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Effects of a Smoke-free Law in Parks and Beaches on Smoking Behaviour: Methods to Determine Effectiveness

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OVERVIEW

As part of a comprehensive approach to tobacco control, smoke free laws have resulted in reductions of indoor air pollution, improvements in respiratory and cardiovascular health, reduction of smoking uptake by youth, and increasing tobacco use cessation in various jurisdictions.

Although many studies have demonstrated the beneficial effects of smoke-free policies in indoor spaces (e.g., restaurants, bars, workplaces, hospital settings, etc.), little is known about the effectiveness of such policies in outdoor public spaces.

On September 1st, 2010, Vancouver's smoke-free by-law for the city's parks, beaches, and facilities came into effect.

The aims of this study are two-fold:

a) to examine the effect of this smoke-free law on the frequency of smoking in selected parks and beaches, and

b) to determine the change in location of smoking, within parks and beaches, following the enactment of the smoke-free law.

The hypotheses guiding this study are:

1)There will be a lower frequency of observed smoking behaviour following the introduction of the law and

2)Smoking behaviour will be dispersed to the peripheries (i.e., margins) of the parks and beaches, following the enactment of the smoke-free law.

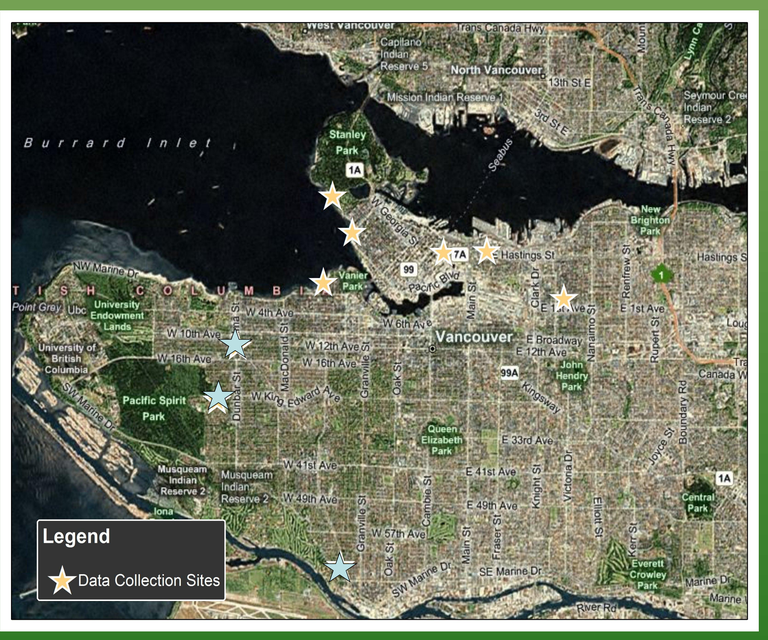

Table 1. Total number of smokers and persons in the venue for all sites by observation time-points

	Pre-Law	1-week post law	1-month post law	8-month post law	9-month post law	10-month* Post law	1-Year Post law
Total smokers	**74**	**71**	**67**	**73**	**83**	**100**	**87**
Female	20	19	19	18	14	34	13
Male	54	52	48	55	69	66	74
Total Persons	**1510**	**623**	**915**	**2420**	**2667**	**8673**	**3282**
# of venues with no smoking signs	**3**	**3**	**3**	**6**	**6**	**6**	**6**
Mean observation time per venue	**30.3**	**28.7**	**29.3**	**30.8**	**26.3**	**34.2**	**30.0**

* Several activities were occurring at Vancouver parks and beaches, including a 'Dyke March' and Firework displays in the beaches

Fig. 1. Changes in rate of observed smoking (per 1000 persons) in all selected Vancouver parks and beaches (n = 6) by observation period

METHODS

An observational, time series approach was employed with seven observation time-points: 2-weeks pre-law, and 1-week, 1- month, 8-month, 9-month, 10-month, and 1-year post law.

Data Collection: Observations occurred on weekends at times of frequent use in 6 venues (i.e., 3 parks and 3 beaches) in Vancouver. We obtained information on total numbers of smokers by sex during a 30 minute time period. Location of smokers was also obtained by indications on maps of the venue.

Analysis :Rates of observed smoking were calculated according to the following: (Number of smokers/total number of persons) X 1000

Repeated measures ANOVA analyses were used to examine the change in smoking rate over time.

The spatial analytic functions of a geographic information system (GIS) was used to calculate the distance from the given venue's centroid to smokers' locations at each observation period.

FINDINGS

There was a significant decrease in overall smoking rates over time [F = 16.0 (df =1), p =.041)] (See Figure 1). However no venue was completely smoker-free by the 12-month time-point (see figure 2).

There were no significant differences in the spatial location of smokers at the 12-month relative to the pre-law locations (see figure 3).

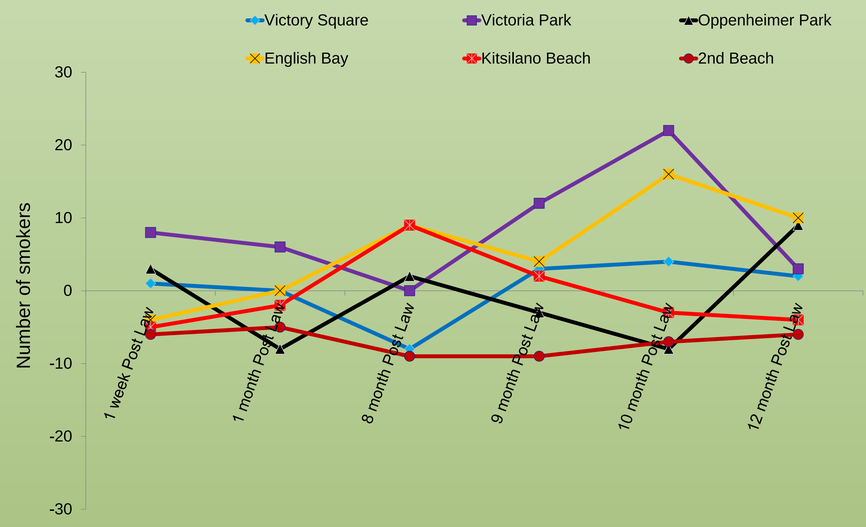

Figure 2. Changes in frequency of observed smoking from prelaw in selected Vancouver parks and beaches (n = 6) by observation period

Figure 3. Changes in spatial location of smokers at prelaw vs. 12-month post-law in selected Vancouver parks and beaches

CONCLUSIONS

These findings suggest that although there were no changes in absolute rates of observed smoking behaviour, overall frequency of smoking in selected parks and beaches declined in the year after a smoke –free law was passed.

Understanding the effect of smoke-free policies in outdoor venues such as parks and beaches and developing adequate methods to measure these effects is needed.

Future studies will be required to further improve compliance and enforcement of smoke-free laws in outdoor public spaces as well as to examine their effect on health and smoking behaviour.

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