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The influence of newspaper coverage and a media campaign on smokers' support for smoke-free bars and restaurants and on second-hand smoke harm awareness. Findings from the International Tobacco Control (ITC) Netherlands Survey

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ABSTRACT

Objective: To assess the influence of newspaper coverage and a media campaign about Dutch smoke-free legislation on smokers' support for smoke-free bars and restaurants and on second-hand smoke (SHS) harm awareness. **Design and main outcome measures:** A content analysis was conducted of 1,041 newspaper articles on the smoke-free legislation published in six Dutch newspapers from March 2008 until April 2009. Smokers who were regular readers of at least one of these newspapers (n = 677) were selected from the pre- and post-ban waves of the International Tobacco Control (ITC) Netherlands Survey. Exposure to newspaper coverage and to the implementation campaign were correlated with changes in smokers' support for smoke-free bars and restaurants and SHS harm awareness. **Results:** Most newspaper coverage was found to be negative towards the smoking ban (57%) and focused on economic aspects (59%) rather than health aspects (22%). Exposure to this coverage had a small but significantly negative effect on support for smoke-free bars and restaurants (Beta = -0.09, p = 0.013). Among higher educated smokers, exposure to positive newspaper coverage had a more positive effect on support for smoke-free bars and restaurants. In addition, exposure to the implementation campaign had a small but significantly positive effect on SHS harm awareness (Beta = 0.11, p = 0.001). **Conclusions:** Media attention about smoke-free legislation can influence smokers' support for the legislation and SHS harm awareness. Tobacco control advocates should aim to establish positive media attention that puts forward the health arguments for the legislation.

INTRODUCTION

In many countries around the world, smoke-free legislation is being implemented to protect non-smokers from the health dangers of second-hand smoke (SHS) [1]. Optimal protection is achieved when compliance with smoking bans is high. Several studies have shown that compliance is positively related to higher levels of support for the legislation and to greater SHS harm awareness [2-4]. Both can possibly be influenced by means of well designed media campaigns and advocacy. In this study, we assess the influence of newspaper coverage and a campaign about smoke-free legislation on changes in smokers' support for the legislation and SHS harm awareness.

Both opponents and proponents of tobacco control believe that media attention can influence public support for tobacco control policies. This is evidenced by the fact that influencing media attention about smoking is a known strategy of tobacco control advocates [5, 6] and the tobacco industry [7, 8] alike. However, research on media attention about tobacco has mainly focused on describing media coverage, and few studies have linked this with individual outcomes [5]. Two recent studies from the United States found an association between media coverage of tobacco control policy in a region and support for the policy in that region [9, 10]. Another recent US study found no association between self reported media coverage and support for tobacco control policies [11]. These studies provided no conclusive evidence on the matter, as their cross-sectional design made it difficult to reach firm conclusions about causal relationships. Furthermore, these studies did not report on differential effects of media coverage between people from higher and lower educational levels. This is important, because smoking is increasingly a problem for lower educated groups [1]. The available research suggests that media campaigns are more effective among higher educated groups [12] and that these groups learn more from the media than lower educated groups [13].

The theoretical concept of framing explains how media attention can influence attitudes. Frames give context to an issue, which influences how the issue is perceived and understood [14]. For example, smoke-free legislation is often framed by tobacco control advocates as a measure to protect the health of non-smokers but by the tobacco industry as a measure that causes economic losses to the hospitality industry [15, 16]. A study on the effects of newspaper coverage about a tobacco tax increase found that coverage of economic aspects was associated with less support for the tax increase, while coverage of health aspects was associated with more support [9].

