

Plain packaging implementation: perceptions of risk and prestige of cigarette brands among Aboriginal and Torres Strait Islander people

Raglan Maddox,^{1,2} Sarah Durkin,³ Ray Lovett⁴

Tobacco use is the most preventable cause of morbidity and mortality within Australia, and is a significant contributor to poor health outcomes of Aboriginal and Torres Strait Islander people.^{1,2} In 2013, about 42% of Aboriginal and Torres Strait Islander people were current smokers, substantially more than the rate of the general population.^{1,3} Tobacco-related morbidity and mortality is reflected through a range of smoking-related diseases, including cardiovascular disease, chronic respiratory disease and various forms of cancer, including lung cancer.^{1,4} Awareness of the health risks of smoking has an important influence on smokers' behaviour and is the most common motivation to quit.⁵⁻⁷ Those who perceive greater risks are more likely to attempt to quit and to remain smoke free.⁵⁻⁷

Even though Australia has banned tobacco advertising and sponsorship across all media,⁸ perceptions of consumer risk can be influenced by brand imagery. Imagery includes colours, symbols, shapes and graphics used in packaging.⁸⁻¹⁰ For example, many health-concerned smokers have been encouraged to switch to so-called 'low tar' cigarettes, which are typically packaged in light or white colours, rather than abstaining from tobacco use.^{11,12} Internal tobacco industry documents illustrate this was a deliberate strategy to reduce perceptions of health risks through the use of different colours:

Lower delivery products tended to be featured in blue packs. As one moved down

Abstract

Objectives: To assess the impact of plain packaging with larger graphic health warnings on perceptions of risk and prestige related to different cigarette brands among Aboriginal and Torres Strait Islander people in the Australian Capital Territory. We hypothesised that the changes would decrease perceptions that 'some cigarette brands are more harmful than others', and that 'some brands are more prestigious than others', and this would be stronger among participants aged ≤ 35 years, and among smokers compared with non-smokers.

Methods: Participants completed the survey prior to packaging changes, and were followed up 12 months later (n=98). Repeated measures ANCOVAs assessed perception changes.

Results: Following plain packaging implementation, there was a significant reduction in perceptions that 'some cigarette brands are more harmful than others'. There was no overall change in perceptions of prestige. However, there was a significant interaction for age. Analyses indicated a reduction in perceptions that 'some cigarette brands are more prestigious than others' among younger participants ($p=0.05$), but no change among older participants ($p>0.20$). There was no interaction for smoking status for perceptions of prestige, indicating smokers' and non-smokers' perceptions did not differ on this measure.

Conclusions: These findings provide support for the packaging changes.

Key words: Aboriginal, health warnings, packaging, smoking, tobacco policy, product labelling

the delivery sector, the closer to white a pack tended to become. White is generally held to convey a clean healthy association.¹³

Studies examining the potential effect of plain packaging (PP) and health warnings have found high levels of misperceptions due to descriptors such as 'slim', 'light', and 'mild', and brand elements such as colour, fonts and imagery.^{9,14-17} Studies have consistently found that many smokers incorrectly believe that tobacco products labelled as 'light' deliver less tar to smokers and/or are less harmful. Therefore, they have been perceived as 'healthier' than regular cigarettes.¹⁸⁻²⁰ Evidence

also indicates that removing descriptive terms and elements of package design could reduce false beliefs about the harm of different cigarette brands.^{9,15,16,21,22} Recent research suggests that changes in the elements of package design could shift perceptions of the prestige, image and quality associated with tobacco products.^{9,16,20,23-26} For example, pack colour has been found to give the appearance of 'low prestige budget packaging',^{9,56} and studies have shown that ratings of the pack being 'lower class' become stronger and positive perceptions decline as colour and branding are removed from packaging.^{9,16}

1. Centre for Research on Inner City Health, St. Michael's Hospital, Ontario, Canada

2. Centre for Research and Action in Public Health, Faculty of Health, University of Canberra, Australian Capital Territory

