

Impact of residential schooling and of child abuse on substance use problem in Indigenous Peoples

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Abstract

Residential schools were the institutions, in operation from the 19th century to the late 20th century, which Indigenous children in Canada were forced to attend. The literature shows that many young people who attended these institutions were victims of neglect and abuse. Negative psychological effects resulting from child abuse have been amply documented. However, very few studies on this subject have been carried out among Canada's Indigenous peoples. The objective of this cross-sectional study is to evaluate, for an Indigenous population in Quebec (Canada), the impact of residential schooling as well as self-reported experiences of sexual and physical abuse during childhood on the development of alcohol and drug use problems in adulthood. A total of 358 Indigenous participants were interviewed (164 men [45.8%] and 194 women [54.2%]). Alcohol abuse was evaluated using the Michigan Alcoholism Screening Test (MAST). Drug abuse was assessed with the Drug Abuse Screening Test-20 (DAST). Child abuse and residential schooling were assessed with dichotomous questions (yes/no). Among the participants, 28.5% ($n = 102$) had attended residential schools, 35.2% ($n = 121$) reported having experienced child sexual abuse, and 34.1% ($n = 117$) reported having experienced child physical abuse. Results of the exact logistic regression analyses indicated that residential school attendance was linked to alcohol problems, while child abuse was related to drug use problems. The results of this study highlight the importance of considering the consequences of historical traumas related to residential schools to better understand the current situation of Indigenous Peoples in Canada.

Keywords: Indigenous Peoples; Substance abuse; Residential school; Child abuse

Introduction

In recent years, many studies in the literature have addressed the issue of residential schools. These institutions were established in Canada in the 19th and 20th century as a result of a partnership between the government and churches to evangelize and assimilate Indigenous Peoples. This interest in documenting the phenomenon is likely related to the 37,963 requests for compensation for serious physical or sexual abuse experienced in residential schools (of which 31,531 have been settled) reported through the Implementation of the Indian Residential Schools Settlement Agreement (Aboriginal Affairs and Northern Development Canada, 2015a). The Truth and Reconciliation Commission of Canada was established to recognize the consequences for Indigenous Peoples who attended residential schools, and to contribute to truth, reconciliation, and healing (Truth and Reconciliation Commission of Canada, 2010). Examining this part of history allows a better understanding of the many individual and collective consequences of residential schools for Indigenous Peoples. However, few empirical studies have focused on the consequences of residential schooling, particularly in Quebec. This province had six residential schools, the last of which closed in 1980. Considering the high prevalence of alcohol and drug use among Indigenous Peoples in Canada (e.g., Whitehead & Kobayashi, 2014) and the strong link, supported by research, between childhood trauma and substance use (e.g., De Bellis, 2002; Callaghan, Cull, Vettese, & Taylor, 2006; Koss et al., 2003; Jacobs & Gill, 2001), this study aims to evaluate the link between residential school attendance, child abuse, and the development of alcohol and drug use problems in adulthood.

Definitions and history related to the establishment of residential schools

Different terms are used in the literature to refer to Indigenous Peoples. “Aboriginal” is often cited to refer to the first inhabitants of North America and their descendants. However, the word “Indigenous” is now preferred, as it is considered to be more uniting and less colonizing

than the term “Aboriginal” (Canadian Institutes of Health Research - Institute of Aboriginal Peoples’ Health, 2013). In Canada, this term refers to First Nations, Métis, and Inuit peoples (Aboriginal Affairs and Northern Development Canada, 2015b). According to the 2011 census, 1,400,685 people in Canada identify themselves as Indigenous, which is 4.3% of the Canadian population (Employment and Social Development Canada, 2015). In Quebec, the Indigenous population is heterogeneous and is composed of 10 Native American nations and the Inuit nation. These nations represent about 1% of the Quebec population. They are distributed in 55 First Nations reserves and the Inuit who live in 14 northern villages (Secrétariat aux affaires autochtones, 2014).

Over the course of history, various laws and measures have promoted the assimilation of Indigenous Peoples into Canadian society (e.g., Bagot Commission 1842 to 1844; British North America Acts of 1867; Act for the gradual enfranchisement of Indians of 1869; Indian Acts of 1876 and 1880; Davin Report, 1879; Indian Advancement Act of 1884). These assimilatory measures have been described by several authors as a cultural genocide with devastating consequences that are still present today in the lives of individuals and their communities (e.g., see Truth and Reconciliation Commission of Canada, 2015). It is also argued that the contemporary difficulties encountered in Indigenous communities must be interpreted in light of the concept of historical trauma (e.g., Mitchell & Maracle, 2005; Wesley-Esquimaux & Smolewski, 2004).

From the 19th century until the late 20th century, more than 130 residential schools were operated in Canada by the Roman Catholic, Anglican, Methodist, Presbyterian, and United churches of Canada, following a partnership with the federal government (Aboriginal Healing Foundation, 2001; Tremblay, 2008). At its height of operation, around the 1930s, the residential school system included 80 institutions attended by nearly 17,000 students (Dussault, 2007).

