THE ONTARIO TOBACCO RESEARCH UNIT
UNITÉ DE RECHERCHE SUR LE TABAC DE L'ONTARIO

Analysis of the Young Adult Ontario Workforce

Identifying Points of Intervention for Smoking Cessation Within the Young Adult (Age 20–34) Workforce

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Executive Summary

In Canada, young adults continue to report the highest smoking rates compared to any other age group. Research on occupational disparities in smoking behaviour indicates that smoking prevalence rates are higher in occupations traditionally described as blue–collar and service than in white–collar occupations, and declines in smoking rates are smaller among blue–collar workers, compared to other occupations. Targeting smoking cessation interventions to young adults in occupations with particularly high smoking rates can offer a cost-effective solution to reach these populations.

The purpose of this report is to identify points of intervention for smoking cessation within the young adult (age 20-34) workforce. The analyses presented in this report provide information on blue–collar and service industries and occupations in which young adults predominantly work in Ontario. Conclusions indicate which types of workplaces to choose for implementation and which occupations to target interventions to both in terms of industry and size of workplaces to reach a large number of young adults in occupations traditionally called blue–collar and service occupations.

Key Findings

Targeting the Retail Sector

- Results suggest targeting the implementation of smoking cessation interventions in workplaces of the retail trade industry that employ more than 500 employees across worksites and between 20 and more than 500 employees within a specific workplace of implementation.
- Further, results suggest that interventions be targeted to young adults in the retail trade industry working as retail salespersons, sales clerks and cashiers and in sales, service and travel occupations.
- A second industry of interest is accommodation and food service targeting young adults working as chefs and cooks, and in other occupations in food and beverage services.

Reaching Young Adult Smokers

- Canadian Tobacco Use Monitoring Survey (CTUMS) data analyzed to identify smoking rates by occupational categories suggest that smoking rates are highest among young adults working in sales and services followed by those working in trades, transport and as equipment operators.

- Results support the conclusion that targeting smoking cessation interventions to young adults working in retail trade as retail salespersons, sales clerks and cashiers may be the most promising way to potentially reach a large number of young adult smokers working in other than white–collar occupations. This has obvious implications for program development and future policies pertaining to diffusion of effective interventions to these worksites.

Future research needs to address the lack of available information about smoking rates and associated factors by occupations and industrial categories generally and, in particular, for young adults in order to better understand associations of tobacco use with comorbid health risk behaviours, attitudes towards smoking cessation interventions, intentions to quit and other variables within this segment of the population.

Introduction

Tobacco use represents one of the most important public health issues in the world today. More than one billion individuals smoke worldwide and many millions more use oral tobacco products.[1] According to the World Health Organization, tobacco kills 5.4 million people every year—an average of one person every six seconds—and is a risk factor for six of the eight leading causes of death worldwide. If current trends continue, tobacco is estimated to cause up to one billion deaths in the 21st century.[2]

In Canada, young adults continue to report the highest smoking rates compared to any other age group.[3] Quitting at an early age is critical because it increases the chances that a smoker will avoid the more severe health consequences of smoking.[4] However, research has shown that while young adults are more likely to attempt to quit smoking, they are less likely to succeed in their attempts.[5, 6, 7] Using data from a 15–year follow-up study to investigate smoking cessation between teenage years and adulthood, Paavola and colleagues showed that predictors of smoking behaviour in young adults may include gender, marital status, employment and type of employment. The survey data, collected between 1978 and 1993, showed that among participants ($n = 64$) who had quit smoking before the age of 28, significantly more women (43%) quit smoking compared to men (27%; $p < .05$). Married people (47%) had quit the most and divorcees (8%) had quit the least. Further, the study showed that occupation and occupational status were predictors of smoking cessation: 52% of white–collar workers had quit before the age of 28 compared to 29% of blue–collar workers ($p < .01$); 36% of employed respondents had quit compared to 15% of unemployed respondents ($p = .01$).[8]

In Canada, young adults continue to report the highest smoking rates compared to any other age group.

These results are consistent with research on occupational disparities in smoking behaviour more generally, which indicates that smoking prevalence rates are higher in occupations traditionally described as blue–collar and service than in white–collar occupations,[9,10,11] and declines in smoking rates are smaller among blue–collar workers, compared to other occupations.[12] Investigating the prevalence of cigarette smoking by occupation and industry in the United States, Bang and Kim found that among 44 industry groups, the construction industry had the highest prevalence of cigarette smoking. Other

top 10 industries with high cigarette smoking prevalence included repair services, lumber and wood products, eating and drinking places, vehicle dealers, supply and service stores, utilities, trucking service, agriculture services, forestry and fishing, metal industries, and wholesale trade and durable goods. Educational services and offices of health practitioners had the lowest prevalence of cigarette smoking.[9] In Ontario in 2005, blue–collar workers had a prevalence of smoking of 32% compared to 16% for sales workers or 12% for white–collar workers.[13]

