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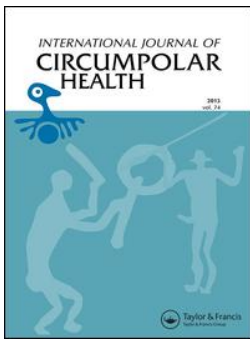
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Tobacco smoking status among Aboriginal youth

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ABSTRACT

Objective. To determine what factors are associated with the smoking status among some of the spectators and participants of the 2002 North American Indigenous Games. **Study Design.** Cross-sectional. **Methods.** A survey inquiring about tobacco use and lifestyle behaviours was implemented at the North American Indigenous Games in Winnipeg, Canada. This survey, entitled the 2002 Aboriginal Youth Lifestyle Survey, included Aboriginal youth between the ages 12 to 22 years old. **Results.** There were 570 survey participants (53.5% female) that met the inclusion criteria. It was determined that smoking initiation began earlier than what is reported in the literature and did not occur beyond age 18. The logistic regression analysis revealed that the variables age, peer smokings, self-rated health, and participation status at the NAIG, were associated with smoking status in this sample. **Conclusion.** These findings demonstrate that Aboriginal youth require different tobacco control strategies compared to non-Aboriginal youth. While these youth experience similar risk factors associated with smoking status, based on the earlier initiation age, tobacco prevention needs to commence much earlier. This study also showcases the positive role that involvement in physical activity plays in building resiliency among Aboriginal youth.

Keywords: Aboriginal youth, tobacco status, physical activity

INTRODUCTION

Overall, rates of tobacco smoking are higher among Aboriginal youth compared to non-Aboriginal youth in both Canada and the United States. Results from the 1991 Aboriginal Peoples Survey (APS) revealed that 46% of the respondents aged 15 and over were daily smokers. In the 15-to-19-year-old age group, 54% were smokers and in the 20-to-24-year-old age group, 65% were smokers. This survey also revealed that Inuit youth smoke more (73% in the 15-24 age group) compared to the Métis or First Nations youth (56% and 59% respectively in the 15-24 age group) (1). In the adult sample of respondents (aged 20 and older) of the 1996 First Nations and Inuit Regional Health Survey, the prevalence of tobacco smoking more than doubled the national averages at 62%

and was higher than was reported in the 1991 APS. Among the 20-24-year-old age group, the rate of current smoking was 72%, again higher than what was reported in the 1991 APS (2).

To be able to target, youth who are likely to smoke and then empowering them not to has tremendous potential. The objective of this study is to determine what factors are associated with smoking status among some of the spectators and participants of the 2002 North American Indigenous Games through the analysis of the Aboriginal Youth Lifestyle Survey.

MATERIAL AND METHODS

This cross-sectional, opportunistic study was designed to benefit from an event where a large group of Aboriginal youth would be present, the

North American Indigenous Games (NAIG). To assemble a group of over 6,000 Aboriginal youth participants as well as an undefined number of youth spectators would otherwise not be achievable. These youth may not be the most appropriate group to survey tobacco use considering they are, as a group, more health conscious and motivated compared to the general population of Aboriginal youth. However, the body of literature on tobacco use among any Aboriginal youth group is limited, and any new information would contribute to understanding this important matter. An important note, it was decided to include both the participants of the games as well as youth spectators in attendance, the latter in order to better represent the general Aboriginal youth population.

The Aboriginal Youth Lifestyle Survey (AYLS) is a self-administered exploratory survey. It was administered at the 2002 NAIG in Winnipeg, Manitoba, Canada that took place between July 28th and August 4th 2002. The games are a sporting and cultural event for Aboriginal athletes invited to participate from all provinces, states and territories in North America. The only criteria for inclusion in the survey were that survey participants are of Aboriginal ancestry and between the ages of 12 to 22 years old. All participants were required to sign a consent form and those below the age of 19 were required to have their guardian sign as well. Upon completion of the survey, participants then had the opportunity to choose either a Frisbee, a hacky sac, or an FM radio as an appreciation gift.

The first step in the analysis was to examine each variable separately. Second, bivariate analyses were conducted to examine relationships between smoking status and

the independent variables. Next, to test the ability of the independent variables to predict the outcome, the backwards selection technique was used to determine which variables to include in the logistic regression model.

RESULTS

Of the 590 surveys returned, 570 participants met the inclusion criteria. The average age of this sample was low at 15.74 (sd=2.57) years old. Randomly, the ratio of both sexes worked out quite evenly (54% female, 46% male).

