

# Which workers smoke?

Leslie A. Gaudette, Anne Richardson and Sara Huang

## Abstract

### Objectives

This article examines differences by occupation in daily cigarette smoking prevalence and intensity among full-time workers, and how these differences are associated with smoking restrictions at work.

### Data sources

Most of the data are from a Health Canada-sponsored Supplement to the 1994/95 National Population Health Survey (NPHS). The analysis is based on 5,674 respondents aged 15 to 64 who were full-time workers at the time of their interview. Comparable information is presented from the 1978/79 Canada Health Survey and the 1986 Labour Force Survey Smoking Supplement.

### Main results

In 1994/95, 28% of full-time workers were daily smokers, and about a third of them smoked 25 or more cigarettes a day. Smoking prevalence and intensity were lowest among white-collar workers and highest among blue-collar workers. Since 1978/79, there has been an overall decline in smoking prevalence, and since 1986, a decline in smoking intensity among all workers except those in outdoor blue-collar occupations. About 6 in 10 full-time workers who smoked daily encountered restrictions at work.

### Key words

cigarette smoking, smoking cessation, smoking intensity, occupation, workplace health and safety

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White-collar, pink-collar, blue-collar—the terms evoke images of the kind of work that people do. They also connote differences in socioeconomic status and work environments. Not so obvious is that these broad occupational groups are associated with distinct patterns of cigarette smoking.

Previous studies have found that smoking behaviour differs among occupational groups. Specifically, the prevalence of smoking is higher among blue-collar workers than among professionals.<sup>1-5</sup> However, Canadian research on the relationship between occupation and smoking has been limited.<sup>5</sup>

This analysis, based on the 1994/95 National Population Health Survey (NPHS), focuses on full-time workers who smoke daily (see *Methods* and *Definitions*). Smoking prevalence, amount smoked, attempts to cut down or quit, and encountering restrictions at work are examined by occupation. Occupation, of course, is strongly related to two other measures of socioeconomic status—education and income—that are both associated with smoking.<sup>6,7</sup> Understanding how smoking varies by occupation is important in planning workplace health promotion programs.

## Methods

### Data sources

Most of the data in this article are from Statistics Canada's 1994/95 National Population Health Survey (NPHS) for the 10 provinces. This analysis excludes long-term residents of hospitals and residential care facilities and residents of the Yukon and the Northwest Territories.

The 1994/95 non-institutional sample for the provinces comprised 27,263 households, of which 88.7% agreed to participate. After application of a screening rule, 20,275 households remained in scope.<sup>8,9</sup> One knowledgeable person in every participating household provided general socio-demographic and health information about each household member. In total, data pertaining to 58,439 individuals were collected. The data base containing this information is called the General file.

In addition, one randomly selected person in each of the 20,275 participating households was chosen to provide in-depth information about their own health. In 18,342 of these households, the selected person was aged 12 or older. Their response rate to the in-depth health questions was 96.1%, or 17,626 respondents. The data base containing in-depth health information, as well as data from the General file pertaining to these respondents is called the Health file.

Of the 17,626 randomly selected respondents aged 12 or older, 14,786 were eligible members of the NPHS longitudinal panel. These respondents were also eligible for a Health Canada-sponsored supplement. The response rate to these questions was 90.6%, yielding a sample size of 13,400 respondents. The data base containing information from the Health Canada supplement, as well as from the General and Health files pertaining to these respondents, is called the Supplementary file.

The analysis in this article is based on 5,674 respondents (representing an estimated 10.6 million Canadians) to the Health Canada Supplement who were aged 15 to 64 and who were full-time workers on the day of their interview; 1,640 of them reported that they smoked daily. Results may, therefore, differ somewhat from those reported for all Canadians.<sup>10</sup>

As well as the NPHS, data from the 1978/79 Canada Health Survey (CHS) and the 1986 Labour Force Survey (LFS) Smoking Supplement are presented to show historical trends. The total sample size of the lifestyle and health questionnaire component of the CHS was 20,726, of whom 10,584 were workers aged 15 to 64. The total response rate was 87%.<sup>10</sup> The sample size of the LFS Smoking Supplement was 30,799 adults aged 15 or older; 16,764 of these respondents were workers aged 15 to 64.<sup>7</sup> (Comparisons of 1994/95 data with earlier years pertain to both full- and part-time workers. The NPHS sample for these comparisons numbered 7,023 respondents.)

### Analytical techniques

All estimates were weighted to represent the population at the date of the survey. The bootstrap procedure was used to calculate the coefficient of variation (CV) for each percentage estimate; estimates with a CV greater than 16.6% are indicated in each table or chart. The bootstrap procedure was also used to calculate standard errors for the differences between two percentages ( $p = 0.05$ ). A Bonferroni approach was used for multiple comparisons, with the probability set at 0.05.