Providing smoking cessation programs to workplaces has several advantages. The introduction of nonsmoking policies effectively reduces the exposure of employees to secondhand smoke.[14] The workplace provides access to a large number of people who present a relatively stable population; it has the potential for higher participation rates than other settings; it may promote sustained peer group support and positive peer pressure; occupational health staff may be on-site to provide professional support; and the employee is not required to travel to the program or to dedicate their own time to participate.[15] Further, it provides a particular opportunity to target specific populations (e.g., individuals in specific industries or occupations) who traditionally have higher smoking rates and are less likely to benefit from existing smoking cessation services. Consistent with findings in other settings, the evidence for the effectiveness of group therapy, individual therapy and pharmacological treatments provided as smoking cessation interventions in the workplace have been found to be strong.[15] To date little information is available on the cost-effectiveness of smoking cessation interventions in the workplace.[15]

...smoking prevalence rates are higher in occupations traditionally described as blue–collar and service than in white–collar occupations...

Given the high smoking rates among young adults and existing occupational disparities in smoking behaviours, targeting smoking cessation interventions to young adults in occupations with particularly high smoking rates can offer a cost-effective and focused solution to reaching these populations. Interventions could be targeted in a broad way, by focusing on young adults in workplaces of selected industries, or more specifically, by focusing on young adults in occupational groups within a workplace.[16]

Using data from the Canadian Labour Force Survey (LFS) from May 2009,[17] the analyses were conducted to determine in which blue–collar and service sectors and occupations young adult workers are employed within Ontario. The results of these analyses helped identify occupations and industries in which young adult Ontario workers with potentially high smoking rates are employed. The results were used to determine to which occupational group(s) a smoking cessation intervention specifically tailored to young adult workers should be targeted and in which type of workplaces pilot studies should be implemented to potentially reach a large number of young adult smokers within the workforce. In addition to using LFS data, analysis of the Canadian Tobacco Use Monitoring Survey (CTUMS) 2008[18] was undertaken to gain an understanding of smoking rates within relevant occupational groups in Ontario.

Methods

The most recent available data from the Canadian Labour Force Survey (LFS, May 2009) conducted by Statistics Canada was used to determine in which industrial sectors and in which occupations within these sectors young adults worked in Ontario.

The LFS is a nation-wide monthly household survey of a sample representative of the civilian, noninstitutionalized population 15 years of age and older.[19] It is the only Statistics Canada source assessing monthly estimates of total employment and unemployment, producing measures such as employment and unemployment rates, employment estimates by industry, occupation, hour worked and more. It also provides measures such as job permanency and workplace size for employees.[i]

Sample

The LFS has a cross-sectional design. It uses a probability sample based on a stratified multi-stage sampling design: the first stage of sampling consists of selecting smaller geographic areas from within a stratum; the second stage consists of selecting dwellings within each selected cluster. The sample is allocated to provinces and strata within

[i] More detailed information on the Canadian Labour Force Survey (i.e., concepts and definitions; survey methodology; data collection etc.) can be found at http://www.statcan.gc.ca/pub/71-543-g/71-543-g2010001-eng.pdf.

provinces to result in reliable estimates at various geographic levels including national, provincial, census metropolitan areas (large cities), economic regions, and employment insurance regions. The LFS is divided into six rotation groups and each selected dwelling remains in the survey sample for six consecutive months. Households dropped from the sample are replaced by households in the same or a similar area. By design, each of the six rotation groups is representative of the entire population. The LFS data set provided by Statistics Canada contained weighted data to yield population estimates. As described elsewhere,[19,20] each individual record received an initial weight that corresponded to the inverse of the probability of selection, adjusted to account for nonresponse. All record weights were then adjusted so that the aggregate totals matched with independently derived population estimates for various age-sex groups by province and major subprovincial areas. In this process, all individuals within a dwelling were assigned the same weight.[19,20] Because only weighted LFS data is provided by Statistics Canada, results presented here are based on weighted data.

Geographical Regions

The purpose of the analysis presented in this report was to identify points of intervention for smoking cessation within the young adult workforce in Ontario, thus only LFS data pertaining to Ontario (n = 30,837) were analyzed. For Ontario, the LFS data differentiates between Toronto as Census Metropolitan Areas (CMA) and "other CMA or Non-CMA". Consequently, more region–specific data that would address potential differences among Local Public Health Agencies' catchment areas could not be provided through the analysis of the LSF data. Analyses were conducted for Ontario overall as well as for Toronto and "other CMA or Non-CMA". Results showed few differences in which industries and occupations within these industries that young adults predominantly work. Consequently, this report only provides results for Ontario as a whole (i.e., including all available data for Ontario).

Age Range

Further, to specifically identify points of intervention within the young adult workforce, data were limited to include young adults (20–34 years) only. Consequently, results reported include data from young adult Ontarians between 20 and 34 years of age (n = 6,691).

