriptors they replaced[12,13,14]. However, to date, there is no published evidence from population-based studies on consumer perceptions of colour descriptors and the extent to which these marketing practices may be associated with false beliefs about the relative risks of cigarette brands.

In addition to colour descriptors, other terms such as "menthol" and "smooth" remain on packages, along with descriptors related to the shape and size of cigarettes, such as "slims" and length descriptors (e.g., "100s"). There is surprisingly little empirical evidence regarding consumer perceptions of these other brand descriptors. Two experimental studies have indicated that "smooth" is perceived by youth and adults similarly to "light", although the prevalence of these beliefs among the general population is unknown[12,13]. In addition, although several studies indicate that females associate "slim" cigarettes with weight-control beliefs[15], to our knowledge, there is no empirical research to indicate whether longer or smaller diameter cigarettes are perceived as less harmful.

The current study sought to examine perceptions of risk for various aspects of cigarette brands using survey data from the International Tobacco Control (ITC) Four Country Study, including Canada, United States (US), Australia and the UK. At the time of the study (2006), the descriptors light and mild were prohibited in the UK, (as of 2003), Australia (as of 2005), while light and mild descriptors remained on packs in Canada until 2007, and in the US until 2010.

METHODS

Procedure

Data for the current study were taken from Wave 5 (2006) of the ITC Four Country Survey, a longitudinal cohort study conducted with adult smokers in Canada, Australia, the United States (US), and the United Kingdom (UK). The ITC Four Country Survey is a longitudinal random-digit-dial (RDD) telephone survey using probability sampling methods. Cohort members lost to attrition at subsequent waves are replenished using the same probability sampling methods as at Wave 1. A complete description of the methodology has been published elsewhere[16].

Sample

The current analysis includes adult (18 years of age and older) current and former smokers from Wave 5 of the ITC Four Country Survey, conducted between September 2006 and January 2007. A total of 8,243 respondents participated from Canada (n=2,022), the United States (n=2,034), the United Kingdom (n=2,019), and Australia (n=2,168). The retention rate of the Wave 5 sample (compared to Wave 4) in Canada was 70.4%, 64.3% in the US, 64.8% in the UK, and 73.0% in Australia. The AAPOR response rate for the "replenishment" sample for Wave 5 was 27.3% in Canada, 20.7% in the US, 12.9% in the UK, and 45.3% in Australia.

Measures

Demographics—Level of education was categorized as: low (high school diploma or lower), moderate (technical trade school, community college or some university), and high (university degree). For Canada, US, and Australia, level of income was categorized into low (under $30,000), moderate ($30,000 to $59,999), and high ($60,000). In the UK, income was categorized as: low (£15,000 or under), moderate (£15,001 to £30,000), and high (£30,001 and over). Ethnicity was measured as "minority" versus "not", as described elsewhere[5].

Smoking status—Respondents who reported "daily", "monthly", or "weekly" smoking were coded as "Current Smokers" (1). Respondents who reported abstinence for at least one month at the time of survey were coded as "Former Smokers" (0).

Brand Descriptors—Current smokers who reported a "usual brand" were asked to state the brand they typically smoke. Respondents were prompted for all brand information, including the variety, flavour, and size. Interviewers used a pre-coded list specific to each country; in the case of no exact match, information was recorded verbatim. All brand data

was subsequently coded based on the presence/absence of the following descriptors, “light”, “mild”, “menthol”, “100mm”/“120mm”, “slim”, “smooth”, and colour names. Based on a priori hypotheses, colour names were categorized into two groups: “gold”, “silver”, “blue”, and “purple”—which have previously been associated with “light” cigarettes[12,13]—versus all other colours names that were reported by more than 50 participants (i.e., “black” and “red”). These descriptors were based solely on information reported by the smoker and not based on analyses of the packs themselves.

Indicators of a less harmful cigarette—Respondents were asked whether “some types of cigarettes could be less harmful than other types, or are all cigarettes equally harmful” (1=“Some less harmful than others” vs. 0= “All equally harmful”/“Don’t Know”). Respondents who reported that some types of cigarettes could be less harmful than other types were asked whether “the brand you usually smoke might be a little less harmful, no different, or a little more harmful, compared to other cigarette brands?” (1=A little less harmful vs. 0=Other, including “No different”, “A little more harmful”, and “Don’t Know”). These respondents were also asked “which of the following, if any, helps to indicate whether a cigarette brand could be less harmful compared to others?: 1) the taste/harshness of the smoke, 2) words such as ‘light’ or ‘mild’, or 3) words such as ‘smooth’ or ‘ultra’”.

