Addictive Behaviors 54 (2016) 75–81

Contents lists available at ScienceDirect

Addictive Behaviors

journal homepage: www.elsevier.com/locate/addictbeh

A cross-sectional examination of the correlates of current smoking among off-reserve First Nations and Métis adults: Evidence from the *2012 Aboriginal Peoples Survey*

Christopher J. Ryan [a,*], Scott T. Leatherdale [a], Martin J. Cooke [a,b]

[a] School of Public Health and Health Systems, University of Waterloo, Waterloo, ON N2L 3G1, Canada
[b] Department of Sociology and Legal Studies, University of Waterloo, Waterloo, ON N2L 3G1, Canada

HIGHLIGHTS

- Correlates of smoking were examined among a large sample of Aboriginal Canadians.
- Approximately 40% of 12,720 First Nations and Métis were current smokers.
- Smoking was associated with traditional activities and Aboriginal language.
- Co-occurring health-risk behaviors are important considerations for interventions.

ARTICLE INFO

Article history:
Received 25 June 2015
Received in revised form 3 December 2015
Accepted 7 December 2015
Available online 9 December 2015

Keywords:
Smoking
Tobacco
Indigenous
Aboriginal Canadian
Métis
First Nation

ABSTRACT

Introduction: The purpose of this study was to examine the correlates of current smoking among off-reserve First Nations and Métis adults, two Aboriginal Canadian groups that are at higher risk to smoke and more likely to suffer from chronic health conditions relative to their non-Aboriginal counterparts. A particular focus was on culturally specific factors and their associations with current smoking.
Methods: We used data from Statistics Canada's, 2012 *Aboriginal Peoples Survey* to investigate the correlates of smoking among 12,720 First Nations and Métis adults. Sequential binary logistic regression models were estimated to examine associations between smoking and culturally specific, demographic, geographic, socioeconomic and health-related variables.
Results: Overall, 39.4% were current smokers. Multivariate results found that those who had hunted, fished or trapped within the last year were more likely to be smokers. In addition, respondents who were exposed to an Aboriginal language at home or outside the home were more likely to be smokers. Current smoking was significantly associated with being aged 35 to 49 years, living in a small population center, low income, low education, unemployment, being unmarried, low ratings of self-perceived health, heavy drinking and low body mass index. Respondents aged 65 years and older and those living in British Columbia were less likely to smoke.
Discussion: The results of this study suggest that it may be useful to consider cultural characteristics, particularly language in efforts to reduce the prevalence of manufactured tobacco use among First Nations and Métis adults. Interventions should also consider demographic, geographic and socioeconomic variables, in addition to co-occurring health-risk behaviors.

1. Introduction

Aboriginal peoples living in many developed countries experience poorer average health relative to their non-Indigenous counterparts (Stephens, Nettleton, Porter, Willis, & Clark, 2005). This holds true in Canada, a country in which approximately 1.4 million (~4.1%) identify as Aboriginal[1] people (Statistics Canada, 2013). First Nations and Métis, two of the three constitutionally recognized Canadian Aboriginal groups, represent approximately 93% of the total Aboriginal population in Canada (Statistics Canada, 2013). This population has diminished health status compared to non-Aboriginal Canadians (Tjepkema, Wilkins, Senecal, Guimond, & Penney, 2009), the reasons for which

* Corresponding author.
E-mail addresses: cj2ryan@uwaterloo.ca (C.J. Ryan), sleather@uwaterloo.ca (S.T. Leatherdale), cooke@uwaterloo.ca (M.J. Cooke).

[1] First Nations, Inuit and Métis are identified as Aboriginal peoples in the *Constitution Act (1982)*. In this paper, we use "Aboriginal" to refer to the descendants of the original inhabitants of the territory now known as Canada, prior to contact with Europeans.

http://dx.doi.org/10.1016/j.addbeh.2015.12.004
0306-4603/

are complex but can in large part be attributed to social inequalities that exist between them and non-indigenous populations in Canada. These inequalities can be broadly linked to the historical impact of colonization, land dispossession, and the residential school system[2] (King, Smith, & Gracey, 2009), which resulted in the suppression of numerous important cultural practices.

Troubling is the fact that Métis and First Nations adults are at significantly greater risk to smoke, compared to non-Aboriginal Canadians (Gionet & Roshanafshar, 2013). Prior research has found a smoking prevalence of approximately 40% among these populations, more than double the rate among the general Canadian population (Health Canada, 2013). The high rate of smoking among Aboriginal Canadians underlines the importance of better understanding what predicts smoking among this population with the aim of decreasing initiation and promoting cessation of this health-risk behavior.

For many North American Aboriginal peoples, tobacco in its traditional form is considered a medicine with both spiritual and symbolic cultural uses (Connolly, D'Hondt, Herie, & Shelby 2013). However, the use of manufactured tobacco is much different and is a well-known predictor of poor health. In particular, manufactured tobacco significantly increases the risk for cancer, cardiovascular and respiratory diseases (CDC, 2010), chronic conditions that disproportionately affect Aboriginal peoples in Canada (Tjepkema et al., 2009; Janz, Seto, & Turner, 2009). Among the general population, smoking is greater among those with lower income and education (Reid, Hammond, & Driezen, 2010). Smoking is more likely among those who report other health-risk behaviors, such as heavy drinking (deRuiter, Cairney, Leatherdale, & Faulkner, 2014; Paul, Grubaugh, Frueh, Ellis, & Egede, 2011) and is associated with lower ratings of self-perceived health (Shields & Shooshtari, 2001), lower body mass index (BMI) (Plurphanswat & Rodu, 2014), being unmarried (Lindstrom, 2010), and being unemployed (De Vogli & Santinello 2005). However, less is known about the correlates of smoking among Aboriginal peoples and, in particular, how culturally specific factors are associated with smoking among First Nations and Métis.