Smoking status could be assessed for 529 (93%) of respondents. There were 205 youth (39%) who replied that they had never had even a puff of a cigarette. Of those that had tried, 157 (48%) indicated they were not currently smoking and 167 (52%) said they currently smoke cigarettes. Therefore, the prevalence of tobacco smoking in this sample of Aboriginal youth is 32%. Smoking initiation began at age 4. By the age of 6, about 2% of the youth had initiated smoking. This doubled by age 8 to 5%, then doubled again by age 12 when initiation peaked and where 20% of cigarette experimentation occurred. After age 12, experimentation declined (Figure 1).

Respondents who had never tried smoking were asked to rank the reasons for that choice from six possible options. According to the data, wanting to stay healthy received the highest proportion of responses (49%). Of those who responded to having tried smoking but were not

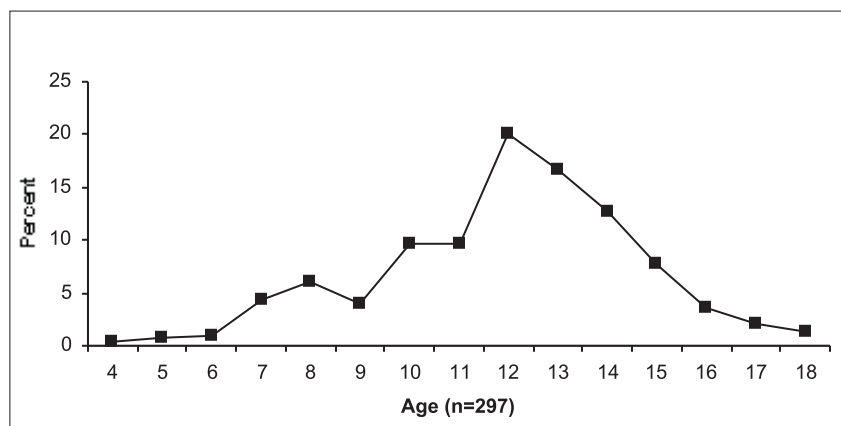


Figure 1. Distribution of smoking initiation by age. (n=297)

current smokers, they were asked to rank the reasons why they no longer smoke. The most answered response was "personal choice" (51%). Those who marked that they were current smok-

ers were asked to rank the most important reasons why they currently smoke. Here again, personal choice was the most responded to reason for currently smoking (88%).

Table I. Statistical relationships between smoking status and the independent variables

Survey Items	(n)	P-values
Sex/Gender	524	0.12*
Age	527	<.01**
Number of times at participated at the NAIG	519	0.03**
Participation status at the NAIG	525	<.01**
How many of your close friends smoke cigarettes	524	<.01**
How many of your close friends drink alcohol	524	<.01**
How many of your close friends have tried marijuana	523	<.01**
How many of your close friends have tried other drugs	520	<.01**
How important is it to make friends	515	0.20*
How important is it to get good grades	508	0.18*
How important is it to show up to class on time	510	0.04**
How do you like math	510	0.11*
How do you like science	505	0.11*
How do you like French	505	0.07*
How do you like gym	503	0.12*
How do you like an Aboriginal language course	484	0.04**
Overall, you have a lot to be proud of	508	0.08*
A lot of things about you are good	502	0.02**
When you do something, you do it well	505	0.09*
How physically active are you compared to others	503	<.01**
Do you participate in sports without a coach	519	<.01**
Do you participate in sports with a coach	516	<.01**
How often do you write letters, stories etc.	509	<.01**
How often do you read newspapers or magazines	505	0.01**
Do you have access to a computer at home	522	<.01**
Who is your primary care giver	467	<.01**
Does your primary care giver smoke cigarettes	493	<.01**
How many people live in the household	486	0.12*
How many people, including yourself, are below the age of 21 in the household	470	0.02**
How many people in the household smoke daily	475	<.01**
How would you rate your health status	507	<.01**
How many times a week do you eat breakfast	512	<.01**

** = Significant at the 5% level

* = Significant at the 20% level

Bivariate analyses were conducted to compare the means and distribution of responses between smokers and non-smokers to all the survey items. The items that were entered into the backward elimination procedure were the independent variables that were significant at the $p < 0.20$ level in the bivariate analyses (Table I).

