

Suicidal ideation among Métis adult men and women – associated risk and protective factors: findings from a nationally representative survey

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Objective. To determine the prevalence of suicidal ideation among Métis men and women (20–59 years) and identify its associated risk and protective factors using data from the nationally representative Aboriginal Peoples Survey (2006).

Study design. Secondary analysis of previously collected data from a nationally representative cross-sectional survey.

Results. Across Canada, lifetime suicidal ideation was reported by an estimated 13.3% (or an estimated 34,517 individuals) of the total population of 20-to-59-year-old Métis. Of those who ideated, 46.2% reported a lifetime suicide attempt and 6.0% indicated that they had attempted suicide in the previous 12 months. Prevalence of suicidal ideation was higher among Métis men than in men who did not report Aboriginal identity in examined jurisdictions. Métis women were more likely to report suicidal ideation compared with Métis men (14.9% vs. 11.5%, respectively). Métis women and men had some common associated risk and protective factors such as major depressive episode, history of self-injury, perceived Aboriginal-specific community issues, divorced status, high mobility, self-rated thriving health, high self-esteem and positive coping ability. However, in Métis women alone, heavy frequent drinking, history of foster care experience and lower levels of social support were significant associated risk factors of suicidal ideation. Furthermore, a significant interaction was observed between social support and major depressive episode. Among Métis men, history of ever smoking was the sole unique associated risk factor.

Conclusion. The higher prevalence of suicidal ideation among Métis women compared with Métis men and the observed gender differences in associations with some associated risk and protective factors suggest the need for gender-responsive programming to address suicidal ideation.

Keywords: *Métis; Aboriginal; Indigenous; suicidal thoughts; suicidality; suicidal behavior*

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Métis, one of the three constitutionally recognized and distinct Indigenous Peoples in Canada (1,2), originated as a result of union between American Indian women and European men during the fur trade years in the 18th and 19th centuries and gradually emerged into a distinct population with unique traditions and culture (2). The early Métis played the role of interpreters, diplomats, guides, couriers,

freighters, traders and suppliers for European traders (1). Today, Métis account for approximately one-third of the Aboriginal population. Most Métis live in Ontario and the western provinces (87%), and in urban areas (69%). The Métis population has a lower median age (30 vs. 40 years), lower median income (\$20,935 vs. 25,955), higher labour force participation rate (70.1% vs. 66.9%) and lower rates of completion of post-secondary

education among 25–64 year-olds (50% vs. 61%) compared with the Canadian population that does not self-identify as Aboriginal (3,4).

Little is known about the mental health status of Métis across Canada; however, the prevalence of various mental illnesses among Metis in Manitoba has been estimated. Although age- and sex-adjusted rates of cumulative mental illness, depression and schizophrenia in 2002/03–2006/07 were similar among Metis and other Manitobans, the prevalence of anxiety disorders, substance abuse and personality disorders was higher among Metis (5).

Suicide represents a significant source of mortality in the Aboriginal population. In 1991–2001, suicide-related age-standardized mortality rate for men reporting Métis ancestry was 1.6 times higher than that for men who did not report Aboriginal ancestry (6). However, rates for women in the two groups were not significantly different. In Manitoba, the age- and sex-standardized suicide rate among Metis in 1997–2006 was similar to that in other Manitobans. Nonetheless, the combined prevalence of suicide completions and attempts was 38% higher among Metis (11 vs. 8 per 10,000) than in other Manitobans (5).

Lifetime suicidal ideation (SI) among self-identifying First Nations and Métis (28% combined) was higher compared with those who did not self-identify as Aboriginal in the Saskatoon Health Region in 2007 (10%) (7). Among self-identifying Métis women across Canada, in 2001, 16% reported having suicidal thoughts and 8% reported suicide attempts. The corresponding prevalence in self-identifying Métis men was lower: 10% and 4%, respectively. In comparison, among all Canadian women, 4% reported SI (8).

