

The perceptions of UK youth of branded and standardized, 'plain' cigarette packaging

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Background: Tobacco packaging is an important form of promotion. Standardizing cigarette packages ('plain' packaging) represents a novel tobacco control policy. This study examined perceptions of branded and standardized cigarette packages among British youth. **Methods:** Seven hundred twelve youth aged 11–17 completed an online survey. Participants viewed pairs of packages altered using a 3 × 2 factorial design: health warning type (40% text, 40% pictorial or 80% pictorial) × standardized pack colour (white vs. brown). A discrete-choice task was used in which participants selected packs based on attractiveness, taste, tar, health risk, impact of health warning and enticement to start smoking. Participants also compared regular Silk Cut and 'Superslims' Silk Cut packs. Participants completed a final selection task from two standardized and two branded packs. **Results:** Warning type was significantly associated with all six outcomes: packs with larger pictorial warnings were more likely to be perceived as less attractive, less smooth, greater health risk, higher tar delivery, more effective health warnings and less likely to encourage initiation. The same pattern was found for brown vs. white standardized packages, with the exception of attractiveness and initiation. Compared with the regular Silk Cut pack, the 'Superslims' Silk Cut pack was perceived as significantly more favourable on all six outcomes. Finally, among respondents who selected a pack in the pack selection task, 95.1% selected a branded pack vs. 4.9% who selected a standardized pack. **Conclusions:** Increasing the size of pictorial health warnings and standardizing the appearance and shape of packages may discourage smoking initiation among young people.

Introduction

Packaging is one of the tobacco industry's primary promotional tools. The shape, colour, branding and texture of cigarette packs and other tobacco packaging are designed to make products more attractive, promote brand appeal and differentiate products for different market segments such as women and young people.^{1,2} In recent years, the industry has been innovative in creating new pack designs, including 'special edition' packs and 'Superslims' brands targeted at young women.^{3,4} In countries such as the UK where other forms of tobacco promotion have been banned, innovations in packaging have been a primary focus of the industry's marketing efforts.⁵

In addition to promoting brand appeal, packaging can also mislead consumers about the relative harm of different tobacco products,⁶ typically by implying that a product is 'light' or 'mild' and less harmful than a 'full flavour' product when, in practice, lower tar cigarettes are just as dangerous to smokers as higher tar cigarettes.⁷ Although brand variant names such as 'light' and 'mild' are banned in many jurisdictions, false health beliefs are sustained by other means, for example by the use of different colours or variant names such as 'smooth' and 'mild'.^{8,9}

In 2012, Australia became the first country in the world to implement standardized, 'plain' packaging for tobacco products. As of December 2012, all cigarette packs sold in Australia have had to conform to a standardized design, devoid of brand colours and logos and displaying a prominent pictorial health warning.¹⁰ The Australian regulations also require minimum pack dimensions, which effectively prohibit pack shapes common to 'Superslims' varieties. In May 2012, the UK Government launched a national consultation on a proposed policy to introduce standardized tobacco packaging.¹¹

There is a substantial body of evidence that standardized tobacco packaging will not only significantly reduce the appeal of tobacco products to consumers but also increase the effectiveness of health

warnings and reduce the ability of tobacco packaging to mislead consumers about the harms of smoking.^{12,13} Standardized packaging may have a greater impact among young people, who are particularly responsive to the colours and branding of tobacco products.^{14–18} Qualitative research suggests that standardized packaging can remove the signifiers that young people use to shape their identities, aspirations and social relations.¹⁷ For example, young women are quick to identify their preference for branded cigarette packs that signify glamour, sophistication and slimness.^{16,18}

The tobacco industry strongly opposes the implementation of standardized or 'plain' packaging. In Australia, the industry initiated three separate legal proceedings.¹⁹ Among its arguments, the industry has stated that plain packaging will have no impact above and beyond the requirements for large pictorial health warnings in Australia, and that plain packaging will have no effect on youth and smoking initiation.

The current study sought to explore the perceptions of young people aged 11–17 years in the UK in relation to three aspects of tobacco packaging: (i) Superslims brands, (ii) the type (pictorial vs. text) of health warning and (iii) standardized pack colour (brown vs. white). The study assessed the effect of these factors on youth perceptions of product attractiveness, taste, health risk, tar content, enticement to start smoking and the potential impact of health warnings.

