Does Level of Tobacco Control Relate to Smoking Prevalence in Canada: A National Survey of Public Health Organizations

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ABSTRACT

Objectives: To describe levels of tobacco control “effort” in public health organizations across provinces, and to test the hypothesis that “effort” is associated with the prevalence of daily smoking.

Methods: Data were drawn from a national survey (Oct 2004-Apr 2005) of all public health organizations engaged in chronic disease prevention in Canada in 2004. We investigated the association between “effort” and decline in smoking prevalence (CTUMS, 1999-2009) across provinces in an ecologic study design. “Effort” was assessed using two indicators: percent of public health organizations engaged in tobacco control, and mean level of involvement in engaged organizations.

Results: Of 216 organizations, 88% had undertaken tobacco control activities in the three years prior to data collection and were categorized as “engaged”. Level of involvement in tobacco control was highest in community-at-large settings; and it was generally higher for population- than for individual-level strategies. Nova Scotia reported higher levels of involvement than other provinces. There was substantial variability in “effort” across provinces. High-“effort” provinces (BC, NS, ON, QC) experienced, on average, improvement in the “change in smoking prevalence” score (1999 to 2009).

Conclusion: The findings provide evidence that provincial tobacco control “effort” relates to declines in smoking prevalence. Given that smoking remains a critical public health issue, the kinds of data reported herein are needed to inform the debate on how best to invest in tobacco control infrastructure to combat the most important public health threat of our times.

Key words: Tobacco control; public health; organizational survey; ecologic study; Canada

La traduction du résumé se trouve à la fin de l'article.

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The prevalence of cigarette smoking among Canadians aged 15 years and older has declined dramatically in recent decades, from 50% in 1965 to 17.5% in 2009.^{1,2} Public health interventions – including, promotion of indoor and outdoor smoke-free policies; enforcement of policies limiting tobacco availability; improvement and expansion of free, comprehensive and evidence-based cessation services; and increased prevention programming³⁻⁵ – have been central to this decline. However, the prevalence of smoking remains much too high and tobacco control continues to be a critical role for public health practice and policy.

Most jurisdictions in Canada have well-established tobacco control strategies involving numerous organizations⁶ that are diverse in mission, structure and funding. In addition to regional-level health authorities and public health units, these organizations include, among others, all levels of government departments, non-governmental and non-profit organizations, coalitions and alliances, para-governmental agencies and resource centres. Together they provide tobacco control leadership, resources, and advocacy, and deliver programs that contribute to national and provincial goals to make Canada smoke-free.

With the dramatic declines in smoking prevalence and the attendant view in some jurisdictions that the problem of smoking has been “solved”, there is increasing concern⁷⁻⁹ about declining political will, waning levels of institutional support and reduced public interest priority for tobacco control activities in Canada. Over the past few years, the decline in the prevalence of smoking has, in

fact, stalled,¹ possibly related in part to a declining commitment to tobacco control. It is therefore becoming increasingly important to monitor the breadth and depth of tobacco control activities in chronic disease prevention (CDP) organizations across Canada, and to better understand the impact of these activities on the prevalence of smoking. However, few reports describe tobacco control activities within the provincially-mandated public health systems in Canada,^{7,8,10} and there are no reports that describe the effort expended in tobacco control by the many different types of organizations that comprise these systems. This paper describes levels of tobacco control “effort” in public health organizations across provinces in Canada, and tests whether “effort” is associated with

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Table 1. Description of the Survey Items, Response Choices and Method of Scoring for Analysis

