

## RESEARCH PAPER

# Out of the smokescreen II: will an advertisement targeting the tobacco industry affect young people's perception of smoking in movies and their intention to smoke?

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**Objective:** To evaluate the effect of an antismoking advertisement on young people's perceptions of smoking in movies and their intention to smoke.

**Subjects/setting:** 3091 cinema patrons aged 12-24 years in three Australian states; 18.6% of the sample (n=575) were current smokers.

**Design/intervention:** Quasi-experimental study of patrons, surveyed after having viewed a movie. The control group was surveyed in week 1, and the intervention group in weeks 2 and 3. Before seeing the movie in weeks 2 and 3, a 30 s antismoking advertisement was shown, shot in the style of a movie trailer that warned patrons not to be sucked in by the smoking in the movie they were about to see.

**Outcomes:** Attitude of current smokers and non-smokers to smoking in the movies; intention of current smokers and non-smokers to smoke in 12 months.

**Results:** Among non-smokers, 47.8% of the intervention subjects thought that the smoking in the viewed movie was not OK compared with 43.8% of the control subjects (p=0.04). However, there was no significant difference among smokers in the intervention (16.5%) and control (14.5%) groups (p=0.4). A higher percentage of smokers in the intervention group indicated that they were likely to be smoking in 12 months time (38.6%) than smokers in the control group (25.6%; p<0.001). For non-smokers, there was no significant difference in smoking intentions between groups, with 1.2% of intervention subjects and 1.6% of controls saying that they would probably be smoking in 12 months time (p=0.54).

**Conclusions:** This real-world study suggests that placing an antismoking advertisement before movies containing smoking scenes can help to immunise non-smokers against the influences of film stars' smoking. Caution must be exercised in the type of advertisement screened as some types of advertising may reinforce smokers' intentions to smoke.

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In the past decade, tobacco companies have devised increasingly innovative and aggressive strategies for attracting consumers.<sup>1-2</sup> Product placement in films popular with young people has been the focus of comment and criticism by numerous international health groups.

Depictions of smoking are common in films<sup>3</sup> and have decreased in recent decades.<sup>4</sup> Sargent *et al*<sup>5</sup> documented an overall increase in the depiction of smoking in films in the 1990s that seemed to coincide with restrictions in advertising.<sup>6</sup> Lead characters portrayed as smokers are often likeable, rebellious, attractive and/or successful.<sup>7</sup> Role models with such characteristics are often used in tobacco advertising.<sup>8</sup> Escamilla *et al*<sup>9</sup> analysed the portrayal of smoking in Hollywood films and found that smoking was highly prevalent in films featuring popular actresses.<sup>10</sup> McIntosh *et al*<sup>11</sup> compared Hollywood's depiction of smokers to real-world demographics on smoking and found that smoking scenes in movies tend to ignore the negative consequences of smoking, a finding confirmed by Dalton *et al*<sup>12</sup> in 2002.

There is mounting evidence linking Hollywood's depiction of smoking in movies and adolescents' attitudes to smoking and their smoking behaviour. Tickle *et al*<sup>13</sup> showed that adolescents whose favourite movie stars use tobacco on screen are significantly more likely to be at a more advanced stage of smoking uptake and to have more favourable attitudes towards smoking than adolescents who choose non-smoking stars. Studies<sup>14-18</sup> provide even stronger evidence that viewing smoking in movies promotes smoking initiation among adolescents. A cohort study by Dalton *et al*<sup>19</sup> in 2003 suggests

that viewing smoking in movies strongly predicts whether or not adolescents initiate smoking and the effect increases significantly with greater exposure.