The logistic regression model produced odds ratios and their 95% confidence intervals (Table II). The probability modeled was for the non-smokers. Those who did not participate in the games were approximately half as likely to be non-smokers compared to those who did

Table II. The effect of the variables in the final model

Items	Comparison group	Odds ratio (95% confidence intervals)
Participation status at games	Spectator vs. Participant	0.53 (0.29-0.96)
Smoking status of peers	All vs. None	<0.01 (<0.01-0.06)
Self-rated health	Excellent vs. Poor	15.26 (1.33-175.45)
Age	12-14 vs. 18+	4.22 (1.87-9.51)

participate in the games. Having all of your friends smoke compared to having no friends who smoke is significantly associated with a youth's smoking status. The trend that appears is that with fewer smoking friends, a youth is less likely to smoke themselves. When a youth ranked their health as being excellent, they were the least likely to be current smokers. Lastly, being older was associated with being a current smoker.

DISCUSSION

There are several reasons to discourage and prevent youth from initiating smoking. First of all, research has illustrated that the earlier smoking uptake is commenced, the less likely an individual is to quit successfully (3). Secondly, a gateway drug hypothesis suggests "Tobacco is often the first drug used by young people who use alcohol and illegal drugs" (4). The converse may be true as well: if smoking is not initiated, the subsequent non-healthy behaviours, such as marijuana use, may not be attempted either. A longitudinal study by Ellickson et al. (2001) investigated high-risk behaviours in early youth smokers (defined as those who self-reported smoking while in grade 7). Compared to non-smokers, those classified as smokers in grade 7 had the following characteristics by grade 12: They were six times more likely to be daily smokers, six times more likely to be weekly marijuana users, three times more likely to engage in hard drug use and four times more likely to have multiple drug problems (5). The most compelling reason to reduce and/or prevent smoking in youth is: the younger a person begins to smoke, the greater the risk of suffering from the harms of smoking. According to the CDC, even adolescents experience adverse health effects from cigarette related illnesses, some of which are a decrease in physical activity, increased coughing, greater susceptibility to and severity of respiratory illnesses, early development of artery disease and slower rate of lung growth (4). The morbidity and mortality caused by tobacco smoking that is associated with longer use is devastating and has been thoroughly described in the literature (6).

In the literature reviewed, participation in physical activity either maintained or protected against smoking behaviour (7-9). Although the AYLS is a cross-sectional study and the influence of physical activity on smoking status could not be measured over time, when participants were involved with physical activity they were less likely to be smokers compared to those who were not.

Based on the data from the 1996 First Nations and Inuit Regional Health Survey, smoking initiation occurred as early as age 5 and the initiation peaked at age 16. The uptake of tobacco smoking ceased by age 24 (2). The same curve was found in this study sample, although the curve took place sooner. Longitudinal results from the Child and Adolescent Trial for Cardiovascular Health (CATCH) study revealed that a child's intentions not to smoke in the fifth grade significantly predicted non-smoking in the eighth grade. This finding further supports an effort to provide youth with early prevention, since forming an impression about tobacco appears to reflect smoking behaviour later on (10). Figure I illustrates a doubling of smoking initiation from age 4 every two years up to age 12. This pattern may suggest a strong role of peer influence, since the uptake is occurring in clusters. In this sample, peer use was a significant predictor of current tobacco smoking use.

Literature has revealed that self-rated health status is a reliable measure of one's health. Also important is that the indicator is successful cross-culturally (11). According to the 1991 APS, "Aboriginal people who never smoked daily reported the best health, as well, there was a consistent relationship between amount smoked daily and reports of chronic conditions"(1). In a recent study, an association was determined between this indicator to smoking status (12). Their work revealed that youth who smoke report poorer health during adolescence than those who do not. This finding paralleled the responses on the Aboriginal Youth Lifestyle Survey.

A limitation of this project is that causation cannot be deduced from cross-sectional studies,

since measurements of outcomes and exposures are collected at the same time. Another limitation of this study is the contextual scope of the outcome. Tobacco smoking is not a direct consequence of any one of the variables under investigation in this study. There are other variables related to tobacco behaviour of a population, such as environmental, policy and historical influences that are not easily encompassed by one cross-sectional design. Limitations may have been introduced in terms of the population sampled. Although all athletes and non-athletes present at the NAIG had an equal opportunity of taking the survey, those present at the games were not a representative sample of all North American Aboriginal youth. This sample limits the application of findings to the general population of Aboriginal youth.

This study suggests that several variables are associated with smoking behaviour in Aboriginal youth. Therefore, to understand the direction of association of these variables and their relation with not smoking is of great significance. This research project was an exploratory study; the next steps are to use this information to create powerful interventions to prevent smoking uptake in children and youth, to encourage and aid in smoking cessation efforts, and to provide protection by promoting smoke-free environments.

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