Industries

The LFS uses the North American Industry Classification System (NAICS) 2002 – Canada[21] to identify the industries in which respondents work. The NAICS 2002 lists a large variety of industries and summarizes them under specific main categories. The LFS raw data set provides information on either 18 main categories of industries or a more detailed list of 43 industries. The more detailed list of 43 industries however did not provide more information on blue–collar and service industries that would have been relevant to determine in which industrial sectors young adult workers are employed in Ontario. Thus, analyses were conducted using 18 industry categories.[ii]

Following examples provided by Statistics Canada,[22] occupational data were divided into three categories: white–collar, service and blue–collar industries. For the purpose of this study, white–collar industries were defined as industries employing individuals who perform nonmanual labour in industries such as finance, management, and administration; service industry workers were defined as those performing labour involving customer interaction, retail and sales; blue–collar industry workers were defined as individuals performing manual labour in areas such as manufacturing, mining, building and construction trades, mechanical work, maintenance, repair and operations. More precisely, of the 18 main NAICS categories provided by the LFS, categories employing white–collar workers include: finance, insurance, real estate, rental and leasing; professional, scientific, and technical services; management of companies and enterprises, administrative and support services; educational services; health care and social assistance; information and cultural industries; arts, entertainment and recreation; and public administration. Service industries include: retail trade, accommodation and food services and other services (e.g., personal and laundry services; private household services). Categories of industries employing blue–collar workers include: primary industry (agriculture, forestry, fishing and hunting, mining, oil and gas extraction); utilities; construction; manufacturing; wholesale trade and transportation and warehousing.[23]

[ii] For information on the list of industries summarized under each main category in the LFS please consult the detailed NAICS 2002 – Canada list available at http://www.statcan.gc.ca/subjects-sujets/standard-norme/naics-scian/2002/naics-scian02l-eng.htm.

Occupations

The LFS uses the National Occupation Classification for Statistics (NOC-S) 2001[24] to report on the occupations in which respondents worked. The NOC-S lists a large variety of occupations and summarizes them into either 25 or 47 main categories. The more detailed list of 47 occupational categories however did not provide more information on blue–collar and service industries that would have been relevant to determining in which occupations most young adults work in Ontario. Thus, analyses were conducted using the list of 25 occupational categories provided in the LFS data set.[iii]

Again occupational data were divided into three categories: white–collar, service, and blue–collar occupations. Occupations included in the category of white–collar workers were: management occupations; business, finances and administrative occupations; clerical supervisors and occupations; natural and applied sciences and related occupations; occupations in health, social science, education, government service, and religion; and, occupations in art, culture, recreation and sport (e.g., librarians; photographers, graphic arts technicians; creative designers and craftspersons). Service occupations, summarized under the category sales and services occupations in the LFS (NOC-S - 2001), include: sales and service supervisors; wholesale, technical insurance, real estate sales specialists, and retail wholesale and grain buyers; retail salespersons and sales clerks; cashiers; chefs and cooks; occupations in food and beverage services; occupations in protective services; occupations in travel and accommodation; childcare and home support workers; and, sales and services occupations not otherwise classified (e.g., cleaners; butchers and bakers; other sales and related occupations). Blue–collar occupations include: trades, transport and equipment operators and related occupations; trades helpers, construction and transportation labourers and related occupations, as well as occupations unique to the primary industry and to processing, manufacturing and utilities.

[iii] For information on the list of occupation summarized under each main category in the LFS please consult the detailed NOC-S list available at http://www.statcan.gc.ca/subjects-sujets/standard-norme/naics-scian/2002/naics-scian02l-eng.htm.

Occupations Within Industries

Finally, identifying types of industries that employ a large number of young adults across occupations is relevant to intervention program planning decisions because it allows identification of the industries and types of workplaces in which young adult workers are employed across different blue–collar and service occupations. To identify industries that employ young adult workers across such different occupations and to determine workplaces that are particularly promising to target when trying to reach a substantial number of young adult workers, blue–collar and service occupational categories were cross–classified against the type of industry in which respondents worked.

Smoking Rates

Data from the Canadian Tobacco Use Monitoring Survey (CTUMS) [iv] were analyzed by broad occupational category to gain a better understanding of smoking rates within major occupational categories in Ontario.

Results

The LFS sample available through Statistics Canada consisted of 104,451 respondents. Out of these, 30,837 respondents were from Ontario. Within the sample, 6,691 Ontarians were between 20 and 34 years old.

Demographics

In Ontario, 21.7% (n = 6,691) of LFS respondents were between 20 and 34 years old. Of those, 49.2% (n = 3,289) were men and 50.8% (n = 3,402) were women. The majority of young adult respondents (53.3%, n = 3,568) were single or never married, 30.4 % (n = 2,033) were married, 13.8% (n = 924) were living in common-law relationships, 1.5% (n = 100) were separated and 1% (n = 60) were divorced or widowed. A total of 1,943 (29%)

[iv] For a description, data sources and methodology and data accuracy of CTUMS data please refer to the CTUMS website provided by Statistic Canada at http://www.statcan.gc.ca/cgi-bin/imdb/p2SV.pl?Function=getSurvey&SDDS=4440&lang=en&db=imdb&adm=8&dis=2#a2.

of respondents indicated having one or more children, with over 60% of these children being under the age of 3.