Contributing factors

Suicidal ideation, in the general and many marginalized populations, shares many of the risk factors with attempted and completed suicides. These and other risk factors include mood disorders (9–11), in particular, major depression (12–21), severity of depression (19), other disorders and substance abuse (15,16,18,19,22). Further, history of suicide attempts (23,24), low level of social support (13,20,25–28), low self-esteem (13), negative self-appraisal (29), negative life events (13) and physical disabilities (30) are reported to be the risk factors for SI. Other correlates include lack of reasons for living (21), higher average life stress (7,21), low income (7,31), personal debt (32), marital status (28), in particular, divorced status (18), unemployment (19,33), lower level of hope (21,22,29,34), poor self-perceived health (17,35,36), and pain (37). In addition, among Indigenous populations, the ongoing, historically rooted trauma (38–40) has been suggested to be a contributing factor. The history of colonization, the ensuing distortion of Aboriginal lives, and the complex mix of social, cultural, economic and psychological dislocations have

been proposed to be behind the disproportionately high rates of suicide and self-injury among Aboriginal people in Canada (41). Self-identification as Aboriginal or “cultural status” has been suggested to be a risk factor for SI in one report (7); however, the study did not account for risk factors such as mood disorders, and the heterogeneous nature of the Aboriginal population and relevant experiences. Furthermore, it is unclear if self-identification as First Nations, Inuit or Métis adequately approximates “cultural status” in this population.

Protective and resilience factors of suicidal behaviour in the general population include social support (42–45), sense of belonging (27), sense of coherence (46,47), self-continuity (48–51), connecting with family, peers and health professionals (52), drawing on religious and moral beliefs (52), and positive self-appraisals (29). Amongst Aboriginal populations, other resilience factors include spirituality, community cultural continuity factors and community social capital (53,54). Further, the sense of self-reliance, resourcefulness and independence in the Métis have been proposed to be sources of resilience (55).

While some recent studies have begun to explore suicidal behaviour, and risk and protective factors among Métis (5–7), gaps persist. These include lack of nationwide prevalence statistics on suicidal behaviour for Métis men and women, and related sex-specific risk and protective factors. To address this knowledge gap, we analysed the 2006 Aboriginal Peoples Survey and the Métis Supplement (APS), and the 2005 Canadian Community Health Survey (CCHS) to (a) determine the prevalence of lifetime SI, lifetime and previous 12-month suicide attempts among self-identifying Métis and individuals who did not identify as Aboriginal, and (b) identify potential associated risk and protective factors.

Methods

Data sets

The 2006 APS data previously collected by Statistics Canada was used for secondary analyses to estimate rates of self-reported lifetime suicidal ideation and attempts, and explore correlates of suicidal ideation. This nationally representative post-censal survey collected data on the health, social, cultural and economic conditions of Aboriginal people (off-reserve First Nations, Métis and Inuit) in Canada. The sample size was 61,041, of which 11,362 were Métis (self-identifying and/or Métis ancestry). The Métis response rate was 80%. The 2005 CCHS (Cycle 3.1) data was used to estimate the prevalence of lifetime SI for the Métis, and Canadians who did not self-identify as Aboriginal. Estimates were aggregated for jurisdictions that included suicidality questions: Quebec, Ontario, Saskatchewan, Alberta, and Nunavut.

Measures

Suicidal ideation

Questions relating to suicidal behaviour in the Métis supplement of the 2006 APS included: (a) “Have you ever seriously considered committing suicide or taking your own life?” (b) “Have you ever attempted to commit suicide?” and (c) “Has this occurred in the last 12 months?” Binary variables were generated for each question and the SI variable was used as the dependent variable in subsequent analysis. Analysis was restricted to ages 20–59 years; adolescents and the elderly were excluded because they were expected to have some risk factors that were distinct from those of the adult age groups (56).

Identification of potential correlates was guided by a literature review and scanning of the questionnaire. Some potential correlates were excluded to avoid multicollinearity, such as self-rated health in lieu of report of one or more chronic disease(s).

Social and demographic variables

Household income (\$25,000 or less, \$25,001 to \$75,000, and \$75,001 or higher) (7), employment status, education (less than high school graduation, high school graduation or non-university post-secondary education, and completed university) (7), age, geography (rural, urban) and marital status were used in the analysis.

Other variables

(a) Major depressive episode (MDE) defined here as having felt sad, blue or depressed almost every day during the periods of depression lasting 2 weeks or more in a row* (57), (b) history of self-injury requiring hospitalization or emergency medical attention,* (c) heavy frequent drinking (5 or more drinks more than once a week)* (58), (d) history of ever smoking (100+ cigarettes lifetime), (e) foster care experience at any time before the age of 18, (f) self-reported thriving health (excellent/very good health) (59), (g) social support (h) coping ability or ability to handle unexpected difficulties (excellent/very/good vs. fair/poor ability to handle unexpected and difficult problems, e.g. a family or a personal crisis), (i) community issues specific to Aboriginal people (listed in scale described below), (j) self-esteem, (k) high mobility (history of having moved more than once in previous 5 years), and (l) history of residential school experience.

