POS4-19: ESTIMATING THE IMPACT OF GRAPHIC WARNING LABELS ON POPULATION-LEVEL SMOKING RATES IN AUSTRALIA

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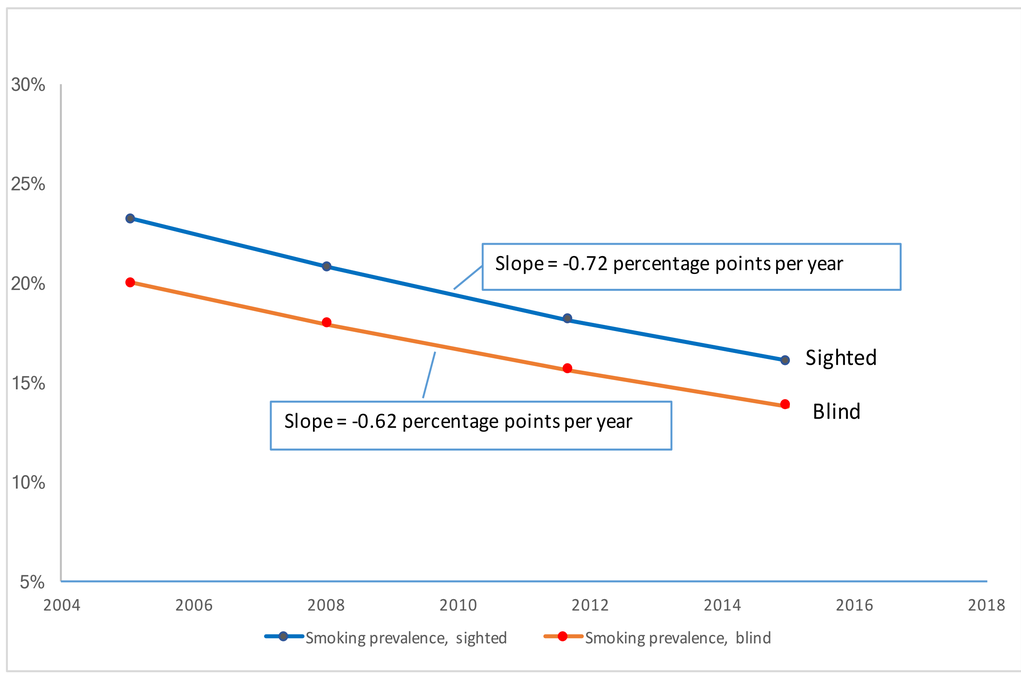
Introduction:

- The use of graphic warning labels on cigarette packages has been a cornerstone of tobacco control policy in Australia for over a decade
- Indeed, one of the stated objectives of the plain packaging legislation—introduced in Australia in late 2012—was to increase the prominence and impact of health warnings on packaging
- While population-level smoking rates have declined markedly in Australia during this period, it is unclear how much of this decline can be attributed to graphic warning labels.
- This is in part because of other population-level intervention—most notably marked increases in the tobacco excise—have been implemented during this period as well
- **Importantly, laboratory and observation studies have questioned the effectiveness of current graphic warning labels**
    - **Questions about the effectiveness of fear appeals**
- Here we assess the impact of graphic warning labels by comparing the decline in smoking rates among the blind and non-visually-impaired ("sighted")
    - If graphic warning labels are effective, we would expect to see a greater decline in smoking among sighted smokers

Method:

- Data drawn from four Australian Bureau of Statistics National Health Surveys between 2004/05 and 2014/15
- Blindness was defined as long-term complete or partial blindness of any cause
- Smoking was defined as current smoking of any frequency
- Trends in the prevalence estimates were estimated and compared for blind and sighted persons using log binomial regression



- Prevalence of smoking in the sighted decreased from 23•2% in 2004/05 to 16•0% in 2014/15
- Prevalence of smoking in the blind fell from 19•4% in 2004/05 to 14•5% in 2014/15.

Results:

- Smoking prevalence fell among both groups (Figure)
- **Sighted:** -0•72 percentage point fall / year (average)
- **Blind:** -0•62 percentage point fall / year (average)
- Rates of change with respect to time of smoking prevalence for the blind and sighted were derived from the model (Table)
- **No interaction of blindness and time**
- The greatest difference between the two estimated rates of change was at the first time-point: 0•12 percentage points per year (Table)
- **95% likelihood that the true difference in rates between the blind and sighted over the period is no greater than 0•28 percentage points per year**

Table 2: Rates of change (and 95% Confidence Intervals [CI]) in the prevalence of smoking for blind and sighted adult Australians as derived from a generalized linear model of smoking prevalence—2004/05 to 2014/15.

Survey	Rate of change in smoke prevalence in sighted, % per year (95% CI)	Rate of change in smoke prevalence in blind, % per year (95% CI)	Difference in rates of change, % per year (95% CI)
2004/05	-0·86 (-1·02, -0·71)	-0·74 (-0·94, -0·54)	0·12 (-0·04, 0·28)
2007/08	-0·77 (-0·90, -0·65)	-0·66 (-0·84, -0·49)	0·11 (-0·03, 0·25)
2011/12	-0·67 (-0·77, -0·58)	-0·58 (-0·73, -0·43)	0·09 (-0·03, 0·22)
2014/15	-0·60 (-0·67, -0·52)	-0·51 (-0·64, -0·39)	0·08 (-0·03, 0·19)

Discussion:

- Purpose of study was to test for a difference in the rate of decline in smoking between blind and sighted populations in Australia to generate an estimate of the impact of the graphic warning labels on smoking rates
- We estimate that graphic warning labels resulted in an ~1 percentage point drop in smoking prevalence from 2004 to 2015
    - Explains ~13•9% of the total observed decline
- Majority of the observed decline due to other factors (e.g., increases in excise tax, promotion of quit lines)
- No evidence for a difference in smoking prevalence change between the blind and non-blind over the time period
- Evidence suggests that confronting communication of health information may elicit avoidant or defensive reactions among smokers, thereby muting the potential positive effects of such messages
    - Real world studies
    - Eye-tracking studies
    - Supported by theory
- Research into ways to improve the design and implementation of graphic warning labels is warranted
- One potential theory-derived improvement would be to augment current warning messages to incorporate content designed to improve the acceptance of health warning messages
    - E.g., addition of self-affirmation content, potentially via inserts

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