Dimensions underlying legislator support for tobacco control policies

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Objective: To propose and test a new classification system for characterising legislator support for various tobacco control policies.

Design: Cross sectional study.

Subjects: Federal and provincial legislators in Canada serving as of October 1996 who participated in the Canadian Legislator Study (n = 553; response rate 54%).

Main outcome measures: A three factor model (Voters, Tobacco industry, Other interest groups) that assigns nine tobacco control policies according to legislators’ hypothesised perceptions of which group is more directly affected by these policies.

Results: Based on confirmatory factor analysis, the proposed model had an acceptable fit and showed construct validity. Multivariate analysis indicated that three of the predictors (believing that the government has a role in health promotion, being a non-smoker, and knowledge that there are more tobacco than alcohol caused deaths) were associated with all three factor scales. Several variables were associated with two of the three factors. Some were unique to each scale.

Conclusions: Based on our analyses, legislator support for tobacco control policies can be grouped according to our a priori factor model. The information gained from this work can help advocates understand how legislators think about different types of tobacco control policies. This could lead to the development of more effective advocacy strategies.

Studying legislators’ support for tobacco control policies is important because legislators are key players in the policymaking process. Legislators’ attitudes toward specific tobacco control policies have been documented in Canada, the USA, and the Netherlands. However, no attempt has yet been made to investigate whether legislators are consistent in their views about various tobacco control policies—that is, the extent to which support for one policy is associated with support for another type of policy, yet, at the same time, independent from support for other tobacco control policies. Such information would be useful for advocates because it would help them anticipate legislator support for a particular tobacco control policy. It might also suggest salient approaches to introducing tobacco control strategies in order to maximise legislator support.

Grouping tobacco control policies requires that they share a common, underlying factor. A few studies have reported common factors underlying the tobacco control attitudes of the general public and students, primarily for the development of survey instruments. For instance, in 1994 Velicer et al developed a smoking policy instrument based on five factors or constructs: (1) advertising and promotion; (2) public education; (3) laws and penalties; (4) taxes and fees; and (5) restrictions on smoking. This survey instrument was utilised to compare support for tobacco control policies in selected populations in six countries. Although such factors could be relevant to the attitudes of legislators, characteristics of legislators as a political elite have led us to investigate other possible structures.

In this study, we propose and test a factor structure hypothesised to underlie legislator support for tobacco control using data from a survey of Canadian federal and provincial legislators. This factor structure is based on three theoretically derived classifications of tobacco control policies according to groups that legislators might believe would be more directly affected by these policies. In a secondary analysis, we investigate the predictors that differentiate among and are shared by the proposed factors.

The first classification is based on the fact that legislators rely on voters for their election and re-election. We postulate that legislators think similarly about policies that can more directly affect the voting public. Indeed, models of legislator voting behaviour in the USA show that legislators are sensitised to whether issues are controversial to voters. Even in Canada, where a party based system of government exists, legislators are sensitive to the views of their constituents. Studies have shown that policies that directly affect smokers, such as cigarette tax increases and smoking restrictions in public places, are important to the general population. Public attitudes toward these policies diverge considerably depending on the respondent’s self-interest in these issues, as measured by smoking status and degree of bother by smoke. In a study of legislators from North Carolina, Texas, and Vermont, constituent pressure was perceived to be the strongest social influence on voting intentions regarding cigarette tax increases.

Second, legislators may think similarly about tobacco control policies that more directly affect the tobacco industry. Since legislators enact policy, they are exposed to intense lobbying efforts by the tobacco industry in both Canada and the USA. Substantial numbers of legislators in the USA receive campaign contributions from the tobacco industry, and these contributions arguably have influenced legislators’ policy decisions. Although a similar degree of contribution activity has not been found in Canada, it is likely that substantial lobbying occurs through other means. While any effective tobacco control policy should impact on the industry in some way, there are some tobacco control policies that more directly target the tobacco industry (for example, suing tobacco companies to recoup health care costs); therefore, we hypothesise that legislators would think similarly about tobacco industry related policies.

Third, legislators may also think similarly about tobacco control policies that more directly affect interest groups other than the tobacco industry. For example, a ban on event sponsorship of sports or cultural events by the tobacco industry...
would more directly affect arts and sporting groups who may rely heavily on tobacco industry funding. Since these groups lobby legislators, legislators may be particularly sensitised to their needs and concerns.