3. Centre for Behavioural Research in Cancer, Cancer Council Victoria

4. National Centre for Epidemiology and Population Health, Australian National University, Australian Capital Territory

Correspondence to: Dr Raglan Maddox, Centre for Research and Action in Public Health, University of Canberra, Locked Bag 1, Canberra, ACT 2601; e-mail: raglan.maddox@canberra.edu.au

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Tobacco Plain Packaging

In Australia, the *Tobacco Plain Packaging Act 2011* and the *Tobacco Plain Packaging Regulations 2011* established the requirements for PP.²⁷ The legislation prohibits the use of brand imagery, logos and promotional text on tobacco products and packaging, and includes restrictions on colour, format, size and materials of packaging, as well as brand and variant names.²⁷ From 1 October 2012, all tobacco products manufactured or packaged in Australia, for the Australian market, had to be in PP (Figure 1); as of 1 December 2012, all tobacco products sold, offered for sale or otherwise supplied in Australia had to be in PP and labelled with the expanded health warnings.²⁷ The implementation of PP and expanded health warning complements the established suite of comprehensive tobacco control measures, including the Tackling Indigenous Smoking Programme and the ACT Aboriginal and Torres Strait Islander Tobacco Control Strategy 2010-14.^{27,28}

Aims

Drawing on previous experimental research and theory,^{8,9,15-25,29} we hypothesised that when all tobacco products sold, offered for sale or otherwise supplied in Australia must be in PP and labelled with new and expanded health warnings, there would be a decrease in participants' misperceptions that some cigarette brands are more harmful than others, and that some cigarette brands are more prestigious than others.

Due to tobacco control measures such as the *Tobacco Advertising Prohibition Act (1992)*, we expected younger participants (aged 35 years and under) to have had less exposure to tobacco advertising, sponsorship and marketing and, consequently, that they would have less entrenched brand loyalty and associations of harm and prestige compared with their older counterparts. We also expected the implementation of PP and expanded health warnings would influence smokers more than non-smokers, due to the direct relevance of these changes and more frequent exposure to PP. Evidence suggests that particular cigarette brands are used as a 'badge product', and can reinforce one's self-image and personal characteristics.⁸ We expected the removal of the design elements of branding, which has resulted in all tobacco packs looking similar, would result in minimising smokers ability to use their tobacco pack as a 'badge product', and would reduce the belief that tobacco brands differ in

Figure 1: An example of plain packaging in Australia.
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levels of prestige.⁸ Smokers may also believe their particular cigarette brand is less harmful than other cigarette brands, thereby the branding may act as a form of reassurance.^{9,16} We expected the implementation of PP reduce perceptions that there are differences in harm and/or prestige between brands. We hypothesised that this impact would be stronger:

- among participants aged 35 years and under, compared with those aged over 35 years
- among smokers when compared with non-smokers.

Methods

Procedure and sample

Quantitative data were from a subset of the baseline and follow-up Smoke Ring Study survey. A full description of the Smoke Ring Study protocol can be found in Maddox et al.³⁰ The basis of this paper comes from survey responses and two additional opportunistic outcome measures that were included in anticipation of the introduction of the PP legislation. This comes from a larger study that used a mixed-method approach, including a follow-up survey, interviews and focus groups about 12 months apart to explore a wide range of factors influencing the smoking behaviours and beliefs of Aboriginal and Torres Strait Islander people. Participants completed the survey using pen and paper, online or face-to-face. Participants were aged 12 years and over and were residing in the ACT and surrounding regional areas (for example, Queanbeyan and Jerrabomberra in New South Wales).³⁰ Baseline survey participants (n=204) were interviewed just prior to the mandatory sale of cigarettes in PP in November 2012 using a purposive sampling framework, while 103 participants were followed up about one year

later, in the post-PP phase. A follow-up survey rate of 50.5% was achieved. Most participants lost to follow up were unable to be re-contacted (41.7%). This was predominantly due to changes in email addresses, physical addresses and phone numbers and may reflect the mobility of the Aboriginal and Torres Strait Islander population.³¹

