



Influence of Discrimination, Residential Schools and Cultural Disruption on Diabetes Prevalence among First Nations Adults

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Background:

- Indigenous peoples in Canada are experiencing an epidemic of diabetes and its complications
- Known diabetes predictors include increasing age, female sex, obesity and exposure to diabetic pregnancies
- Social determinants of health are also important diabetes predictors but little is known about the contribution of factors related to colonization.

Aims:

- To investigate the influence of discrimination, residential school attendance and cultural disruption on diabetes prevalence among adults in two Saskatchewan First Nations communities while adjusting for known diabetes risk factors.

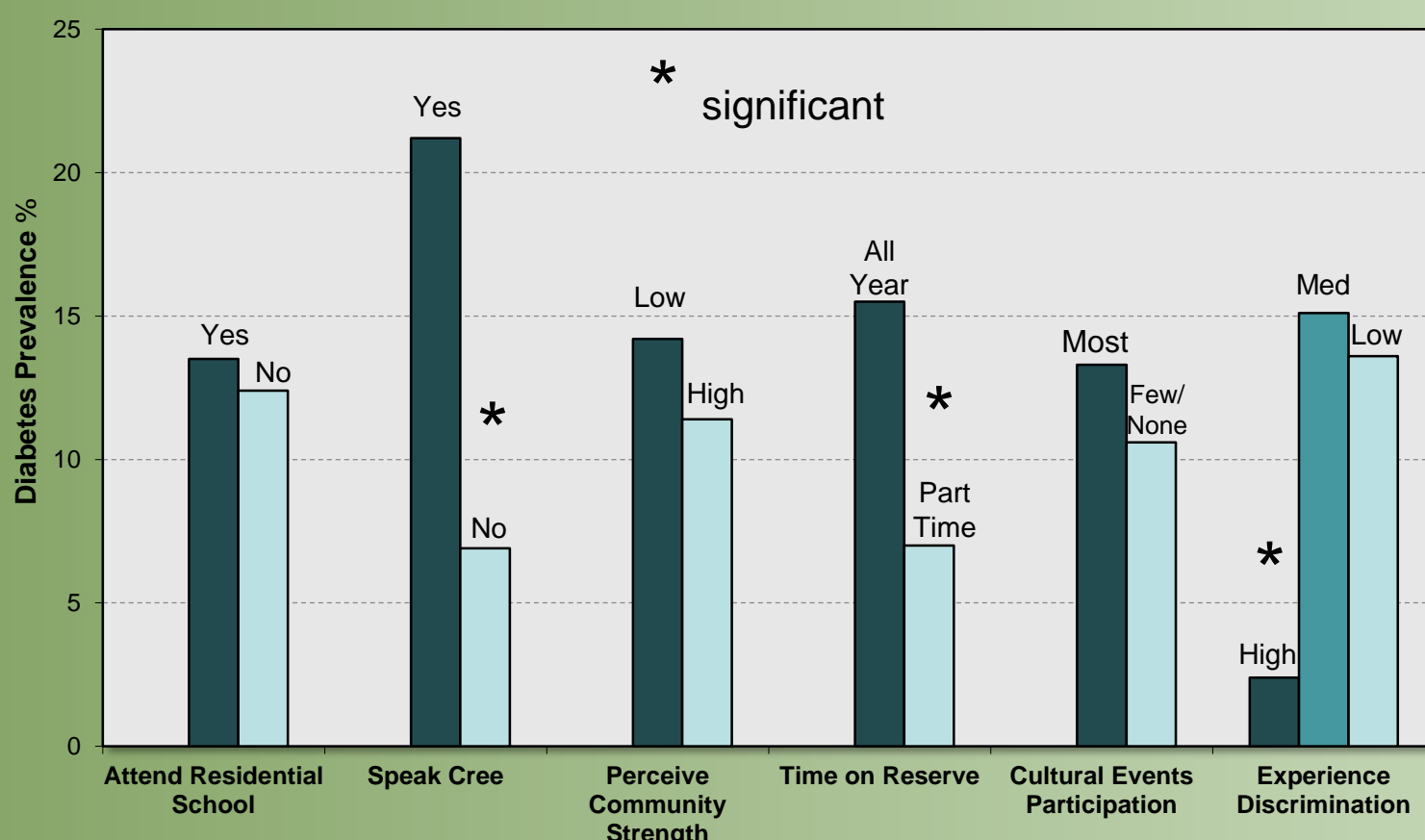
Methods:

- 2012-2013 cross-sectional survey conducted as part of CIHR funded First Nations Lung Health Project
- Community-Based Participatory Research approach
- Modified Krieger scale used to evaluate discrimination.
- Chi-square tests to determine univariate associations between diabetes prevalence and independent variables.
- Multilevel logistic modeling approach to adjust for covariates of interest and to examine possible interactions.