These institutions were located in all Canadian provinces except Prince Edward Island and New Brunswick (Chansonneuve, 2005). The literature differs regarding the date of closure of residential schools, but several sources suggest that the last residential school closed in 1996 (Chansonneuve, 2005; Legacy of Hope Foundation, 2003; Troniak, 2011; Truth and Reconciliation Commission of Canada, 2010). Canada's Indigenous children were forced to attend these institutions, which included industrial schools, boarding schools, homes for students, hostels, billets, residential schools, residential schools with a majority of day students, or a combination of any of these school systems (Aboriginal Healing Foundation, 2001). Parents were forced to send their children to residential schools despite their reluctance (Blacksmith, 2010; Dion Stout & Kipling, 2003; Tremblay, 2008). Young people usually found themselves in residential schools far from home, which was designed to reduce the influence of reserves and to favor colonial influences (Sbarrato, 2005). Many students, who were forbidden to speak their native language and forced to give up their spiritual beliefs (Hylton et al., 2002; Tremblay, 2008), gradually abandoned what defined them as Indigenous (Barnes, Josefowitz, & Cole, 2006; Dussault, 2007). Lessons encouraged the young people to despise their family, their heritage, and their identity (Aboriginal Nurses Association of Canada, 2002; Royal Commission on Aboriginal Peoples [RCPA], 1996).

According to the First Nations Regional Longitudinal Health Survey (RHS; First Nations Centre, 2005), which was conducted among 10,962 adults, 4,983 adolescents, and 6,657 children, 20.3% of Canada's Indigenous adult population attended residential schools for an average of five years. Other studies report attendance rates among adults of 27% ($n = 176$ Indigenous) (Barton, Thommasen, Tallio, Zang, & Michalos, 2005) and 39% for older adults, aged 45 and over ($n = 2,663$) (Reading & Elias, 1999). Thus, the proportion of individuals who attended these institutions increases with age (e.g., 43.3% for those aged 60 and older, compared with 5.7% for

the 18-29 age group) (First Nations Centre, 2005). Nevertheless, it is possible that attendance rates were higher, mainly because of the mortality rates in these institutions (e.g., Fournier & Crey, 1997; Hylton et al., 2002). Today, most of the former residential school attendees are aged 40 and over. Regarding the current generation, 33.2% of First Nations and Inuit young people report having at least one parent who participated in the residential school system. At least six out of ten children are related to someone who attended these institutions (RHS; First Nations Centre, 2005). Former residential school attendees are now referred to as "survivors", which refers to the fact that many children did not survive their stay at these institutions (Legacy of Hope Foundation, 2003).

Living conditions at residential schools

Various difficult living conditions associated with residential schools have been reported in the literature, in terms of the material, educational, physical, and psychological conditions (e.g., Abadian, 1999; Castellano, 2006-2007; RCAP, 1996; Hylton et al., 2002; Legacy of Hope Foundation, 2003). First, due to inadequate funding of these institutions, the basic needs of children were not always met, which was reflected in undernourishment, lack of clothing, inadequate heating, poor ventilation, overcrowding, and inappropriate medical services (Castellano, 2006-2007; RCAP, 1996; Legacy of Hope Foundation, 2003). These poor conditions contributed to the presence of disease in these institutions, particularly influenza and tuberculosis (Legacy of Hope Foundation, 2003). Mortality rates ranging between 11% and 50% have been reported (Fournier & Crey, 1997; Hylton et al., 2002). The Truth and Reconciliation Commission has documented more than 3,200 child deaths in residential schools (Truth and Reconciliation Commission of Canada, 2015). In addition, the abuse and neglect experienced by some residential school attendees have been extensively documented in the literature (e.g., Blacksmith, 2010; Bopp, Bopp, & Lane, 2003; Chansonneuve, 2005; Corrado & Cohen, 2003; RCAP, 1996;

[Hylton et al., 2002](#); Milloy, 1999; Muckle & Dion, 2008; Wesley-Esquimaux & Smolewski, 2004). Among the RHS participants who felt that their stay at a residential school had a negative impact on their health and well-being, 79.3% reported having experienced verbal and emotional abuse, 78.0% severe discipline, 71.5% witnessing violence, 69.2% being physically abused, 61.5% being bullied by other children, and 32.6% being sexually abused (First Nations Centre, 2005).

Consequences associated with residential schooling

Although few scientific studies have addressed the consequences of residential school attendance, certain psychological difficulties seem to clearly have a high prevalence among survivors. A study has shown that among 93 Indigenous Canadians, who were former residential school attendees, the most frequent diagnoses were post-traumatic stress disorder (PTSD) (64.2%), disorders caused by the abuse of psychoactive substances (26.3 %), major depression (21.2%), and dysthymic disorder (20%) (Corrado & Cohen, 2003). A US study also indicates an association between residential school attendance and alcohol problems among Indigenous women (Koss et al., 2003).