Sensory perceptions of “light” cigarettes—Respondents indicated whether they agreed or disagreed with the following: “Light cigarettes are smoother on your throat and chest than regular-strength cigarettes”; “Light taste means less tar”; and “Harsh smoke is more dangerous”. Responses were dichotomized as follows: 1=Agree (included “Strongly Agree” and “Agree” responses) and 0=Other (included “Strongly Disagree”, “Disagree”, and “Don’t Know” response options).

Other false beliefs related to cigarette brands—Respondents were asked “How closely, if at all, are the tar numbers on cigarette packs, related to the amount of tar that smokers take into their bodies?” Response options included: “Closely related”, “Somewhat related”, “Not related” (1=Closely/Somewhat related and 0=Other (including “Not Related” and “Don’t Know”).

Respondents reported whether they believed the following to be true or false: “Filters reduce the harmfulness of cigarettes” and “The nicotine in cigarettes is the chemical that causes most of the cancer”. Current smokers with a “usual brand” indicated whether they believed that “The brand I smoke has lower levels of cancer-causing chemicals than other cigarettes” (1=True and 0=“False” and “Don’t Know” response options).

Analysis

Statistical analyses were conducted using SPSS version 18.0. All analyses, with the exception of the sample characteristics in Table 1, were based on weighted data. Logistic regression models were conducted to examine correlates of primary outcomes, including perceptions of risk among different cigarette brands and false beliefs related to the benefits of “low tar” cigarettes. A standard set of covariates were included in each model: country of

residence, age, sex, ethnicity, education, income, Heaviness of smoking index (HSI), and intention to quit.

RESULTS

Sample Characteristics

Table 1 shows the sample characteristics of current and former smokers included in the current analysis from Wave 5 of the ITC Four Country Survey.

Self-reported "usual brand" descriptors

Table 2 shows information regarding the type, flavour and strength of current smokers' "usual brand". Of all respondents who reported a "usual brand" (n=6,676), approximately one-third (29.0%) of respondents identified their usual brand as "light" or "mild", followed by longer (100mm/120mm) cigarettes (14.6%), and "menthol" (10.4%). Approximately 2% identified their brand as "slim" and "smooth," respectively. "Light/mild" descriptors were more common among brands reported by Canadian and US respondents, whereas "menthol" and 100mm/120mm cigarettes were most common among US respondents. Among Australian and UK smokers, about one-third (33.0% and 26.7%, respectively) identified their usual brand using a colour descriptor, compared to less than 2% in Canada and the US. The most commonly reported colour descriptors were: "blue" (5.1%), "gold" (3.7%),"silver" (1.7%), followed by "red" (1.3%), "purple" (0.9%), and "black" (0.7%). Due to the low frequencies reported among Canadian and US smokers, subsequent analyses involving colour descriptors only include Australian and UK smokers.

Beliefs about less-harmful cigarettes

Table 3 shows the levels of agreement with beliefs related to the harmfulness of cigarettes. Approximately one-fifth (19.7%) of respondents reported that some brands could be less harmful than others, with the greatest proportion in the US. Among those that believed some brands could be less harmful (n=1,619), 84.5% believed that "tar numbers and nicotine levels" indicated risk level, followed by the "taste" of the cigarette (65.4%), the words "light and mild" (59.4%), and the words "smooth and ultra" (44.6%). Of those who reported that "some brands could be less harmful", 41.8% also reported that their "own brand could be less harmful" than other brands, with similar levels across countries. Other indicators of lower harm provided in response to an open-ended question included natural or organic cigarettes (5.7%), package colour (4.2%), and the type of filter (4.0%).

Beliefs about the benefits of "light" cigarettes—Approximately 41.5% of all respondents agreed with at least one of the three survey items related to the benefits of light cigarettes (that they are "less harmful", "make quitting easier", and "give less tar", than regular strength cigarettes), with a majority of UK respondents (55.8%) agreeing with at least one of the three beliefs, compared to 35.2% in Canada, 39.2% in the US, and 36.2% of respondents in Australia.

