DOES A CULTURALLY SENSITIVE SMOKING PREVENTION PROGRAM REDUCE SMOKING INTENTIONS AMONG ABORIGINAL CHILDREN? A PILOT STUDY

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Abstract: The aim of the study was to determine if a culturally sensitive smoking prevention program would have short-term impacts on smoking intentions among Aboriginal children. Two schools with high Aboriginal enrollment were selected for the study. A grade 4 classroom in one school was randomly assigned to receive the culturally sensitive smoking prevention program. A grade 4 classroom in the second school received a standard smoking prevention program delivered in this jurisdiction. Children in each classroom were tested pre- and post-intervention to measure attitude changes about smoking. There was a significant reduction in intentions to smoke among Aboriginal children who received the culturally sensitive smoking prevention program. The small overall sample size precluded a direct comparison of the efficacy of the culturally sensitive and standard programs. The present findings suggest a smoking prevention program that has been culturally adapted for Aboriginal children may reduce future smoking intentions among Aboriginal grade 4 students. Further research is needed to determine the extent to which school smoking prevention programs adapted to respect the long-standing use of tobacco in Aboriginal cultural traditions may be more effective than standard programs in reaching Aboriginal youth.

INTRODUCTION

Cigarette smoking is associated with high levels of morbidity and mortality in industrialized nations (Young, 1994). Across North America, Aboriginal[1] peoples evidence elevated levels of daily smoking compared to general populations (Beauvais, Thurman, Burnside, & Plested, 2007; First Nations Information Governance Center, 2012; Janz, Seto, & Turner, 2009; Retnakaran, Hanley, Connelly, Harris, & Zinman, 2005). Currently, more than half (57%) of Aboriginal adults living in First Nations communities across Canada smoke daily or occasionally, compared to 20% of the

general Canadian population (First Nations Information Governance Centre, 2012; Reid & Hammond, 2009). Smoking is also common among Aboriginal youth ages 12-17 years living in First Nations communities, with one in three smoking daily or occasionally, compared to approximately 8% of same-age youth in the general Canadian population (First Nations Information Governance Centre, 2012; Health Canada, 2009). Smoking rates are also elevated among Aboriginal adolescents living outside First Nations communities, with approximately one in four smoking daily or occasionally in the past year (Elton-Marshall, Leatherdale, & Burkhalter, 2011).

The high rate of smoking among Aboriginal youth has important public health implications, given that it is well documented that individuals who begin smoking earlier are at higher risk for a range of mental and physical health problems across the life course (Centers for Disease Control and Prevention, 1994). Currently, the population-adjusted mortality rates attributable to smoking are almost 1.5 times higher among First Nations people, compared to the general population, and smoking is responsible for almost one in five deaths among First Nations adults (Wardman & Khan, 2004). The age at which one begins smoking is a significant factor in the maintenance of smoking behavior. Breslau and Peterson (1996) found the likelihood of cessation was significantly lower among smokers who initiated smoking before age 13. Given these findings, there is significant need for school-based smoking prevention programs in Canada that target Aboriginal elementary-age children in effective ways. A key predictor of adolescent smoking is intentions to smoke at younger ages (Andrews, Tildesley, Hops, Duncan, & Severson, 2003; Choi, Gilpin, Farkas, & Pierce, 2001). Research using a questionnaire to ask adolescents about their pre-existing views suggests that having a positive social image of smokers is strongly associated with intentions to smoke in the future (Burton, Sussman, Hansen, Johnson, & Flay, 1989). Thus, counteracting positive social perceptions of smoking and smokers among children is an important component of most school-based smoking prevention programs. However, tobacco is considered a sacred plant within many Aboriginal traditions (Rhodes, 2000). Thus, smoking prevention programs that label tobacco as negative may be confusing for culturally literate youth and may reduce overall effectiveness (McKennitt, 2007). Thus, there is a need for smoking prevention programs that recognize and respect Aboriginal traditions related to tobacco.

The current study examined a smoking prevention initiative adapted from a standard smoking prevention program delivered in the province of Alberta, Canada. Cultural alterations to the program were designed in partnership with the local Aboriginal community to ensure consistency with local cultural norms. The restructuring of the program was based on the tenets that discussing the cultural use of tobacco and highlighting recreational use as "misuse" would discourage intentions to smoke

in recreational ways among Aboriginal youth (McKennitt, 2007). The aim of this pilot study was to collect preliminary information on the extent to which this newly adapted program would have short-term impacts on future smoking intentions among Aboriginal children.