Education

Table 1 provides information on the highest educational attainment of respondents. These results show that one–third (33.4%) of young adults indicated having a postsecondary certificate or diploma; 13.3% received some postsecondary education; and one–fifth (21.7%) indicated having finished grades 11, 12 or 13.

Table 1: Highest Education Attainment for Young Adults (20-34) in Ontario

Highest Education Attainment	Frequency	Annual Population Estimates	Percent	Cumulative Percent
0 to 8 years	96	32,661	1.4	1.4
Some secondary	553	193,631	8.3	9.7
Grade 11 to 13	1,452	506,240	21.7	31.4
Some postsecondary	892	310,276	13.3	44.7
Postsecondary certificate or diploma	2,235	779,190	33.4	78.1
University bachelor degree	1,048	366,266	15.7	93.8
University graduate degree	415	144,640	6.2	100.0
Total	**6,691**	**2,332,905**	**100.0**	

Note: The frequencies and percentages provided are population weighted as provided by Statistics Canada. Annual estimates were calculated to reflect the 2006 Census population estimates.

In terms of current student status and type of school, 87.8% (n = 5,874) of responding young adults indicated that they were not in school or university; 6.4% (n = 428) were full– or part–time University students; and 3.7% (n = 243) indicated going to a community college (full– or part–time). The remaining respondents indicated going to primary or secondary school (0.9%; n = 57), or were other full– or part-time students (1.3%; n = 89).

Employment

Of the young adults in Ontario who responded to the survey, 69.2% (n = 4,629) indicated that they were currently employed and at work; 4.7% (n = 312) were employed but absent from work due to reasons such as their own illness or disability, personal or family

responsibilities, vacation or other; 9.6% (*n* = 643) were searching jobs; and 1.1% (*n* = 73) were either temporarily laid off or starting employment soon; 15.5% (*n* = 1,034) reported not being in the labour force. Further, 59.5% (*n* = 3,983) of respondents indicated being full–time employees and 14.3% (*n* = 958) indicated being part–time employees. In terms of permanency, 56.8% (*n* = 3,802) young adults were employed permanently; 3.8% (*n* = 251) were nonpermanent, seasonal employees, 5.9% (*n* = 397) were temporary or contractual employees and 1.9% (*n* = 126) were casual or other employees. Of those young adults in Ontario who were employed, 15% (*n* = 1,004) indicated being member of a union. The fact that nearly 88% of young adults in Ontario between age 20 and 34 were not in school or university, and that overall, 73.9% of them were employed makes the workplace an important point of intervention when aiming to reach this population.

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Industry of Employment

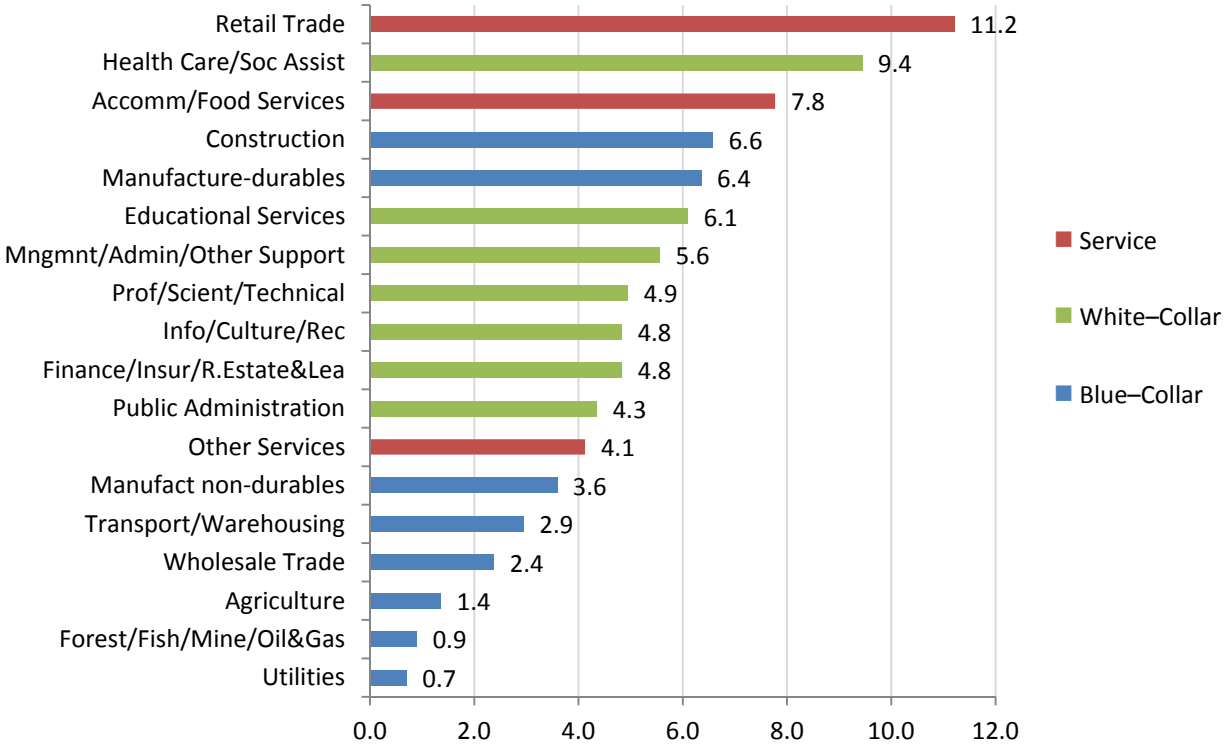
Determining the industries in which 20 to 34 year old Ontarians work can serve to narrow down the kind of industries that can provide a point of intervention for smoking cessation for the province's young adult workforce. Analyses were conducted for all 18 industry categories of the NAICS 2002 used in the LFS. Figure 1 presents the percentage of employed young adults in various industry categories.