Variable	Description	Survey Item	Response Choices	Scoring for Analysis
% Engagement [in tobacco control]	Proportion of CDP organizations engaged in tobacco control.	In the last 3 years, has your organization undertaken any chronic disease prevention or healthy lifestyle promotion activities for tobacco control?	Yes / No.	Provinces ranked from 1 to 10 according to the proportion of CDP organizations engaged; rank order >5 categorized as "high" engagement (Table 3).
Mean level of involvement [in tobacco control activities]	Mean amount of effort or activity that engaged CDP organizations had devoted to tobacco control as a proportion of their total effort in chronic disease prevention/healthy lifestyle promotion.	Think about the last 3 years. How would you rate your organization's involvement in chronic disease prevention/healthy lifestyle promotion activities that address tobacco control?	5-point Likert-type scale that ranged from "very low" (1) to "very high" (5).	Provinces ranked from 1 to 10 according to mean level of involvement; rank order >5 categorized as "high" involvement (Table 3).
Tobacco control "effort"*	Assessed using two indicators: i) % engagement in tobacco control; and ii) mean level of involvement in tobacco control activities.	Not applicable.	High/moderate effort.	"High effort" = both engagement and involvement categorized as high. "Moderate effort" = provinces ranked low on both indicators or had mixed rankings (Table 3).
Involvement in tobacco control across settings		How would you rate your organization's level of involvement in tobacco control activities in the following settings: i) schools; ii) work-places; iii) health care settings; iv) community at large.	5-point Likert-type scale that ranged from "very low" (1) to "very high" (5).	If no activities were conducted in a particular setting, involvement was rated "very low".
Involvement in tobacco control across strategies		How would you rate your organization's level of involvement in tobacco control activities using the following strategies: individual- or small-group focused activities (i.e., group development, public education, skill building at the individual level, facilitation of self-help groups, service provider skill building, volunteer development), and those targeted to the population at large (i.e., healthy public policy development, advocacy, community mobilization, creating healthy environments). Level of involvement in partnership building (which can be viewed as either an individual- or population-focused strategy) was also measured.	5-point Likert-type scale that ranged from "very low" (1) to "very high" (5).	If no activities were conducted using a specific intervention strategy, involvement was rated "very low".
Change in prevalence of smoking score	Using Canadian Tobacco Use Monitoring Survey (CTUMS) data (Health Canada, 2009), we ranked each province from 1 (lowest prevalence) to 10 (highest prevalence) according to the prevalence of daily smoking in 1999, and then again ten years later in 2009. Rank order position in prevalence in 2009 was compared to rank order position in 1999 (Table 4).	Not applicable.	Not applicable.	Score = number of rank order position points gained or lost from 1999 to 2009. A positive value represents an improvement in 2009 prevalence standing over the position held in 1999 (Table 4).

* This measure of "effort" reflects two dimensions (i.e., infrastructure and anti-tobacco programming) of the Strength of Tobacco Control Index^{14,15} by juxtaposing number or proportion of public health organizations engaged in tobacco control and mean level of involvement in tobacco control activities.

the prevalence of daily smoking. It is hypothesized that higher-"effort" provinces experienced greater improvement in "change in prevalence of smoking" scores for the period 1999 to 2009.

METHODS

Data were drawn from a national survey (Oct 2004-Apr 2005) of all public health organizations engaged in CDP in Canada in 2004.^{11,12} Organizations at the regional, provincial and national levels with mandates for population-wide CDP programming – either through the primary prevention of chronic disease (and more specifically, diabetes, cancer, cardiovascular diseases and chronic respiratory illness); healthy lifestyle promotion; or a single-focus on healthy eat-

ing, tobacco control or physical activity – participated (n=216; response proportion = 96%). Organizations were identified in an exhaustive internet search using purposive sampling, as well as through consultations with key contacts in all ten Canadian provinces. Participating organizations included regional health authorities and public health units/agencies, government departments, national health charities and their provincial/district divisions, other non-governmental and non-profit organizations, para-governmental health agencies (defined as agencies financed by a government but acting independently of it), resource centres, professional organizations, and "grouped" organizations such as coalitions, partnerships, and alliances. Organizations primarily engaged

Table 2. Level of Involvement in Tobacco Control Activities in Specific Settings and Using Specific Types of Intervention Strategies According to Province, Canada, 2004-2005