Scales

Social support scale

An 8-item modified version of the Medical Outcomes Study (MOS) Social Support scale measured social support (60). Respondents were asked how often each source of support was available to them. Responses were scored on a 5-point scale ranging from “almost none of

the time” to “all of the time”. Scores for each item were added (after reverse coding one negatively worded item) to derive the “social support” variable ($\alpha = 0.89$; range: 0–24; median = 23). Since the variable was not linear in the logit scale, a trichotomized variable was generated, yielding low (score = 0–18), medium (score = 19–23) and high (score = 24) social support categories.

Community issues scale

Respondents were asked if any of the following was a problem for Aboriginal people in their community or neighbourhood: suicide, unemployment, family violence, sexual abuse, drug abuse, alcohol abuse or other. Following factor analysis and reliability assessment, a community issues variable ($\alpha = 0.88$; range: 0–6; median = 3) was derived by adding the scores for the individual items without the “other” item. Higher scores represent greater number of community issues.

Self-esteem scale

A six-item scale based on the Rosenberg self-esteem scale (61–63) was used to assess self-esteem. After appropriate items were reverse coded, scores from each item were summed to generate the “self-esteem” variable for which higher scores indicate higher self-esteem ($\alpha = 0.69$; range: 0–24; median = 20).

Statistical analyses

Analysis was performed separately by gender because of previously reported differences in gender-specific factors and prevalence rates. Weighted estimates were derived using survey weights. Because of the complex survey design of the APS, bootstrap technique was used to estimate confidence intervals and standard errors.

Bivariate analyses were performed between potential correlates and lifetime SI; statistically significant ($p < 0.05$) relationships were identified using post-estimation tests specific to survey data. Univariate and multivariate logistic regression models were built to assess the association between lifetime SI and significant variables identified in the bivariate analysis. For correlate selection, the Allen-Cady modified backward selection procedure (64,65) was used; this method attempts to decrease the probability of type I error compared with conventional selection methods (64). Briefly, correlates of primary interest (MDE, history of self-injury, heavy frequent drinker, ever smoker, self-esteem, coping ability) and potential control variables (age, education, household income and rural/urban) were entered into the model. The other variables (second set) were then ranked in order of importance, specifically as they relate to SI, by two team members and added to the model. The variables in the second set were eliminated in order of ascending importance, until the first variable with a $p < 0.2$ was encountered (model 1). Effect modifications were examined using interaction terms including that between

*In the previous 12 months.

MDE and social support, self-appraisal or self-esteem (model 2).

Diagnostic tests including ones for multicollinearity, model specification, Hosmer-Lemeshow goodness of fit, assumption of linearity and influential cases were conducted.

There were 339 (or 5%; $n = 6,694$) missing observations for the SI variable. Respondents with and without missing observations were similar in age (37.3 (95% CI: 35.8–38.7) vs. 39.0 (95% CI: 38.7–39.3) years, respectively), sex distribution (53.74% vs. 51.90% female, respectively, $\chi^2 = 0.25$; $F(1, 999)$; $p = 0.62$) and household income ($\chi^2 = 1.73$; $F(2, 1977)$; $p = 0.18$), but had different proportions of urban dwellers (78.63% vs. 72.12%, respectively; $\chi^2 = 5.75$; $F(1, 999)$; $p = 0.02$). Observations with missing values for other variables were dropped from the regression models using list-wise deletions.

All analyses were performed using Stata software package (StataCorp LP, College Station, TX).

Results

Overall, across Canada, suicidal ideation was self-reported by 13.3% (95% CI: 12.3–14.4%; or an estimated 34,517 individuals; $n = 6,694$) of the total population of 20-to-59-year-old Métis. Of these, 46.2% (95% CI: 42.1–50.5%) reported a lifetime suicide attempt, which translates into an overall prevalence of 6.2% (95% CI: 5.4–7.0%) in the total population. Further, 6.0% (95% CI: 4.2–8.4%) of those who reported lifetime SI, or 0.8% (95% CI: 0.6–1.1%) of the total population, indicated that they had attempted suicide in the previous 12 months. Métis women were more likely to report SI than Métis men: 14.9% (13.5–16.5%, or an estimated 20,756) vs. 11.5% (10.2–12.9%, or an estimated 13,761), respectively. No age group differences were observed among Métis women (p for trend: $F(4, 996) = 1.66$, $p = 0.157$) or men (p for trend: $F(4, 996) = 0.52$, $p = 0.719$). Among provinces with large Métis populations, there were some differences; prevalence of SI was higher among Métis in British Columbia (17.7%; 95% CI: 14.5–21.3%) compared with those in Manitoba (10.5%; 95% CI: 8.2–13.3%) and Saskatchewan (10.9%; 95% CI: 9.1–13.0%).