We hypothesise, then, that legislators group tobacco control policies in terms of three underlying factors: (1) policies that more directly affect the voting public (for example, increasing cigarette taxes); (2) policies that more directly affect the tobacco industry (for example, government suits against tobacco companies to recover health care costs); and (3) policies that more directly affect other interest groups in the community (for example, banning tobacco sponsorship of cultural events). We empirically test these hypotheses and investigate the properties of the resulting support scales.

**METHODS**

**Sample**

Data for this analysis were obtained from the Canadian Legislator Study. All Canadian federal (n = 295) and provincial/territorial (n = 760) legislators serving as of October, 1996 were eligible. Data were collected using structured computer assisted telephone interviews conducted in English and French by the Institute for Social Research at York University (n = 553; overall response rate 54%). Ten of the 13 jurisdictions had response rates of at least 60%; participation was lowest among legislators at the federal level (40%) and in the province of Quebec (27%). Response rates did not vary by age, sex, educational attainment, having an academic degree, or the presence of tobacco farms, tobacco processing or manufacturing plants, or tobacco company head offices in a legislator’s electoral district. However, current or former ministers or party leaders, legislators with a longer length of service, and those who were lawyers were less likely to respond (p < 0.05).

**Variables**

The survey covered a wide variety of health topics with a focus on attitudes toward current tobacco control issues and the extent of contact between legislators and lobbying groups.

Nine tobacco policy items asked of all the respondents were included in the following analyses. All policy areas investigated are within the constitutional powers of both provincial/territorial and federal legislators. Using the described a priori factor structure, each of the policy items was assigned to one of the three factors (table 1).

**Statistical analyses**

Items were recoded into dichotomous (“indicated support” versus “did not indicate support”) or trichotomous categories (“strongly support”, “somewhat support”, “did not indicate support”) and treated as ordinal variables, with a higher value representing more support for the specific measure. “Don’t know” and “refused” responses were classified as “did not indicate support”. Confirmatory factor analysis using this a priori classification structure was conducted using LISREL 8.3. Confirmatory factor analysis allows the statistical testing of a theoretically derived factor structure. The factor structure consists of variables grouped into coherent subsets (factors). Underlying processes that create the correlations among the variables are reflected in the factors. A factor, or latent variable, represents the underlying dimension that unifies the variables that load on it. As the variable items in this study had ordinal scaling, statistical analysis based on Pearson correlations would lead to biased results. Therefore, we used a LISREL analysis based on polychoric and polychoric correlation coefficients to obtain unbiased results with regards to the underlying factor structure. The results of a confirmatory factor analysis can be depicted in a path diagram. To make use of the full sample of respondents, respondents who indicated they did not think cigarette packaging was within the government’s jurisdiction were classified as “did not indicate support” (for plain packaging of cigarettes), a conservative imputation.

Because the confirmatory factor analysis supported the existence of the three hypothesised categories (see fig 1 and

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Factor assignment of nine tobacco policy items*</th>
</tr>
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<tbody>
<tr>
<td>Factor</td>
<td>Item label</td>
</tr>
<tr>
<td>More directly affects voters (Voters)</td>
<td>Price increase†</td>
</tr>
<tr>
<td>More directly affects the tobacco industry (Tobacco industry)</td>
<td>Liability for suffering§</td>
</tr>
<tr>
<td>More directly affects other interest groups in community (Other interest groups)</td>
<td>Sponsorship ban†</td>
</tr>
<tr>
<td></td>
<td>Car ban†</td>
</tr>
<tr>
<td></td>
<td>Recoup health costs§</td>
</tr>
<tr>
<td></td>
<td>Plain packaging†</td>
</tr>
<tr>
<td></td>
<td>Ads regulated‡</td>
</tr>
<tr>
<td></td>
<td>Sales regulated‡</td>
</tr>
</tbody>
</table>