Univariate Associations between Diabetes and Individual Characteristics

Parameter	Diabetes Prev (%)	Odds Ratio (95% CI)	Parameter	Diabetes Prev (%)	Odds Ratio (95% CI)
SEX			BODY MASS INDEX		
Female	15.8	1.73 (1.16, 2.58)	Obese	23.8	14.5 (6.09, 34.61)
Male	9.7	1.00 (ref)	Overweight	11.2	5.86 (2.40, 14.35)
			Normal	2.1	1.00 (ref)
AGE			ABDOMINAL GIRTH		
50+ years	32.6	13.5 (7.27, 24.98)	High risk	19.2	8.50 (4.06, 17.79)
40-49 years	17.0	5.63 (2.79, 11.35)	Not available	16.1	5.73 (2.35, 13.97)
30-39 years	10.9	3.39 (1.69, 6.78)	Low risk	2.7	1.00 (ref)
17-29 years	3.6	1.00 (ref)			
MARITAL STATUS			SMOKING STATUS		
Single	8.4	0.47 (0.31, 0.74)	Current smoker	10.9	0.53 (0.30, 0.95)
Divorced/separated/widowed	29.8	2.19 (1.21, 3.94)	Ex-smoker	20.2	1.10 (0.56, 2.15)
Married/common law	16.3	1.00 (ref)	Never Smoker	18.6	1.00 (ref)
EDUCATION			ALCOHOL INTAKE		
Less than high school	12.8	0.99 (0.66, 1.49)	Regular (1+ day/wk)	8.8	0.58 (0.35, 0.98)
High school or higher	12.9	1.00 (ref)	Never or not regular	14.2	1.00 (ref)
HOUSEHOLD INCOME			EXERCISE		
\$0- \$9,999	12.2	0.92 (0.55, 1.56)	Yes	11.9	0.78 (0.51, 1.19)
\$10,000- \$19,999	12.6	0.96 (0.49, 1.85)	No	14.9	1.00 (ref)
Refused/Not stated	13.2	1.01 (0.60, 1.69)			
\$20,000+	13.0	1.00 (ref)	HOUSE NEED REPAIR		
EMPLOYMENT STATUS			Yes, major repairs	15.7	1.66 (1.00, 2.74)
Employed (full/part/student)	9.6	1.00 (ref)	Yes, minor repairs	12.5	1.28 (0.72, 2.25)
Retired/homemaker/disabled	20.2	2.38 (1.41, 4.04)	No, regular maintenance	10.4	1.00 (ref)
Unemployed	11.6	1.23 (0.74, 2.04)			

Univariate Associations between Diabetes and Factors Related to Colonization



Study Population

Parameters	Number	%
Eligible Households	580	-
Participating	406	70
Eligible Adults	1570	-
Participating	874	55.7
Men	431	49.3
Women	443	50.7
Self-reported Diabetes	112	12.8
Men	42	9.7
Women	70	15.8

Multivariate Logistic Regression - ORs of Diabetes Risk

Model with BMI			Model without BMI		
Parameter	Odds Ratio (95% CI)	P value	Parameter	Odds Ratio (95% CI)	P value
SEX			SEX		
Female	1.21 (0.78, 1.88)	0.397	Female	1.54 (1.00, 2.38)	0.050
Male	1.00 (ref)		Male	1.00 (ref)	
AGE			AGE		
50+ years	8.72 (4.62, 16.46)	<0.0001	50+ years	12.82 (6.94, 23.67)	<0.0001
40-49 years	3.62 (1.78, 7.35)	<0.0001	40-49 years	5.15 (2.58, 10.27)	<0.0001
30-39 years	2.44 (1.19, 4.99)	0.015	30-39 years	3.28 (1.63, 6.58)	0.001
17-29 years	1.00 (ref)		17-29 years	1.00 (ref)	
BODY MASS INDEX					
Obese	8.97 (3.58, 22.52)	<0.0001			
Overweight	3.86 (1.51, 9.87)	0.005			
Normal	1.00 (ref)				
DURATION ON RESERVE (past yr)			DURATION ON RESERVE (past yr)		
All 12 months	1.69 (0.96, 2.97)	0.068	All 12 months	1.83 (1.05, 3.18)	0.032
< 12 months	1.00 (ref)		< 12 months	1.00 (ref)	
EXPERIENCED DISCRIMINATION?			EXPERIENCED DISCRIMINATION?		
High (8-11)	0.11 (0.02, 0.54)	0.007	High (8-11)	0.12 (0.03, 0.54)	0.006
Moderate (4-7)	1.23 (0.70, 2.16)	0.464	Moderate (4-7)	1.24 (0.73, 2.13)	0.428
Little (0-3)	1.00 (ref)		Little (0-3)	1.00 (ref)	

Summary

- Higher diabetes prevalence in two Saskatchewan First Nations communities was significantly related to known diabetes risk factors including female sex, increasing age and increased measures of adiposity.
- Elevated diabetes risk among First Nations women was at least partly due to increased adiposity.
- Those living on-reserve full time experienced elevated diabetes risk.
- Using this methodology, residential school attendance was not a predictor of individual-level diabetes risk and measures of cultural continuity did not protect against diabetes occurrence.
- An unexpected finding was that those experiencing the highest levels of discrimination had the lowest prevalence of diabetes.
 - These individuals were more likely to be employed or students, married and to have higher incomes.

Discussion

- Impact of residential school attendance may be so pervasive within First Nations Communities that it is not possible to demonstrate differences in individual-level diabetes risk between those directly affected or not.
- High levels of discrimination more likely to be experienced off-reserve and our findings may relate to improved social determinants of health. **However**, while engagement with off-reserve society may reduce diabetes risk in some way, it appears to come at a high emotional cost.

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