To analyze smoking patterns in different occupational groups, the main occupation of each respondent was coded into 1 of 22 occupational groups, based on the 1970 and 1980 Standard Occupational Classification Manuals,<sup>9,11,12</sup> and then reclassified into 11 groups. Further regrouping created four broad categories: white-collar, pink-collar, blue-collar outdoor, and blue-collar indoor.

Daily smoking prevalence, smoking intensity, attempts to cut down or quit, and restrictions at work were calculated by occupational group and by sex for full-time workers (see *Definitions*). To provide context, daily smoking prevalence was also calculated for part-time workers, workers with irregular schedules (as opposed to regular weekday hours), and people not currently employed for pay (caring for family, attending school, looking for work, retired, ill, or on disability).<sup>9</sup>

### Limitations

The NPHS definitions of the working population differ somewhat from those of the LFS Smoking Supplement and the CHS. The NPHS analysis focuses on the smoking behaviour of Canadians aged 15 to 64 who were working for pay or profit on the day of their interview. For the LFS Smoking Supplement and the CHS, the employed are those who worked at any time in the previous week, or in the previous two weeks, respectively.

Historical comparisons may be limited by the different methods used to administer and obtain responses to each survey. For example, proxy reporting will affect smoking rates, depending on the proportion of responses that are proxy and the degree to which proxy responses diverge from self-reported smoking behaviour. Proxy reporting to the NPHS smoking questions represented just 4% of total responses.<sup>9</sup> However, for the 1986 LFS Smoking Supplement, proxy reports were close to 30%.<sup>7</sup> The CHS questionnaire was self-administered to minimize proxy reporting. Nonetheless, responses may have been influenced by the presence of other household members.<sup>13</sup>

The NPHS did not ask all respondents about the presence of workplace smoking bans. Rather, only smokers were asked if there were places where they found restrictions on their smoking. This limits the ability to associate workplace smoking bans with smoking prevalence or cessation.

## Smoking and work arrangements

More than one in four (28%) of the 10.6 million Canadians aged 15 to 64 who were working full time in 1994/95 reported that they smoked daily (Table 1). Younger workers tended to have somewhat higher daily smoking rates than did those aged 45 and older (data not shown). Although 29% of full-time workers aged 15 to 44 were daily smokers, the figure was 25% among those aged 45 to 64.

The prevalence of daily smoking varied by hours of work and work schedules. It was higher among people working irregular hours or shifts involving weekends (29%) than among workers with regular weekday schedules (25%). However, the prevalence of daily smoking was comparatively low among part-time workers (24%) (Chart 1).

The highest daily smoking rates were among people who described their main activity as looking

## Definitions

To classify smokers, the 1994/95 NPHS asked the following questions:

1. At the present time, do/does ... smoke cigarettes daily, occasionally or not at all?
2. Have you/he/she ever smoked cigarettes at all?

*Daily smokers* are respondents who answered "daily" to question

1. *Occasional smokers* are those who answered "occasionally" to question 1. *Former smokers* are those who answered "not at all" to question 1 and "yes" to question 2.

Current daily smokers were asked: "How many cigarettes do you smoke each day now?" *Smoking intensity* was measured by grouping responses to this question into two categories, with heavy smokers defined as those smoking 25 or more cigarettes per day.

The Health Canada-sponsored Supplement to the NPHS asked current smokers about their attempts to quit or cut down: "Have you tried to quit smoking in the last 12 months?" and "Are you smoking less now than you were 12 months ago?" Current smokers were also asked about encountering restrictions: "Nowadays, there are many restrictions on where people are allowed to smoke. In your day-to-day activities, where do you find you have restrictions on your smoking?" The interviewer did not read a list, but marked any of the following responses: at home; at the home of friends or relatives; in public places; at work; at school; at an entertainment or sports activity; transportation; any other places (specify); none of the above.

Respondents who had worked at any time for pay or profit in the past 12 months were asked a number of questions about their hours of work, occupation, and dates worked in the last year for each of up to six jobs. From the roster of jobs, respondents were asked: "What is your main job?" Occupation was determined by responses to two further questions: "Thinking about the main job, what kind of work

was/were....doing?" and "In this line of work, what were your/his/her most important duties or activities?" For this analysis, workers were classified into white-collar, pink-collar, blue-collar-indoor, and blue-collar-outdoor occupations. Outdoor workers in fishing, forestry and farming were grouped together, as they are the least likely to be affected by smoking restrictions<sup>5,7</sup> (see Appendix Table A).

Working status, determined using a derived variable on the NPHS, was defined as "currently working," "not currently working, but had a job," "did not work in the last 12 months," "not applicable," or "not stated." Another derived variable, main job working hours, was used to determine whether respondents worked "full-time" (30 hours or more per week) or "part-time" (less than 30 hours per week) at their main job. The weighted number of NPHS respondents aged 15 to 64 currently working (both full and part time) agreed closely with Labour Force Survey estimates of employment for 1994: 13.3 million versus 13.1 million.