However, in light of the existing occupational disparities in smoking behaviour and the need to target smoking cessation interventions to young adults in occupations with particularly high smoking rates, the results discussed here focus on blue–collar and service industries only.[v] Most young adults in Ontario indicated working in the retail trade industry (11.2%) and in accommodation and food services (7.8%). Other blue–collar and service industries in which young adults worked include: construction (6.6%), manufacture-durables (6.4%), other services (4.1%), manufacturing nondurables (3.6%),

[v] Note that results are presented for all industries and occupations included in the LFS data.

transportation and warehousing (2.9%), wholesale trade (2.4%), primary industry (agriculture: 1.4%; forestry, fishing, mining and oil and gas: 0.9%), and utilities (0.7%); see Figure 1. These results suggest that the retail trade industry presents the most promising non—white–collar industry to target when aiming to reach young adult workers in Ontario.

Figure 1: Percentage of Employed Young Adults by Industry (NAICS, 2002)



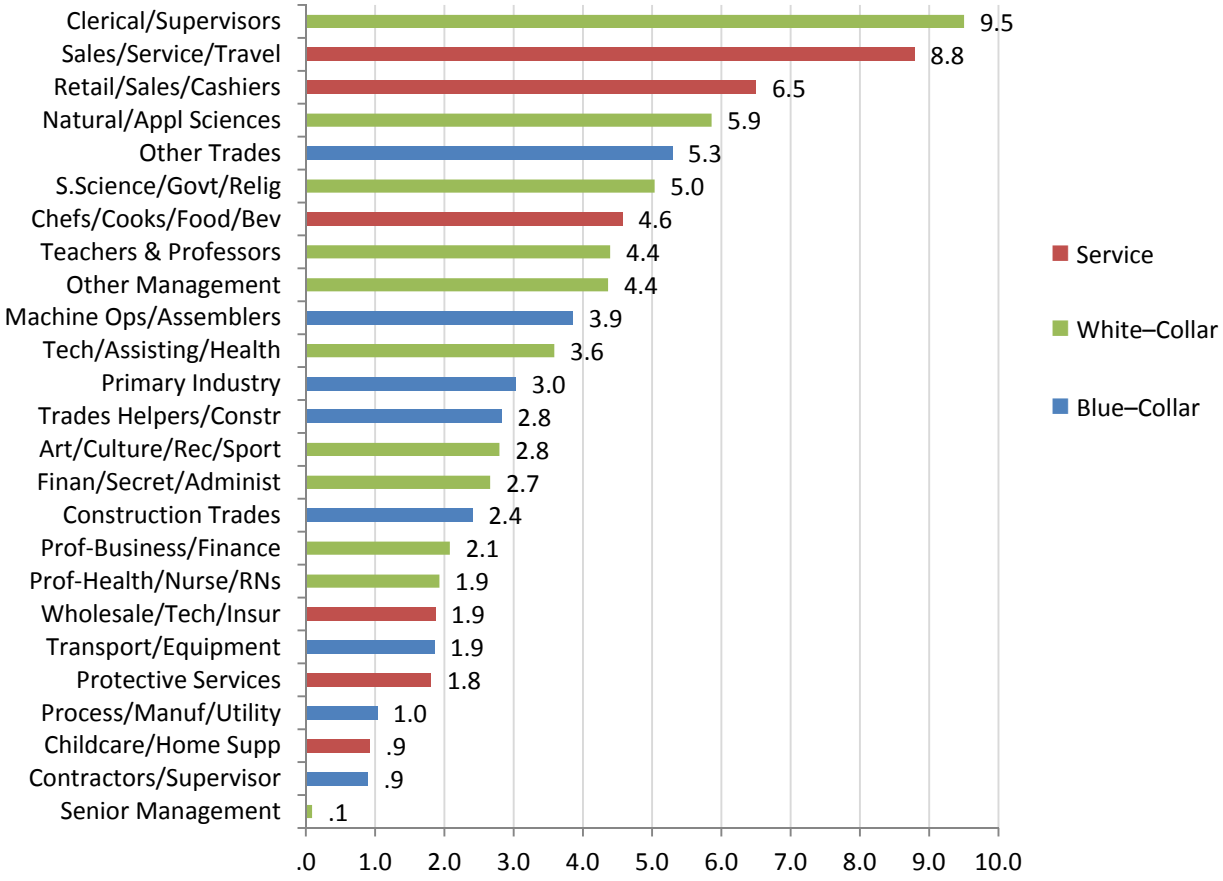
Note: Numbers in graph are percentages based on $n = 6{,}691$ respondents; $n = 806$ (12%) of responses were coded as missing and are not mapped in the graph. Percentages provided are population weighted.