	Level of Involvement in Tobacco Control, Mean (SD)*										
Setting	TOTAL† (n=172)	BC (n=18)	AB (n=12)	SK (n=14)	MB (n=10)	ON (n=65)	QC (n=12)	NB (n=4)	NS (n=16)	PE (n=8)	NL (n=12)
Community at large	4.0 (0.9)	3.7 (1.1)	3.8 (1.1)	3.9 (1.2)	3.3 (0.8) ^a	4.2 (0.7)	3.4 (1.1)	4.0 (1.4)	4.5 (0.7) ^a	4.0 (0.9)	3.8 (0.7)
Schools	3.5 (1.3)	3.6 (1.1)	3.3 (1.4)	3.5 (1.0)	2.7 (1.3)	3.6 (1.3)	2.5 (1.6) ^b	4.0 (1.4)	4.2 (0.8) ^b	3.6 (1.5)	3.3 (1.1)
Workplace	3.0 (1.2)	3.0 (1.2)	2.8 (1.5)	2.7 (1.1)	2.4 (1.5)	3.1 (1.1)	2.9 (1.5)	2.8 (1.7)	3.4 (1.0)	2.8 (1.6)	2.8 (1.3)
Health care	3.1 (1.2)	3.3 (1.4)	2.9 (1.3)	3.1 (1.3)	3.0 (1.2)	2.7 (1.0) ^c	3.4 (1.2)	3.5 (1.3)	3.9 (0.9) ^c	3.4 (1.3)	3.3 (1.5)
Intervention Strategy											
Individual level											
Public education	3.9 (1.0)	3.8 (1.0)	3.4 (1.2)	3.7 (1.1)	3.1 (1.1) ^d	4.2 (0.9) ^d	4.0 (0.8)	3.7 (1.0)	4.1 (0.9)	3.9 (0.8)	3.8 (0.9)
Group development	3.1 (1.1)	3.0 (1.3)	3.1 (0.9)	2.8 (1.0)	2.0 (0.7) ^{a,d}	3.2 (1.1) ^d	2.7 (1.1) ^b	3.7 (1.3)	4.1 (0.8) ^{a,b}	3.1 (1.1)	3.1 (1.2)
Skill building at the individual level	3.2 (1.0)	3.7 (1.1) ^f	3.1 (0.9)	2.5 (1.1) ^{e,f}	2.6 (1.3)	2.9 (1.0) ^c	3.7 (0.9)	3.0 (0.8)	3.9 (1.0) ^{c,e}	3.6 (0.9)	3.1 (0.7)
Facilitation of self-help groups	2.4 (1.3)	2.6 (1.5)	1.7 (1.1) ^g	1.9 (1.1)	2.2 (0.9)	2.2 (1.1) ^c	2.4 (1.8)	2.7 (1.5)	3.4 (1.4) ^{c,g}	2.4 (1.2)	3.1 (0.9)
Service provider skill building	2.9 (1.2)	3.1 (1.4)	2.7 (1.1)	2.5 (0.9)	2.8 (1.3)	2.8 (1.0)	3.1 (1.7)	3.7 (1.9)	3.5 (1.3)	3.0 (1.1)	2.9 (1.2)
Volunteer development	2.4 (1.2)	2.8 (1.2)	2.1 (0.9)	2.4 (1.3)	2.0 (1.3)	2.3 (1.2) ^c	2.3 (1.4)	2.2 (1.5)	3.4 (1.3) ^c	2.4 (1.2)	2.5 (1.0)
Population level											
Healthy public policy development	4.0 (1.2)	4.2 (0.9)	3.6 (1.2)	3.8 (1.4)	3.1 (1.5)	4.2 (1.0) ^h	3.0 (1.5) ^{b,h}	4.5 (1.0)	4.5 (0.6) ^b	4.1 (1.2)	3.6 (0.8)
Advocacy	3.9 (1.1)	3.8 (1.1)	3.5 (1.4)	3.8 (1.3)	3.5 (1.3)	3.9 (1.1)	3.2 (1.4)	3.5 (1.9)	4.5 (0.6)	3.9 (1.1)	4.0 (0.7)
Community mobilization	3.6 (1.1)	3.6 (0.9)	3.4 (1.3)	3.4 (1.3)	2.5 (1.3) ^{a,d}	3.9 (0.9) ^d	3.0 (1.1)	4.0 (1.4)	4.2 (0.7) ^a	3.4 (1.1)	3.2 (0.8)
Creating healthy environments	3.9 (1.0)	3.8 (1.0)	3.6 (0.8)	4.0 (1.1)	3.3 (1.1)	4.1 (0.9)	3.4 (1.2)	4.2 (1.0)	3.9 (1.0)	3.9 (1.0)	3.7 (0.7)
Partnership building	3.8 (1.0)	4.1 (0.9)	3.7 (0.6)	3.6 (1.3)	3.5 (1.3)	3.6 (1.0)	3.6 (1.2)	4.5 (1.0)	4.4 (0.5)	3.6 (0.9)	4.1 (0.9)

* Organizations with a multi-province mandate (n=6) were excluded from provincial comparisons. Tukey-Kramer pairwise comparisons were statistically significant ($p \leq 0.05$) between: NS and MB = a; NS and QC = b; NS and ON = c; MB and ON = d; NS and SK = e; SK and BC = f; NS and AB = g; QC and ON = h.