Shift work was assessed using a derived variable, type of working hours for main job. In this article, "regular weekday hours" was defined as "regular shift—no weekend." Any other response (including a regular shift with weekend, rotating shifts, irregular/on call schedule, or other) was considered "irregular hours."

Respondents were asked, "What do you consider to be your main activity?" Responses were: caring for family; working for pay or profit; work/caring for family for pay/profit; going to school; recovering from illness/on disability; looking for work; retired; other. Responses to this question were used together with those for working status to classify respondents first as currently working (as some current workers listed another activity as their main activity), and then as caring for family, going to school, recovering from illness/on disability/looking for work, retired, and other.

for work (48%) or who were ill or on disability (52%). This is consistent with previous research findings of higher smoking rates among the unemployed.<sup>2</sup>

**High smoking rates in blue-collar occupations**

In 1994/95, the prevalence of daily smoking among full-time workers was highest in male-dominated blue-collar occupations. The high smoking prevalence among workers in construction, transportation and mining (43%) approached that of people whose main activity was looking for work (48%). Daily smoking prevalence was somewhat lower in female-dominated pink-collar occupations, and lowest in the white-collar professional and managerial groups (Table 1). Previous studies, too, have shown smoking prevalence to decline with increasing occupational status.<sup>1,2,4</sup>

Overall, daily smoking prevalence was higher among male than female workers. In most occupations, however, smoking rates of male and female workers were similar. The exception—

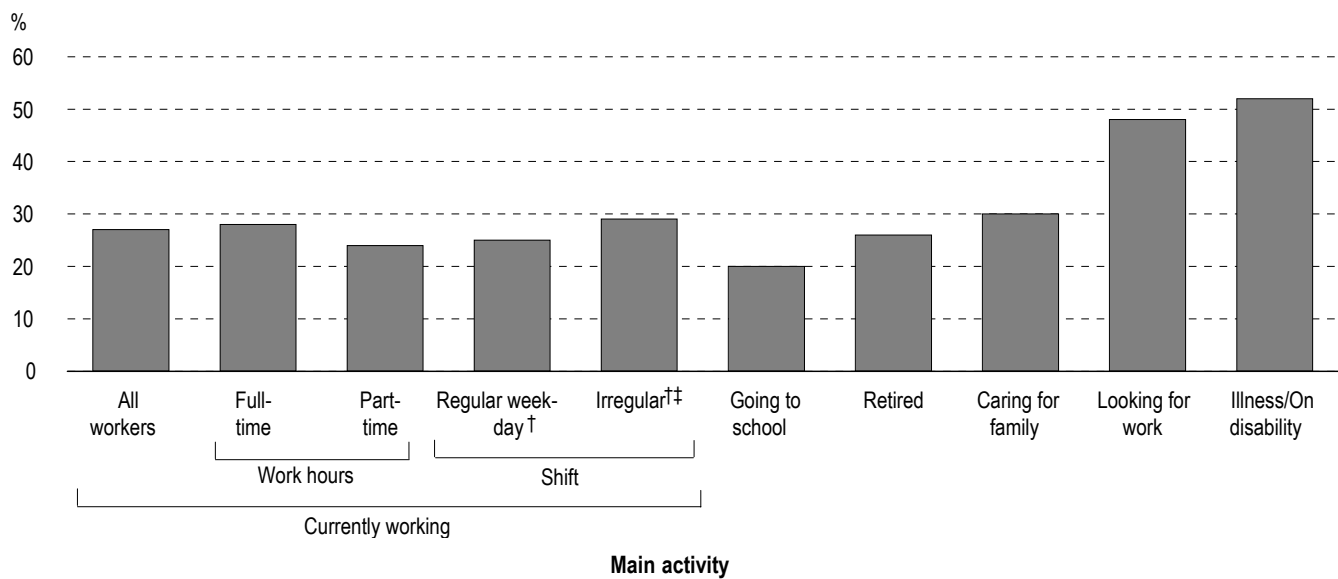
apparently higher rates among women in manufacturing— was not statistically significant.

The occupations in which the prevalence of smoking was high were not necessarily the ones accounting for the largest number of smokers, and therefore, having the greatest potential for reducing the overall number of workers who smoke (Chart 2). In 1994/95, 44% of male full-time workers who were daily smokers (about 850,000) were in manufacturing or in construction/transportation/mining. Clerical and service occupations together represented 49% of female workers who were daily smokers (about 500,000).

**Majority felt restricted at work**

About 6 in 10 (58%) full-time workers who smoked daily reported that they encountered workplace smoking restrictions, almost the same number that found restrictions in public places (60%) (Table 2). However, restrictions on smoking at work varied by occupation, whereas there was much less variation in restrictions reported for public places.