Sensory perceptions as indicators of less-harmful cigarettes—As Table 3 shows, more than half (54.9%) of all respondents (n=8,242) agreed with the sensory perception that

"lights are smoother on the throat/chest than regular cigarettes". Roughly one-fifth (21.3%) of all respondents believe that "light taste indicates less tar intake", and almost half of all respondents (45.7%) agreed that "harsh smoke is more dangerous". UK respondents reported the greatest proportion of agreement for two out of these three false beliefs.

Other false-beliefs about less-harmful cigarettes—About one-third (33.3%) of all respondents reported that tar numbers were closely related to tar intake. Almost half (45.0%) of all respondents agreed that filters reduce harm and 38.4% agreed that the nicotine in cigarettes is what causes most of the cancer. Among respondents who reported having a "usual brand" of cigarette (n=6,676), 12.5% believed that their "own brand" had lower levels of cancer-causing chemicals. UK respondents reported the greatest proportion of agreement for three out of these four "other" false beliefs about less-harmful cigarettes.

Beliefs by country, socio-demographics, and smoking status—A logistic regression was conducted to examine whether beliefs about less-harmful cigarettes differed between current and former smokers, as well as by country (n=8,242), adjusting for sex, age, income, education, ethnicity, heaviness of smoking index (HSI), and intention to quit. As Table 3 indicates, current smokers were significantly more likely to endorse false beliefs about cigarette features than former smokers for 7 of the 15 health beliefs. Significant differences were observed between countries for 14 of the 16 health beliefs; however, no consistent patterns emerged in terms of the "ordering" of countries across the 16 health beliefs—see Table 3.

A logistic regression was conducted among current smokers to examine whether the beliefs that "some brands could be less harmful" (n=6,827) and "own brand might be a little less harmful" (n=1,311) varied by country, sex, age, income, education, ethnicity, heaviness of smoking index (HSI), and intention to quit. Compared to Canada, US and UK respondents were more likely to believe that "some brands might be less harmful" (OR=1.44, 95%CI=1.21-1.72 and OR=1.53, 95%CI=1.28-1.84, respectively), whereas Australian respondents were more likely to believe that their "own brand might be less harmful than others" (OR=1.63, 95%CI=1.15-2.33). Sex differences also emerged: females were more likely than males to believe that "some brands might be less harmful" (OR=1.86, 95%CI=1.64-2.11). Older individuals were more likely to believe that their "own brand could be less harmful than other brands" (OR=1.03, 95%CI=1.03-1.04). Compared to those with low income levels, respondents with moderate income levels were more likely to believe that "some brands might be less harmful" (OR=1.17, 95% CI =1.01-1.34 and OR=1.53, 95%CI=1.30-1.82, respectively). In terms of ethnicity, those of minority status were less likely to endorse the belief that "some brands might be less harmful" (OR=0.68, 95%CI=0.55-0.82).

"Less-harm" beliefs based on "usual brand" descriptors

Table 4 shows the proportion of respondents who agreed that "some brands could be less harmful than others", and that their "own brand might be a little less harmful than others", by type of brand.

Beliefs by "usual brand" types—Across all countries, smokers who described their usual brand as "light", "mild", "slim", or 100mm/120mm in length were significantly more likely to believe that "some brands could be less harmful than others" and that their "own brand might be a little less harmful" compared to brands without these descriptors. The data in Table 4 also reveal an additive effect related to the number of descriptors: false beliefs were highest among respondents who reported smoking brands with more than one of "light/mild", "slim" or a length descriptor.

Beliefs by colour descriptors—Smokers who described their usual brands as "silver", "gold", "purple", and "blue" (n=805)–colours that have previously been associated with "light" cigarettes—were more likely to believe that their "own brand might be a little less harmful" than others, than were smokers of "red" and "black" brands.