Occupation

Figure 2 presents the percentage of employed young adults by occupation in Ontario. Analyses were conducted for all 25 occupational categories of the NOC-S 2001 provided in the LFS. However, again focusing on occupational disparities in smoking behaviours and thus on targeting smoking cessation interventions to young adults in occupations with particularly high smoking rates, results are discussed for blue–collar and service

occupations only. As Figure 2 shows, the largest number of responding young adults worked in sales, service, and travel (8.8%)[vi] and in retail, sales, and as cashier (6.5%).

Figure 2: Percentage of Employed Young Adults by Occupation (NOC-S, 2001)



Note: Percentages provided are population weighted. Numbers in graph are percentages based on *n*= 6,691 respondents. *n*= 806 (12%) of responses were coded as missing and are not mapped in the graph.

Other blue–collar and service occupations in which young adults worked were: other trades (5.3%); chefs, cooks and occupations in food and beverage services (4.6%); machine operators and assemblers in manufacturing (3.9%); occupations in the primary industry (3.0%); trades helpers, construction and transportation labourers and related occupations (2.8%); construction trades (2.4%); wholesale, technical insurance, real estate sales specialists, and retail wholesale and grain buyers (1.9%); transport and

[vi] This category comprises sales and services occupations not otherwise classified (e.g., cleaners; butchers and bakers; other sales and related occupations) and occupations in travel and accommodation.

equipment operators and related occupations (1.9%); protective services (1.8%); occupations unique to processing, manufacturing and utilities (1%); childcare and home support (0.9%) and contractors/supervisors (0.9%).

Information on Industry by Occupation

Data for blue–collar and service occupations and industries were cross-tabulated to help in identifying the industries that employ the majority of young adult workers across different occupations and thus to determine workplaces that are particularly promising to target when trying to reach a substantial number of young adult workers. Table 2 provides population estimates for young adult (age 20–34) Ontarian workers by industry and occupation. Population estimates are based on Statistics Canada 2006 Consensus data. Results show that the majority of young adult workers in Ontario worked in the retail trade industry as retail salespersons, sales clerks and cashiers. The second largest number of young adults worked in accommodation and food services as chefs and cooks and in occupations in food and beverage service. Further, a number of young adults working in the retail trade industry and accommodation and food services worked in sales and service occupations and occupations in travel and accommodation. Other industries in which a relatively high number of young adults worked are manufacturing–durables, where most young adults worked as machine operators and assemblers; construction, where most young adults worked as construction trade workers (such as plumbers, carpenters, cabinetmakers and painters); and in other services, where most young adults worked in sales and service occupations and occupations in travel and accommodation.

…the majority of young adult workers in Ontario worked in the retail trade industry as retail salespersons, sales clerks and cashiers …

Overall, in terms of blue–collar and service industries that employed young adult workers across different occupations, the majority of young adults indicated working in the retail trade industry as retail salespersons, sales clerks and cashier, and in sales, service and travel. This makes the retail trade industry the most promising industry in which to target workplaces when trying to reach a substantial number of young adult workers in blue–collar and service occupations with health promotion interventions.

Table 2: Estimated Numbers of Young Adult (20-34) Ontarian Workers: Industry by Occupation

	Occupation											
Industry	**Retail/ Sales/ Cashiers**	**Sales/ Service/ Travel**	**Other Trades**	**Chefs/ Cooks/ Food/ Bev**	**Machine Ops/ Assemblers**	**Trades Helpers/ Construction**	**Construction Trades**	**Primary Industry**	**Wholesale/ Tech/Insur**	**Transport/ Equipment**	**Process/ Manufactur-ing /Utility**	**Total**
Retail Trade	144,640	44,325	13,997	2,333	0	6,999	0	0	2,333	2,333	0	216,960
Accomm/ Food Services	13,997	58,323	0	107,314	0	0	0	2,333	0	2,333	0	184,300
Construction	0	2,333	37,326	0	0	27,995	55,990	0		2,333	0	125,977
Manufacture-durables	0	2,333	27,995	0	62,988	4,666	4,666	2,333		0	9,332	114,313
Other Services	0	44,325	23,329	0	0	0	0	0	0	0	0	67,654
Manufacture nondurables	0	2,333	9,332	0	32,661	2,333	0	0		0	11,665	58,324
Transport/ Warehousing	0	4,666	6,999	0	0	9,332	0	0	0	25,662	0	46,659
Wholesale Trade	2,333	2,333	6,999	0	0	11,665	0	0	16,330	2,333	0	41,993
Agricultural	2,333	0	0	0	0	0	0	32,661		0	0	34,994
Forest/Fish/ Mine/Oil & Gas	0	0	4,666	0	0	0	0	13,997		2,333	0	20,996
Total	163,303	160,971	130,643	109,647	95,649	62,990	60,656	51,324	18,663	37,327	20,997	912,170