*Actual question wording can be obtained from the corresponding author. †Coded as 2=strongly support, 1=somewhat support, 0=did not indicate support. §Coded as 1=very much, 2=moderately, 0=not at all. ¶Coded as 1=very much, 2=moderately, 3=not at all. ‡Coded as 1=some, 2=much, 3=not at all. **Actual question wording can be obtained from the corresponding author. *The exception was the item on mandatory plain packaging that was posed only to legislators who thought this was within the government’s jurisdiction [n = 565].
results below), scale values for the three factors (Voters, Tobacco industry; Other interest groups) were computed using loadings as weights. Higher scale values indicate stronger support for the cluster of underlying measures. Items were standardised with a mean of 0 and a variance of 1 to form the scales because response categories varied across items. In this way, all items were given the same potential weight within a factor. Construct validity of each scale was investigated by examining scale means by both smoking status and political party. Non-smokers were expected to show more support than smokers, as reported previously among studies of the general public.\textsuperscript{24–41} and one study of US legislators.\textsuperscript{39} Support for tobacco control policies was expected to decrease from left leaning to right leaning party affiliation. Of the major political parties in Canada, the New Democratic Party is considered to have the number of members who died from smoking; knowing second hand smoke can cause cancer; believing most smokers are addicted; being receptive to more tobacco related contact by non-profit health lobbyists; and being receptive to more tobacco related contact by medical association lobbyists.

Bivariate analyses
In the bivariate linear regression models, a number of variables were associated (p < 0.05) with one or more of the three scales (data not shown). Political party was an important predictor for all three scales. New Democrats were more supportive of all three groups of tobacco policies compared to all parties combined, whereas Progressive Conservatives were less supportive. The following variables were also associated (p < 0.05) with more support for all three scales: having a higher score on the health promotion ideology scale; not believing there is too much private sector regulation by the government; being a non-smoker; having a family member who died from smoking; knowing second hand smoke can cause cancer; believing most smokers are addicted; knowing that, overall, tobacco causes more deaths than does alcohol; and being receptive to more tobacco related contact by medical association lobbyists.

Two variables were associated (p < 0.05) with more support for two of the three scales: placement toward the left of the left–right bipolar ideology scale (for Tobacco industry and Other interest groups scales) and being receptive to more tobacco related contact by non-profit health lobbyists (for Voters and Other interest groups). Three variables were associated (p < 0.05) with more support for only one of the three scales: being a government minister (for Other interest groups), being female (for Voters), and tobacco industry presence in the electoral district (for Voters).

Multivariate analyses
The final multivariate linear regression showed that several variables were independently associated (p < 0.05) with one or more of the three scales (table 3). Three variables were associated (p < 0.05) with higher support for all three scales:

\[ \text{Multivariate analyses} \]

\[ \text{Results} \]

\[ \text{Model fit} \]

A path diagram of this factor structure is shown in fig 1. Factor loadings ranged from 0.57 (cigarettes should be banned in public) to 0.97 (government should sue companies for

\[ \text{Skew} = 0.36; \text{kurtosis} = 2.03. \]

\[ \text{The bipolar ideology scale was dropped to increase the sample size. Because the receptivity to contact by non-profit health lobbyists item was significantly correlated with the item regarding medical association lobbyists (r = 0.47), the former item was dropped.} \]
higher scores on the health promotion ideology scale (believing that the government has a role in health promotion); being a non-smoker; and knowledge that, overall, tobacco causes more deaths than alcohol.

Several variables were associated (p < 0.05) with two of the three scales. Political party was an important predictor for policies affecting the Tobacco industry and Other interest groups, but not for policies affecting Voters. Support was higher (p < 0.01) among New Democratic party members compared to Liberal party members (reference group) for these scales and lower among Progressive Conservative party legislators compared to the Liberals for the Other interest groups scale. For both the Voters and Other interest groups scales, support was higher (p < 0.05) among those who were receptive to more medical association contacts on tobacco related issues.

Some variables were unique predictors of one scale. For policies directly affecting voters, there was more support among government ministers, among legislators who did not think there was too much government regulation of the private sector, among female legislators, and among those who knew that second hand smoke can cause cancer (p < 0.05). For policies directly affecting other interest groups, more support was found among legislators who had a close friend or family member who died from a disease that might have been caused by smoking (p < 0.05).