The case that we present in this study is that of the implementation of the smoke-free hospitality industry legislation in the Netherlands in July 2008. The implementation of this legislation did not proceed as planned. A small minority of bars failed to comply with the smoking ban at first [17], but this small group received a disproportionate high amount of media attention. This may have fuelled resistance to the legislation and increased the number of non-complying bars. While support for legislation typically increases considerably after its implementation [18-20], support for the Dutch legislation was low before and stayed low after its implementation [21]. In fact, of all European countries, the Netherlands had the lowest support for smoke-free bars: only 44 percent of the population [22]. The Dutch government ran a mass media implementation campaign for the smoke-free legislation on television (849 GRPs[1]), radio (1,636 GRPs), and posters (144 GRPs) from May to September 2008. Although the World Health Organization guidelines recommend an emphasis on the public health arguments for implementing smoke-free legislation [23], the Dutch implementation campaign only communicated the date of implementation. The television commercial showed a man dressed as a large cigarette being thrown out of hospitality industry venues onto the street.

[1] GRP stands for Gross Rating Point, which is the percentage of the target audience that is reached by the campaign times the frequency of exposure. Normally, government campaigns in the Netherlands have 300 GRPs on television and 640 GRPs on radio.

The present study examined the effects of the implementation campaign and newspaper coverage about the smoke-free legislation on support for smoke-free bars and restaurants and on SHS harm awareness. The following hypotheses were tested: 1) positive newspaper coverage has a more positive effect on support and harm awareness than negative coverage; 2) newspaper coverage of health aspects has a more positive effect on support and harm awareness than coverage of economic aspects; 3) the implementation campaign has no effect on support or harm awareness; 4) there are more positive effects from media attention among smokers with higher than lower educational levels. To study this, we used longitudinal data from the International Tobacco Control (ITC) Netherlands Survey and a content analysis of newspaper coverage about the smoke-free legislation.

METHODS

ITC Netherlands Survey

In this study we used the pre-ban (April 2008) and post-ban (April-May 2009) internet survey of the ITC Netherlands Survey. All respondents were aged 15 years or older at the pre-ban survey, smoked manufactured or roll-your-own cigarettes at least monthly, and had smoked at least 100 cigarettes in their lifetime. The pre-ban survey was sent to 2,331 smoking panel members of the TNS NIPObase and was returned by 1,820 respondents (78%). Of the 1,820 pre-ban respondents, 1,447 participated again in the post-ban survey (80%). Additional details about the methods of the ITC Netherlands Survey can be found on the ITC Project website [24].

The first aspect of media attention about the smoke-free legislation that we assessed in this study is newspaper coverage. All post-ban respondents were presented with a list of 38 newspapers, with a request to indicate which newspapers they read and how often. This method of asking respondents of a population survey about their newspaper reading behaviour

to assess the population effects of newspaper coverage was also recently used by Dunlop and Romer [25]. Because this method requires a content analysis of every included newspaper, we did not include readers of all 38 newspapers, but only respondents who read at least one of the six largest newspapers (n = 677 newspaper readers). A smaller number of the post-ban respondents read one of the other 32 newspapers (n = 351), read no newspaper at all (n = 415), or did not answer the question (n = 4). Table 1 shows the number of respondents per newspaper.

The second aspect of media attention about the smoke-free legislation was the implementation campaign. Recall of exposure to this campaign was assessed at the post-ban survey by showing post-ban respondents pictures and texts of the three different parts of the campaign: posters, television, and radio commercials. Of each part of the campaign we asked how often they have seen or heard something about this. Response categories were *never*, *once or twice*, *sometimes*, *often*, and *very often*. One exposure variable was created by computing a mean score of exposure to the three different parts of the campaign for every respondent, ranging from 0 to 4 (M = 1.12, SD = 0.83).

Support for smoke-free bars and restaurants was assessed at the pre- and post-ban survey using the question "Do you support or oppose a complete Dutch smoking ban in drinking establishments: cafés, bars, and pubs?" and "Do you support or oppose a complete Dutch smoking ban in restaurants?" Response categories were *strongly support*, *support*, *oppose*, and *strongly oppose*. The mean of these two variables was used as indicator of support for smoke-free bars and restaurants.