A document on strategies for evaluating substance abuse programs for Indigenous Peoples (Health Canada, 2005) reports that many consider substance abuse to be a manifestation of the alienation of Indigenous Peoples. The authors point out, however, that a direct link between acculturation and substance abuse is poorly documented. Several respondents in a qualitative study ($n = 19$), who were employees or participants in a treatment program to mitigate the residential school legacy in Canada's Indigenous communities, argued that alcohol use is a consequence of the suffering experienced (Gone, 2009). In a study by Corrado and Cohen (2003), 82% of the records indicate that respondents consumed alcohol after their stay in a residential

school, of which 78.8% reported excessive drinking. In addition, marijuana abuse was found in 63% of the records containing information on drug use.

Abuse, sequelae, and addictions

Several studies have been conducted in recent years and have shown the short- and long-term consequences of childhood trauma compared with the general population (e.g., Bouchard, Tourigny, Joly, Hébert, & Cyr, 2008; Gilbert, Widom, Browne, Fergusson, Webb, & Janson, 2009; Fergusson, Boden, & Horwood, 2008; Maniglio, 2009). Among these consequences, Gilbert et al. (2009), in their literature review, particularly noted an increased risk of internalized and externalized behavioral problems, post-traumatic stress disorder, inappropriate sexualized behavior, and decreased academic achievement during adolescence and adulthood. However, for Indigenous Peoples, only a few quantitative studies were found on the effects of abuse, and they were related specifically to sexual abuse. The study by Pearce et al. (2008), conducted with 543 Indigenous young people aged 14 to 30 who used drugs, indicates that having been a victim of sexual abuse seemed to be associated with having had more than 20 sexual partners and more self-mutilation, suicide attempts, sex work, HIV status, injection drug use, drug overdoses, and sexually transmitted infections. The study by Barker-Collo (1999) was conducted with 138 women in Ontario (60 respondents were of Indigenous descent), aged 15 to 57, who were victims of sexual assault. The results showed, overall, that Indigenous women tended to report more symptoms than non-Indigenous victims of child sexual abuse, including somatic symptoms, sleep problems, and sexual difficulties. A study of 751 people (296 women and 455 men) admitted to a detoxification program for alcohol and drug addictions in British Columbia showed a high prevalence of previous physical abuse (29.1% for women; 13.3% for men) and sexual abuse (30.8% for women; 16.2% for men) among the participants (Callaghan et al., 2006). A US study by Koss et al. (2003) with 1660 people (41% men and 59% women) from seven Indigenous tribes

provides similar results. Among Indigenous People in this sample, the fact of having reported certain forms of abuse increased the risk of alcohol addiction. In women, particularly, sexual abuse and residential school attendance increased the probability of alcohol addiction. Jacobs and Gill (2001) conducted a study with 202 Indigenous People living in urban areas. Among the respondents who reported substance abuse, 49.3% had been victims of sexual abuse during their lives, 65.7% had been victims of physical abuse, and 71.6% had experienced emotional abuse. Among those who had not abused substances, the proportion of sexual assault was 32.8%, the proportion of physical assault was 40.5%, and the proportion of emotional abuse was 57.3%.

Objectives, hypotheses, and research questions

This study aims to document the impact of residential school attendance on risk behaviors such as alcohol and drug use, by considering the possible influence of other traumas such as sexual and physical abuse. Based on our literature review, the following research hypothesis is put forth: child abuse (sexual and physical abuse) is associated with a greater probability of having an alcohol or drug use problem in adulthood. Moreover, considering that residential schooling is seen by some authors as a trauma and following the results of Koss et al. (2003), the following hypothesis is proposed: residential school attendance is associated with an increased probability of presenting an alcohol or drug use problem, regardless of whether sexual or physical traumas were experienced. Since few quantitative studies have examined the effect of residential schools in Canada and none have yet evaluated the specific effect of residential school attendance on substance use problems, the following question is proposed: Considering that child abuse is associated with alcohol and drug use problems, what is the respective influence of residential school attendance and abuse (sexual and physical abuse) on these substance use problems?

This study also seeks to avoid some of the limitations of other studies. For example, this study is conducted with a sample of Indigenous Peoples from First Nations reserves and urban areas. Different Indigenous nations are also represented in the sample. Respondents were selected randomly or had expressed interest in participating in the study; they were not recruited according to a specific criterion (e.g., substance use, victims of abuse, or residential school attendance).