Prominent researchers and public health advocates have called for action to reduce the impact of positive depictions of smoking in the media, including feature films screened in cinemas.<sup>20</sup>

A Californian study<sup>21</sup> suggested that young people can be immunised against the influences of film stars smoking by showing a strong antismoking advertisement before those films that contain smoking scenes. A 2004 Australian study<sup>22</sup> supported these findings. The findings of Pechmann and Shih<sup>21</sup> and Edwards *et al*<sup>22</sup> support the psychological Theory of Reasoned Action,<sup>23-24</sup> which states that the strength of a person's intention to behave in a certain way is a function of attitudes towards the behaviour and the influence of general subjective norms on the behaviour. According to this theory, an antismoking advertisement may alter the positive attitudes towards smoking that are portrayed in movies and elicit more realistic normative perceptions of the practice of smoking. This should theoretically alter the viewer's intention to smoke and subsequently reduce their likelihood of smoking in the future. The Elaboration Likelihood Model of Persuasion<sup>25</sup> suggests that attitude change can be either via the central route that utilises deliberate information processing to assess an issue or via the peripheral route that takes less effort and may even be subliminal. This model predicts that smoking scenes in movies influence young people via the peripheral route. An antismoking advertisement attempts to change attitudes through the

central route that, according to the theory, is more enduring and more likely to lead to long-term behavioural change.

Cinema attendance and viewing films rated R under the US classification system increases exposure to onscreen depictions of smoking.<sup>26</sup> The majority of young people, including those of varied cultural background, attend the cinema on a regular basis.<sup>27, 28</sup> A significant advantage in using this medium for an antismoking campaign is the potential to reach a large number of young people in a cost-effective manner.<sup>21, 29</sup>

This paper evaluates the use of this approach in an intervention conducted in a real-world cinema setting in Australia. The objective of the study was to evaluate the effect of an antismoking advertisement on young people's perceptions of smoking in the following movie and their intention to smoke. It was hypothesised that when an antismoking advertisement is shown before a movie containing smoking scenes, viewers will be (1) less likely to approve of the smoking and (2) less likely to report an intention to smoke in the future. This study expands on the first real-world cinema study of the effect of an antismoking advertisement on attitudes to smoking in movies and intention to smoke conducted by Edwards *et al* in 2004. It samples a larger, more geographically and culturally diverse population of both males and females with a broader age range. It also evaluates a very different type of antismoking advertisement that does not include the health effects of smoking or a quit message.

## METHOD

### Study design

This quasi-experimental controlled study of 12–24-year-olds was conducted in cinemas in the Australian states of New South Wales (NSW), South Australia (SA) and Australian Capital Territory (ACT) during a period of 3 weeks in January 2005. Young people were surveyed on leaving the movie. The movies seen by the intervention and control groups were identical. The control group was surveyed during week 1, and the intervention group during weeks 2 and 3. A 30 s antismoking advertisement was shown before the movie in weeks 2 and 3.

### Subjects

Of the 3850 young people who were approached and who appeared to be aged between 12 and 24 years, 3100 completed questionnaires and 750 refused, providing a response rate of 80.5%. A total of 9 questionnaires were discarded because the respondents were outside the age range, leaving a sample size of 3091. Most refusals gave "in a hurry" or "couldn't be bothered" as reasons for not wanting to participate. Cinema complexes were chosen according to the attendance numbers of patrons in the targeted age range. Patrons were surveyed on Thursdays, Fridays and Saturdays as new movies begin on Thursdays and the majority of young people attend the cinema on these days.

### Materials

#### Antismoking advertisement

A new advertisement was developed for use in the campaign.

The successful concept was specific to the issue of smoking in movies. It showed action on a film set and was shot in the style of a movie trailer. The advertisement did not contain specific health or cessation messages or images. The voice over said:

In a world where tobacco giants crave fresh blood, a new menace lurks.  
Smoking in Movies. Behind all the glamour, behind all the gloss it's

waiting to suck you in. Don't be fooled by the movie you are about to see.  
Don't be a sucker.

Preproduction testing with the target age group (a total of 30 respondents) did not identify any problems with the concept or delivery of the message.