Methods

Sample

Participants were recruited from a proprietary consumer panel managed by the UK survey firm, 'YouGov', which consisted of ~350 000 adults at the time of the survey. Although the panel as a whole is not representative of the UK population, quota-based sampling from within the panel is designed to achieve a

representative sample for each survey. Panel members with children aged between 11 and 17 years were approached online to participate in the survey. The survey was only undertaken if the adult panel member approved and the young person was available and willing to participate.

In total, 7396 panel members were approached and 762 young people completed the survey, giving a total response rate of 10.3%. This is lower than YouGov's typical response rate of 40–60% due to the requirement for the young person to be available and willing to complete the survey (although only five young people did not want to take the survey). The survey took ~10 minutes to complete.

Study protocol

The study used a 'within-subject' experiment, with a 2×3 factorial design, in which the appearance of cigarette packs was manipulated based on *standardized pack colour* (white or brown) and *type of health warning* (40% text warning, 40% pictorial warning or 80% pictorial warning). The study used a discrete-choice task, in which participants were shown six pairs of cigarette packs based on the factorial design, as illustrated in [figure 1](#). Each pair included the same reference pack, a branded Benson and Hedges (B&H) pack on the UK market at the time of the study, alongside a B&H pack modified according to the factorial design. For each pair, participants were asked to identify which pack they felt rated higher against six different outcomes: attractiveness, taste, health risk, tar level, health warning impact and incentive to start smoking. For any comparison, participants could always select 'no difference'.

One additional pair of packs was viewed to test consumer perceptions of 'Superslims' packaging. The pair consisted of a regular Silk Cut branded pack and a Silk Cut 'Superslims' variety, both of which were available on the UK market ([figure 2](#)).

The presentation order of all seven pairs of packs was randomized across participants. For each comparison, the position of the packs on the computer screen was also randomized (i.e. left or right). After the seven pairs were completed, participants completed a final task, in which four packs of cigarettes were shown—two branded and two plain—and participants indicated which they would choose, as described later.

Measures

Sociodemographic measures and smoking status

The sociodemographic profile of panel members was available before recruitment to the survey and used to define quotas for the recruitment. Adult panel members who were approached were asked to confirm the age and gender of the prospective young participant. The young participants themselves were asked about the type of school they attended and their smoking status. Smoking status was assessed by asking participants, 'which ONE of the following statements BEST applies to you: I have never tried smoking; I have tried smoking once or twice but do not smoke regularly; I used to smoke but I have given up now; I smoke less than every week, but at least once a month; I smoke less than every day, but at least once a week; I smoke every day; or prefer not to say'. Non-smokers were defined as respondents who had never tried smoking or preferred not to say. Smokers were defined as respondents who had tried smoking, used to smoke but have given up or still smoke. Social grades are a system of demographic classification used in the UK. Social grade was assessed using the occupation of the head of the household and categorized as ABC1 (middle class) or C2DE (working class).

Perceptions of cigarette packaging

Participants viewed a series of images of cigarette packs, presented in pairs. Six questions were asked for each pair of packs: (i) 'Which, if either, of the cigarettes above do you think delivers less tar?';

(ii) 'Which, if either, of the cigarettes above do you think has a smoother taste?'; (iii) 'Which, if either, of the cigarettes above do you think carries less of a health risk?'; (iv) 'Which, if either, of the cigarettes above do you think is more attractive?'; (v) 'Which, if either, of the cigarettes above do you think would make you want to try smoking?' and (vi) 'Which, if either, of the cigarettes above do you think the health warning has more impact?'. For each question, participants could select either of the two packs or a 'neither/no difference' option prominently displayed on the screen.

Pack preference

After participants had viewed all the paired comparisons, they were shown images of four cigarettes on the screen at once, including two branded and two standardized, 'plain' packs: a branded and plain brown version of the B&H pack, and a branded and plain brown version of the Silk Cut Superslims pack ([figure 3](#)). Participants were asked, 'Given a choice between these packs, which would you choose?' Participants could select the option of 'none'. The order of the packs was randomized across participants.