Method

Participants

This project is part of a study assessing the prevalence and factors associated with pathological gambling among Indigenous Peoples. This research topic is of importance to the associated Indigenous rehabilitation center and to members and stakeholders of various Indigenous communities. The study was conducted in two semi-urban centers and two First Nations reserves in Quebec (Canada) in 2009 – 2010. Some participants were randomly recruited from Band Council lists or by Native Friendship Centers; other participants were volunteers who expressed their interest in participating in the study. As no significant differences were observed between volunteers and randomly selected participants for the variables studied, the whole sample was used to conduct the analyses. In total, there were 358 participants. The sample consisted of 164 men (45.8%) and 194 women (54.2%). The average age of participants was 42.6 years ($SD = 16.3$). Just over half of respondents were from native reserves (55.6%), while the other participants lived in semi-urban areas (44.4%). With respect to education, 70.1% of participants reported not having completed high school. A large proportion of the sample lived below the poverty line: 39.9% of respondents earned less than \$10,000 per year, and only 14.6% earned more than \$40,000 per year. In comparison, the low-income threshold was \$21,250 and \$21,772 for an individual in 2009 and 2010 respectively; it was \$42,500 and \$43,544 for a family

of four in Quebec (Commission administrative des régimes de retraite et d'assurances, 2014). Just over a quarter (26.1%) of participants were employed, while 42.4% received income assistance. Regarding family structure, nearly half of participants (47.2%) were married or common-law, and 75.1% reported having children (on average, 3.1 children).

Procedure

Trained research assistants, mostly Indigenous and who were social workers or were trained in counseling, contacted the participants by phone or door-to-door, and met with them individually to verbally administer the questionnaires. The interviews took place in an office or the respondent's home. Respondents received \$20 in compensation. Driven by our partners' needs, this research project was designed using a collaborative approach that involved all partners in the research process and recognized the unique strengths that each brought to this project. This research also followed the Canadian Tri-Council Policy Statement for the ethical conduct of research involving Indigenous Peoples. The community members and the Indigenous rehabilitation center were involved in the development and implementation of this project, the ethics and professional conduct, the data collection, and the interpretation of the results. Throughout this project, Indigenous culture and traditions were respected. The ethics committee of the Université du Québec à Chicoutimi approved this study.

Measures

Sociodemographic questionnaire. Participants were asked to provide sociodemographic information such as age, gender, socioeconomic status, and family structure.

Residential school attendance. A questionnaire on the negative consequences of residential school attendance on the health of survivors (RHS; First Nations Centre, 2005; 2011) was used. One "yes/no" item allowed respondents to indicate whether or not they attended a

residential school. Participants who attended residential schools then answered 15 “yes/no” items that allowed the identification of specific experiences during their stay in residential schools.

Alcohol abuse. The Michigan Alcoholism Screening Test (MAST) (Selzer, 1971; adapted to the Indigenous population by Philippe-Labbé, 2006) is an instrument consisting of 25 items, which is used to detect alcohol problems over the last 12 months. Respondents indicate whether or not the items are relevant to their situation. Each item has a value of 0, 1, 2, or 5 points (Hedlund & Vieweg, 1984), and the total MAST score can vary between 0 and 53 points (Conley, 2001). Hedlund and Vieweg (1984) report that this tool has been used in various populations. Although some authors suggest the use of a cutoff point of 5 (e.g., Okay, Sengül, Açıkgöz, Ozan, & Dilbaz, 2010), this has also been associated with false positives (e.g., Martin, Liepman, & Young, 1990). Other studies suggest the use of a cutoff point of 8 (Horn, Paccaud, Niquille, Koehn, Magnenat, & Yersin, 1992); this threshold was chosen in this study because of its previous use with an Indigenous population in Quebec (Philippe-Labbé, 2006). The sensitivity and specificity of this cutoff point are respectively 0.88 and 0.92 (Martin, Liepman, & Young, 1990). Cronbach's alpha in our sample is 0.90.

Drug abuse. The Drug Abuse Screening Test-20 (DAST-20) (Skinner, 1982) was adapted for the Indigenous population by Philippe-Labbé (2006). It is an abbreviated version of the DAST (28 items), which assesses problems associated with drug abuse over the last 12 months. Participants must indicate whether the statements apply to their situation. The total DAST score is obtained by adding all the items that could contribute to an increase in drug problems. According to Skinner (1982), the internal consistency of the questionnaire is 0.95 whereas it was 0.92 in this sample. A DAST-20 score of 5 or more indicates the presence of drug use problems. The sensitivity and specificity of this cutoff point are 0.84 and 0.79 respectively (Cocco & Carey, 1998).

Traumas. Two items of the Early Trauma Inventory Self Report-Short Form (ETISR-SF) (Bremner, Vermetten, & Mazure (2000) were selected to assess the presence of sexual abuse and physical abuse before the age of 18. Respondents were asked if they have ever experienced these traumas.