† Includes one organization with a multi-province mandate.

in secondary prevention of chronic disease, advocacy, allocation of funds, fund-raising, facilitating joint efforts among organizations, and research or knowledge transfer were not eligible. The majority of the survey items were not designed to tap into the primary activities of these excluded CDP organizations. Due to major differences in mandates and resourcing, organizations solely targeting Aboriginal populations and those in the three territories were also excluded. The term "organization" referred to an entire organization (if the organization as a whole conducted CDP activities) or to a specific department, unit or division within an organization (if only a certain subunit of the organization undertook CDP activities).

Data were collected in structured telephone interviews conducted by trained interviewers with one key informant per organization identified by a senior manager as the person within the organization most knowledgeable about implementation/delivery of CDP programs, practices, campaigns, or activities. In national health charities which had provincial/regional divisions, interviews were conducted within each division, if the division met the inclusion criteria and in addition was judged to be autonomous as an organization. The study received ethics approval from the McGill University Institutional Review Board.

Data analysis

Table 1 describes each specific item, the response choices for each item, and the method of scoring the variable for analysis. In addition, we detail the creation of two new variables: tobacco control "effort" and the "change in prevalence of smoking" score. The use of ranked data dichotomized at the median is a straightforward solution to creating one variable from two variables that are not measured using the same units. All changes in provincial smoking prevalence over the decade reflected decline. The use of change in rank, as in the creation of the "change in prevalence of smoking" score, served to qualify the consequence of each decline in a more holistic manner by always looking at change relative to other provinces. Differences between means were tested using one-way ANOVA. Post hoc comparisons were undertaken using Tukey-

Kramer test for unequal group sizes. We investigated the association between tobacco control "effort" and declines in the prevalence of daily smoking over time, across provinces in an ecologic study design. Provinces were selected as the units of analysis since health systems, including public health systems, are primarily provincial responsibilities in Canada and in addition, comparable data on smoking prevalence are available across provinces. Specifically, we ranked all provinces from lowest to highest in order of: i) percent of CDP organizations engaged in tobacco control; and ii) mean level of involvement in tobacco control among those organizations that were engaged. Average ranks were assigned in the case of ties between provinces.¹³ Provinces were categorized as having high or moderate "effort" based on the rank orders for both % engagement and involvement variables. Rank positions were plotted with % engagement on the x-axis, and mean level of involvement on the y-axis. The mean "change in prevalence of smoking" score for provinces grouped in each quadrant of the scatter plot was calculated. Data analyses were conducted using STATA software, version 11 (Stata Corp., College Station, TX).

RESULTS

Of the 216 public health organizations conducting population-level CDP programming in Canada in 2004, 88% had undertaken tobacco control activities in the three years prior to data collection and were categorized as "engaged". Fifty-three percent of all tobacco-engaged organizations were formally-mandated public health organizations, 20% were NGOs, 19% were "grouped" organizations and 8% were classified as "other". The proportion of engaged organizations ranged from 67% in PEI to 100% in Manitoba.

Tobacco control in specific settings

Level of involvement in tobacco control in Canada (among those organizations that were engaged) was highest in the community-at-large setting, followed by in schools. Involvement was relatively low in health care settings and the workplace (Table 2). Organizations in Nova Scotia reported the highest level of involvement

Table 3. Provincial Rank Order Classifications of Canadian Chronic Disease Prevention Organizations According to % of Organizations Engaged in Tobacco Control, Mean Level of Involvement in Tobacco Control Activities Among Organizations That Were Engaged, and Tobacco Control "Effort" (2004-2005)