SHS harm awareness was assessed at the pre- and post-ban survey using the question "In the last month, how often, if at all, did you think about the harm your smoking might be doing to other people?" Response categories were *never*, *rarely*, *sometimes*, *often*, and *very often*.

Furthermore, age, gender, and educational level of respondents were assessed at the pre-ban survey. Education was categorized in three levels: low (primary education and lower pre-vocational secondary education), moderate (middle pre-vocational secondary education and secondary vocational education), and high (senior general secondary education, (pre-)university education and higher professional education).

Table 1: Number of respondents and articles per newspaper

	Metro	Telegraaf	Sp!ts	Volkskrant	AD Rotterdam	Gelderlander	Total
Number of respondents	327	310	302	85	60	54	677
Number of articles							
Smoke-free legislation	145	183	94	142	118	359	1,041
Economic aspects	76	114	58	81	60	229	618
Health aspects	33	42	20	51	21	59	226

Content analysis

A content analysis was performed on the six Dutch newspapers that were most often read by smoking respondents of the ITC Netherlands Survey. Two of the newspapers were the largest regular national newspapers in the Netherlands (De Telegraaf and De Volkskrant), two were the largest free national newspapers (Metro and Sp!ts), and two were large regular regional newspapers (AD Rotterdams Dagblad and De Gelderlander).

Articles that appeared in one of these six newspapers from March 2008 until April 2009 were selected from the digital database LexisNexis®, which contains all articles that appear in these newspapers. A search with words related to smoking (e.g. smoking, smoker, and cigarette) and words related to the smoke-free hospitality industry legislation (e.g. hospitality industry, bar, smoking ban, and smoke-free) resulted in a selection of articles with a high probability of being about the smoke-free hospitality industry legislation. Of the selected articles, only the 1,086 articles that were about the smoke-free hospitality industry

legislation and had a tobacco focus (i.e. the article had smoking or tobacco in the heading, or at least more than half of one paragraph of the article dealt with smoking or tobacco) were included in the study.

All 1,086 included articles were coded on reference to health and economic aspects and on slant towards the smoking ban (positive, negative, mixed, or neutral). The coding on slant was done from the perspective of tobacco control according to the method of Clegg-Smith et al. [10]. The coding was done by two coders and had a high level of correspondence with respect to health aspects (Cohen's kappa = 0.85) and economic aspects (Cohen's kappa = 0.85) and a satisfactory level of correspondence with respect to slant (Cohen's kappa = 0.62). A third coder coded the articles on which there was no agreement between the first two coders and made the decision about the coding. If the third coder disagreed with each of the first two coders (only possible for codings on slant), that article was excluded (n = 45), which left 1,041 articles for the analyses.

Analyses

Individual exposure to articles about the smoke-free legislation was estimated by combining the content analysis of newspaper coverage with information about the newspaper reading behaviour of the ITC respondents. This method was also used by Dunlop and Romer [25], with the difference that the current study does not use newspaper reading frequency in general but per newspaper. For example, a respondent who read the newspaper De Telegraaf three times a week and the newspaper Metro every day could be exposed to half of the 49 articles that were positive about the smoking ban in De Telegraaf (49 / 2 = 24.5) and all 52 articles that were positive about the smoking ban in Metro. Maximum exposure of this respondent to positive articles on the smoking ban would then be estimated to be 24.5 + 52 = 76.5 articles. We do not assume that this respondent did read all 76.5 articles, but we assume that the

relative difference in maximum exposure between respondents indicated the relative differences in actual exposure.