### Movies

"Screenit", an internet film review site providing content information about films,<sup>30</sup> was used to identify movies due for upcoming release in the Australian school holidays that would appeal to young people and depicted smoking. In the review, the level of smoking was recorded. Relevant movies were selected for the study, based on overseas trends of attendance of young people aged 12–24 years and inclusion in the cast of a star with appeal to young people. *Closer*<sup>31</sup> and *Alfie*<sup>32</sup> were the only two movies that fitted the above criteria during the timeframe allocated for the study. *Closer* contained mild smoking and *Alfie* contained heavy smoking.

### Questionnaire

The one-page questionnaire asked respondents what movie they had seen, whether there was any smoking in the movie and, if "yes", which characters smoked. They were then asked about their opinion of smoking in the movie—"was it OK the character/s were smoking?" A five-point Likert scale was provided. Respondents could choose from "definitely not OK", "somewhat not OK", "no opinion", "somewhat OK" and "definitely OK". Responses were subsequently collapsed into "not OK", "no opinion" and "OK". This was necessary because the small percentage of smokers in the sample meant that some cells were too small to analyse using all responses. For the binary logistic regression, "not OK" was compared with "OK".

Respondents were also asked about their current smoking status—"have you smoked cigarettes in the last 4 weeks?" and their intention to smoke—"do you think you will be smoking cigarettes this time next year?" A seven-point Likert scale was provided that included "certain not to be smoking", "very unlikely to be smoking", "unlikely to be smoking", "can't decide how likely", "likely to be smoking", "very likely to be smoking" and "certain to be smoking". Responses were subsequently collapsed into "likely to be smoking", "can't decide how likely" and "unlikely to be smoking" because of small cell sizes. For the binary logistic regression, "likely to be smoking" was compared with "unlikely to be smoking".

### Procedure

As patrons were about to enter their chosen movie, they were given a flyer inviting them to complete a short, written questionnaire after viewing the movie. Patrons in NSW and SA were informed that they would receive a free lip gloss if they participated. Provision of an incentive was not permitted in ACT under ACT Health Ethics Guidelines. After the screening of the target movies, all audience members who appeared to be aged 12–24 years were approached as they exited the cinema. After their age was confirmed, they were invited to complete the questionnaire.

### Statistical analysis

SPSS for Windows V.10.1.3 was used to analyse the data. To compare the intervention and control groups with respect to subject characteristics, recognition of smoking in the movie, approval of the smoking in the movie and intention to smoke in the future,  $\chi^2$  tests were used. Binomial logistic regression was used to compare the intervention and control groups with

respect to approval of smoking in the movie and intention to smoke, while adjusting for variables that were not evenly distributed across groups.

**RESULTS**

**Characteristics of patrons**

Of the total sample of 3091 subjects, 1743 (56.4%) had viewed a movie with the antismoking advertisement (intervention group) and 1348 (43.6%) had viewed a movie without the advertisement (control group). Respondents' ages ranged from 12 to 24 years with a mean (SD) age of 16.5 (2.19) years and a median of 16 years. In all, 19% reported having smoked cigarettes in the past 4 weeks. Table 1 compares the characteristics of intervention and control groups finding differences in relation to gender, age group, movie viewed and language spoken at home, but not for smoking status or percentage of non-responders.

**Recall of the antismoking advertisement**

More than half the subjects in the intervention group (51.7%) could recall seeing an antismoking advertisement when surveyed immediately after the movie.

**Recall of smoking in the movie**

In all, 98% of both control and intervention subjects recalled characters smoking in the movie regardless of which movie they saw. All those who recalled the smoking could correctly name (or describe) at least one character who was smoking without being prompted. Two subjects also incorrectly identified characters who were not smoking.