Chart 1  
Prevalence of daily smoking, by main activity, population aged 15 to 64, Canada excluding territories, 1994/95

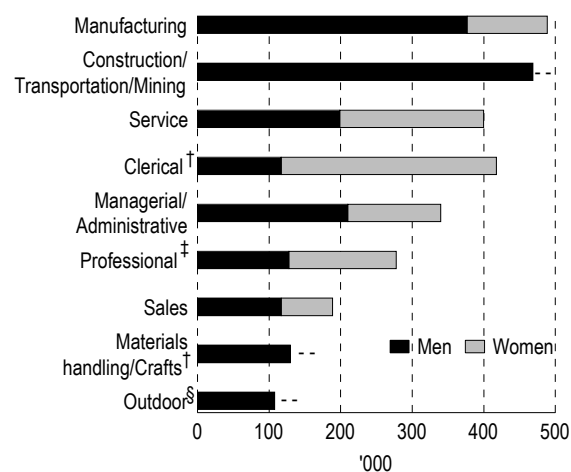


Data source: 1994/95 National Population Health Survey, Supplementary file  
 † Includes both full- and part-time workers.  
 ‡ Evenings, weekends, shifts

A higher percentage of female than male smokers (69% versus 52%) experienced restrictions at work, although similar proportions of men and women were restricted in public places (data not shown). This is not surprising, as women are more likely to be employed indoors, where smoking bans are more common (see *Workplace smoking bans*). The smokers who reported the highest rates of encountering restrictions at work were in occupations often located in office buildings: clerical (79%), sciences (74%), and other professional (73%). As well, relatively high percentages of workers in materials handling/crafts (64%) and manufacturing (59%) reported restrictions, probably an effect of indoor worksites, as well as the need to protect machinery and products and ensure safety in working with hazardous or flammable substances.

By contrast, just over half of smokers in sales (51%) and service (55%) reported restrictions at work. Their workplaces—establishments such as restaurants and retail outlets, for instance—may overlap public areas where smoking is permitted.<sup>5</sup> Hospitality workers, in fact, are subjected to higher levels of second-hand smoke than are workers in offices that allow smoking: exposure in restaurants is nearly two times higher, and in bars, four to six

Chart 2  
Number of daily smokers, by sex and occupation, full-time workers aged 15 to 64, Canada excluding territories, 1994/95



**Data source:** 1994/95 National Population Health Survey, Supplementary file  
 † High coefficient of variation for men (16.6% to 25.0%)  
 ‡ Sciences, other professional  
 § Forestry, farming, fishing  
 -- Sample too small to permit reliable estimate

Table 1  
Prevalence of daily smoking, by sex and occupation, full-time workers aged 15 to 64, Canada excluding territories, 1994/95

Occupation	Number of full-time workers '000	Daily smokers		
		Both sexes	Men	Women
		%		
<b>All occupations†</b>	<b>10,600</b>	<b>28</b>	<b>29</b>	<b>25</b>
<b>White-collar</b>	<b>3,524</b>	<b>18</b>	<b>17</b>	<b>18</b>
Managerial/Administrative	1,709	20	19	21
Sciences	646	16	15‡	--
Other professional	1,169	15	--	16
<b>Pink-collar</b>	<b>3,442</b>	<b>29</b>	<b>29</b>	<b>29</b>
Clerical	1,445	29	29‡	29
Sales	782	24	24	24
Service	1,215	33	33	32
<b>Blue-collar indoor</b>	<b>1,816</b>	<b>35</b>	<b>34</b>	<b>40</b>
Manufacturing	1,424	34	33	41
Materials handling/Crafts	391	39	39	--
<b>Blue-collar outdoor</b>	<b>1,533</b>	<b>39</b>	<b>40</b>	--
Outdoor§	419	28	30	--
Construction/Transportation/ Mining	1,114	43	43	--
Not stated	286	--	--	--

**Data source:** 1994/95 National Population Health Survey, Supplementary file  
 † Includes not stated.  
 ‡ High coefficient of variation (16.6% to 25.0%)  
 § Forestry, farming, fishing  
 -- Sample too small to permit reliable estimate

Table 2  
Percentage of full-time workers aged 15 to 64 who smoked daily and encountered smoking restrictions at work and in public places, by occupation, Canada excluding territories, 1994/95

Occupation	Encountered smoking restrictions:	
	at work	in public places
	%	
<b>All occupations</b>	<b>58</b>	<b>59</b>
Managerial/Administrative	60	60
Sciences	74	62
Other professional	73	54
Clerical	79	59
Sales	51	67
Service	55	62
Manufacturing	59	54
Materials handling/Crafts	64	60
Outdoor†	--	65
Construction/Transportation/Mining	40	56

**Data source:** 1994/95 National Population Health Survey, Supplementary file  
 † Forestry, farming, fishing  
 -- Sample too small to permit reliable estimate

times higher.<sup>14</sup> As well, service workers are often employed on weekends or evenings and in businesses with fewer than 20 employees, all of which are associated with higher smoking prevalence and fewer restrictions.<sup>15</sup>

Only 40% of daily smokers in construction/transportation/mining occupations reported encountering workplace restrictions, and there were too few workers in outdoor occupations who were restricted to be shown here.