Analysis

All analyses were conducted using SPSS version 20.0 (IBM Corp., Armonk, NY). Chi-square tests were used to examine whether there was a significant difference in the proportion of participants who selected either pack within each pair for each of the six outcomes: tar level, smooth taste, health risk, attractive, try smoking and warning impact. 'Neither/no difference' responses were excluded from this analysis. To adjust for multiple comparisons, the Benjamin-Hochberg adjustment was applied.²⁰

Generalized estimating equation (GEE) models were used to test for differences across the six pairs for each of the six outcomes. Separate GEE models were used for each outcome. All six pack pairs had the same reference group—the regular branded B&H pack—hence the outcome of interest in each model was the proportion of individuals who selected the unbranded comparison pack. The two factors, standardized pack colour and warning type, were entered as indicator variables in the model. 'Neither/no difference' responses were grouped with responses for those who selected the branded pack for this analysis. Analyses were adjusted for age, gender, smoking status (never smoked or prefer not to say vs. tried smoking or current smoker) and social grade. The two-way interaction between standardized pack colour and warning type was tested by running additional GEE models with the interaction term.

Results

Sample characteristics

A total of 762 young people aged between 11 and 17 years participated in the survey. Characteristics of the sample are described in [table 1](#).



Perceptions of branded vs. plain packs within brand pairs

Chi-square tests were used to examine the likelihood of participants selecting branded or standardized, 'plain' packs within each pair. The proportion of participants selecting each pack, for each outcome, is shown in [figure 1](#). Compared with the branded packs, the standardized pack was significantly less likely to be perceived as being more attractive, less likely to encourage smoking uptake and more likely to have a higher-impact health warning, across all six pairs. In addition, standardized packs with picture warnings or a brown colour (i.e. standardized packs in all pairs except for pair 1) were significantly less likely to be perceived as having a smooth taste, presenting a lower health risk or containing lower tar.

	Pair 1. Regular B&H vs. plain white with text warning			Pair 2. Regular B&H vs. plain white with 40% picture			Pair 3. Regular B&H vs. plain white with 80% picture		
			No difference			No difference			No difference
More attractive	42.4%	13.8%***	43.8%	56.3%	4.7%***	39.0%	58.0%	3.0%***	39.0%
Smoother taste	12.1%	13.1%	74.8%	20.2%	4.7%***	75.1%	23.6%	2.4%***	74.0%
Less health risk	9.8%	11.0%	79.1%	31.0%	4.9%***	64.2%	31.8%	4.3%***	63.9%
Less tar	10.0%	12.9%	77.2%	19.0%	5.9%***	75.1%	23.2%	2.9%***	73.9%
Warning has more impact	15.4%	21.1%**	63.5%	11.3%	71.4%***	17.3%	8.5%	76.1%***	15.4%
Want to try smoking	10.4%	2.5%***	87.1%	11.7%	1.8%***	86.5%	11.4%	2.2%***	86.4%
	Pair 4. Regular B&H vs. plain brown with text warning			Pair 5. Regular B&H vs. plain brown with 40% picture			Pair 6. Regular B&H vs. plain brown with 80% picture		
			No difference			No difference			No difference
More attractive	43.3%	11.9%***	44.8%	57.9%	5.1%***	37.0%	58.7%	3.4%***	37.9%
Smoother taste	18.0%	9.2%***	72.8%	22.2%	4.5%***	73.4%	23.5%	2.5%***	74.0%
Less health risk	16.0%	4.7%***	79.3%	29.9%	4.1%***	66.0%	32.7%	3.8%***	63.5%
Less tar	19.8%	3.8%***	76.4%	23.2%	2.6%***	74.1%	24.3%	1.8%***	73.9%
Warning has more impact	11.4%	23.9%***	64.7%	11.2%	72.0%***	16.8%	8.1%	78.3%***	13.5%
Want to try smoking	10.6%	2.6%***	86.7%	10.9%	3.1%***	86.0%	11.5%	2.2%***	86.2%

***p<.001 for chi-square test between regular branded B&H and 'plain' modified B&H pack within each pair.

Figure 1 Young people's perceptions of modified cigarette packs (n = 762)