Note: Population estimates provided are based on the 2006 Census data, Statistics Canada. Only results for blue–collar and service industries and occupations are presented in this table. Further, only those occupations in which more than 1.0% of young adult workers worked are represented.

Size of Workplaces

When considering the workplace as a point of intervention for smoking cessation for young adult workers, the size of workplaces in which young adults work can serve as another indicator in determining what types of workplaces could be targeted for implementation. For this purpose, the LFS survey data on the size of workplace and the number of employees across all locations of a workplace were analyzed.

Overall, 4,576[vii] young adult employees reported the number of employees at their workplace and the number of employees across all locations of their workplace in response to the LFS. Thirty-six percent (n = 1,648) of responding young adults reported working in workplaces with less than 20 employees; 33% (n = 1,510) worked in workplaces with 20 to 99 employees; 18.9% (n = 866) worked in workplaces with 100 to 500 employees; and 12.1% (n = 552) worked in workplaces with more than 500 employees. Nearly 70% of young adult employees in Ontario indicated working in workplaces with less than 100 employees.

Data was cross-tabulated for the number of employees at each individual workplace (i.e., location) with the size of employer (i.e., number of employees across all locations). Results showed that 21.9% (n = 957) respondents worked in workplaces with a single location and less than 20 employees. Over 13% of young adults (n = 625; 13.7%) worked in workplaces with 20 to 99 employees within and across locations. The majority of young adults (n = 2,189; 47.8%) worked in workplaces with more than 500 employees across locations and a wide ranging number of employees (ranging from less than 20 to more than 500) within locations. Table 3 presents the population estimates for employees by size of workplace and size of employer. Again, population estimates were based on Statistic Canada 2006 Census data.

The majority of young adults indicated working in workplaces with less than 20 employees. However, when considering both the size of a workplace (i.e., number of employees at an individual location) and the overall size of employer (i.e., the number of

[vii] Only respondents who were employed and either at work or absent from work responded to this question in the LFS.

employees across locations), the majority of young adult indicated working for employers with more than 500 employees across locations and a wide range of employees within locations. While arguments can be made to intervene both in workplaces with less than 20 staff within locations and in workplaces with more than 500 employees across locations, it seems promising to address workplaces that employ more than 500 employees across locations and between 20 and more than 500 employees at the individual location to increase the reach of any interventions.

Table 3: Estimated Numbers and Percentage (%) of Employees by Size of Workplace and Size of Employer

	Size of Employer (Across Locations)				
Size of the Workplace (at Individual Location)	**Less than 20 No. (%)**	**20 to 99 No. (%)**	**100 to 500 No. (%)**	**More than 500 No. (%)**	**Total No. (%)**
Less than 20	487,891 (20.9)	68,825 (2.9)	67,805 (2.9)	215,651 (9.2)	840,172 (36.0)
20 to 99	0	318,633 (13.7)	109,100 (4.7)	342,085 (14.7)	769,818 (33.0)
100 to 500	0	0	164669 (7.1)	276829 (11.9)	441,498 (18.9)
More than 500	0	0	0	281,417 (12.1)	281,417 (12.1)
Total	487,891 (20.9)	387,458 (16.6)	341,574 (14.6)	1115,982 (47.8)	2,332,905 (100)

Note: Percentages may not sum to 100% due to rounding. Percentages provided are population weighted. Population estimates provided are based on Statistics Canada 2006 Census data.

Smoking Rates by Broad Occupational Categories

The results of the LFS data analyses presented here have provided insights into the demographics, blue–collar and service industries and occupations in which young adults work and the size of employees for which they work. The following provides insights into smoking rates for young adult Ontarians by occupational categories based on 2008 Canadian Tobacco Use Monitoring Survey data. To gain a better understanding of smoking rates for young adult Ontarians within occupational categories, data for 298 young adult Ontarians (18 to 34 years of age) were analyzed using CTUMS 2008. Of the 298 respondents, 44% (n = 131) were men and 56% (n = 167) were women. The majority of young adult respondents were single (77.9%: n = 297), 19.8% (n = 59) were in a common–

law relationship or married, and 2% ($n = 6$) were widowed, divorced or separated. One person did not indicate their marital status.