Brand descriptors as correlates of beliefs

Separate logistic regression models were conducted among smokers to test the effect of "usual brand" descriptors (shown in Table 4) on the belief that "some brands could be less harmful than other brands" (n=6,827), and that their "own brand might be a little less harmful than other brands" (n=1,311). Step 1 of both models included the following socio-demographic and smoking covariates: country, sex, age, education, income, ethnicity, HSI, and intention to quit. In Step 2, brand descriptors were added to the model: light/mild, menthol, 100mm/120mm, slim, smooth, black, red, gold, silver, blue, and purple. Smokers of "light/mild", "slim", or 100mm/120mm brands were more likely to believe that "some brands could be less harmful than other brands" (OR=1.29, 95%CI=1.12-1.48), and that their "own brand might be a little less harmful than others" (OR=2.61, 95%CI=2.01-3.41). In addition to the independent associations found among these cigarette types and the false beliefs that "some brands could be less harmful than other brands" and "own brand might be a little less harmful than others", associations were also found when these descriptors and cigarette types appeared together (see Table 4). In addition, smokers who described their brands as "silver", "gold", "purple", and "blue" were more likely to believe that their "own brand might be less harmful" compared to smokers of "red" and "black" brands (OR=11.82, 95%CI=1.37-102.33). No significant differences were observed between colour descriptors and the belief that "some brands could be less harmful" (OR=1.28, 95%CI=0.75-2.20).

DISCUSSION

Despite evidence to the contrary, many smokers continue to falsely believe that some cigarette brands may be less harmful than others. Approximately one-fifth of smokers from Canada, the US, Australia and the UK incorrectly reported that "some cigarette brands could be less harmful than others", with false beliefs highest among US smokers.

Similar to previous studies, smokers of "light" and "mild" brands were more likely to believe their cigarettes were less harmful compared to other brands[2,3,4,5]. However, the current study also found an association between perceptions of risk related to colour descriptors on cigarette packages: smokers of "gold", "silver", "blue", and "purple" brands were more likely to believe their own brand might be less harmful compared to smokers of "red" or "black" brands. These perceptions may be driven by the actual colour of the pack,

by the names of colours when used as a descriptor term on packs, or both. Given that the use of colour names as brand descriptors is a relatively new practice, the association between colours and perceptions of risk may also be a "hangover" effect from when the same brands displayed "light" and "mild" terms prior to their removal from packs. However, research on colour descriptors such as "silver", as well as research on the impact of the pack colour itself suggests that consumers use colours as indicators of risk[11,13,14,17].

Smokers of brands described as "slim" and longer cigarettes (100s and 120s) were also more likely to report that their brand was less harmful. Long, slim cigarettes have been marketed at young women and have historically been associated with advertising campaigns promoting the belief that smoking is an effective way of controlling weight[15,18]. Previous research suggests that lower perceptions of risk for these brands may be driven by the belief that these cigarettes contain less tobacco and generate lower tar and nicotine numbers under machine testing[14]. However, it should be noted that "slim" cigarettes vary in their construction: in the US and Canada, the diameter of slim cigarettes is notably less than "regular" cigarettes; however, in Australia, the diameter is much closer to regular brands.

No significant effects on perceptions of harm were observed with respect to "smooth" or "menthol" brands. In the case of "smooth", the lack of a significant association may reflect low statistical power: in Canada, the UK and Australia, more than 50% of "smooth" smokers who reported that "some brands could be less harmful" also believed their "own brand might be less harmful"; however, less than 2% of smokers reported smoking a "smooth" cigarette, resulting in relatively low power to detect statistically significant differences. In contrast, menthol brands accounted for more than 10% of all brands, mainly due to the high proportion in the US. In the US, menthol is a common additive in cigarettes, including brands not labelled as mentholated[19]. Previous research is mixed as to whether menthol brands are regarded by smokers as lower risk[4, 20,21,22,23]. Additional research on consumer perceptions of menthol cigarettes should be considered a priority in the US, where the Food and Drug Administration (FDA) is currently reviewing evidence related to regulation of menthol.

The current study provides additional evidence that the "taste" and sensory properties of cigarette smoke are used by consumers as indicators of risk, consistent with previous research[11, 12]. For example, almost half of respondents agreed that harsh tasting smoke is more dangerous, and 65% of smokers who believed that "some brands could be less harmful than others" reported that "taste" indicates risk level. The findings also indicate that smokers are incorrectly using other brand characteristics as indicators of risk. More than one-third of respondents incorrectly reported that "the nicotine in cigarettes is what causes most of the cancer" and that "tar numbers are closely related to tar intake", similar to previous research findings[24,25]. In addition, almost half of all respondents believed that filters reduce harm. Previous experimental research has shown that placing pictures of filters on packages reduces perceptions of risk among smokers[11].