Among Canadians who did not self-identify as Aboriginal in Quebec, Ontario, Saskatchewan, Alberta and Nunavut – jurisdictions that included suicide-related questions in the 2005 CCHS – the prevalence was lower compared to estimates for their Métis counterparts: 10% (95% CI: 10–11%) vs. 19% (95% CI: 16–24%); $p = 0.0004$. Métis men (16.2%, 95% CI: 11.4–22.5%) were more likely to report SI than men who did not report Aboriginal identity (9.4%; 95% CI: 8.9–9.9%). Similarly, the prevalence of SI among Métis women was higher than in their counterparts who did not report Aboriginal

identity (23.8%; 95% CI: 18.1–30.5% and 11.29%; 95% CI: 10.8–11.9%, respectively).

Bivariate analysis

Among both adult Métis men and women, lower household incomes (\$25,000 or less and \$25,001–\$75,000), self-rated non-thriving health (poor, fair or good health), negative coping ability, history of foster care experience, major depressive episode (MDE), lower self-esteem, lower social support and greater number of perceived local community issues specific to Aboriginal people correlated with SI (Table I). Level of education, geography (urban vs. rural; in males), age and residential school experience were not associated with SI. Some notable differences between the sexes were observed. Heavy frequent drinking and history of self-injury was associated with SI among women, but not men. Also, increasingly higher level of social support, among Métis women was associated with decreasingly lower likelihood of SI. Métis men with low and medium social support were equally likely to report SI; but more likely compared those with high level of social support. Also, among Métis men, lifetime history of smoking was related to SI; this, however, was not seen in Métis women. Finally, divorced Métis men and women and only widowed Métis women were more likely to report SI compared with their married counterparts.

Main effects model and interaction effects

Trends similar to those seen in bivariate and descriptive analysis were evident in univariate logistic regressions (Tables I and II). In multivariate models which took into account socio-economic and demographic variables, the following risk factors were associated with SI among Métis women: MDE, history of self-injury, heavy frequent drinking, history of foster care experience, community issues, divorced or widowed status, and high mobility (Model 1) (Table II). On the other hand, coping ability, self-rated thriving health, self-esteem and high level of social support were inversely associated with SI.

In the final model for Métis women, history of self-injury was the most notable independently associated risk factor, increasing the odds of SI approximately 7-fold. Heavy frequent drinking, history of foster care experience, divorced status and MDE each independently increased the odds of SI among Métis women approximately 2-fold. Also, an increase in the number of community issues was associated with increasing odds of SI (10% increase in odds with each additional community issue). High level of social support decreased the odds of SI by 61% compared with low social support. Other associated protective factors included positive coping ability (OR = 0.61), and self-rated thriving health (OR = 0.76). Furthermore, an increase of self-esteem

Table 1. Bivariate associations between suicidal ideation and putative correlates in Métis adults (20–59) by sex

