

## Patterns and Correlates of Tobacco Use among Young Adults at College and University in Ontario

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### Introduction

At 23%, young adults continue to have the highest smoking prevalence of all age groups in Canada.<sup>1</sup> Since a large number of young adults attend postsecondary school, determining the patterns and correlates of tobacco use among students could help us to identify ways to decrease the high smoking prevalence among the young adult age category.

Given that young adults typically enter college or university via disparate pathways reflecting divergent personal characteristics and socioenvironmental influences, it seems likely that college and university students would differ in their correlates of tobacco use. In Canada, a comparison of two-year diploma seeking college students to four-year degree seeking university students has not been conducted.

Therefore, the objective of this study is to describe college and university students' smoking behaviours and to examine whether socioenvironmental and personal characteristics experienced during adolescence are differentially associated with their current tobacco use.

### Methods

A secondary data analysis of a dataset (Prevalence Study) of 4,914 Ontario students from 17 postsecondary schools was employed.

#### *Measures:*

- **school status** (2-year diploma granting college institution versus 4-year degree granting university institution)
- **demographics** (age, gender, year of study and living arrangement)
- **control variable** (single-parented versus two-parented)
- **smoking behaviours** (age of initiation, smoking before or after enrolment to postsecondary school and smoking frequency)
- **personal characteristics** (age of onset of alcohol use and relative age)
- **Socioenvironmental variables** (family and high school connectedness)

### Analysis:

Chi-square tests and a *t*-test determined the differences between college and university smokers.

Logistic regression analyses determined how personal characteristics and socioenvironmental influences are differentially associated with college and university students' current smoking status.

## Results

- 757 college students; 4,157 university students
- 17-24 years old ( $M = 20.1$  years)
- 69.5% female
- 23.1 % ( $N = 1,134$ ) current smokers
- 37.0% of college students were current smokers; 20.5% of university students were current smokers,  $\chi^2(1, N = 1,134) = 97.6, p < .001$ .
- College students ( $M = 14.86$  years,  $SD = 2.34$ ) started smoking earlier than university students ( $M = 15.47$  years,  $SD = 2.46$ ),  $t(1132) = 3.65, p < .001$ .

Table 1

Smoking Behaviours of College and University Students ( $N = 1,134$ )

Variable	College ( $n = 280$ )			University ( $n = 854$ )			df	$\chi^2$
	<i>n</i>	%	<i>Z</i> <i>resid.</i>	<i>n</i>	%	<i>Z</i> <i>resid.</i>		
Smoking frequency								
Every day	137	48.9	3.7	267	31.3	-2.1	4	31.63**
Almost every day	32	11.4	-0.3	105	12.3	0.2		
On some days each week	36	12.9	-1.0	135	15.8	0.5		
Once or twice altogether	64	22.9	-2.2	277	32.4	1.3		
Not at all	11	3.9	-2.0	70	8.2	1.2		
Began smoking after enrolment								
Yes	19	6.8	-3.1	137	16.0	1.8		15.23**
No	261	93.2	1.3	717	84.0	-0.7		

Note. Smoking frequency was based on a question that asked how often in the past 30 day respondents smoked a cigarette, including a puff.

Table 2

Logistic Regression Predicting Current Smoking with Demographics, School Status, Personal Characteristics & Socioenvironmental Influences (N = 4,914)

Variable	Model One			Model Two		
	<i>b</i>	OR	95% CI	<i>b</i>	OR	95% CI
Constant	-2.77	0.063	--	-2.47	0.085	--
<b>Demographics</b>						
Age	0.21	1.23	[1.15, 1.32]	0.20	1.22	[1.14, 1.31]
Gender						
Male	-0.03	0.97	[0.83, 1.13]	-0.02	--	[0.82, 1.17]
Female	--	--	--	--	--	--
Year of study	-0.27	0.77	[0.69, 0.85]	-0.26	0.77	[0.69, 0.86]
Living arrangement						
On-campus	-0.19	0.83	[0.65, 1.06]	-0.19	0.83	[0.65, 1.06]
Off-campus	0.23	1.26	[1.06, 1.51]	0.23	1.25	[1.05, 1.50]
Family home	--	--	--	--	--	--
Single parent						
Yes	0.05	1.05	[0.76, 1.47]	0.06	1.07	[0.76, 1.49]
No	--	--	--	--	--	--
<b>School status</b>						
College	0.09	1.10	[0.89, 1.35]	-2.13	--	[0.02, 0.79]
University	--	--	--	--	--	--
<b>Personal characteristics</b>						
Relative age						
1 <sup>st</sup> quartile (Jan – Mar )	0.16	1.18	[0.96, 1.45]	0.17	--	[0.94, 1.50]
2 <sup>nd</sup> quartile (Apr – Jun)	-0.08	0.93	[0.75, 1.14]	-0.10	--	[0.71, 1.15]
3 <sup>rd</sup> quartile (Jul – Sep)	0.01	1.01	[0.82, 1.25]	0.07	--	[0.85, 1.36]
4 <sup>th</sup> quartile (Oct – Dec)	--	--	--	--	--	--
Alcohol onset						
Early onset (≤13 years)	2.15	8.56	[6.47, 11.33]	2.35	--	[7.50, 14.64]
Middle onset (14-18 years)	1.39	4.00	[3.11, 5.15]	1.55	--	[3.49, 6.41]
Late onset (≥19 years)	-0.69	0.50	[0.26, 0.98]	-0.59	--	[0.26, 1.22]
No use	--	--	--	--	--	--
<b>Socioenvironmental influences</b>						