	Silk Cut Superslims	regular Silk Cut	no difference
			
More attractive	60.0%	8.3%***	31.8%
Smoother taste	23.9%	13.9%***	62.2%
Less health risk	18.8%	9.2%***	72.0%
Less tar	14.2%	13.9%	71.9%
Warning has more impact	2.4%	74.5%***	23.1%
Want to try smoking	14.2%	3.7%***	82.2%

***p<.001 for chi-square test between Superslims and regular Silk Cut

Figure 2 Young people's perceptions of current cigarette packs (n = 762)





	Silk Cut Superslims	regular B&H	B&H plain: brown, 80% warning	Silk Cut plain: brown, 80% warning	none
					
Which would you choose?	48.0%	12.9%	2.2%	1.0%	35.8%

Figure 3 Young people's choice of cigarette pack (n = 762)

Effect of type of health warning and standardized pack colour across paired comparisons

Attractiveness

The type of health warning (text vs. pictorial) had a significant effect on perceptions of pack attractiveness ($\chi^2=78.52$, $P\leq 0.001$). Compared with standardized packs with text warnings, standardized packs with 40% and 80% pictorial health warnings were perceived as less attractive ($\beta=-1.06$, $P<0.001$ and $\beta=-1.50$, $P<0.001$, respectively). Furthermore, the standardized pack with the 80% pictorial health warning was perceived as less attractive than the pack with the 40% warning ($\beta=-0.45$, $P=0.001$). Smokers were significantly more likely to rate packs as more attractive than non-smokers ($\beta=0.72$, $P=0.003$).

Smoothness

The type of health warning had a significant effect on perceptions of product smoothness ($\chi^2=88.29$, $P\leq 0.001$), such that the standardized packs with the 40% and 80% pictorial health warnings were less likely to be perceived as having a smoother

taste than the standardized pack with the text warnings ($\beta=-0.97$, $P<0.001$ and $\beta=-1.63$, $P<0.001$ respectively). Furthermore, the standardized pack with the 80% pictorial health warning was less likely to be perceived as having a smoother taste than the pack with the 40% warning ($\beta=-0.66$, $P\leq 0.001$).

The colour of the standardized packaging also had a significant effect on perceptions of product smoothness ($\chi^2=4.99$, $P=0.025$). The brown standardized packs were less likely to be perceived as having a smoother taste than the white standardized packs ($\beta=-0.25$, $P=0.025$). Smokers were significantly more likely to rate packs as having a smoother taste than non-smokers ($\beta=0.74$, $P=0.004$).

Health risk

The type of health warning had a significant effect on perceptions of the health risk presented by the product ($\chi^2=21.66$, $P<0.001$): standardized packs with the 40% and 80% pictorial health warnings were less likely to be perceived as having a lower health risk than the standardized pack with the text warnings ($\beta=-0.61$, $P<0.001$ and $\beta=-0.71$, $P<0.001$ respectively).

Table 1 Sample characteristics ($n=762$)

Demographic characteristic	
Gender	
Male	54.9%
Female	45.1%
Mean age	14.4 years SD = 1.9
Social grade	
ABC1	56.4%
C2DE	43.6%
Type of school attended	
Primary school	4.7%
Junior school	3.7%
Secondary school (below sixth form)	66.9%
Secondary school sixth form/Sixth form college	23.8%
University	0.3%
Prefer not to say	0.7%
Smoking status	
Never tried	81.5%
Tried once or twice but do not smoke regularly	12.3%
Used to smoke but have given up	1.0%
Smoke at least once a month but less than every week	0.8%
Smoke at least once a week but less than every day	0.8%
Smoke every day	3.3%
Prefer not to say	0.3%

The colour of the standardized packaging also had a significant effect on perceptions of health risk ($\chi^2=23.28$, $P<0.001$). The brown standardized packs were less likely to be perceived as having a lower health risk than the white standardized packs ($\beta=-0.50$, $P<0.001$). A significant interaction between health warning type and plain packaging colour was observed for measures of perceived health risk ($\chi^2=12.51$, $P=0.002$). Age, gender, smoking status and social grade were not significantly associated with perceived health risk.