Province	Engagement*†		Involvement*†		Rank Order Classification‡		
	%	Rank	Mean (SD)	Rank	Engagement	Involvement	Effort
Total	88	—	4.1 (1.0)	—	—	—	—
BC	91	7	4.3 (0.8)	8.5	High	High	High
AB	71	2	4.1 (1.0)	5.5	Low	High	Moderate
SK	85	4	3.9 (0.7)	3.5	Low	Low	Moderate
MB	100	10	3.2 (1.1)	1	High	Low	Moderate
ON	99	9	4.4 (0.9)	10	High	High	High
QC	93	8	4.1 (0.9)	5.5	High	High	High
NB	80	3	4.2 (1.5)	7	Low	High	Moderate
NS	89	6	4.3 (0.7)	8.5	High	High	High
PE	67	1	3.7 (0.9)	2	Low	Low	Moderate
NL	88	5	3.9 (1.0)	3.5	Low	Low	Moderate

* Organizations with multi-province mandates excluded from provincial results; † Ranked lowest to highest; ‡ % Engagement and level of involvement rated "high" for provinces that ranked >5; Tobacco control "effort" rated high if both % engagement and level of involvement categorized as "high", otherwise rated "moderate".

Table 4. Mean "Change in Prevalence of Smoking" Scores According to Tobacco Control Effort (1999-2009)

Tobacco Control Effort	Province	Prevalence Daily Smokers 1999 (%)*	Rank 1999 Prevalence†	Prevalence Daily Smokers 2009 (%)*	Rank 2009 Prevalence†	Change in Prevalence of Smoking Score‡
High (High engagement/high involvement)	BC	16	1	12	1.5	-0.5
	ON	19	2.5	12	1.5	+1.0
	QC	25	9.5	16	6.5	+3.0
	NS	25	9.5	17	8	+1.5
						Mean score = +1.25
Moderate (Low engagement/high involvement)	AB	22	6.5	14	3.5	+3.0
	NB	22	6.5	18	9.5	-3.0
						Mean score = 0
Moderate (Low engagement/low involvement)	SK	21	4.5	18	9.5	-4.0
	PE	21	4.5	14	3.5	+1.0
	NL	24	8	16	6.5	+1.5
						Mean score = -0.5
Moderate (High engagement/low involvement)	MB	19	2.5	15	5	-2.5
						Mean score = -2.5

* Canadian Tobacco Use Monitoring Survey (CTUMS), Percentage daily smokers, by province, age 15+ years, Canada 1999 to 2009; † Ranked lowest to highest prevalence; ‡ Positive values represent an improvement in 2009 prevalence standing over the rank position held in 1999. The actual value represents the number of position points gained or lost.

across all settings. Compared to Nova Scotia, Québec had a statistically significant lower level of involvement in schools; Ontario had a statistically significant lower level of involvement in health care settings; and Manitoba had a statistically significant lower level of involvement in the community at large.

Tobacco control strategies

Overall, the level of involvement was generally higher for population-level strategies (Table 2). Among individual-level strategies, level of involvement was highest for public education. Compared to Ontario, Manitoba had a statistically significant lower level of involvement in public education. In comparison to Nova Scotia, Québec and Manitoba had statistically significant lower levels of involvement in group development; Saskatchewan and Ontario had statistically significant lower levels of involvement in skill building at the individual level; Ontario and Alberta had statistically significant lower levels of involvement in self-help group facilitation; and Ontario had a statistically significant lower level of involvement in volunteer development.

Among population-level strategies, organizational involvement in advocacy, creating healthy environments and partnership building was consistent across the country. Notable differences were observed in the areas of healthy public policy development and community mobilization with statistically significant lower levels of involvement in the former in Québec compared to Ontario and

Nova Scotia. Compared to Nova Scotia, Ontario and Manitoba had statistically significant lower levels of involvement in community mobilization.

Declines in smoking prevalence

While all provinces experienced declines in the percentage of daily smokers in the 10-year period from 1999 to 2009, high-"effort" provinces (BC, NS, ON, QC) (Table 3) experienced, on average, a greater % decline in the prevalence of daily smoking than moderate-"effort" provinces (i.e., 32.9% decline versus 26.5%, respectively [Appendix 1]).