Pearson correlation coefficients were reported between exposure to the implementation campaign and newspaper coverage and support for smoke-free bars and restaurants and SHS harm awareness. Linear regression analysis was used to determine the effect of exposure to the implementation campaign and newspaper coverage on support for smoke-free bars and restaurants and on harm awareness. The dependent variables were post-ban support for smoke-free bars and restaurants and post-ban SHS harm awareness. The predictor variables were gender, age, educational level, recall of exposure to the implementation campaign, estimation of exposure to newspaper coverage about the smoke-free legislation, and the value of the dependent variable on the pre-ban survey. Estimation of exposure to newspaper coverage consisted of four predictors in the regression analyses: (1) estimated total number of articles a smoker was exposed to; (2) ratio of coverage about health aspects and coverage about economic aspects, with higher ratios meaning relatively more coverage about health aspects than economic aspects; (3) estimated percentage of articles that were positive towards the smoking ban; and (4) estimated percentage of articles that were mixed or neutral. The percentage of articles that were negative towards the ban had a strong negative correlation with the percentage of positive articles and was therefore not included in the analyses. When, in additional analyses, the percentage of positive articles was replaced by the percentage of negative articles, the regression coefficients of negative newspaper coverage were nearly the same as those of positive newspaper coverage, with the difference that the coefficients were of different signs. The regression analyses were repeated with the interaction between educational level and recall of exposure to the implementation campaign and the interaction between educational level and estimation of exposure to newspaper coverage.

RESULTS

Characteristics of smoking newspaper readers

Smokers in the ITC Netherlands Survey who were newspaper readers had a mean age of 39.6 years (SD = 15.5), most of the respondents were male (54%), and had a moderate educational level (low 30%, moderate 46%, high 23%). Readers of the six newspapers differed from each other on age and educational level, but not on gender. For example, readers of De Telegraaf were older (mean age 42.4, SD = 15.3) and had a lower educational level (low 32%, moderate 50%, high 18%).

Newspaper coverage of smoke-free legislation

As can be seen in Table 1, economic aspects of the legislation were mentioned in 618 (59%) of the articles and health aspects in 226 (22%) of the articles. Both economic and health aspects were mentioned in 688 of the articles. Articles that were not about economic or health aspects (n = 353) mostly dealt with resistance against the ban, with rules about smoking rooms in bars, and with smoking in coffee shops. There were differences in coverage between newspapers. The total number of articles per newspaper ranged from 94 to 359 articles.

Most articles were negative towards the smoking ban (57%), while less than a third were positive (29%), and only a few articles were mixed (5%) or neutral (9%) (Table 2). This was also true for articles in which the economic aspects of the legislation were mentioned (62% was negative). However, articles in which health aspects were mentioned were about equally positive about the smoking ban (42%) as negative (43%).

Differences were found in the newspaper coverage over time (Figure 1). There was an increase in the number of articles in July 2008, when the smoke-free legislation was implemented. This was followed by a larger increase in the number of articles in the autumn

of 2008. These articles were mostly negative about the smoking ban and mainly concerned with economic aspects.

Table 2: Percentage of newspaper coverage that was positive, negative, mixed, and neutral

	Smoke-free legislation	Economic aspects	Health aspects
Positive (%)	28.8	29.4	42.0
Negative (%)	57.4	61.8	42.9
Mixed (%)	4.5	5.5	8.8
Neutral (%)	9.2	3.2	6.2

Effects of exposure to media attention

The correlations between exposure to newspaper coverage and the implementation campaign and support for smoke-free bars and restaurants and SHS harm awareness were generally low (Table 3). There was a negative correlation between exposure to newspaper coverage and support for smoke-free bars and restaurants. There was a positive correlation between the ratio of coverage about health aspects and economic aspects and support for smoke-free bars and restaurants. There was a positive correlation between exposure to mixed or neutral newspaper coverage and support for smoke-free bars and restaurants. In addition, there was a positive correlation between exposure to the implementation campaign and SHS harm awareness.