### Workplace smoking bans

According to a recent study,<sup>5</sup> 80% of Canadian workers were subject to workplace smoking restrictions in 1994, double the proportion in 1986. Fewer than 10% of workers had experienced *total* smoking bans in their workplace in 1986, but by 1994, the figure had increased fourfold.<sup>5</sup> In the latter year, total smoking bans affected more workers than did partial bans in British Columbia, Ontario, and the Atlantic provinces. Ontario was the leader, with almost half of workers subject to total bans. By contrast, in Quebec, just one-quarter of workers reported total bans. Together with that province's high smoking rates, this may reflect a more permissive attitude toward tobacco use.<sup>5</sup> (See *Attitudes toward smoking* in this issue.)

Early policies that restricted workplace smoking aimed to prevent damage to machines, guard against contamination of products, reduce fire hazards, and avoid adverse client contact.<sup>17</sup> But once the hazards of environmental tobacco smoke, more commonly known as second-hand smoke, were recognized, smoking bans were intended primarily to protect non-smokers<sup>3,16</sup> and to reduce the possibility of legal action against employers. As well, in Canada, the annual added cost of employing a smoker has recently been estimated at \$2,565, based on the sum of the costs of increased absenteeism, decreased productivity, increased life insurance premiums, and the provision of smoking areas.<sup>18</sup>

Worksite restrictions may help smokers quit.<sup>19-23</sup> Most studies have shown a modest reduction in smoking prevalence after restrictions or bans have been implemented, as well as a reduction of 4 or 5 cigarettes consumed per workday by smoking workers.<sup>19,23-29</sup> One study calculated that this was equivalent to about 55 packs not smoked in a year.<sup>30</sup> Worksite restrictions have the greatest effect on those who want to quit,<sup>22</sup> heavy smokers,<sup>20,23</sup> and people who work more than 50 hours a week.<sup>24</sup>

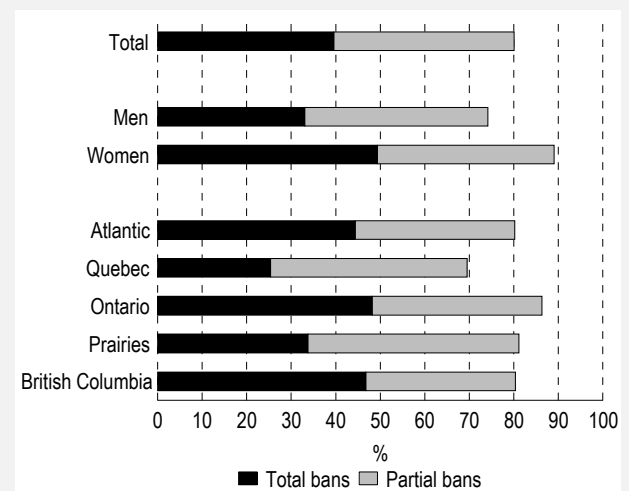
### Pace of decline varies

The prevalence of daily smoking dropped substantially among all workers (both full- and part-time) between 1978/79 and 1986, but from 1986 to 1994/95, the pace of decline slowed (Table 3). The overall downturn reflects the general decrease in smoking during the entire period, but differs from the more recent trend in the 1990s for smoking rates in the total population to level off or even rise.<sup>16</sup>

Federal legislation on smoking in public places and at the workplace is governed by the Non-smokers' Health Act (1988) and Non-smokers' Health Regulations.<sup>31</sup> In Ontario and Newfoundland, provincial legislation controls or bans workplace smoking. As well, all provinces, except Nova Scotia and Prince Edward Island, give municipalities authority to develop smoking bylaws<sup>31</sup> that control smoking at work and in public places such as hospitals, restaurants, retail outlets and public transit.<sup>32</sup>

Provincial legislation, however, does not consistently define the term "workplace." Workplace commonly refers only to indoor space or is limited to offices, rather than applying to any place of employment. Consequently, bans do not usually cover occupations that involve outdoor work.

Percentage of workers affected by workplace smoking restrictions, by sex and region, Canada, 1994



Source: Reference 5

Patterns of decline in daily smoking prevalence varied by occupation. Substantial drops occurred throughout the 1978/79-to-1994/95 period among workers in white- and pink-collar occupations. Between 1978/79 and 1986, prevalence also declined among blue-collar workers. However, between 1986 and 1994/95, rates rose or remained stable among men in all blue-collar occupations except manufacturing, where the rate declined. By contrast, among women in manufacturing, daily smoking prevalence increased. This may partly reflect the high coefficient of variation for the 1994/95 estimate.

### Men heavier smokers than women

Just over one-third of full-time workers who were daily smokers smoked heavily; that is, 25 or more

cigarettes a day. Men were much more likely than women to be heavy smokers: 40% versus 26%. The highest proportions of heavy smokers were in male-dominated blue-collar occupations, particularly construction/transportation/mining (49%). The lowest smoking intensities were in occupations with higher female representation such as clerical (26%) and service (27%) (Table 4).