Statistical analyses

Exploratory statistical analyses indicated that the data for some variables were not normally distributed. Exact logistic regression was thus selected as it is the most valid method to use when sample sizes are small or the data are sparse, skewed, or heavily tied (Derr, 2009; Mehta & Patel, 1995). Moreover, the correlation matrix (Table 1) ensured that the predictor variables do not exhibit multicollinearity. Preliminary analyses showed that certain categories had an insufficient number of occurrences, requiring a grouping of the variables for the exact logistic regression analyses. More specifically, the "sexual abuse" and "physical abuse" variables were grouped under the term "child abuse". Then two exact logistic regression analyses were performed with SAS 9.3 software to check the influence of residential school attendance on the dependent variables, having previously included the effect of abuse (sexual or physical abuse) in the model. The age and gender of the participant were used as covariables in the logistic regressions.

Table 1. *Correlations between variables.*

Variable	1	2	3	4
1. Sex	–			
2. Age	-0.060	–		
3. Child abuse	0.172**	-0.016	–	
4. Residential schooling	-0.065	0.310***	0.300***	–

Note. Age categories were: 18–49 years; 50 years and more.

** $p < 0.01$; *** $p < 0.001$.

Table 2. *Prevalence of negative experiences encountered during residential schooling.*

Negative experiences	(%) ^a
Isolation from family	73.2
Verbal or emotional abuse	69.1
Separation from community	67.0
Harsh discipline	64.9
Witnessing abuse	63.9
Physical abuse	61.9
Loss of cultural identity	59.8
Loss of traditional religion/spirituality	58.8
Loss of language	57.7
Bullying from other children	52.1
Sexual abuse	46.9

a. $N = 83$ participants who reported residential school had a negative impact.

Results

Results showed that 43.5% ($n = 155$) of participants had an alcohol problem, while 27.2% ($n = 96$) had a drug use problem. Of the respondents, 34.1% ($n = 117$) reported being physically abused before the age of 18, while 35.2% ($n = 121$) reported having been victims of sexual abuse. Moreover, 28.5% ($n = 102$) of participants had attended residential schools and 71.1% of them believed that attending these institutions had a negative impact on their lives. Table 2 indicates the prevalence of negative experiences encountered during residential schooling, for those who felt that these institutions had affected their health and well-being.

The chi-square results for various factors that could be associated with alcohol and drug use are shown in Table 3. The results show that among the participants with an alcohol and drug use problem, there were more men and people aged 18 to 49 years (compared to those aged 50 and over). There were also more victims of sexual abuse and physical abuse. The results also

indicate that among participants with an alcohol problem, there were more former residential school attendees.

Table 4 shows the results of the exact logistic regression for the alcohol variable. Step 2 is the final model, since it is the most parsimonious. Results indicate that gender, age, and residential school attendance were statistically significant in their influence on alcohol problems. Indeed, men presented three times more risk for alcohol problems than women. People aged 50 and over were five times less likely to have a drinking problem than people 49 and under, while former residential school attendees were more than three times at risk of having an alcohol problem than Indigenous Peoples who did not attend residential schools. As for abuse, although significant in step 1, the relationship became non-significant in step 2.

Table 3. *Factors associated with alcohol and drug abuse.*

	Alcohol abuse		χ^2	Drug abuse		χ^2
	No problem %	Problem %		No problem %	Problem %	
Sex ($N = 353$)			16.194***			2.430
Women	64.0	42.5		57.2	47.9	
Men	36.0	57.5		42.8	52.1	
Age ($N = 353$)			18.582***			29.845***
18-49 years	56.5	78.4		57.6	88.5	
50 years or more	43.5	21.6		42.4	11.5	
Residential schooling ($N = 351$)			10.683**			.080
Yes	21.6	37.5		28.9	27.4	
No	78.4	62.5		71.1	72.6	
Child sexual abuse ($N = 342$)			9.052**			8.380**
Yes	28.4	44.1		30.5	47.3	
No	71.6	55.9		69.5	52.7	
Child physical abuse ($N = 342$)			8.304**			15.74***
Yes	27.6	42.5		27.7	50.5	
No	72.4	57.5		72.3	49.5	

** $p < 0.01$. *** $p < 0.001$.

Table 4. *Exact logistic regressions of factors associated with alcohol abuse.*

	Step 1			Step 2			Step 3		
	OR	95% CI	p	OR	95% CI	p	OR	95% CI	p
Sex									
Women	Ref.			Ref.			Ref.		
Men	3.085	[1.856. 5.209]	<0.001	3.054	[1.814. 5.224]	<0.001	3.007	[1.780. 5.163]	<0.001
Age									
18-49 years	Ref.			Ref.			Ref.		
≥ 50	0.301	[0.171. 0.518]	<0.001	0.179	[0.088. 0.344]	<0.001	0.180	[0.089. 0.345]	<0.001
Child abuse									
No	Ref.			Ref.			Ref.		
Yes	2.173	[1.317. 3.631]	0.002	1.621	[0.944. 2.800]	0.082	1.535	[0.816. 2.910]	0.201
Residential schooling									
No				Ref.			Ref.		
Yes				3.445	[1.751. 7.036]	<0.001	3.011	[1.023. 9.050]	0.045
Child abuse X Residential schooling*									
							1.227	[0.331. 4.616]	0.959

Note. $N = 340$; CI = Confidence Interval for odds ratio (OR); Ref. = Reference category and * = interaction term.