Family connectedness	0.05	1.05	[0.99, 1.11]	0.05	--	[0.99, 1.12]
High school connectedness	-0.14	0.87	[0.85, 0.89]	-0.15	--	[0.84, 0.88]
Interactions						
School status x relative age						
School x 1 <sup>st</sup> quartile	--	--	--	-0.05	--	[0.58, 1.58]
School x 2 <sup>nd</sup> quartile	--	--	--	0.12	--	[0.68, 1.85]
School x 3 <sup>rd</sup> quartile	--	--	--	-0.32	--	[0.43, 1.22]
School status x alcohol onset	--	--				
School x early onset	--	--	--	-0.79	--	[0.24, 0.85]
School x middle onset	--	--	--	-0.65	--	[0.30, 0.91]
School x late onset	--	--	--	-0.38	--	[0.16, 3.04]
School status x family connectedness	--	--	--	-0.02	--	[0.87, 1.10]
School status x high school connectedness	--	--	--	-0.11	--	[1.05, 1.19]
School Status x gender	--	--	--	-0.10	--	[0.62, 1.32]

*Note.* Year of study was standardized for the separate institutional types by multiplying by its mean and dividing by its standard deviation. Family Connectedness was an average score created by summing a total of 10 items with response options 0 and 1. Scores ranged from 0-10 where higher scores represented greater family connectedness. High school connectedness consisted of 8 questions on a 5-point Likert scale. Scores ranged from 8-40 where higher scores represented greater high school connectedness. When interactions were included in the model, only the regression coefficients were reported and interpreted.

## Discussion

Two distinct smoking patterns were identified:

- Consistent with previous literature, there are more smokers<sup>2</sup> and more daily smokers<sup>3</sup> among students in two-year institutions compared to students in four-year institutions.
- More university students compared to college students initiated smoking after enrolment to school, which suggests that there may be something about the transition to university, but not college, which triggers the uptake of smoking.

Results of the logistic regression revealed that the correlates of smoking varied for college and university students:

- The initiation of alcohol use in the early-to-mid teens was a risk factor for smoking for both university and college students—but more so for university than college students.
- Feeling connected to high school was more protective against smoking for university students than for college students.

## Implications

To reduce the prevalence of smoking in young adulthood, optimal tobacco control programming and interventions should:

1. Be tailored specifically for college students and for university students.
  - College health professionals should address college students' heavy consumption and duration of tobacco use using conventional (e.g., adult) cessation services offered in a clinic setting.
  - While conventional cessation counselling should be available to university students who are daily smokers, universities need to address the fact that more university students are less-than-daily smokers.
  - University administrators and health professionals should recognize that the transition from high school to university will trigger smoking uptake and/or escalation.
2. Begin in adolescence or earlier and address:
  - college-bound students' feelings of school (dis)connectedness and the early use of alcohol in high school for both college and university students with a greater focus for university-bound students.

Given that both educational pathway and tobacco use are associated with socioeconomic status; future research may consider examining additional socioeconomic-related variables such as occupational status, school status (part-time versus full-time), and program of study.

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<sup>1</sup> CTUMS (2009). Health Canada's Tobacco Control Programme. Canadian Tobacco Use Monitoring Survey: Smoking Prevalence 1999-2009. Ottawa: Government of Canada; 2009. [http://www.hc-sc.gc.ca/hc-ps/tobac-tabac/research-recherche/stat/\\_ctums-esutc\\_prevalence/prevalence-eng.php#annual\\_08](http://www.hc-sc.gc.ca/hc-ps/tobac-tabac/research-recherche/stat/_ctums-esutc_prevalence/prevalence-eng.php#annual_08). Retrieved January 4, 2011.

<sup>2</sup> Sanem, J. R., Berg, C. J., An, L. C., Kirch, M. A., & Lust, K. A. (2009). Differences in tobacco use among two-year and four-year college students in Minnesota. *Journal of American College Health*, 58(2), 151-159.

<sup>3</sup> James, D. C., Chen, W. W., & Sheu, J. (2007). Type of tobacco product used: Are there differences between university and community college students? *Journal of Drug Education*, 37(4), 379-392.