A distinct pattern of "change in prevalence of smoking" scores emerged among provinces with similar tobacco control "effort" (Table 4). Compared to all other provinces, high-"effort" provinces (located in the right upper quadrant of Figure 1) experienced, on average, a positive "change in prevalence of smoking" score (i.e., they improved their rank position in smoking prevalence standings in 2009 over that held in 1999). Provinces with fewer but very involved tobacco organizations positioned in the upper left hand quadrant, on average, held their rank position relative to the other provinces. However, provinces positioned in the lower quadrants (i.e., few organizations with low level of involvement [lower left-hand quadrant]; high proportion of engaged organizations with low level of involvement [lower right-hand quadrant]) experienced, on average, declines in prevalence standings.

Figure 1. Pattern of mean “change in prevalence of smoking” scores among Canadian provinces, 1999 to 2009

Note: □=Average number of smoking prevalence rank order position points gained or lost from 1999 to 2009 calculated for provinces grouped in each quadrant.

DISCUSSION

In 2004, when we conducted the first of a series of cross-Canada surveys of public health organizations mandated for the primary prevention of chronic disease, the smoking prevalence among adults in Canada remained on the decline and cigarettes were no longer socially acceptable. A growing number of provinces had implemented smoke-free legislation restricting access to cigarettes and reducing exposure to second-hand smoke in indoor public places and the workplace.¹⁶ The groundwork for legal suits against tobacco companies to recover health care costs related to smoking was being developed.^{17,18} Also in 2004 (three years after the launch of the Federal Tobacco Control Strategy), federal funding for tobacco control had been subjected to a series of cuts¹⁹⁻²¹ and provincial funding for tobacco control activities varied considerably across the country.¹⁶ Using data from our 2004 survey, we report high overall levels of engagement and involvement in tobacco control across provinces in Canada. However, combining these two indicators into a single indicator of “effort” suggests that there was substantial variability in “effort” across provinces in 2004. Albeit in an ecologic design, there appears to be an association between this “effort” and trends in the prevalence of daily smoking. It is notable that this finding emerges even though our measure of “effort” is relatively crude (i.e., it does not distinguish reach, effectiveness, or adoption).^{22,23} This finding supports previous research in the US showing that smoking prevalence is negatively correlated with the strength of tobacco-related policies and programs.^{24,25}

Engagement and involvement in tobacco control

Consistent with a recent report⁷ showing that 100% of regional public health units/districts are involved in tobacco protection, prevention and cessation, this first survey of all CDP organizations across Canada concurs that a large majority of the extended public health community is engaged in tobacco control activities. Although it is important that many public health organizations

Appendix 1. Mean percentage decline in daily smoking prevalence (CTUMS 1999 to 2009) among high- and moderate-effort provinces based on % engagement and mean involvement levels in tobacco control activities, Canada (2004)

High-effort Provinces*	Prevalence Daily Smokers†		
	1999	2009	% decline
BC	16	12	25.0
NS	25	17	32.0
ON	19	12	36.8
QC	25	16	36.0
Mean	21.3	14.3	32.9
Moderate-effort Provinces			
AB	22	14	36.4
SK	21	18	14.3
MB	19	15	21.1
NB	22	18	18.2
PE	21	14	33.3
NL	24	16	33.3
Mean	21.5	15.8	26.5

* Provinces for which both % engagement and mean involvement were high in relation to the other provinces; † Canadian Tobacco Use Monitoring Survey (CTUMS), Percentage daily smokers, by province, age 15+ years, Canada 1999 to 2009.

address tobacco control, it would seem that sheer numbers may not be sufficient to impact prevalence. Rather our findings suggest that level of activity or involvement devoted by these “engaged” organizations is also influential in terms of smoking prevalence.

These findings naturally lead to a search for the policy and resource factors that explain differences in “effort”. An example of a high-“effort” province is Nova Scotia, wherein the 2001 provincial tobacco strategy²⁶ had, as an important component, funding for dedicated full-time positions for tobacco control in all district health authorities, including public health and addiction services. This contrasts with most (i.e., 84%) health authorities across Canada that still do not have dedicated tobacco control units, and the 23% that have no dedicated tobacco control staff.⁷ Perhaps reflective of this provincial strategy, our data suggest that Nova Scotia reported higher levels of involvement in tobacco control across a variety of settings and strategies compared to the other nine provinces. Further, Nova Scotia experienced one of the most important improvements in “change in smoking prevalence” scores in Canada. Nova Scotia may represent a province in which the association between commitment to tobacco control and declines in smoking is well exemplified.