Table 5 shows the results of the exact logistic regression for the drugs variable. Step 1 is the final model since it is the most parsimonious. Men were twice as likely to report drug use problems than women. In addition, people aged 50 and older were seven times less likely to have drug use problems than people 49 and under. Abuse experienced in childhood increased by 3.1 times the risk of having a drug problem. Finally, residential school attendance was not related to drug use.

Table 5. *Exact logistic regressions of factors associated with drug abuse.*

	Step 1			Step 2			Step 3		
	OR	95% CI	p	OR	95% CI	p	OR	95% CI	p
Sex									
Women	Ref.			Ref.			Ref.		
Men	2.487	[1.373. 4.611]	0.002	2.372	[1.307. 4.402]	0.003	2.332	[1.286. 4.327]	0.004
Age									
18-49 years	Ref.			Ref.			Ref.		
≥ 50	0.145	[0.063. 0.304]	<0.001	0.133	[0.054. 0.299]	<0.001	0.130	[0.051. 0.294]	<0.001
Child abuse									
No	Ref.			Ref.			Ref.		
Yes	3.352	[1.857. 6.215]	0.002	3.127	[1.689. 5.936]	<0.001	2.800	[1.412. 5.660]	0.002
Residential schooling									
No				Ref.			Ref.		
Yes				1.266	[0.608. 2.627]	0.605	0.801	[0.134. 3.314]	1.000
Child abuse X Residential schooling*							1.812	[0.344. 13.169]	0.690

Note. $N = 339$; CI = Confidence Interval for odds ratio (OR); Ref. = Reference category and * = interaction term.

Discussion

To our knowledge, this is the first study to empirically examine with a large sample the link between residential school attendance and alcohol and drug problems among Canadian Indigenous Peoples while considering the impact of child abuse. The results obtained partially support the hypotheses. Having lived through traumatic experiences in childhood - sexual abuse, physical abuse, or attending a residential school - increased the risk of experiencing alcohol and

drug use problems. However, when these factors were combined in a logistic regression, although residential school attendance was associated with alcohol problems, no statistically significant association was found between residential school attendance and drug problems.

Overall, data from this study regarding education, employment, and income are consistent with the fact that, in different studies, Indigenous populations seem to have more difficulties compared to the general population (First Nations Centre, 2005; Health Canada, 2005; Tourigny, Domond, Trocmé, Sioui, & Baril, 2007). The results showed that 28.5% of respondents had attended a residential school. These data are consistent with other studies (e.g., Barton et al., 2005; First Nations Centre, 2005). The proportion of individuals who have attended residential schools increased with age, which is also consistent with the literature (Reading & Elias, 1999; First Nations Centre, 2005). The majority of survivors reported that residential school attendance had a negative impact on their health and well-being, which is similar to the results obtained by the RHS (First Nations Centre, 2005).

The rate of sexual abuse in this study is consistent with that found in the review by Collin-Vézina, Dion, and Trocmé (2009), which suggests substantial rates of sexual victimization experienced during childhood by Indigenous adults. However, our data differ from the results obtained in a US study by Koss et al. (2003), which had higher rates for physical abuse than for sexual abuse whereas the opposite was observed in the present study. Nevertheless, the prevalence rates obtained for both sexual and physical abuse were higher than for non-Indigenous people, which is also consistent with the results of other studies (e.g., Perreault, 2013).

Furthermore, 43.5% of participants had an alcohol problem, while 27.2% had a drug use problem. It is difficult to compare these results with the existing literature, since the studies reviewed used various measures to assess alcohol and drug use problems. However, it seems that the rates obtained are consistent with several studies conducted with Indigenous Peoples, which

have reported high rates for alcohol and drug use problems (e.g., Koss et al., 2003; First Nations Centre, 2005; Mercier, Rivard, Guyon, & Landry, 2002). In particular, the study by Jacobs and Gill (2001), conducted among Indigenous People living in urban areas, found that 33.3% ($n = 67$) of respondents had an alcohol or drug problem. These rates were lower for the general population. For example, the Canadian Addiction Survey (Adlaf, Begin, & Sawka, 2005) showed that 17% of current drinkers were engaged in high risk drinking. In terms of drug use, the 1998 Social and Health Survey (*Enquête sociale et de santé*, Institut de la statistique du Québec, 2001) showed that 17% of Quebecers aged 15 to 25 had used illicit drugs in the past 12 months.

Factors associated with alcohol and drug problems

The results indicate that being a man and under the age of 50 significantly increased the risk of presenting an alcohol or drug use problem. These results are consistent with data from other studies (Adlaf, Begin, & Sawka, 2005; Northwest Territories Health and Social Services, 2006; Government of Yukon-Department of Health and Social Services, 2005). Among Indigenous Peoples, according to the results of the RHS (First Nations Centre, 2005), alcohol use decreased with age, and individuals aged between 18 and 29 presented the highest risk of consuming alcohol and drugs. Men were also twice as likely as women to be weekly drinkers.