Measures

The perceived harm and brand prestige questions were asked within the context of a larger survey exploring the social and cultural context underlying Aboriginal and Torres Strait Islander tobacco use. These two outcome measures were an opportunistic addition in anticipation of the introduction of the PP legislation. The survey took no longer than 30 minutes to complete. Smokers and non-smokers were identified with the question, "At the present time, do you consider yourself: a non-smoker; an ex-smoker; an occasional smoker; a light smoker; a social smoker; a heavy smoker; a chain smoker?" Participants were asked the standard *Fagerström Test for Nicotine Dependence*³² questions to ascertain nicotine dependence. Quit attempts were ascertained by the question: "How many attempts to quit smoking have you made in the past 12 months that lasted at least 24 hours?" Opinions about how cigarette brands compared with each other were determined by asking participants the following:

Thinking about different brands of cigarettes like Winfield, Benson & Hedges, Longbeach and all the other brands (not the varieties within each individual brand). We are interested in your thoughts on how cigarette brands overall compare to each other.

a) In your opinion, do some cigarette brands have more prestige than others?

b) And in your opinion, are some cigarette brands more harmful than others?

Available responses were: Yes; No; Not applicable; and Don't know, and the proportion providing 'Yes' responses were compared with the proportion reporting all other responses in the analyses. Data on age, sex, total household income, household size, dependents and educational attainment were ascertained.

Ethical review

Ethics approval was received from the ACT Health Human Research Ethics Committee (ETH10.12.232) and the University of Canberra

Human Research Ethics Committee (Project number 12163).

Statistical analysis

Data was entered in SPSS version 21.0. Preliminary inspection indicated some missing data on the smoking status and two main outcome variables (perceptions of differences between cigarette brands on prestige and harm). As there was no justifiable basis on which to impute missing data on these variables, subsequent analyses were conducted on the remaining baseline sample ($n=192$, 94% of original sample).

A set of preliminary analyses was conducted to examine if there were any differences between participants who were followed up, and those who were not followed up. Repeated measures analysis of covariance (ANCOVAs) were conducted to examine the effect of PP and the new and expanded health warnings on changes in perceptions that some cigarette brands are more harmful than others, and are more prestigious than others. As described further below, all analyses adjusted for the influence of the participants' gender, household income, number of dependents and smoking status.

Results

Preliminary analyses

Characteristics of those who completed the baseline survey only ($n=94$) compared to those who completed the baseline + follow-up ($n=98$) survey are provided in Table 1. These preliminary analyses indicated participants who completed both the baseline and follow-up surveys were significantly more likely than those who had only completed the baseline survey to have a higher household income ($p<0.01$) and to have one to two dependents in the household ($p<0.05$), and were slightly more likely to be non-smokers ($p=0.058$) and female ($p=0.090$), while there were no significant differences between these groups in education level ($p>0.10$). Among the smokers ($n=63$), those who completed both the baseline and follow-up surveys were similar to those who only completed the baseline survey in terms of addiction level ($p>0.10$) and the number of past year quit attempts ($p>0.10$). Each of the demographic variables that differed between those followed up and those who did not complete the follow-up survey (at $p<0.10$) were included in all subsequent analyses as covariates.

Main analyses

There was an overall significant reduction in perceptions that 'some cigarette brands are more harmful than others' after the implementation of PP and the new and expanded health warnings (Table 2). There were no interactions between these changes in perceptions of cigarette harmfulness and participants' age or smoking status.

In contrast, there was no overall change in perceptions that 'some cigarette brands are more prestigious than others' (Table 2). However, there was a significant interaction for participant age. Subsequent analyses – separately within each age group – exploring this interaction indicated there was a reduction in perceptions that 'some cigarette brands are more prestigious than others' among younger participants ($p=0.05$), but there was no change in these perceptions among older participants ($p>0.20$). Finally, there was no interaction for smoking status for perceptions of prestige differences, indicating smokers' and non-smokers' perceptions did not differ on this measure.

Discussion

The research findings partially supported our hypotheses, with an overall reduction

in Aboriginal and Torres Strait Islanders' perceptions that 'some cigarette brands are more harmful than others'. There was also a reduction, among those aged 35 years or younger, in the perception that 'some cigarette brands are more prestigious than others' following the implementation of PP and the new and expanded health warnings in Australia on 1 December 2012. The results provide support for our hypotheses that the changes in perceptions would be stronger among younger participants. However, results did not support our hypothesis of greater change in perceptions among smokers when compared with non-smokers.