**Opinion of smoking in the movie**

Univariate analysis showed that opinion of smoking in the movie was significantly related to current smoking status, age group and gender but not to the movie viewed. After adjusting for differences in age group and gender, the antismoking advertisement had an overall effect on opinion of smoking in the movie, with significantly more subjects indicating that the smoking in the movie was "not OK", if they saw the antismoking advertisement before the movie (Wald  $\chi^2 = 5.83$ ,

$df = 1$ ,  $p = 0.016$ ). Because there was a significantly lower percentage of smokers than non-smokers indicating disapproval of the smoking in the movie ( $\chi^2 = 308.58$ ,  $df = 2$ ,  $p < 0.001$ ), the effect of the intervention on approval was analysed separately for smokers and non-smokers.

As shown in table 2, univariate analysis found that among non-smokers, those in the intervention group were significantly more likely to say that the smoking was "not OK", with 47.8% of the intervention group saying that the smoking was "not OK", compared with 43.8% of the control group ( $\chi^2 = 6.39$ ,  $df = 2$ ,  $p = 0.041$ ). After adjusting for differences in gender and age group, there were significantly more non-smoking intervention respondents who said that the smoking in the movie was "not OK", compared with non-smoking control respondents (Wald  $\chi^2 = 8.05$ ,  $df = 1$ ,  $p = 0.005$ ).

Univariate analysis showed that among smokers, there was no significant difference between groups in relation to the level of approval of smoking in the movie ( $\chi^2 = 1.39$ ,  $df = 2$ ,  $p = 0.4$ ) although the intervention group showed a higher percentage of disapproval than the control group (table 2). After adjusting for age group and gender differences, there was still no significant difference between smokers' level of approval by group (Wald  $\chi^2 = 0.249$ ,  $df = 1$ ,  $p = 0.618$ ).

**Intention to smoke**

Univariate analysis showed that intention to smoke in 12 months was significantly related to current smoking status, age group and gender but not to the movie viewed. After adjusting for differences in age group and gender, there was an overall significant effect of the intervention on intention to smoke (Wald  $\chi^2 = 9.386$ ,  $df = 1$ ,  $p = 0.002$ ). Surprisingly, a higher percentage of the intervention group said they were likely to be smoking in 12 months (table 3). As a significantly higher percentage of smokers than non-smokers indicated they would probably be smoking ( $\chi^2 = 1154.9$ ,  $df = 3$ ,  $p < 0.001$ ), a separate analysis for smokers and non-smokers was undertaken. After adjusting for age and gender, there was a significantly higher percentage of current smokers who said they were likely to be smoking in 12 months in the intervention group than in the control group (Wald  $\chi^2 = 9.01$ ,  $df = 1$ ,  $p = 0.003$ ; table 3). However, there was no difference between groups in smoking intentions among non-smokers (Wald  $\chi^2 = 0.436$ ,  $df = 1$ ,  $p = 0.509$ ).

**DISCUSSION**

This study supported the hypothesis that when an antismoking advertisement is shown before a movie with smoking, the smoking in the movie is less likely to be perceived as justified; however, this finding was only significant among non-smokers. Edwards *et al* showed similar results in her 2004 Australian study. This also supports the findings of Pechmann and Shih<sup>21</sup> that 9th grade students who saw an antismoking advertisement tended to elicit negative thoughts about smoking and smokers. There is strong evidence that youth's perceptions of smokers are highly predictive of their smoking behaviours.<sup>33-35</sup>

**Table 1** Characteristics of intervention and control groups

	Control, n (%)	Intervention, n (%)	p Value
<b>N</b>	<b>1348 (43.6)</b>	<b>1743 (56.4)</b>	
Age (years)			0.04*
12-17	931 (69.1)	1141 (65.5)	
18-24	417 (30.9)	602 (34.5)	
Gender			<0.001*
Male	204 (15.2)	366 (21.0)	
Female	1141 (84.8)	1375 (79.0)	
Current smokers			0.66
Yes	245 (18.2)	327 (18.8)	
No	1100 (81.8)	1409 (81.2)	
Movie			<0.001*
Alfie	1135 (84.2)	811 (46.5)	
Closer	213 (15.8)	932 (53.5)	
Language spoken at home			<0.001*
English	1189 (88.2)	1623 (93.1)	
Other	159 (11.8)	120 (6.9)	
Non-responders	352 (20.7)	398 (18.6)	0.1

\*Denotes a significant difference in the distribution between control and intervention groups compared to the sample as a whole.