METHODS

Two elementary schools in a mid-sized city in Western Canada with comparable socioeconomic status and above-average Aboriginal enrollment were selected for the pilot. Two grade 4 classrooms, one from each school, were selected to participate, given that research suggests that Aboriginal youth often begin to experiment with smoking by the age of 10 (First Nations Information Governance Centre, 2012; Ritchie & Reading, 2004). The two classrooms had a total of 42 students, 10 of whom were not eligible to participate as they did not identify as Aboriginal. Aboriginal status was determined by student self-identification. Ten Aboriginal students were excluded because parental consent was not granted, and 4 chose not to participate. Therefore, the sample consisted of 18 Aboriginal students across the two schools who completed both pre- and post-tests.

The two schools were randomized to either a culturally sensitive or a standard smoking prevention program by coin toss; students themselves were not randomized. The school randomly assigned to the culturally sensitive program had 11 Aboriginal students. The school randomly assigned to the standard program had 7 Aboriginal students.

Each smoking prevention program lasted 60 minutes. The standard program provided statistics on smoking among youth (20 minutes), outlined peer pressure refusal strategies (20 minutes), and emphasized the harmful chemicals in cigarettes and the cosmetic and health changes associated with smoking (20 minutes). The culturally sensitive program began with a traditional Aboriginal smudge ceremony that 'cleaned' students with tobacco smoke and other ceremonial plants (10 minutes). The ceremony was followed by a discussion of the differences between traditional and commercial tobacco use (15 minutes), the harmful chemicals in commercial tobacco and unhealthy consequences of commercial tobacco use (15 minutes), and peer pressure refusal strategies (15 minutes). Students in both classrooms completed identical surveys one week before and after their respective smoking prevention programs.

This study received ethics approval from the University of Alberta's Health Research Ethics Board. Parents of students in the proposed sample were sent a letter explaining the scope of the research and were encouraged to discuss the study with their children. Both parents and children were assured that taking part was entirely voluntary and would not in any way affect grades or schoolwork. After the letters were sent, parents had one month to complete and return the consent

forms. This timeframe allowed all parents wishing their children to participate enough time to provide written informed consent, as well as for children to give assent. Administrators at each school also deemed the smoking prevention programs examined in this study appropriate for grade 4 students and granted their permission.

Measures

Current Smoking

Students were asked whether they currently smoked cigarettes, with response options on a 5-point Likert scale of 0 (*non-smoker*), 1 (*a little*), 2 (*sometimes*), and 4 (*a lot*).

Intentions to Smoke

Three questions assessed smoking intentions. Students were asked if they would smoke more if they could (No, Maybe, Yes), if they would smoke if someone asked them to (No, Maybe, Yes), and how many children their age smoke regularly (None, Some, Many, Most). Responses to these questions were summed to create a smoking intentions score.

Knowledge about Commercial Tobacco

Using a 5-point Likert scale from 0 (*no knowledge*) to 4 (*a lot of knowledge*), students were asked if they knew the ingredients inside cigarettes and the impacts of smoking on health and on physical ability. Responses to these two questions were summed to create a score.

Knowledge about the Cultural Use of Tobacco

Four questions assessed familiarity with traditional tobacco use, with response options on the same 5-point Likert scale from 0 (*none*) to 4 (*a lot*). Students were asked about the extent to which they participated in Aboriginal ceremonies, their understanding of tobacco use in Aboriginal ceremonies, whether they knew how to use tobacco in Aboriginal ceremonies, and the extent to which they understood the concept of the Aboriginal medicine wheel. Responses to these questions were summed to create a score. The medicine wheel was incorporated into the program because many Aboriginal traditions within western Canada consider four directions, or four approaches to health, encompassing the physical, mental, emotional, and spiritual. Standard smoking prevention programs often stress the negative impacts of smoking on physical and mental health, but do not discuss how tobacco may interact with emotional and spiritual elements of the self. The medicine wheel provided an opening to discuss the appropriate role of traditional tobacco in addressing these elements within Aboriginal cultural traditions. Tobacco use as part of ceremonial protocols was contrasted with recreational use.

Statistical Analysis

Frequencies, crosstabs, and a within-sample *t*-test were used to assess the impact of each smoking prevention program on the hypothesized outcome (i.e., short-term intentions to smoke) pre- and post-test. We also explored changes in students' knowledge about the cultural use of tobacco and knowledge about smoking using within-sample *t*-tests. The sample size precluded analyses that compared the effects between the two schools. Data were expressed as mean (standard deviation). The level of significance was set at $\leq .05$. All analyses were conducted using SPSS 17.0.