This study adds to the literature indicating the world's first implementation of PP of tobacco products across Australia has been associated with increased quitting thoughts,²² quit attempts³³ and calls to a state cessation helpline.³⁴ These findings are broadly consistent with recent nationally representative research indicating smokers were more likely to correctly think that cigarette brands did not differ in harmfulness and that brands were more similar in prestige after PP implementation.³⁵ This research also indicated that smokers, especially younger smokers (18–29 years), found the new plain packs to be less appealing.³⁵ Other research

Table 1: Summary of the study participants.

	Completed Baseline-only 2012 (n=94) %	Completed Baseline + Follow-up 2013 (n=98) %	Pearson χ^2 (df), p-level
Male	38.3	26.8	2.88 (1), $p=0.090$
Female	61.7	73.2	
Education level			1.21 (1), $p=0.271$
Below Year 12	55.4	47.4	
Completed Year 12 or equivalent	44.6	52.6	
Age			1.95 (1), $p=0.162$
≤ 35 years	60.5	50.0	
≥ 36 and over years	39.5	50.0	
Household income per year			12.32 (3), $p=0.006$
Prefer not to say or Don't know	12.0	9.3	
Nil to \$51,999	29.3	14.4	
\$52,000 to \$103,999	38.0	34.0	
\$104,000 or more	20.7	42.3	
Number of Dependents			7.63 (2), $p=0.022$
None	61.7	44.9	
1-2	20.2	37.8	
3 or more	18.1	17.3	
Smoking Status			3.58 (1), $p=0.058$
Non-smokers	60.6	73.5	
Smokers	39.4	26.5	
Smoker baseline characteristics	(n=37) %	(n=26) %	Pearson χ^2 (df), p-level
Addiction level			3.99 (2), $p=0.136$
Low dependence	51.4	26.9	
Low to moderate dependence	27.0	46.2	
Mod to high dependence	21.6	26.9	
Quit attempts in past year			4.70 (3), $p=0.195$
None	37.8	23.1	
One	13.5	34.6	
Two or more	40.5	30.8	
No response	8.1	11.5	

of NSW smokers found an increase in the proportion strongly disagreeing that the look of their cigarette pack: is attractive; influences the brand they buy; is fashionable; makes their pack stand out; matches their style; says something good about them.³⁶

These findings provide support for PP and health warnings, in alignment with Article 11, 12 and 13 of the Framework Convention on Tobacco Control (FCTC).³⁷ They extend the benefits and utility of PP and expanded health warnings to the Aboriginal and Torres Strait Islander population.

More time may be required for PP and expanded health warnings, complementing established tobacco control measures, to help correct misperceptions of prestige that have been established over time. Our findings indicate these misperceptions may be particularly difficult to correct among those who are older. This may be because older people have had longer and more intense exposure to the marketing of these brands. These more entrenched brand associations may be triggered more easily by the brand name, which is still present on the bottom of the pack face in a standardised font and size.

These findings are inconsistent with previous experimental research that suggested expanded health warnings and PP could result in greater reductions in perceptions among smokers compared with non-smokers.^{8,9,15-17,20-26,29} The absence of these differences in perceptions of harm and prestige between smokers and non-smokers in this sample may be partially explained by the somewhat normative nature of tobacco use in the Aboriginal and Torres Strait Islander population, with 42% of Aboriginal and Torres Strait Islander people smoking³ and, in 2008, 63% of Aboriginal and Torres Strait Islander children aged 0–14 years reportedly living in a household with members who were current daily smokers.³⁸ Therefore, most Aboriginal and Torres Strait Islander people – smokers and non-smokers alike – would have been

regularly exposed to tobacco packages both before and after the packaging changes.