**Table 2** Approval of smoking in the movie for smokers and non-smokers by group

	Non-smokers (%)		Smokers (%)	
	Control n = 1092	Intervention n = 1402	Control n = 242	Intervention n = 321
Not OK	43.8	47.8	14.5	16.5
No opinion	28.9	29.1	24.8	20.9
OK	27.3	23.1	60.7	62.6

**Table 3** Intention to smoke among smokers and non-smokers by group

	Non-smokers (%)		Smokers (%)	
	Control n = 1031	Intervention n = 1338	Control n = 167	Intervention n = 236
Unlikely to be smoking	93.9	95.5	43.4	34.3
No opinion	4.9	2.9	31.0	27.2
Likely to be smoking	1.2	1.6	25.6	38.6

The present study did not support the second hypothesis that an antismoking advertisement shown before a movie with smoking scenes would result in lower intentions to smoke in the future. The finding that a higher proportion of smokers in the intervention group reported they were likely to be smoking in the future suggests that the antismoking advertisement could have in fact increased stated intentions to smoke. It is unclear what effect this would have on actual future behaviour as some studies have shown that, among adolescents, current smokers stated intention to smoke is not a good predictor of future smoking status.<sup>36 37</sup>

The unexpected negative effect was investigated with focus group testing of the advertisement, but the cause remains unclear. If this finding is confirmed in future field studies, it could have important ramifications for the type of antismoking advertisements used to target young people. Screening an antismoking advertisement neutralised the effect of the smoking on intention to smoke in the Pechmann 1999 study. The study by Edwards *et al*<sup>22</sup> showed a significant decrease in intention to smoke for the 12–17-year-old female smokers who viewed the antismoking advertisement. The studies by Pechmann and Shih<sup>21</sup> and Edwards *et al*<sup>22</sup> used advertisements from previous anti-smoking campaigns that had been extensively evaluated at a state and national level, respectively, and had scored well with young audiences. Both the advertisements contained graphic messages related to the long-term health effects of smoking with a quit-smoking message. The present study evaluated a new advertisement that highlighted the deceptive conduct of the tobacco industry in glamourising smoking in movies. There was no health or quit-smoking message attached to the advertisement. Wakefield *et al*<sup>38</sup> suggest that advertisements that graphically portray the adverse consequences of smoking often rate highly among teens. Highlighting the deceptive and misleading conduct of the tobacco industry typically requires a more sophisticated target audience with additional experience in understanding these messages. A recent study by Pechmann and Reibling<sup>39</sup> suggested that ‘sponsors of tobacco use prevention ad campaigns should consider using ads showing tobacco-related disease and suffering, not just counter-industry ads’. Pechmann and Reibling found that counter-industry and industry advertisements did not significantly lower smoking intention.

Almost all non-smokers in both groups said they did not intend to smoke in the future, which left little likelihood of detecting a reduction in intention to smoke. Although we did not detect a reduction, there was no evidence that the intervention had the unintended effect of enhancing smoking intentions among non-smokers. Australian and US research has found that stated intention among non-smokers to become smokers is a good predictor of smoking uptake.<sup>40–43</sup>

The extremely high recall of characters smoking in the movie was unrelated to seeing the antismoking advertisement before the movie or which movie the respondents viewed. The study by Edwards *et al*<sup>22</sup> reported an almost identical finding using

five different movies. The antismoking advertisement cannot be accused of drawing attention to the smoking in the movie, because young people recall the smoking in any case. However, this study supports previous evidence that antismoking advertisements can counter young non-smokers’ perceptions of the smoking content as justified. This is a strong argument for using antismoking advertisements to counter the influence of smoking in movies.