In our sample, individuals who had attended residential schools presented more alcohol problems than Indigenous People who had not attended these institutions, when gender, age, and child abuse were controlled. Few studies have evaluated the relationship between residential school attendance and alcohol problems. Corrado and Cohen (2003) found that 78.8% of participants in their study had excessively consumed alcohol after attending a residential school. The results of [Koss et al. \(2003\)](#) showed that having been sexually abused and having attended a residential school increased the probability of alcohol addiction in women. Our results also seem to support data obtained by qualitative studies, which draw a link between the suffering

associated with residential schooling and the development of problems related to alcohol use (e.g., Gone, 2009, Smith, Varcoe, & Edwards, 2005), sometimes over more than one generation (Blacksmith, 2010; Ing, 2000).

However, no significant association was found in this study between residential school attendance and drug use problems. The study by Corrado and Cohen (2003) conducted among former residential school attendees found that marijuana abuse occurs in almost two thirds of their records containing this information. Overall, drug use problems were less common than alcohol problems in this sample. Younger people were more likely to have drug problems. These results could be explained by the possibility that former residential school attendees, due to their older age, have had greater access to alcohol than to drugs. It is also possible that residential school attendance is a trauma related only to certain forms of addiction and that a specific profile is associated with former residential school attendees. Thus, further studies are needed to better understand the complex profile of former residential school attendees. For example, it might increase our understanding to consider the use of scales designed to measure post-traumatic stress disorder, in future studies, as a way to capture such nuances.

Although several studies in the general population have demonstrated a significant link between child abuse and alcohol problems (e.g., [Anda et al., 2002](#); Thompson, Arias, Basile, & Desai, 2002; Thompson, Kingree, & Desai, 2004), our results could not confirm this relationship. Although abuse was linked to a higher risk of alcohol problems in the first regression analysis (step 1), the effect of this variable was non-significant in the regression controlling for interrelationships between variables, possibly due to the limited statistical power. Further studies are needed to confirm the extent of its effect and validity. The decrease in the relationship between abuse and alcohol problems in the exact logistic regression, when one takes into account residential school attendance, could be explained in part by the common variance (9%; $r = .30$,

$p < .001$) between residential school attendance and abuse (see Table 1). Residential school attendance may represent a more considerable trauma than the forms of abuse evaluated in the study in the development of alcohol problems. This could be explained by the fact that the experience of residential schooling can include multiple forms of abuse. Indeed, our results and several sources (Claes & Clifton, 2001; Corrado & Cohen, 2003; First Nations Centre, 2005; RCAP, 1996) suggest that residential schooling included various forms of trauma (e.g., being a victim or witnessing physical, psychological, and sexual abuse; loss of Indigenous identity; separation from family). In this sense, it seems appropriate to conduct studies with a larger sample to achieve greater statistical power for assessing the effects of past traumas, and also the cumulative effect of various traumas.

Our results indicate that abuse was related to drug use problems, which is consistent with several studies of the general population (e.g., [Dube et al., 2003](#); [Felitti et al., 1998](#); [Huang et al., 2011](#); [Thompson et al., 2004](#)). The results of this study are also along the same lines as those obtained by [Callaghan et al. \(2006\)](#) and [Jacobs and Gill \(2001\)](#) which, however, address substance abuse in general without defining their nature (alcohol or drugs). Among Indigenous Peoples, data from a US study by [Koss et al. \(2003\)](#) indicate that having been a victim of sexual and physical abuse during childhood increased the risk of alcohol addiction in men, while having been a victim of sexual abuse and having attended a residential school increased the probability in women. The differences between these data and the current results could be explained by the operationalization of the concepts studied. For example, in our study, the term "abuse" refers to sexual and physical abuse. In this sense, an individual who has experienced either of these traumas - or both - was included. In the study by [Koss et al. \(2003\)](#), the various traumas (physical abuse, physical neglect, sexual abuse, emotional abuse, and emotional neglect) were considered

separately or cumulatively. In doing so, it is possible that the lack of precision regarding the abuse experienced contributed to the differences obtained.

Different sources emphasize the importance of considering other factors to understand alcohol and drug use problems (e.g., Government of Yukon-Department of Health and Social Services, 2005). The description of users and consumption patterns among First Nations people in the Quebec Region (Perreault & Beaulieu, 2008) suggests, for example, that substance use can be normalized and even encouraged by the community where users live.