Strengths and Limitations

The current study is subject to common limitations of survey research, including potential bias due to non-response and social desirability bias. Another potential limitation concerns

the self-reported measure of brand type, which was not objectively verified. Although respondents were prompted for specific brand characteristics, respondents may have omitted important information. In addition, it is difficult to determine whether brand characteristics such as “colour” refer to the actual colour of the pack or to brand descriptors (words) on the pack. Finally, the survey measures used in the ITC survey to assess false beliefs about “light” cigarettes are likely to underestimate the prevalence of actual beliefs. Many smokers may be reluctant to admit a belief that some cigarettes are less harmful than others, even if they hold this belief. In addition, studies that have presented actual examples of packs and brands have detected far higher levels of false beliefs that “light” brands are less harmful[11,12,13].

Implications

Guidelines under the World Health Organization’s Framework Convention on Tobacco Control, as well as existing legislation in Canada, Australia, the UK and the US require regulators to remove potentially misleading information from packages. Each of these countries have now banned the terms “light” and “mild” from packages. However, the current study suggests that these measures are insufficient on their own to remove misleading information from packaging[26,27]. The names of colours and descriptors such as “slim” are associated with false beliefs about the reduced harm in the same manner as the prohibited terms “light” and “mild”. Consumer perceptions of certain colours as indicators of lower harm also highlight the importance of plain packaging regulations, which seek to remove colour and brand imagery from packages. In April 2010, Australia became the first jurisdiction in the world to announce plain packaging regulations.

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Table 1

Sample Characteristics of current and former smokers by country (N=8,243)

	Country							
	CA n=2,022		US n=2,034		UK n=2,019		AU n=2,168	
	%	n	%	n	%	n	%	n
Sex								
Male	42.4	1,164	40.8	830	42.5	859	44.9	974
Female	57.6	858	59.2	1,204	57.5	1,160	55.1	1,194
Age group (years)								
18-24	6.1	124	5.4	110	4.3	87	6.4	138
25-39	24.2	489	20.0	407	23.5	474	31.0	673
40-54	42.4	858	39.2	798	36.0	726	38.9	843
55+	27.3	551	35.3	719	36.3	732	23.7	514
Education								
Low	46.1	931	43.0	873	59.0	1,181	60.4	1,308
Moderate	36.4	734	37.1	754	26.2	525	23.3	504
High	17.5	353	19.9	404	14.8	296	16.3	353
Income								
Not stated	7.3	147	5.5	112	8.8	178	6.4	139
Low	25.9	523	35.4	721	32.9	665	27.5	596
Moderate	34.7	702	34.5	701	31.2	629	31.0	673
High	32.1	650	24.6	500	27.1	547	35.1	760
Ethnicity								
White, English only	90.5	1,830	83.1	1,687	95.8	1,932	89.1	1,931
Non-white/Non-English	9.5	192	16.9	342	4.2	84	10.9	236
Smoking status								
Current	86.1	1,741	88.0	1,790	84.5	1,706	83.1	1,801
Former	13.9	281	12.0	244	15.5	313	16.9	367
Intention to quit								
Any	74.9	1,279	71.3	1,251	61.7	1,032	73.5	1,307
None	25.1	428	28.7	504	38.3	641	26.5	471

	Country							
	CA n=2,022		US n=2,034		UK n=2,019		AU n=2,168	
	%	n	%	n	%	n	%	n
Cigarettes per day								
Mean	16.2	1,756	18.4	1,807	16.3	1,719	17.9	1,820
SD	9.5		11.3		9.4		10.5	
HSI								
Mean	2.7	1,750	2.8	1,793	2.5	1,707	2.7	1,803
SD	1.5		1.6		1.5		1.6	

HSI: Heaviness of Smoking Index; SD: standard deviation

Table 2

Self-reported brand descriptors on packages for "usual brand" of cigarettes among current smokers*