Trends in smoking intensity since 1978/79 were generally similar for both sexes (Chart 3). In all occupational groups, the proportion of heavy smokers rose between 1978/79 and 1986. By 1994/95, the proportion had fallen below the 1978/79 level for white- and pink-collar workers, but increased slightly among men in blue-collar outdoor occupations, who are the workers least likely to be affected by workplace smoking restrictions.

Table 3  
Prevalence of daily smoking, by sex and occupation, full- and part-time workers aged 15 to 64, Canada excluding territories, 1978/79, 1986 and 1994/95

Occupation	Both sexes			Men			Women		
	1978/79	1986	1994/95	1978/79	1986	1994/95	1978/79	1986	1994/95
<b>Total workers ('000)</b>	<b>9,687</b>	<b>11,420</b>	<b>13,320</b>	<b>6,090</b>	<b>6,470</b>	<b>7,357</b>	<b>3,597</b>	<b>4,950</b>	<b>5,961</b>
		%			%			%	
<b>Total</b>	<b>42</b>	<b>30</b>	<b>27</b>	<b>44</b>	<b>32</b>	<b>29</b>	<b>37</b>	<b>28</b>	<b>25</b>
<b>White-collar</b>	<b>32</b>	<b>22</b>	<b>18</b>	<b>35</b>	<b>24</b>	<b>17</b>	<b>28</b>	<b>21</b>	<b>19</b>
Managerial/Administrative Sciences	36	26	21	36	25	19	34	29	23
Other professional	31	20	17	33	21	16 <sup>†</sup>	24 <sup>†</sup>	20 <sup>†</sup>	--
Other professional	30	19	15	35	22	14 <sup>†</sup>	27	17	16
<b>Pink-collar</b>	<b>43</b>	<b>31</b>	<b>27</b>	<b>44</b>	<b>31</b>	<b>27</b>	<b>41</b>	<b>31</b>	<b>28</b>
Clerical	39	32	28	39	36	30 <sup>†</sup>	39	31	27
Sales	44	27	23	46	26	22	40	27	23
Service	46	34	30	45	34	29	47	35	31
<b>Blue-collar indoor</b>	<b>46</b>	<b>37</b>	<b>34</b>	<b>48</b>	<b>39</b>	<b>33</b>	<b>37</b>	<b>30</b>	<b>36</b>
Manufacturing	47	37	34	49	39	33	38	30	38
Materials handling/Crafts	42	35	35	44	36	36	33 <sup>†</sup>	30	--
<b>Blue-collar outdoor</b>	<b>49</b>	<b>35</b>	<b>38</b>	<b>49</b>	<b>36</b>	<b>40</b>	<b>38<sup>†</sup></b>	<b>24</b>	<b>--</b>
Outdoor <sup>‡</sup>	38	25	28	38	27	31	--	19	--
Construction/Transportation/Mining	53	39	43	53	39	43	--	--	--

**Data sources:** 1978/79 Canada Health Survey, 1986 Labour Force Survey, 1994/95 National Population Health Survey, Supplementary file

**Note:** In the Canada Health Survey, workers are those who were employed at any time in the two weeks before their interview. In the Labour Force Survey, workers are those who were employed in the week before they were interviewed. In the National Population Health Survey, workers are those who were employed for pay or profit on the day of the interview.

<sup>†</sup> High coefficient of variation (16.6% to 25.0%)

<sup>‡</sup> Forestry, farming, fishing

-- Sample too small to permit reliable estimate

The decline of smoking prevalence and increase in intensity between 1978/79 and 1986 occurred because prevalence fell disproportionately among workers who smoked less heavily.<sup>7</sup> The result was a larger percentage of heavy smokers among those who continued to smoke. Since 1986, both prevalence and intensity declined in most occupational groups.

Encountering restrictions at work was associated with lower smoking intensity: 31% of workers who reported such restrictions smoked 25 or more cigarettes a day, compared with 40% of those who were not restricted (data not shown).

### Trying to quit, cutting down

Almost 4 in 10 full-time workers who were daily smokers reported having tried to quit in the past

**Table 4**  
Smoking intensity and cessation attempts, by occupation, full-time workers aged 15 to 64 who smoked daily, Canada excluding territories, 1994/95