This normative exposure is set to begin to diminish, accompanied by recent reductions in smoking rates among Aboriginal and Torres Strait Islander people.^{3,39}

Preventing uptake of tobacco use among the Aboriginal and Torres Strait Islander population is central to addressing the disproportionate burden of tobacco-related death and disease, and consequently improving the health and life expectancy of Aboriginal and Torres Strait Islander people.¹ The population has a younger age profile than the general population, so the potential benefit to Aboriginal and Torres Strait Islander youth by reducing perceptions of differences between brands in harm and prestige is particularly important.⁴⁰ Evidence suggests that if people do not commence tobacco use by the age of 26 they will almost certainly never smoke.⁴¹ Any measure that can reduce the influence of brand associations – where packaging is considered to have an instrumental role in marketing tobacco products^{8-11,16,17,20,25,42-46} and tobacco industry marketing is found to predict youth uptake^{40,41} – is welcome.

Strengths and limitations

This study's participants were a sample of Aboriginal and Torres Strait Islander people residing in one urban and inner regional part of Australia, so the findings may be different among those living in remote areas or other urban areas of Australia. While there was a diverse cross-sample of the Aboriginal and Torres Strait Islander population in the ACT region, the study sample had a greater proportion of females; a smaller proportion of participants aged over 45 years; and was slightly more educated and with a higher median household income than the originally recruited sample of the Aboriginal and Torres Strait Islander population in the ACT. The preliminary analyses identified, and main analyses accounted for, differences between

those who were followed up and those lost to follow-up by adjusting for gender, number of dependants in the household, smoking status and household income.

Strengths of this research include input and participation by Aboriginal and Torres Strait Islander people in all stages of the research process, sampling a diverse cross-section of the community, and the ability to build on limited published literature regarding tobacco control in relation to the Aboriginal and Torres Strait Islander population.

Policy implications

These findings align with the specific objectives of PP and affirm the policy change in Australia to PP, with extended health warnings to help address public misperceptions about the harm of tobacco use. It is fundamentally deceptive and misleading to allow a continuation in the perception that some cigarettes are less hazardous than others, including so-called 'additive free', 'natural' or 'lower tar' cigarettes, given that conventional cigarette brands present the same level of risk.^{47,48} Other government agencies committed to tobacco control should investigate regulating the use of brand imagery, logos and promotional text on tobacco products and packaging, including restrictions on colour, format, size and materials of packaging in addition to brand and variant names, to complement tobacco control measures such as those outlined in the FCTC.³⁷

Conclusion

Mistaken perceptions about differential levels of harm of different brands of cigarettes are relatively common. Warnings on cigarette and tobacco PP could assist to reduce these mistaken perceptions. Our findings demonstrate that following Australia's 2012 policy of PP and larger pictorial health warnings on cigarette and tobacco packs

Table 2: Adjusted percentages, and results of repeated measures ANCOVAs of Aboriginal and Torres Strait Islander's perceptions of whether brands differ in prestige and harm before and after Australia's packaging changes.

	Differences in Prestige (n=93)				Differences in Harm (n=91)			
	Baseline Adj [^] %	Follow-up Adj [^] %	F (df), partial eta	p	Baseline Adj [^] %	Follow-up Adj [^] %	F (df), partial eta	p
Packaging Changes (PC)	44.4	41.4	0.75 (1,87), 0.009	0.389	25.1	13.4	4.75 (1,84), 0.054	0.032
PC x Age								
Younger	54.4	37.9	5.69 (1,87), 0.061	0.019	26.9	9.4	1.41 (1,84), 0.016	0.239
Older	34.3	44.9			23.2	17.5		
PC x Smoking Status								
Non-smoker	39.8	36.0	0.01 (1,87), 0.000	0.905	21.6	15.3	0.91 (1,84), 0.011	0.344
Smoker	48.9	46.7			28.5	11.6		

there was a significant reduction in the proportion of Aboriginal and Torres Strait Islander people from one urban and inner regional area of Australia reporting the incorrect perception that 'some cigarette brands are more harmful than others'. In addition, there was a decrease in the proportion of younger Aboriginal and Torres Strait Islander people from this area indicating that 'some cigarette brands are more prestigious than others'. These results provide important initial support for regulatory measures to prohibit the use of misleading package imagery in product marketing, as prescribed in Articles 11, 12 and 13 of the FCTC,³⁷ among high smoking prevalence groups, such as among this urban and inner regional Aboriginal and Torres Strait Islander community.

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