Cultural identity is important to health (Gracey & King, 2009), and previous research has suggested that environmental and cultural connections, participation in traditional activities and knowledge of Aboriginal languages are potentially significant determinants of Aboriginal peoples' health (Richmond & Ross, 2009; King et al., 2009; Wilson & Rosenberg, 2002). In a previous analysis, using data from the *2006 Aboriginal Peoples Survey* (*APS*) and *Métis Supplement*, we found that adult Métis who reported a high level of spirituality were significantly less likely to smoke than those who were "not at all spiritual" (Ryan, Cooke, Leatherdale, Kirkpatrick, & Wilk, 2015). On the other hand, against our expectations, our results found that those who spoke an Aboriginal language or lived in a household where one was spoken were more likely to smoke, compared to those who neither spoke an Aboriginal tongue nor lived in a household where one was spoken (Ryan et al., 2015).

The precise mechanisms that relate language and other measures of cultural connectedness to Aboriginal peoples' health behaviors and outcomes are not well known. A relationship between spirituality and smoking might be explained by the presence of better coping mechanisms against stress or better social support, as has been argued in other contexts (Koenig et al., 1998; Garrusi & Nakhaee, 2012). The concept of "historical trauma" may also be useful. First developed as an explanation for high rates of violence and substance abuse (Brave Heart, 2003), it refers to psychological trauma resulting from collectively experienced events, such as forced relocations or residential schooling, that affect the wellness of entire communities as well as that of subsequent generations. Interestingly, among American Indian adolescents, research has suggested that "historical trauma" may be a risk factor for cigarette smoking (Soto, Baezconde-Garbanati, Schwartz, & Unger, 2015).

Although not yet well tested, it has been suggested that including traditional cultural practices in interventions may be the most effective method for treating historical trauma. It may also be that those who have stronger connectedness to aspects of Aboriginal culture may be resilient to its negative effects. This connectedness may include participating in traditional activities, such as hunting, fishing and trapping and making traditional arts and crafts (Kumar & Janz, 2010; Wilson & Rosenberg, 2002).

Examining the relationship between cultural characteristics and smoking may therefore provide evidence that is useful for intervention efforts, whether this is about a possible role of cultural activities as protective factors, or about the linguistic characteristics of those at highest risk. The previous research using the *2006 APS* and *Métis Supplement* has shown a connection between culturally specific factors and smoking among Métis, and the more recent *2012 APS* provided an opportunity to advance this area of study by conducting an analysis among a larger sample of adult First Nations and Métis. Considering the cultural significance of tobacco, as well as our previous findings relating to adult Métis, and the disturbingly high prevalence of smoking among Aboriginal Canadians, we drew upon an Aboriginal-specific determinants of health framework to investigate correlates of current smoking among First Nations and Métis adults. A particular focus was on the associations between current smoking and culturally specific factors, such as Aboriginal language, residential school attendance, and participation in traditional activities. In addition, we investigated how demographic, geographic, socioeconomic, and health-related variables were correlated with smoking among this population.

2. Methods

2.1. Data source and sample

This study used data from Statistics Canada's 2012 *APS* to investigate current smoking among First Nations and Métis adults aged 18 years and older.[3] The *APS*, a national survey focused on the social and economic conditions of Aboriginal peoples living outside of First Nations reserves,[4] was administered in 1991, 2001, 2006 and 2012. In 2012, data were collected on a number of culturally specific factors, including knowledge of an Aboriginal language, participation in traditional activities and attendance at residential schools. In addition, the *2012 APS* included questions relating to a number of health-related factors, namely smoking, alcohol consumption, BMI and self-perceived health (Statistics Canada, 2012).

A total of 14,540 off-reserve single identity First Nations or Métis aged 18 years and older responded to the *2012 APS*. We excluded 450 people because they reported pregnancy or were currently attending school and therefore had missing BMI or educational attainment measures. For the smoking measure, the combination of "don't know", "not stated" and "refused" responses was 3.8%. For the independent variables, missing responses ranged from 0% to 3.4%. Once excluded and missing cases were deleted, 12,720 First Nations and Métis were included.

2.2. Measures

The outcome measure for this study was current smoking, which includes occasional and daily smoking (Statistics Canada, 2014; CDC,

[2] Forced residential schooling of Aboriginal children was a tool of assimilation in Canada from the mid-1800s, with the last institution closing in 1996. These schools have been associated with a variety of abuses and historical trauma (Truth and Reconciliation Commission of Canada, 2012).

[3] Data were provided by Statistics Canada and accessed at the South-Western Ontario Research Data Center at the University of Waterloo. The analysis and results are the authors' alone.

[4] Reserves are areas of Crown land set aside for the use of particular First Nations communities. Métis have generally not been part of the reserve system. Approximately 320,000 of the 1.4 million Canadians who identified themselves as Aboriginal in 2011 lived on a reserve (Aboriginal Affairs and Northern Development Canada, 2013).