Table 3: Associations between media attention (implementation campaign and newspaper coverage) and post-ban support for smoke-free bars and restaurants and post-ban SHS harm awareness (correlation coefficients)

	Support smoke-free bars and restaurants	SHS harm awareness
Exposure to implementation campaign	0.00	0.12**
Exposure to newspaper	-0.09*	0.01

coverage about the ban		
Ratio of coverage about health aspects and economic aspects‡	0.11**	0.03
Positive newspaper coverage about the ban	-0.07	-0.02
Negative newspaper coverage about the ban	0.02	0.00
Mixed or neutral newspaper coverage about the ban	0.09*	0.04

‡ A higher ratio means relatively more coverage about health aspects than economic aspects
* p<0.05
** p<0.01

The regression analyses showed that exposure to newspaper coverage of the smoke-free legislation had a small negative effect on support for smoke-free bars and restaurants (Table 4). Exposure to the implementation campaign had a small positive effect on SHS harm awareness. There were no significant effects of theme and slant of newspaper coverage.

The regression analyses from Table 4 were repeated with interactions with educational level. The only significant interaction was between educational level and positive newspaper coverage on support for smoke-free bars and restaurants (Beta = 0.10, p = 0.012). Among higher educated smokers, exposure to positive newspaper coverage had a more positive effect on support for smoke-free bars and restaurants than among lower educated smokers.

Table 4: Influence of media attention (implementation campaign and newspaper coverage) on post-ban support for smoke-free bars and restaurants and on post-ban SHS harm awareness (linear regression analyses)

	Support smoke-free bars and restaurants n = 646 Beta (95% CI)	SHS harm awareness n = 668 Beta (95% CI)
Pre-ban value of dependent	0.59 (0.52 to 0.65)**	0.43 (0.36 to 0.50)**

variable		
Gender (men vs. women)	0.04 (-0.02 to 0.11)	-0.12 (-0.19 to -0.05)**
Age	0.02 (-0.04 to 0.09)	0.03 (-0.05 to 0.10)
Low versus high educational level	-0.10 (-0.19 to -0.02)*	0.07 (-0.02 to 0.18)
Moderate versus high educational level	-0.08 (-0.16 to 0.01)	0.10 (0.01 to 0.19)*
Exposure to implementation campaign	0.02 (-0.04 to 0.08)	0.11 (0.04 to 0.18)**
Exposure to newspaper coverage about the ban	-0.09 (-0.14 to -0.02)*	0.04 (-0.03 to 0.11)
Ratio of coverage about health aspects and economic aspects‡	-0.02 (-0.10 to 0.07)	0.04 (-0.05 to 0.13)
Positive newspaper coverage about the ban	-0.03 (-0.10 to 0.03)	-0.02 (-0.09 to 0.06)
Mixed or neutral newspaper coverage about the ban	0.03 (-0.05 to 0.11)	0.04 (-0.05 to 0.12)
Adjusted R^2	0.37	0.23

‡ A higher ratio means relatively more coverage about health aspects than economic aspects
* $p<0.05$
** $p<0.01$

DISCUSSION

Our first hypothesis was that exposure to positive newspaper coverage has a more positive effect on support for smoke-free bars and restaurants and on SHS harm awareness than exposure to negative newspaper coverage. However, no effects were found of positive or negative slant of newspaper coverage. We did find that smokers who were exposed to a larger amount of newspaper coverage about the smoke-free legislation were somewhat less likely to support smoke-free bars and restaurants. This might be explained by the fact that newspaper coverage was twice as often negative than positive about the ban.

Our second hypothesis was that exposure to newspaper coverage of health aspects of the smoke-free legislation has a more positive effect on support and harm awareness than coverage of economic aspects. We did indeed find a small positive correlation with support

for smoke-free bars and restaurants, but no significant effect in the multivariate analysis. There was, however, very little newspaper coverage about the health aspects of the smoke-free legislation. Newspaper coverage contained almost three times more references to economic aspects than health aspects of the legislation.