The study design had three major limitations. Firstly, because the study was conducted in real movie theatres, it was not possible to randomly allocate cinema-goers to control or intervention groups. However, variables that significantly differed between control and intervention groups were identified and multivariate analyses were used to adjust for these differences. Furthermore, analyses were stratified by smoking status.

Secondly, we did not collect baseline information on approval of smoking in movies or intention to smoke. In this study, it was judged that collection of these data would prime subjects (especially control group subjects) to smoking in movies. Additionally, matching of baseline and post-movie questionnaires in this setting would have been extremely difficult.

Thirdly, the opportunistic nature of the sample raises the issue of representativeness. The study attempted to survey every young person leaving the selected movies who appeared to be aged between 12 and 24 years, but there is no way of identifying or describing those cinema-goers who may have been missed. Australian research<sup>24</sup> indicates that 94% of young Australians had attended the cinema in the past 12 months and 56% had attended in the past 4 weeks. An Australian school holiday period was chosen to optimise the likelihood of attaining a large representative sample of young cinema-goers. The sample is strongly skewed towards females who speak English at home, with 81% of the sample being female and 91% speaking English at home. This may be a result of the types of movies that were chosen.

The major strength of this study lies in the fact that it measured the reactions of the target audience to an antismoking advertisement viewed under naturalistic conditions in real cinemas using a control group. Pechmann and Shih<sup>21</sup> acknowledge the limitations of conducting their research in relatively sterile classroom settings. An extensive literature search and consultation with anti-tobacco experts in Australia and the US has identified the Edwards *et al* 2004 study as the only previous study of this nature conducted in cinemas.

The findings of this real-life study confirm those of the Pechmann and Shih<sup>21</sup> 1999 and Edwards *et al*<sup>22</sup> 2004 studies that antismoking advertising before movies in which characters are smoking can have a discernible effect on attitudes to smoking in movies. Placing an antismoking advertisement before movies that contain smoking scenes can help to immunise young non-smokers against the influences of film stars smoking. Further research needs to be conducted to ascertain what characteristics and messages are needed in antismoking advertisements to immunise young current smokers and alter their intention to smoke.

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## What this paper adds

- This study is only the second study to measure the effect of an antismoking advertisement in the real world of the cinema using a control group.
- Results of the first study showed that the Australian National Tobacco Campaign's "Tar/Lung" advertisement, when shown before movies with smoking in them, could alter 12–17-year-old female non-smokers' opinion of the smoking in the movie and significantly alter smokers' intention to smoke. A higher percentage of current smokers in the intervention group indicated that they were unlikely to smoke in 12 months time than smokers in the control group.
- This second study evaluates the effect of a very different style of antismoking advertisement using the same methodology and a much broader target group. The non-randomised control study measured the effect of the New South Wales Cancer Council's "Smoking in Movies" advertisement on 3091, 12–24-year-old male and female cinema-goers across three Australian states. The study evaluated the cinema-goers' opinion of smoking in the movies they viewed and their subsequent intention to smoke—with very different results.
- Although the anti-tobacco industry advertisement altered non-smokers' opinion of smoking in the movie, it had no effect on smokers' opinion. Surprisingly, the advertisement seemed to encourage current smokers to continue smoking, with a significantly higher percentage of current smokers in the control group indicating they were unlikely to smoke in 12 months time than smokers in the intervention group.
- The findings of this second real-life study support those of the previous studies that antismoking advertising before movies in which characters are smoking can have a discernible effect on non-smokers attitudes to smoking in movies. Both the "Tar/Lung" advertisement and the "smoking in movies" advertisement helped to immunise young non-smokers against the influences of film stars smoking. The boomerang effect on smokers' intention to smoke in this second study suggests that caution must be exercised in the type of advertisement screened as some types of advertising may reinforce smokers intention to smoke.

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