	Country									
	CA n=1,580		***US n=1,736***		***UK n=1,636***		***AU n=1,725***		***Total n=6,676***	
Cigarette Descriptors	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**
Light/Mild	39.7	686	46.9	839	7.9	136	21.1	380	29.0	2,042
Menthol	4.6	79	25.2	450	4.4	76	6.8	123	10.4	728
100mm/120mm (Long)	3.7	64	49.4	883	3.4	58	1.2	21	14.6	1,027
Slim	1.2	20	5.4	97	0.0	0	1.3	24	2.0	141
Smooth	1.1	20	2.0	35	1.9	32	2.2	40	1.8	127
Names of colours										
Any colour†	0.5	9	1.1	20	26.7	459	33.0	593	15.4	1,081
Black	0.0	0	0.0	0	3.0	52	0.0	0	0.7	52
Red	0.0	0	0.1	2	1.5	25	3.7	67	1.3	95
Gold	0.2	3	0.6	10	7.0	121	7.0	125	3.7	259
Silver	0.2	3	0.0	0	6.9	118	0.0	0	1.7	122
Blue	0.0	1	0.0	0	6.2	107	14.2	251	5.1	359
Purple	0.0	0	0.0	0	1.6	28	2.0	37	0.9	65

*Respondents were asked to report all information regarding the type, flavour and strength of their "usual cigarette" and could report more than one descriptor.

†"Any colour" refers to the following: "Black", "Red", "Gold", "Silver", "Blue", "Purple", "White", "Grey", "Orange", "Yellow", or "Green". The last five colors ("White", "Grey", "Orange", "Yellow", and "Green") are not reported separately due to low frequencies.

Table 3

Beliefs about less-harmful cigarettes among current and former smokers

	Country						
	CA	***US***	***UK***	***AU***	***Total***	***Current vs. Former Smokers*** †	
	% agree	**% agree**	**% agree**	**% agree**	**% agree**	**OR (95% CI)**	***p* value**
Beliefs about less-harmful cigarettes							
Some cigarettes could be less harmful than others (n=8,240)	17.6[a]	23.3[b]	22.1[b]	15.8[a]	19.7	1.08 (0.92-1.26)	*0.335*
Indicators of less-harmful cigarettes							
Taste (n=1,581)	63.7	63.3	69.3	65.3	65.4	1.53 (1.15-2.04)	*0.003*
Tar/nicotine levels (n=1,570)	86.2[a]	76.7[b]	90.7[a]	85.3[a]	84.5	1.12 (0.79-1.61)	*0.524*
Words Light/Mild (n=1,181)	63.8[a]	60.8[a]	--	50.0[b]	59.4	1.12 (0.81-1.55)	*0.507*
Words Smooth/Ultra (n=1,568)	44.3	44.6	47.3[a]	41.5b	44.6	1.23 (0.92-1.64)	*0.165*
Belief that own brand might be a little less harmful							
Own brand might be a little less harmful than others†† (n=1,619)	38.8	43.9	40.7	43.4	41.8	1.39 (1.03-1.86)	*0.029*
Beliefs about the benefits of light cigarettes							
Lights make quitting easier (n=8,242)	10.6[a]	13.9[a]	23.1[b]	15.4[c]	15.8	1.19 (1.00-1.41)	*0.057*
Lights are less harmful than reg. cigarettes (n=8,240)	14.8[a]	19.0[b]	31.3[c]	15.5[a]	20.1	1.34 (1.14-1.57)	*<.001*
Lights give less tar than reg. cigarettes (n=8,239)	29.7[a]	31.9[b]	45.1[c]	25.3[d]	32.9	1.39 (1.22-1.60)	*<.001*
% agree to any of the above	35.2[a]	39.2[b]	55.8[c]	36.2[a]	41.5	1.27 (1.12-1.44)	*<.001*
Sensory perceptions as indicators of less-harmful cigarettes							
Lights smoother on throat/chest than reg. cigarettes (n=8,242)	50.5[b]	56.8[a]	56.1[a]	56.0[a]	54.9	1.25 (1.11-1.42)	*<.001*
Light taste means less tar (n=8,237)	17.8[a]	20.4[a]	31.5[b]	16.0[c]	21.3	1.59 (1.35-1.88)	*<.001*
Harsh smoke is more dangerous (n=8,238)	44.1[a]	45.6[a]	52.1[b]	41.5[c]	45.7	1.08 (0.95-1.22)	*0.244*
Other false-beliefs about less-harmful cigarettes							
Tar numbers closely related to tar intake (n=7,418)	41.2[a]	26.7[b]	37.3[a]	28.2[c]	33.3	0.97 (0.79-1.19)	*0.763*
Filters reduce harm (n=8,240)	42.0[a]	42.6[a]	60.3[b]	35.8[c]	45.0	1.34 (1.19-1.52)	*<.001*
Nicotine causes most cancer (n=8,234)	37.1	39.8[a]	40.6[a]	36.2[b]	38.4	1.09 (0.96-1.23)	*0.200*
Own brand has lower levels of cancer causing chemicals††† (n=6,676)	12.6[a]	14.0[a]	16.6[b]	7.40[c]	12.5	(only asked of current smokers)	

Different letters denote significant differences between countries, where p<.05.