In terms of smoking status, 29.2% ($n = 87$) of young adult respondents were current smokers, 10.7% ($n = 32$) were former smokers and 60.1% ($n = 179$) never smoked. Of the 298 young adult respondents 4.7% ($n = 14$) did not indicate their occupation. Further, 10.7% ($n = 32$) of young adults indicated that they had not worked within the last 12 months and were therefore not asked to indicate their occupation. Consequently, data of 252 young adults were available for the analysis presented here.

Table 4 presents the CTUMS results for young adults' smoking status by broad occupational categories.[viii]

Table 4: Numbers of Young Adult (18-34 years) Smokers by Occupational Category

	Smoking Status			
Broad Occupational Category	**Current Smoker No. (%)**	**Former Smoker No. (%)**	**Never Smoker No. (%)**	**Total No. (%)**
Sales and Service	23 (9.1)	7 (2.8)	62 (24.6)	92 (36.5)
Trades, Transport & Equip Operators	19 (7.5)	3 (1.2)	13 (5.2)	35 (13.9)
Business, Finance & Administration	11 (4.4)	5 (2.0)	30 (11.9)	46 (18.3)
Primary Industry	5 (2.0)	2 (0.8)	4 (1.6)	11 (4.4)
Management	4 (1.6)	1 (0.4)	3 (1.2)	8 (3.2)
Processing, Manufacturing & Utilities	3 (1.2)	2 (0.8)	6 (2.4)	11 (4.4)
Natural & Applied Sciences & Related	2 (0.8)	3 (1.2)	4 (1.6)	9 (3.6)
Social Science, Educ. Gov. & Religion	2 (0.8)	2 (0.8)	8 (3.2)	12 (4.8)
Art, Culture, Recreation & Sport	2 (0.8)	1 (0.4)	9 (3.6)	12 (4.8)
Total	72 (28.6)	26 (10.3)	154 (61.1)	252 (100)

Note: Numbers in brackets are percentages. Percentages may not sum to 100% due to rounding. Frequencies and percentages provided are population weighted.

[viii] Note that the main categories for occupations used by CTUMS are not the same as those used by the LFS.

Results show that 3 of 10 young adult respondents indicated that they were current smokers working in sales and services; 2.6 of 10 young adult smokers indicated working in trades, transport and as equipment operators. Further, in line with previous research, results showed that more young adults who smoke worked in blue–collar or service occupations than in white-collar occupations. Compared to 3 out of 10 young adult current smokers in sales and services only 1.5 out of 10 young adults working in business, finance & administrative occupations ($\chi^2 = 4.24$, df = 1; $p < .05$) and 0.5 out of 10 young adult working in management ($\chi^2 = 13.37$, df = 1; $p < .01$) indicated that they were current smokers.

... results suggest that the highest number of young adults in Ontario who smoke work in sales and services.

Overall, results suggest that the highest number of young adults in Ontario who smoke work in sales and services. Taken together, the analyses of the LFS data and the 2008 CTUMS allow inferences about where best to reach young adult smokers employed in other than white–collar industries and occupations within Ontario's workforce.

Conclusion

In Canada young adults continue to report the highest smoking rates compared to any other age group.[3] Further, research on occupational disparities in smoking behaviour indicates that smoking prevalence rates are higher in occupations traditionally described as blue–collar and service than in white-collar occupations,[9, 10, 11] and declines in smoking rates are smaller among blue–collar workers, compared to other occupations.[12] Targeting workplace smoking cessation interventions to young adults in occupations with particularly high smoking rates could offer a cost-effective way to reach these populations.[15]

The analyses presented in this report provide information on blue–collar and service industries and occupations in which young adult workers predominantly work in Ontario. Results inform specific points of intervention for smoking cessation programs and ultimately help tailor them to these audiences. To reach a large number of young adults in occupations traditionally called blue–collar and service, results suggest targeting the implementation of smoking cessation interventions to workplaces of the retail trade

industry that employ more than 500 employees across workplaces and between 20 and more than 500 employees within the specific workplace of implementation. Further, results suggest that interventions should be targeted to young adults in the retail trade industry working in sales, service and travel and as retail salespersons, sales clerks and cashiers. A second industry of interest is accommodation and food service targeting young adults working as chefs and cooks and in other occupations in food and beverage services.

CTUMS data analyzed to identify smoking rates by occupational categories suggest that smoking rates are highest among young adults working in sales and services followed by those working in trades, transport and as equipment operators. While the main categories for occupations used by CTUMS differ from those used by the LFS, these analyses, when combined with results from the analysis of the LFS, support the conclusion that targeting smoking cessation interventions to young adults working in the retail trade industry in sales, service and travel and retail salespersons, sales clerks and cashiers may be the most promising way to potentially reach a large number of young adult smokers outside white–collar occupations. Little is known about the smoking behaviours of young adults within these specific occupations and industries.

The lack of available data on smoking rates by occupations and industries emphasizes the need for further research in this area. Future research needs to investigate the smoking behaviours of young adults working in blue–collar and service occupations and industries to help gain a better understanding of tobacco use, comorbid health risk behaviours, attitudes towards smoking cessation interventions, intentions to quit and other relevant factors.

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