**Table 2**  Mean scale values by smoking status and political party†

<table>
<thead>
<tr>
<th>Smoking status</th>
<th>Voters</th>
<th>Tobacco industry</th>
<th>Other interest groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoker (n=100)</td>
<td>***</td>
<td>-0.32</td>
<td>-0.23</td>
</tr>
<tr>
<td>Non-smoker (n=450)</td>
<td>0.07</td>
<td>0.06</td>
<td>0.04</td>
</tr>
<tr>
<td>Political party</td>
<td>NS</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>Reform (n=40)</td>
<td>-0.03</td>
<td>-0.28</td>
<td>-0.37</td>
</tr>
<tr>
<td>Progressive Conservative (n=99)</td>
<td>-0.14</td>
<td>-0.24</td>
<td>-0.34</td>
</tr>
<tr>
<td>Liberal (n=275)</td>
<td>0.00</td>
<td>-0.01</td>
<td>0.03</td>
</tr>
<tr>
<td>New Democrat (n=96)</td>
<td>0.15</td>
<td>0.33</td>
<td>0.41</td>
</tr>
<tr>
<td>Other (n=43)‡</td>
<td>0.00</td>
<td>0.18</td>
<td>0.03</td>
</tr>
</tbody>
</table>

†Testing using one way analysis of variance (ANOVA).
‡Includes Bloc Québécois, Parti Québécois, Yukon Party, and Independents.
NS, not significant at p=0.05; **p<0.01; ***p<0.001.
DISCUSSION
Our primary analysis tests a model that describes how legislators may think about tobacco control policies. Our policy classification system is based on consideration of legislators’ possible perceptions of groups who would be more directly affected by such policies. Confirmatory factor analysis supported our three theoretically derived categories.

Although our support scales show construct validity, the specific items used should not be used as stand alone survey instruments since the original survey instrument was not designed for scale development purposes. There are a limited number of items per scale, and for two of the three scales, the reliability coefficients are lower than ideal (under 0.50). Validated survey items would be more appropriate to tap into the postulated factor structure.

Our postulated factor structure was empirically confirmed as a valid structure to describe legislators’ support for tobacco control policies. Our analyses show that, at least at one point in time, there were common policy groupings for tobacco control measures among Canadian legislators from two different levels of government. Three of the variables examined—the health promotion ideology scale, being a non-smoker, and knowledge that there are more tobacco caused deaths than alcohol caused deaths overall—were positively associated with all three scales. These findings give further credibility to the categorisation structure because it is likely that legislators who do not smoke, who believe the government has a role in health promotion, and who are aware of tobacco’s public health impact would be more supportive of all tobacco control efforts. Moreover, the association between tobacco knowledge, smoking behaviour, and support for tobacco control policies has been shown previously in general population samples. These findings demonstrate that support is also present or can be gained for other related tobacco policies as categorised in this model.

Constructing effective policy frames may be one way to help advocates gain support for specific tobacco control policies. Research has shown that a strong relation exists between how a policy is framed or defined and the solutions developed in response to the problem. For example, Jacobson et al and Nathanson have concluded that the manner in which the debate has been framed has influenced the strength of the tobacco control policies enacted. Although the tobacco industry is often portrayed as a corporate pariah in the press, some have argued that there remains a need for the tobacco control movement to develop a “consistent, powerful and compelling message” for the mass media that can effectively garner public and political support.

Clearly, more studies are needed to determine what messages would be effective. For example, it might be useful to explore whether support for bans on smoking in workplaces arises from concerns about the general protection of workers, or from concerns about the specific effects of second hand smoke. Such information could suggest how the need for bans on smoking in other locations, such as restaurants, bars, and vehicles, could best be framed.
Legislator attitudes toward tobacco control policies have been documented in Canada, the USA, and the Netherlands. No previous study, to our knowledge, has investigated the dimensions underlying legislators’ attitudes toward various tobacco control policies—that is, the extent to which support for one type of policy is associated with support for another type of policy, yet, at the same time, independent from support for other tobacco control policies. This study provides a new method of grouping tobacco control policies, based on our perceptions of legislators’ views of whether voters, the tobacco industry, or other interest groups would be more directly affected by specific policies. The information gained from this work can help advocates understand how legislators think about different types of tobacco control policies and help them anticipate legislator support for a particular tobacco control policy.

We hope that this research stimulates others to investigate common factors underlying legislator and public attitudes toward tobacco control. Because our model is based on the common factors underlying legislator and public attitudes, future research could attempt to replicate our factor structure among legislators in countries with less partisan legislative voting, such as the USA. If similar factors are found across time, space, and political systems, there would be a strong basis for developing effective frames of reference that could be used to influence legislators and potentially other key decision makers.

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