[†]The regression model tested differences between Current and Former smokers, where “Former” smokers were set as the reference group. The following correlates were adjusted for: country, sex, age, income, education, ethnicity, heaviness of smoking index (HSI), and intention to quit.

[††]Asked only of those who agreed that some brands could be less harmful than others (n=1,619).

[†††]Asked only of current smokers who reported having a “usual brand” (n=6,676).

--No data: UK respondents were not asked whether the words “light” or “mild” were indicative of a less harmful cigarette.

Table 4

False beliefs based on brand descriptors among current smokers

	"Some brands could be less harmful than others"						"Own Brand† might be a little less harmful than others"					
	CA n=2,022	*US n=2,034*	*UK n=2,016*	*AU n=2,168*	*Total n=8,240*	*OR (CI)*	*CA n=2,022*	*US n=2,034*	*UK n=2,016*	*AU n=2,168*	*Total n=8,240*	*OR (CI)*
	% agree	% agree	% agree	% agree	% agree		% agree	% agree	% agree	% agree	% agree	
Overall	17.6	23.6	22.4	15.7	19.8		40.0	44.0	40.8	47.0	42.8	
False beliefs by type of "usual brand"						n=6,676						n=1,311
None of the following	17.1	22.3	20.9	15.2	18.4	ref	24.7	38.3	33.6	46.3	35.4	ref
Light/Mild	18.5	26.9	39.0	17.9	23.2*	1.31 (1.15-1.49)	58.3	57.8	73.6	55.1	59.2*	3.12 (2.48-4.11)
Slim	47.6	23.6	--	20.0	27.0*	2.09 (1.41-3.08)	88.9	70.8	--	0.0	68.4*	2.50 (1.24-5.06)
100mm/120mm ("Long")	23.4	22.1	36.2	23.8	23.0*	1.37 (1.15-1.62)	66.7	46.7	71.4	80.0	50.6*	1.39 (1.02-1.90)
Smooth	10.0	25.0	12.5	15.0	15.7	0.76 (0.47-1.24)	100.0	66.7	50.0	16.7	55.0	1.17 (0.47-2.89)
Menthol	13.9	21.1	21.3	16.3	19.5	1.09 (0.89-1.34)	40.0	36.8	50.0	40.0	39.4	0.86 (0.58-1.26)
False beliefs by number of "usual brand" descriptors						n=6,676						n=1,311
None of Light/Mild, Slim or 100s/120s	16.6	22.5	20.8	15.1	18.3	ref	25.6	33.9	34.6	45.5	35.4	ref
One descriptor	18.6	23.7	42.5	17.7	21.8*	1.19 (1.03)	55.3	37.6	72.9	48.6	48.8*	2.17 (1.67-2.82)
Two descriptors	20.8	23.8	32.5	30.0	24.3*	1.61 (1.28-2.02)	77.8	60.8	75.0	100.0	64.2*	3.32 (2.18-5.07)
Three descriptors	60.0	29.1	0.0	0.0	31.0*	2.83 (1.74-4.61)	100.0	73.9	0.0	0.0	76.9*	5.05 (1.91-13.34)
False beliefs by "usual brand" colour descriptors ††						n=930						n=163
"Black" or "Red"	--	100.0	16.9	7.4	14.2	ref	--	0.0	7.7	0.0	4.8	ref
"Gold", "Silver", "Blue", or "Purple"	11.1	43.8	18.7	16.4	17.9	1.24 (0.73-2.11)	100.0	0.0	40.8	37.7	37.8*	12.48 (1.45-107.31)

*Denote significant differences tested in a regression model between brand types where "none of the following" was set as the reference group, and the following covariates were adjusted for: country, sex, age, income, education, ethnicity, heaviness of smoking index (HSI), and intention to quit.

†Asked only of those who agreed that some brands could be less harmful than others.

††Conducted among those who reported a "usual brand" colour descriptor (n=6,676).

--No data.