Because the implementation campaign of the smoke-free legislation only communicated the date of implementation, our third hypothesis was that the campaign has no effect on support and harm awareness. We found no effects on support for smoke-free bars and restaurants, but we did find a small positive effect on SHS harm awareness. A possible explanation for this unexpected finding is that the campaign stimulated thinking about the reason for the smoking ban and smokers concluded that it was implemented to protect people from the harm of second-hand smoke. However, the fact that support for smoke-free bars and restaurants was not positively influenced by the campaign is a missed opportunity. A clear campaign in which the government explained the health arguments for the smoke-free legislation could have positively influenced smokers' support for the smoke-free legislation. This may also have prevented many of the problems involving compliance with the ban.

Our last hypothesis was that there are more positive effects from media attention among smokers with a higher than lower educational level. We indeed found that newspaper coverage that was positive about the ban had a more positive effect on support for smoke-free bars and restaurants among higher educated smokers than among lower educated smokers. Because more support for smoke-free legislation can increase intentions to quit smoking [26] this could contribute to a widening of health inequalities.

Studies about newspaper coverage of the smoke-free legislation in California [15] and Ireland [16] show that there was a lot of newspaper coverage about the legislation around the implementation date. Our study shows that this is also true for the Netherlands. However, while newspaper coverage of the smoke-free legislation decreased immediately after

implementation in California and Ireland, this did not happen in the Netherlands. A few months after the implementation of the Dutch smoke-free legislation, there was a large increase in articles about the legislation. This newspaper coverage was mostly about the resistance of small bars to the legislation, that was organised by a newly formed organisation of small bar owners. Investigative journalism revealed that there were ties between this organisation and the tobacco industry [27]. This suggests that the tobacco industry influenced public opinion about the Dutch smoke-free legislation through media attention.

A limitation of this study is that we estimated the exposure to articles on smoking by combining individual data on the general amount of newspaper reading per newspaper with a content analysis of articles that appeared in each newspaper. We cannot be sure that all readers of a newspaper with many articles on smoking also read these particular articles. Therefore, although we used a longitudinal design, causal relationships could not be established with absolute certainty. Causal effects of exposure to individual articles can be more reliably established in an experimental design, but this severely limits the time period that can be studied (most often, one experimental session) and reduces the ecological validity of the study. A second limitation is that we only looked at coverage of smoking in newspapers and not in other media. This may not be a problem, since the content of newspapers is highly associated with the content of other media [5].

A year after the implementation of the smoke-free hospitality industry legislation in the Netherlands, Greece implemented similar legislation. As in the Netherlands, compliance with the ban was less than optimal. It is suggested that the unsupportive and pessimistic newspaper coverage in Greece had an important role in this [28]. In contrast to Greece and the Netherlands, the smoke-free legislation in Ireland is known for its immediate success [29]. A qualitative study suggests that this success is the result of the efforts of tobacco control advocates who consistently repeated the health arguments for the legislation in the media and

who prevented anti-ban advocates from shifting the debate to the economic arguments against the legislation [16]. This suggests that media attention about the health aspects of smoke-free legislation can have an important influence on the success of the legislation.

WHAT THIS PAPER ADDS

Other studies have related media attention to support for tobacco control policy with a cross-sectional design. This study used a longitudinal design, allowing more confident inferences to be made about the causality of the found associations. In the Netherlands, news coverage of the smoke-free legislation was mostly negative towards the ban and focused on economic aspects rather than health aspects. Our results indicate that this had a negative effect on support for the legislation. Tobacco control advocates should aim to establish positive media attention during the implementation of smoke-free legislation, focussing on the health arguments for the legislation.

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COMPETING INTERESTS

None declared.