RESULTS

The average pre-test age of students who received the culturally sensitive smoking prevention program was 9.6 years ($SD = 0.5$). The average pre-test age of those who received the standard smoking prevention program was 9.0 years ($SD = 0.0$). Students who indicated they were currently smoking cigarettes "a little," "sometimes," or "a lot" were categorized as experimenting with smoking. Based on this definition, at pre-test 16.7% of grade 4 Aboriginal children were experimenting with smoking and 55.6% believed that many or most children their age already smoked regularly. In comparison, 10% of non-Aboriginal children were experimenting with smoking and none believed that children their age smoked regularly. Post-prevention analyses were conducted for Aboriginal students only. Aboriginal students who received the culturally sensitive smoking prevention program exhibited a statistically significant reduction in intentions to smoke compared to their peers who received the standard smoking prevention program, based on a two-sample mean pooled *t*-test (Table 1). Those who received the culturally sensitive smoking prevention program also reported an improved understanding of culturally appropriate tobacco use post-test; however, this change did not achieve statistical significance. After the smoking prevention programs, both groups recognized they knew less about cigarette ingredients than they had believed they knew before (Table 2). Students who received the culturally sensitive program were more likely to be female (72.7%) than those who received the standard program (40.0%); however, due to the small sample size, analyses could not be stratified by gender.

Table 1
Baseline Characteristics of Students in Each School

	Sample Size	Mean Age (Pre-test)	% Female
Culturally Sensitive Program	11	9.55 (.52)	73%
Standard Program	7	9.00 (0.00)	40%

Table 2
Pre- and Post-test Impacts of Each Smoking Prevention Program on Outcome Variables

	Culturally Sensitive Program (n = 11)			Standard Program (n = 7)		
Outcomes	Pre-test	Post-test	*p*	Pre-test	Post-test	*p*
Intentions to smoke	5.18 (1.40)	4.09 (1.04)	.05*	5.42 (2.37)	5.33 (1.97)	.94
Knowledge about smoking	13.09 (2.66)	11.27 (2.41)	.11	13.17 (1.94)	11.33 (3.67)	.31
Cultural knowledge	9.80 (2.78)	11.18 (2.60)	.25	10.00 (2.38)	9.00 (3.22)	.53

p <.05

DISCUSSION

Our findings support previous research suggesting Aboriginal children may begin experimenting with smoking earlier than their non-Aboriginal peers (First Nations Information Governance Centre, 2012). We also found that Aboriginal children were more likely to believe that their peers were already smoking compared to non-Aboriginal children. The results of this small, exploratory pilot study indicate that a standard smoking prevention program that was culturally adapted for Aboriginal children significantly reduced intentions to smoke among Aboriginal students in grade 4. Reductions in intentions to smoke were statistically significant despite the small sample size (n = 11), suggesting that the cultural adaptation to the smoking prevention program has merit and deserves further study. Findings indicate that the standard smoking prevention program delivered in a second school as a basis for comparison had no impact on smoking intentions among grade 4 Aboriginal students.

Limitations of this study include a small overall sample size (n = 18) which limited our ability to statistically compare the culturally sensitive and standard programs directly. Students who received the culturally sensitive program were somewhat older and were more likely to be female than students who received the standard program. Other research suggests that, in Canada, Aboriginal female adolescents are more likely to begin smoking than males (First Nations Information Governance Centre, 2012). However, the present sample size precluded analyses by gender to examine what effect the larger percentage of females in the culturally sensitive program may have had on the results. Further studies with larger samples are needed. The short time frame between the pre-test, program delivery, and post-test is also an important limitation; extended follow-up periods (e.g., 3 months, 6 months) are recommended in future studies. Another important limitation to the current study is its lack of data on parental smoking behavior, given that research suggests that smoking in the home increases the risk of smoking among children. This tendency is due both to role-modeling

by parents and physiological changes in children exposed to secondhand smoke (Becklake, Ghezzo & Ernst, 2005). Future studies are needed to determine the extent to which these factors may influence smoking among Aboriginal youth. A final limitation is a lack of data on acculturation, which may also interact with smoking behavior and intentions among Aboriginal youth.

Conclusions

Despite these limitations, our findings are promising, suggesting that a culturally sensitive smoking prevention program may reduce smoking intentions among Aboriginal children. Further research is needed to determine the extent to which school smoking prevention programs adapted to respect the long-standing use of tobacco in Aboriginal cultural traditions may be more effective in reaching Aboriginal youth. It is an area of study that deserves further research and attention, given the heightened prevalence of smoking among Indigenous populations.

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FOOTNOTE

[1] Section 35(2) of the Constitution Act, 1982 defines Aboriginal peoples as "including the Indian (First Nations), Inuit and Métis peoples of Canada."

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