Occupation	Daily smokers '000	Smoke 25+ cigarettes per day %	In last 12 months:	
			Smoking less %	Tried to quit %
<b>All occupations†</b>	<b>2,933</b>	<b>35</b>	<b>33</b>	<b>39</b>
<b>White-collar</b>	<b>618</b>	<b>33</b>	<b>32</b>	<b>39</b>
Managerial/Administrative	340	35	34	40
Professional‡	278	29§	30	38
<b>Pink-collar</b>	<b>1,007</b>	<b>28</b>	<b>34</b>	<b>42</b>
Clerical	418	26§	35	41
Sales	189	36	36	38
Service	400	27	33	44
<b>Blue-collar indoor</b>	<b>640</b>	<b>40</b>	<b>30</b>	<b>39</b>
Manufacturing	489	40	33	41
Materials handling/Crafts	151	40§	--	--
<b>Blue-collar outdoor</b>	<b>592</b>	<b>45</b>	<b>34</b>	<b>34</b>
Outdoor††	117	34§	--	45§
Construction/Transportation/ Mining	475	49	35	31
Not stated	75	--	--	--

**Data source:** 1994/95 National Population Health Survey, Supplementary file

**Note:** Because of rounding, number of daily smokers may not match numbers calculated from figures in Table 1.

† Includes not stated.

‡ Sciences, other professional

§ High coefficient of variation (16.6% to 25.0%)

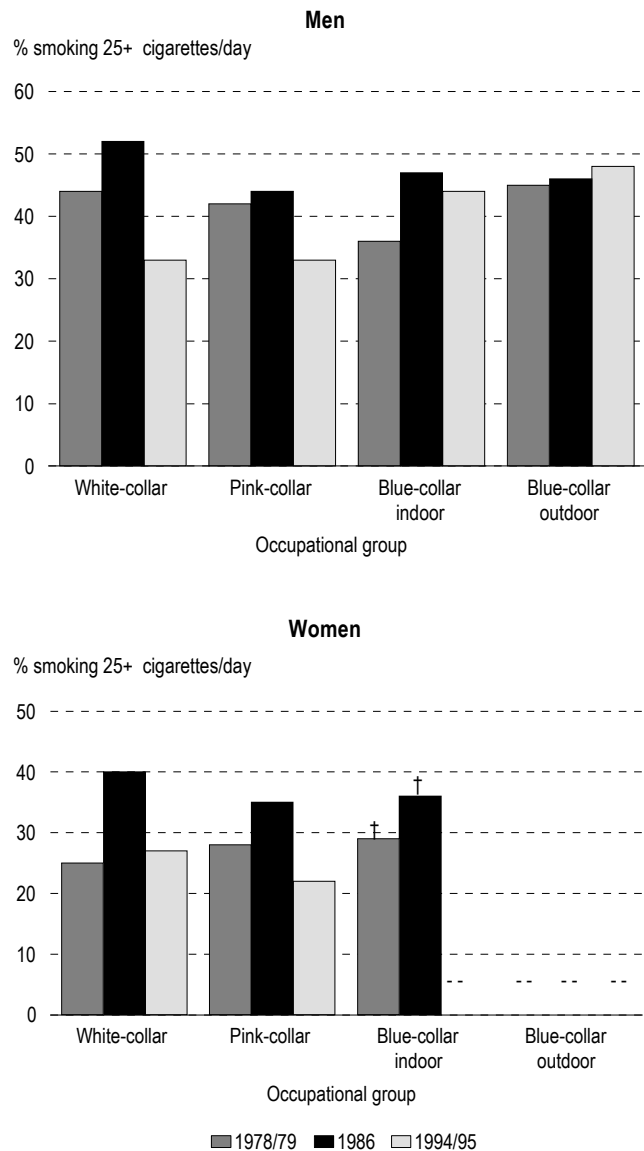
†† Forestry, farming, fishing

-- Sample too small to permit reliable estimate

year (Table 4). Daily smokers in service occupations were the most likely to have made the attempt (44%); those in construction/transportation/mining occupations, the least likely (31%).

Encountering workplace smoking restrictions was associated with attempts to cut down (data not shown). In 1994/95, 36% of daily smokers who

**Chart 3**  
Daily smokers who smoked 25 or more cigarettes per day, by sex and occupational group, workers aged 15 to 64, Canada excluding territories, 1978/79, 1986 and 1994/95



**Data source:** 1978/79 Canada Health Survey, 1986 Labour Force Survey, 1994/95 National Population Health Survey, Supplementary file

† High coefficient of variation (16.6% to 25.0%)

-- Sample too small to permit reliable estimate



found restrictions at work reported trying to smoke less, compared with 29% of workers who did not find restrictions. There was, however, no relationship between encountering restrictions and trying to quit.

### Professionals most likely to quit

About half of full-time workers, both men and women, who had ever smoked (daily or occasionally) reported having quit. The figure was around 6 out of 10 for workers in scientific, managerial or professional occupations, but just 4 out of 10 in construction/transportation/mining, materials handling/crafts, and outdoor occupations (Chart 4).

Earlier studies, too, have found smokers in professional occupations to be the most likely, and those in non-managerial and construction occupations the least likely, to quit.<sup>2,4,7,21</sup> NPHS data show that substantial percentages of those in professional occupations also reported workplace smoking restrictions.

But encountering restrictions was not always linked to quit rates. Comparatively large percentages of daily smokers in clerical, manufacturing, and materials handling/crafts occupations reported

workplace smoking restrictions, yet quit rates in these occupations were below average.