Higher involvement in community settings and for population-level strategies

It is interesting that levels of involvement (both in terms of settings and strategies) at the population level are higher than those at the individual level, perhaps reflecting the general lack of evidence for the sustained effectiveness of individual-level interventions.²⁷ However, with the declines in smoking prevalence slowing down, alternate evidence-based tobacco control strategies may be needed for specific subgroups, including persistent smokers, vulnerable populations, and others that may not respond to standard approaches or receive adequate exposure to population-level interventions.^{7,8,28-31}

Limitations

No data were collected independently outside the structured interviews to validate the tobacco control “effort” variable. We did con-

duct sensitivity analyses and confirmed statistically significant differences between mean tobacco control involvement levels of “engaged” versus “not engaged” organizations. Further, monotonic trends in the proportion of “engaged” organizations were observed with increasing tertile of level of involvement. The variables unique to tobacco control activity collected in 2004 were minimal, and the unit of analysis, although of interest in Canada, was limited to the 10 provinces. Ideally, data on type of tobacco control activity (i.e., protection, prevention, cessation) and province-specific social and policy circumstances would have helped contextualize the findings. The cross-sectional design of this study limits the interpretation of the association between 2004 provincial tobacco control “effort” and smoking prevalence. In particular, caution in causal inference is warranted for associations detected in ecological study designs. For example, residual confounding related to unmeasured factors (i.e., differential increases in the size of heavy-smoking populations and concomitant increases or decreases in tobacco accessibility (price, contraband, suppression actions outside the health sector) may have affected the associations reported. Observations within provinces may not be independent (i.e., the presence of one or more organizations with very high tobacco control profiles could have negatively affected provincial “effort” if the government/other agencies assumed lack of need).

CONCLUSION

The prevalence of smoking continues to be much too high in Canada, therefore tobacco control must remain a pivotal public health focus. The results of this study provide empirical evidence suggesting that provinces that were more committed to tobacco control experienced relatively greater declines in the prevalence of daily smoking. If this finding is substantiated, future research will need to address what level of resourcing of tobacco control activities is needed to further reduce the prevalence of tobacco use in this country. Given that smoking remains a critical public health issue, the kinds of data reported herein are needed to inform the debate on how best to invest in tobacco control infrastructure to combat the most important threat to public health of our times.

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RÉSUMÉ

Objectifs : Décrire le niveau « d'effort » de lutte contre le tabagisme au sein d'organismes de santé publique des différentes provinces et tester l'hypothèse selon laquelle cet « effort » est associé à la prévalence du tabagisme quotidien.

Méthode : Nos données proviennent d'une enquête nationale (oct. 2004 à avril 2005) menée auprès de tous les organismes de santé publique qui œuvraient en prévention des maladies chroniques au Canada en 2004. Nous avons étudié l'association entre « l'effort » et la baisse de prévalence du tabagisme (ESUTC, 1999-2009) observée dans chaque province selon un devis d'étude écologique. « L'effort » a été évalué à l'aide de deux indicateurs : le pourcentage d'organismes de santé publique engagés dans la lutte contre le tabagisme et leur niveau moyen d'implication.

Résultats : Sur 216 organismes, 88 % avaient mené des activités de lutte contre le tabagisme au cours des trois années antérieures à la collecte de données et ont été classés dans la catégorie « engagés ». Le plus haut niveau d'implication a été observé dans les organismes desservant la communauté en général; et le niveau était généralement plus élevé pour les organismes utilisant des stratégies populationnelles que pour les stratégies axées sur les individus. La Nouvelle-Écosse a fait état de niveaux d'implication supérieurs à ceux des autres provinces. « L'effort » variait considérablement d'une province à l'autre. Celles où « l'effort » était élevé (C.-B., N.-É., Ont., Qc) présentaient, en moyenne, des améliorations dans leur indice de « changement de la prévalence du tabagisme » (1999 à 2009).

Conclusion : Les résultats suggèrent que « l'effort » de lutte contre le tabagisme des organismes de santé publique des différentes provinces est lié à des baisses de prévalence de l'usage du tabac. Comme le tabagisme demeure un grave problème de santé publique, ces données peuvent éclairer le débat sur les meilleurs moyens d'investir dans les infrastructures de lutte antitabac.

Mots clés : contrôle du tabac; santé publique; sondage organisationnel; étude écologique; Canada

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