The results of this study appear consistent with Jacobs' general theory of addictions (1986; 1989; 2008). According to this theory, people who have experienced traumas are at risk, during their development, of addictions. Addictions are used to escape or dissociate, and to relieve the stress caused by childhood traumatic experiences. Jacobs argues that addiction is not the problem, but rather a way to escape the underlying problems. Some authors (e.g., Morency & [Kistabish, 2001](#); St-Arnaud & Bélanger, 2005) also suggest that various problems currently encountered in Indigenous reserves may be associated with traumas experienced in the past. Moreover, King, Smith, and Gracey (2009) suggest that addictive behaviors offer rewards to people whose social opportunities are limited, and thus cannot be found elsewhere. These authors suggest that addictive behaviors can also act as a form of self-medication. De Bellis (2002) argues that child abuse influences the biological stress response systems and can contribute to the increase in disorders related to substance use in adolescence and adulthood. Our results demonstrate the influence of traumas experienced in childhood on some substance use problems in adulthood, and therefore suggest the importance of considering these past traumas in the treatment of alcohol and drug use problems with Indigenous Peoples.

Limitations of this study

The limitations of this study are related, in particular, to the operationalization of concepts used in the study. Indeed, the term "abuse" refers to sexual and physical abuse, and we did not measure child abuse characteristics (e.g., frequency, severity, where it happened). It might be interesting, in future studies, to assess separately the effects of different forms of abuse on substance use problems and to take into account their characteristics. For example, studies have shown that sexual abuse had more consequences than physical abuse (Fergusson et al., 2008) or that increased exposure to child sexual abuse was related to an increased risk of adverse outcomes (Fergusson, McLeod, & Horwood, 2013). In addition, the cross-sectional nature of the study cannot confirm causal links for the influence of the variables on alcohol and drug use problems.

It is also important to note that the sample used for testing the hypotheses and answering the research question is separated, in reality, into three subgroups: the former residential school attendees; individuals who did not attend residential schools even when they were in operation; and individuals who did not attend residential schools because of the closure of these institutions. It was not possible to distinguish between the latter two groups. Although this study did not take into account the mortality rate, this variable may be important in interpreting the results. According to data from the Report on the Health of British Columbians (Provincial Health Officer, 2002), almost a quarter (23.5 %) of deaths among registered Indians were related to alcohol and 6.2% to drugs. In addition, death rates for causes related to alcohol and drug use were higher among Indigenous than non-Indigenous peoples (Tjepkema, Wilkins, Sénécal, Guimond, & Penney, 2010).

Despite these limitations, this study is of interest, since it is one of the few to offer quantitative results to evaluate the influence of child abuse and residential school attendance on

alcohol and drug use problems for an Indigenous population. It also appears relevant to undertake further studies with a larger number of participants from diverse reserves and urban areas to specifically assess the impact of residential school attendance.

Practical implications

The association between child abuse and substance use problems has important clinical implications. Substance use problems can be associated with several adverse health and social consequences (e.g., Thompson et al., 2004). It seems that individuals with substance use problems are susceptible, among other things, to other psychiatric symptoms, such as post-traumatic stress disorder or depression, which require more specialized treatments (Brems, Johnson, Neal, & Freemon, 2004). This demonstrates the importance of considering a holistic approach for treating substance use problems, allowing the treatment of the perceived causes of addiction, such as historical traumas and child sexual abuse (Philippe-Labbé, 2006). In addition, the results of our study suggest the importance of understanding the realities of Indigenous Peoples, including the consequences of historical traumas such as residential schooling (Morency & Kistabish, 2001). To establish culturally sensitive treatments that respond to the needs of the community, Gone (2009) proposes the establishment of partnerships with Indigenous intervention programs. According to Castellano (2006/2007), cultural therapy sessions carried out in groups have advantages for survivors that conventional professional psychotherapy does not offer. Moreover, according to Muckle and Dion (2008), it seems important to correct an image that is dominated by the difficulties of the former residential school attendees, and instead focus on the strengths of Indigenous Peoples and their resilience. In this sense, Dion Stout and Kipling (2003) mention certain approaches used by the survivors to overcome the negative consequences of residential schools: re-learning Indigenous languages, returning to spirituality, furthering education, participating in healing circles, etc.

Conclusion

Understanding the issue of residential schools involves reflecting on the historical context of this system, the living conditions that were experienced, and the consequences that can still be associated with these experiences today. Although many studies describe the individual and collective negative consequences of residential schools, few studies have been conducted to document them. Since these institutions have contributed to the emergence of a collective trauma (e.g., Fast & Collin-Vézina, 2010) and our results show a significant link between residential school attendance and alcohol problems, it seems important to consider this factor in the study of Indigenous difficulties, and even for more than one generation of survivors. Considering the many traumas experienced by Indigenous Peoples over the course of history and that experiencing more than one form of abuse is associated with greater difficulties in adulthood (e.g., Bouchard et al., 2008; Dube et al., 2003; Felitti et al., 1998), it is also relevant to undertake studies to measure the cumulative effect of traumas. In this context, future studies must not only try to better understand the effects of residential schools, but also the consequences of other traumas.

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