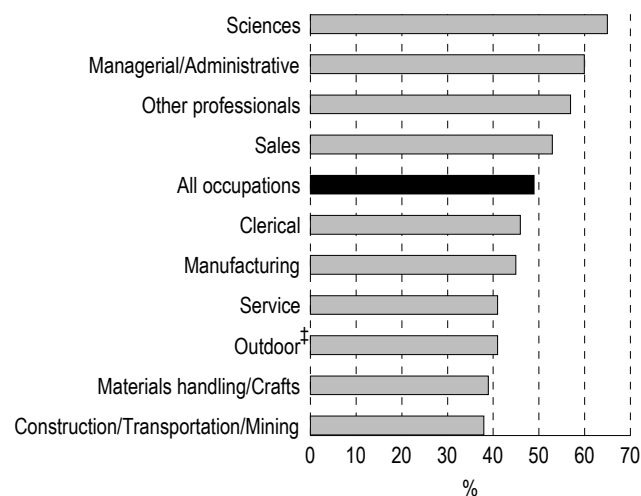
### Three patterns

Distinct patterns of smoking prevalence and intensity by occupation emerge from the NPHS data. White-collar workers had the lowest smoking prevalence, the highest cessation rates, and average smoking intensity. In addition, their smoking prevalence and intensity declined between 1986 and 1994/95. High percentages of white-collar workers who were daily smokers found restrictions at work, consistent with their easily regulated indoor office workplaces.

The daily smoking prevalence of pink-collar workers was close to that for all workers in 1994/95 and had declined steadily since 1978/79. As well, the proportion of heavy smokers fell substantially after 1986. By 1994/95, the smoking intensity of pink-collar workers was the lowest of all workers, while their cessation rate matched that for workers overall. A relatively high percentage of clerical workers reported smoking restrictions at work. The percentages of sales and service workers reporting restrictions were much lower. This has been attributed to an overlap between their worksites and less regulated public places.<sup>5</sup>

Workers in blue-collar occupations reported the highest smoking prevalence and intensity. Although some had attempted to quit, their success rate was low. The relative lack of restrictions in construction/transportation/mining and outdoor occupations was accompanied by stable daily smoking prevalence and slightly increasing intensity among male workers.

Chart 4  
Quit rate† of full-time workers aged 15 to 64 who ever smoked, by occupation, Canada excluding territories, 1994/95



Data source: 1994/95 National Population Health Survey, Supplementary file

† Former smokers as a percentage of current smokers plus former smokers

‡ Forestry, farming, fishing

### Implications

The 1994/95 National Population Health Survey shows that smokers who reported workplace restrictions were less likely to smoke heavily and more likely to have tried to cut down. However, these results cannot be used to conclude that the presence of bans caused reductions in smoking. In fact, workers reporting restrictions were no more likely to have tried to quit than workers who reported no restrictions.

Smoking restrictions are only one factor that may influence workers who smoke. Smoking has been associated with stress caused by high job strain.<sup>33,34</sup> It may be a coping strategy to deal with work involving high demands and low levels of autonomy.<sup>33</sup> (See *Work stress and health* in this issue.) Women in clerical occupations, who have a below-average quit rate, fit these stress patterns.<sup>35</sup> High job strain can also be expected from the assembly-line nature, tight supervision and boredom associated with many indoor blue-collar occupations.<sup>34</sup> As well, some blue-collar occupations entail a degree of danger. Workers in such jobs may perceive smoking to be a relatively innocuous risk compared with other serious hazards that they confront.

Social factors are also important. Many blue-collar workers seem to be committed smokers who may be receiving support from peer groups to continue smoking,<sup>5</sup> and may be more likely to socialize in places with less stringent smoking restrictions. ●

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## Appendix

Table A  
Equivalent occupational groups, 1994/95 National Population Health Survey and 1971 and 1980 Standard Occupational Classification (SOC)

Occupational group	Analysis group	1994/95 NPHS occupational group	SOC major group, 1971 and 1980
White-collar	Managerial/ Administrative	Managerial/ Administrative	11
		Sciences	Natural science Social science
	Other professional	Religion	25
		Teaching	27
		Medicine	31
Artistic	33		
Pink-collar	Clerical	Clerical	41
	Sales	Sales	51
	Services	Services	61
Blue-collar indoor	Manufacturing	Processing	81,82
		Machining	83
		Fabricating	85
	Materials handling/ Crafts	Materials handling	93
		Other crafts	95
Blue-collar outdoor	Outdoor	Farming	71
		Fishing	73
		Forestry	75
	Construction/ Transportation/ Mining	Construction	87
		Transportation	91
		Mining	77
		Not stated	Not stated

**Sources:** 1994/95 National Population Health Survey; References 9, 11 and 12

**Note:** Some occupations classified to one major group in 1971 were coded to another in 1980.

... Not applicable