Tar

The type of health warning had a significant effect on perceptions of the amount of tar the product delivered ($\chi^2=46.20$, $P<0.001$), such that the standardized packs with the 40% and 80% pictorial health warnings were less likely to be perceived as lower tar than the standardized pack with the text warnings ($\beta=-0.72$, $P<0.001$ and $\beta=-1.34$, $P<0.001$ respectively). In addition, the standardized pack with the 80% pictorial health warning was less likely to be perceived as lower tar than the pack with the 40% warning ($\beta=-0.62$, $P\leq 0.001$).

The colour of the standardized packaging also had a significant effect on perceptions of the amount of tar the product delivered ($\chi^2=46.46$, $P<0.001$). The brown standardized packs were less likely to be perceived as lower tar than the white standardized packs ($\beta=-1.03$, $P<0.001$). A significant two-way interaction between health warning type and plain packaging colour was observed, in which perceptions of lower tar were greatest for white standardized packs with text and smaller picture warnings ($\chi^2=7.14$, $P=0.028$). Age, gender, smoking status and social grade were not significantly associated with perceived tar delivery.

Impact of health warning

The type of health warning had a significant effect on perceptions of the impact of the health warning ($\chi^2=605.79$, $P<0.001$), such that the health warnings on standardized packs with the 40% and 80% pictorial health warnings were perceived as having more impact than the standardized pack with a text warning ($\beta=2.17$, $P<0.001$ and $\beta=2.47$, $P<0.001$, respectively). In addition, the health warning on the standardized pack with the 80% pictorial health warning was more likely to be perceived as having more impact than the pack with the 40% warning ($\beta=0.29$, $P\leq 0.001$).

The colour of the standardized packaging also had a significant effect on perceptions of the impact of the health warning ($\chi^2=6.07$, $P=0.014$). Health warnings on the brown standardized packs were perceived as having more impact than the white standardized packs ($\beta=0.10$, $P=0.014$). Age, gender, smoking status and social grade were not significantly associated with perceived health warning impact.

Wanting to try cigarettes

No significant effects were observed for either the type of health warning ($\chi^2=0.54$, $P=0.763$) or the colour of the plain packaging ($\chi^2=1.69$, $P=0.194$). Smokers were, however, significantly more likely to rate packs as products that would make them want to try smoking compared with non-smokers ($\beta=1.36$, $P<0.0001$).

Superslims vs. regular packs

Figure 2 shows the results for the comparison of the Silk Cut Superslims pack with the regular Silk Cut branded pack. Compared with the regular Silk Cut pack, the Superslims pack was significantly more likely to be rated as attractive, to encourage smoking uptake, to present a lower health risk, to have a smoother taste and to have a health warning with less impact. There was no significant difference between the Superslims and regular pack in terms of tar.

Logistic regression models were conducted among those who chose a pack for all six outcomes to examine differences by covariates. Among those who chose a pack, females were significantly more likely than males to rate the Superslims pack as delivering less tar ($P=0.011$).

Pack preference

Figure 3 shows responses to the final pack selection task. Overall, 64.2% of respondents selected one of the four packs. Among the total sample, 60.9% selected either of the two branded packs compared with 3.2% who selected either of the two standardized packs ($P<0.001$). Among respondents who selected a pack, 95.1% selected a branded pack compared with 4.9% who selected a standardized pack. No significant differences were observed by age, gender, social grade or smoking status.

Discussion

In the UK, packaging is the only significant channel left to the tobacco industry to promote its products. The current study underscores the potential for packaging to communicate desirable product characteristics, such as attractiveness and smooth taste, and increase interest in smoking uptake among young people. These characteristics are believed to be important predictors of smoking initiation and brand selection, and have previously been used by the tobacco industry to assess the promotional appeal of its products among young people and adults.^{21–25}