Variable	Women (n = 3,615)			Men (n = 3,079)		
	Suicidal ideation %**	95% CI	F-statistic/ p-value	Suicidal ideation %**	95% CI	F-statistic/ p-value
Household income, \$						
≤25,000	21.62%	17.58–26.28%	F(2, 998) = 12.83 ^a	23.99%	18.74–30.17%	F(2, 998) = 23.69 ^a
25,001–75,000	15.48%	13.32–17.91%	p for trend = 0.000	12.68%	10.64–15.04%	p for trend = 0.000
≥75,001	10.95%	9.24–12.94%		6.68%	5.32–8.35%	
Education						
Less than high school graduation	15.00%	11.75–18.95%	F(2, 998) = 0.05 ^a	11.47%	9.00–14.51%	F(2, 998) = 0.33 ^a
High school graduation	14.37%	11.91–17.23%	p for trend = 0.956	10.68%	8.65–13.13%	p for trend = 0.719
Post-secondary education	15.36	13.37–17.59%		12.12%	10.01–14.61%	
Geography						
Rural	15.95%	14.18–17.89%	F(1, 999) = 1.02	12.21%	10.54–14.10%	F(1, 999) = 3.45
Urban	12.13%	10.13–14.46%	p = 0.007	9.62%	7.78–11.84%	p = 0.063
Age (mean, in years)	39.83 yrs	38.61–41.05%	F(1, 999) = 1.02 p = 0.314 ^b	40.73 yrs	39.37–42.08	
History of hospitalization for self-injury						
Yes	73.11%	40.18–91.67%	F(1, 999) = 16.43	31.65%	10.55–64.52%	F(1, 999) = 1.77
No	15.33%	13.83–16.95%	p = 0.000	11.56%	10.25–13.01%	p = 0.184
Heavy frequent drinking						
Yes	26.84%	17.95–38.10%	F(1, 999) = 5.58	13.18%	9.93–17.28%	F(1, 999) = 0.69
No	14.42%	12.96–16.01%	p = 0.018	11.43%	9.94–13.11%	p = 0.406
Ever smoker						
Yes	16.98%	15.14–18.99%	F(1, 999) = 17.25	13.50%	11.84–15.35%	F(1, 999) = 13.58
No	10.44%	8.29–13.06%	p = 0.000	7.58%	5.44–10.48%	p = 0.000
History of foster care experience						
Yes	33.76%	27.63–40.49%	F(1, 999) = 36.34	20.22%	14.14–28.05%	F(1, 999) = 6.12
No	13.60%	12.14–15.20%	p = 0.000	11.13%	9.75–12.67%	p = 0.014
Marital status						
Married (reference category)	11.98%	10.05–14.21%		8.76%	6.92–11.04%	
Single	14.13%	11.82–16.80%	F(1, 999) = 1.65; p = 0.200 ^c	12.53%	10.44–14.96%	F(1, 999) = 5.57; p = 0.018^c
Separated	17.96%	12.20–25.63%	F(1, 999) = 2.77; p = 0.096 ^c	15.56%	9.03–25.5%	F(1, 999) = 2.50; p = 0.114 ^c
Divorced	23.89%	18.94–29.65%	F(1, 999) = 16.69; p = 0.000^c	17.33%	12.84–22.97%	F(1, 999) = 9.08; p = 0.003^c
Widowed	31.13%	19.25–46.16%	F(1, 999) = 7.34; p = 0.007^c	16.95%	3.52–53.32%	F(1, 999) = 0.44; p = 0.510 ^c
High mobility						
Yes	18.75%	16.01–21.80%	F(1, 999) = 11.92	16.53%	13.69–19.83%	F(1, 999) = 19.46
No	12.80%	11.18–14.64%	p = 0.001	8.82%	7.52–10.31%	p = 0.000
Self-reported thriving health						
Thriving health (excellent/very good)	10.71%	9.09–12.56%	F(1, 999) = 38.46	7.67%	6.26–9.36%	F(1, 999) = 35.01
Non-thriving health (good/fair/poor)	21.02%	18.42–23.88%	p = 0.000	17.19%	14.69–20.02%	p = 0.000

Table 1 (Continued)

Variable	Women (n = 3,615)			Men (n = 3,079)		
	Suicidal ideation %**	95% CI	F-statistic/ p-value	Suicidal ideation %**	95% CI	F-statistic/ p-value
Coping ability						
Positive coping ability	13.60%	12.09–15.27%	F(1, 999) = 28.03	10.12%	8.83–11.56%	F(1, 999) = 23.74
Negative coping ability	30.81%	25.06–37.23%	p = 0.000	29.20%	22.3–37.22%	p = 0.000
Major depressive episode (MDE)						
Yes	30.79%	26.91–34.95%	F(1, 999) = 85.09	36.14%	30.39–42.31%	F(1, 999) = 81.57
No	10.49%	9.10–12.08%	p = 0.000	7.69%	6.54–9.01%	p = 0.000
Social support						
Low social support	24.99%	21.56–28.77%	F(2, 998) = 35.49 ^a	17.94%	14.99–21.34%	F(2, 998) = 13.44 ^a
Medium social support	16.54%	13.65–19.9%	p for trend = 0.000	10.00%	7.60–13.05%	p for trend = 0.000
High social support	9.04%	7.44–10.95%		8.28%	6.63–10.29%	
Residential school						
No history of residential school experience	14.91%	13.45–16.49%	F(1, 999) = 0.60	11.14%	9.85–12.58%	F(1, 999) = 3.21
History of residential care experience	19.76%	10.22–34.75%	p = 0.440	22.28%	12.44–36.63%	p = 0.073
Scales						
Self-esteem score (range: 0–24)						
Suicide ideators	19.05	18.60–19.50	F(1, 999) = 44.71	18.92	18.40–19.44	F(1, 999) = 32.44
Non-ideators	20.65	20.51–20.78	p = 0.000	20.51	20.36–20.66	p = 0.000
Perception of Aboriginal-specific community issues score (range: 0–6)						
Suicide ideators	3.50	3.25–3.75	F(1, 999) = 31.37	3.59	3.27–3.91	F(1, 999) = 32.64
Non-ideators	2.71	2.59–2.82	p = 0.000	2.60	2.50–2.71	p = 0.000

**Dont know, refusal and missing included in calculating %, CI - 95% confidence interval, ^ap for trend, ^bcomparing women and men, ^ccompared with married (reference). p values <0.05 are shown in bold numbers.

score by one unit resulted in a 5% decrease in the odds of SI (OR = 0.95).