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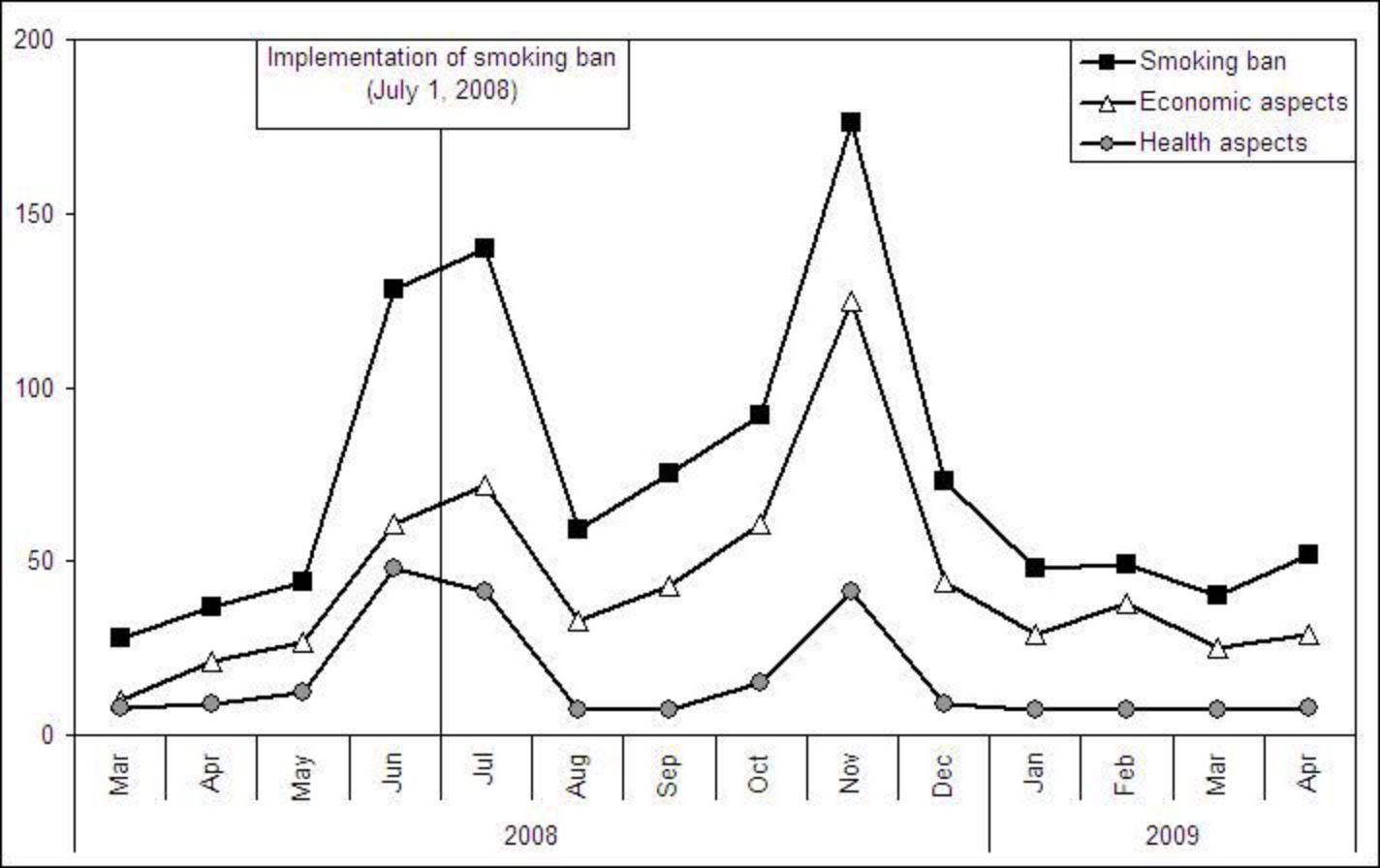
FIGURE LEGEND

Figure 1: Newspaper coverage of the smoke-free legislation from March 2008 until April 2009


Implementation of smoking ban
(July 1, 2008)
Smoking ban
Economic aspects
Health aspects
200
150
100
50
0
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
2008
2009