A Silk Cut Superslims cigarette pack was identified by significantly more UK youth as being appealing compared with a regular branded Silk Cut pack. Approximately 14% of the participants reported that the Superslims pack would make them want to try smoking, compared with only 3% who said the regular pack would make them want to try smoking. In the final pack selection task, approximately half of all the participants selected the Silk Cut Superslims brand: more than three times the number who selected the regular branded B&H pack, the next most popular brand selected. These findings are consistent with previous research on pack shape and size,^{24,25} as well as internal industry documents and marketing practices on the appeal of Superslims brands among young people.^{5,26} In addition, the narrow shape of the Superslims pack dramatically reduced the perceived impact of the health warning: three-quarters of participants perceived the health warning on the

regular pack to have greater impact than the same warning on the Superslims pack. This finding highlights the challenge to regulators in terms of designing health warnings that can be modified to fit dramatically different shapes and sizes of products. Superslims packaging presents a particular challenge, given its narrow shape, which tends to result in reduced font sizes and distorted images on the warning. Collectively, these findings provide support for the prohibition of Superslims cigarettes in the European Commission's proposed Tobacco Directive, announced in December 2012.²⁷

The study also demonstrates that health warnings and standardized packaging have independent effects on perceptions of cigarette products. Compared with text warnings, pictorial warnings were perceived to have greater impact and packs bearing pictorial warnings were less likely to be appealing and less likely to trigger false health beliefs compared with packs with text warnings. Increasing the size of warnings from 40 to 80% further diminished appeal and false health beliefs, and increased perceived impact.^{28–30} This finding is particularly important, given the number of jurisdictions that have recently increased the mandated size of warnings to 75% or greater (including Uruguay, Australia and Canada), and the European Commission's proposal to increase the size of health warnings to 75% of the pack. As in previous studies, the current findings suggest that standardized packaging has an additional impact above and beyond large pictorial warnings.²⁸

Finally, the study adds to the growing evidence base that the removal of brand imagery from tobacco packaging reduces the appeal of tobacco products, including perceptions of pack attractiveness and smooth taste and perceptions of lower tar or lower health risk. In the final pack selection task, young people were 23 times more likely to select one of the two branded packs compared with either standardized pack. More specifically, the study found consistent differences between the background colour used to standardize the appearance of cigarette packages. Compared with white standardized packs, packs using the darker brown mandated for Australian standardized packaging were less likely to be perceived as 'smooth', less likely to trigger false beliefs about health risk or tar content and more likely to present a higher-impact health warning. These findings are consistent with research conducted in Australia on colours of standardized packaging, as well as consumer perceptions of pack colour more generally.³¹ Finally, the results indicate that standardized packaging increased the perceived impact of the health warnings, similar to previous research.^{32,33}

Strengths and limitations

The current study did not use a probability-based sample. However, the sample was drawn from a large well-established commercial sample in the UK. The age range of the sample is a strength: few studies have assessed the impact of cigarette packaging among younger youth. Youth participants required parental consent to participate, which may have influenced reporting. Given the social norms against tobacco use, this may have attenuated responses with respect to the appeal of cigarette packaging. A notable limitation of the study is the use of images of cigarette packaging to assess perceptions, rather than actual cigarette packages in a face-to-face survey. This is particularly important when assessing differences in pack shape and size, in which two-dimensional images do not fully portray these differences. Therefore, the perceived differences between regular Silk Cut packs and Superslims packs may be greater than those reported in the current study.

Implications

The findings suggest that regulating tobacco packaging can reduce the attractiveness of cigarettes and increase young people's awareness of the risks of smoking. In addition to demonstrating the importance of pack colour and the removal of branding, the study

also indicates that prohibiting 'Superslims' varieties has the potential to reduce the appeal of cigarette products and to enhance the perceived effectiveness of health warnings. These findings are particularly relevant to policy-makers in the UK, where standardized packaging of tobacco products is being considered by government, but are also relevant at the EU level, where the prohibition of 'Superslims' cigarette packs has been proposed, and in all jurisdictions where greater controls on tobacco packaging are being considered.

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Conflicts of interest: None declared.

Key points

- Youth perceptions of branded and standardized tobacco packs are little understood, particularly among younger teenagers. This study provides insight into how young people perceive tobacco packaging and the risks of smoking.
- Packs with pictorial health warnings were significantly less attractive to youth and larger packs warnings had greater impact than smaller ones.
- 'Superslim' branded packaging was identified as being particularly attractive to young people and made them more likely to want to try smoking.
- Standardized packaging appears to have an additional impact, reducing attractiveness to youth above and beyond large pictorial warnings.
- Regulating tobacco packaging to remove the branded elements would reduce the attractiveness of cigarettes and increase young people's awareness of the risks of smoking.

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