When effect modification of social support on the relationship of MDE with SI was examined by introducing an interaction term (model 2), the effect of social support was different for Métis women with and without MDE. Social support was an associated protective factor against SI in Métis women without MDE, but not for those with MDE. Progressively decreasing probabilities of SI were seen with increasing levels of social support among those without MDE; however, a similar effect was not seen among Métis women with MDE (Fig. 1). Other interactions between MDE and coping ability or self-esteem were not significant (data not shown).

Métis men, after adjusting for socio-economic and demographic factors, appeared to have several independent associated risk and protective factors in common with Métis women, including MDE (OR = 4.07), history of self-injury (OR = 2.97), high mobility (OR = 1.78), divorced status (OR = 1.61; marginal significance), community issues (OR = 1.18), coping ability (OR = 0.62),

self-rated thriving health (OR = 0.69) and self-esteem (OR = 0.94).

Several associated risk and protective factors had a differential effect in males and females. Among Métis men, unlike Métis women, heavy frequent drinking and history of foster care experience were not associated risk factors for SI. Furthermore, social support was not associated with SI among Métis men. As a result, no effect modification by social support was examined for men. However, ever smoking was significantly associated with SI among men alone.

Discussion

Over one in ten Métis between the age of 20 and 59 years reported lifetime SI; approximately, half of those who had ideated reported having attempted suicide in their lifetime. Métis women were more likely to report SI than Métis men. Sex differences have been reported previously, as part of the assertion of gender paradox in suicidal behaviour (66), where fatal suicidal acts are more prevalent among males than in females, but SI and

Table II. Univariate and multivariate logistic regression models of suicidal ideation among Métis adult women (20–59 years; n = 3,206)

	Multivariate logistic regression												
	Univariate logistic regression				Model 1 Pseudo-R ² = 0.1479*				Model 2 (with interaction term) Pseudo-R ² = 0.1532*				OR
	b	SE	t	p	b	SE	t	p	b	SE	t	p	
History of hospitalization for self-injury	2.691	0.719	3.74	0.000	1.890	0.571	3.31	0.001	1.926	0.578	3.33	0.001	6.87
Heavy frequent drinking	0.796	0.275	2.90	0.004	0.744	0.287	2.59	0.010	0.745	0.281	2.65	0.008	2.11
History of foster care experience	1.171	0.159	7.34	0.000	0.831	0.190	4.38	0.000	0.859	0.185	4.66	0.000	2.36
Perception of Aboriginal-related community issues score	0.144	0.027	5.39	0.000	0.095	0.030	3.20	0.001	0.091	0.029	3.11	0.002	1.10
Marital status (reference category: Married)													
Single	0.229	0.148	1.55	0.123	0.016	0.164	0.10	0.924	0.038	0.165	0.23	0.820	1.04
Separated	0.467	0.255	1.83	0.068	-0.134	0.335	-0.40	0.689	-0.077	0.329	-0.23	0.814	0.93
Divorced	0.822	0.181	4.53	0.000	0.462	0.204	2.27	0.023	0.506	0.198	2.56	0.011	1.66
Widowed	1.260	0.344	3.66	0.000	0.769	0.401	1.92	0.055	0.807	0.392	2.06	0.040	2.24
High mobility	0.457	0.126	3.63	0.000	0.468	0.141	3.32	0.001	0.467	0.141	3.31	0.001	1.60
Self-rated thriving health	-0.829	0.126	-6.59	0.000	-0.298	0.153	-1.95	0.052	-0.279	0.151	-1.85	0.064	0.76
Coping ability	-1.065	0.164	-6.48	0.000	-0.477	0.189	-2.53	0.012	-0.488	0.184	-2.65	0.008	0.61
Self-esteem score	-0.148	0.019	-7.75	0.000	-0.051	0.022	-2.30	0.022	-0.056	0.022	-2.60	0.009	0.95
Major depressive episode (MDE)	1.355	0.127	10.69	0.000	0.926	0.152	6.08	0.000	0.521	0.224	2.32	0.020	1.68
Level of social support (reference: low level of social support)													
Medium	-0.542	0.151	-3.58	0.000	-0.076	0.176	-0.43	0.665	-0.240	0.220	-1.09	0.274	0.79
High	-1.220	0.142	-8.58	0.000	-0.537	0.174	-3.09	0.002	-0.937	0.219	-4.27	0.000	0.39
Social support × frequency of depressive episodes	-	-	-	-	-	-	-	-	0.297	0.329	0.90	0.367	-
	-	-	-	-	-	-	-	-	0.976	0.331	2.95	0.003	-

b - coefficient estimate, SE - standard error, t - t-statistic, p - p-value. p values < 0.05 are shown in bold numbers, *adjusted for age, education and household income.

suicide attempts are more likely among females than in males.

Most associated risk and protective factors of SI had a similar effect across sexes, including MDE, history of self-injury, divorce, community issues, high mobility, thriving health, high self-esteem and positive coping ability. However, others had a markedly differential effect in the two sexes including foster care experience, heavy frequent use of alcohol and social support (in women), and history of smoking (in men).

Previous evidence for gender differences in the effect of foster care experience has been mixed. Among young adolescents in the US child welfare/protective services system, females were at a higher risk of health-risk behaviours that included sexual behaviours, depression, suicidality, substance abuse and delinquency (67). However, among Swedish former welfare clients, no gender differences in risk of suicidal attempts were seen relative to the general population (68). It is important to note

that the effect of foster care experience on SI may have unique dimensions in Canada. Historically, Aboriginal children have been placed into the foster care and adoption system at disproportionately higher rates, often for economic reasons such as living in poverty and crowded conditions, unlike non-Aboriginal children (69). Furthermore, for Aboriginal individuals, foster care experiences may be compounded by identity confusion, attachment disorders, abuse, racism, self-hatred, and loss of culture, traditions and languages in addition to loss of parental care, family and extended family structure (70).

The gender inconsistency seen in the association of heavy frequent drinking and SI has been previously reported. Chronic alcohol consumption disproportionately affected females among US undergraduate students (71). Among Finnish women, “problems with alcohol” was a risk factor for suicidality, unlike in Finnish men (72). Also, in the Korean general population, “high alcohol use”

Table III. Multivariate logistic regression models of suicidal ideation among Métis adult men (20–59 years; n = 2,712)

	Univariate logistic regression				Multivariate logistic regression Model 1 (full model) pseudo-R ² = 0.1685*				
	b	SE	t	p	b	SE	t	p	OR
History of hospitalization for self-injury	1.240	0.701	1.77	0.078	1.088	0.495	2.20	0.028	2.97
Heavy frequent drinking	0.164	0.189	0.87	0.385	0.037	0.220	0.17	0.868	1.04
Ever smoker	0.640	0.203	3.15	0.002	0.361	0.203	1.78	0.076	1.43
Perception of Aboriginal-related community issues score	0.197	0.037	5.38	0.000	0.169	0.037	4.58	0.000	1.18
Marital status (reference category: married)									
Single	0.449	0.173	2.60	0.010	0.290	0.211	1.37	0.170	1.34
Separated	0.699	0.346	2.02	0.044	-0.104	0.450	-0.23	0.817	0.90
Divorced	0.810	0.230	3.53	0.000	0.473	0.257	1.85	0.065	1.61
Widowed	0.784	0.881	0.89	0.374	0.432	0.847	0.51	0.610	1.54
High mobility	0.736	0.147	4.99	0.000	0.577	0.169	3.41	0.001	1.78
Self-rated thriving health	-0.926	0.152	-6.11	0.000	-0.366	0.176	-2.08	0.038	0.69
Coping ability	-1.332	0.204	-6.52	0.000	-0.480	0.229	-2.10	0.036	0.62
Self-esteem score	-0.151	0.024	-6.27	0.000	-0.058	0.026	-2.19	0.029	0.94
Major depressive episode (MDE)	1.950	0.164	11.89	0.000	1.404	0.172	8.15	0.000	4.07

b - coefficient estimate, SE - standard error, t - t-statistic, p - p-value. p values <0.05 are shown in bold numbers, *adjusted for age, education and household income.

was a risk factor for SI among women, but not men (20). In contrast, among both Japanese men and women, “problem alcohol drinking” was associated with SI (73). Frequent consumption of alcohol is suggested to be more normative among males compared with females, and it may serve as a proxy for distress or comorbidity (71). However, the role of alcohol as a coping strategy may involve different mechanisms in males and females (74).

In the current study, low level of social support was associated with SI only in women. Similar findings have been previously reported. In the Finnish general

population, women, unlike men, with “adequate social support” were at lower risk of suicidality (72). Social support has previously also been shown to play a protective role against depression in women, but not in men (75–77). However, among Japanese working adults, social support, as measured by the number of confidants, was associated with lower odds of SI in both sexes (73).

Among Métis women who did not report MDE, higher levels of social support resulted in lower odds of SI. But this was not seen in those with MDE. Previous reports have suggested that individuals who recover from depression may be more receptive to support (78). Accordingly, it is plausible that Métis women without MDE are more receptive to social support or have more positive interactions, which, in turn, may have a significant effect on suicidal ideation.

The male-specific association between smoking and SI has not previously been reported, to our knowledge. While smoking has been shown to be associated with suicidality in many reports (19,79,80), others suggest that this association may be confounded by alcohol use, stress, depression or other factors (81–83). It is unclear if the association between SI and ever smoking in Métis men is the result of unaccounted confounding, and why this association is not observed in women.

Limitations

The outcome, SI, was not assessed using a validated scale such as the Beck Scale for Suicidal Ideation. Furthermore, the SI variables were unable to distinguish between transitory, and persistent and serious thoughts

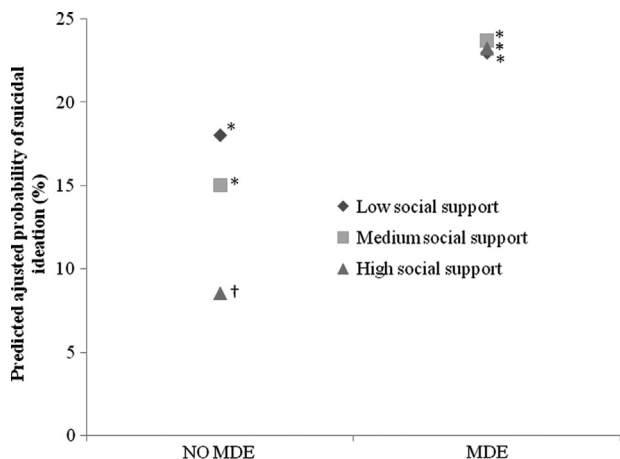


Fig. 1. Adjusted predicted probabilities of suicidal ideation among Métis adult women (20–59 years) with and without MDE by level of social support.

†Reference category, *statistically significant at p < 0.05.

of suicide that often lead to suicide attempts (44). The survey did not include explicit questions on the history of suicide attempts or other correlates of SI, such as hopelessness; life-stress; negative life events, including childhood physical and sexual abuse; impulsivity or aggression; substance misuse; several psychiatric disorders; resilience or buffering factors, such as future orientation and reasons for living. MDE assessment, while based on a validated instrument – the University of Michigan-Composite International Diagnostic Interview (Short form), was made using only two items from a larger battery (57). Other studies have reported assessing depression using instruments such as DSM-III (22) and DSM-IV-TR (84).

Some of the scales used in the study were not developed or validated using a Canadian and/or an Aboriginal sample, and thus may not reflect norms among Métis. In addition, the social support scale used here may not fully capture all its dimensions. Furthermore, we also attempted to identify associated risk and protective factors of life-time SI using variables that may not assess life-time prevalence for those factors; the influence of this is unknown. The previously reported protective influence of enculturation or cultural attachment on suicidality (85,86) was not examined here due to limitations of relevant variables in the survey.

The 2006 APS was a cross-sectional survey and measured exposures and outcomes at the same time (87) with no follow-up over time. As a result, no temporal associations or causality can be derived between the outcome variable and the associated risk factors. For example, the study was unable to determine if SI, in this context, was the result of low self-esteem, or if SI led to low self-esteem. This is further compounded by the fact that the outcome relates to lifetime experience of SI. Further, the study is based on self-reported data, which is susceptible to imperfect recall (84,88), social desirability and other sources of error. In particular, the limited validity of self-reported suicidal behaviour as a result of recall bias should be taken into consideration (89). Underreporting in the case of the outcome variable or notable correlates such as depression, alcohol use and smoking may attenuate or magnify the associations.

Conclusion

The higher prevalence of suicidal ideation among Métis women compared with Métis men and the observed gender differences in associations with some associated risk and protective factors suggest the need for gender-responsive programming to address suicidal ideation.

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