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ORIGINAL PAPER

Immigrant Density, Sense of Community Belonging, and Suicidal Ideation Among Racial Minority and White Immigrants in Canada

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Abstract Immigrants represent a substantial proportion of suicides in Canada. This study assesses the hypothesis that high immigrant density fosters personal sense of community belonging among immigrants, and in turn, protects against suicide risk. This multilevel cross-sectional study is based on individual-level data from the 2007 Canadian Community Health Survey (n = 12,951 participants) merged with area-level data from the 2006 Canadian census (n = 57 health regions). Prevalence of suicidal ideation was 1.3 %. Among rural racial minority immigrants, each 10 % increase in immigrant density associated with 67 % lower odds of suicidal ideation (adjusted odds ratio (AOR) = 0.33, 95 % CI: 0.14–0.77); sense of community belonging did not mediate this association, but was independently associated with suicidal ideation (AOR = 0.44, 95 % CI: 0.28–0.69). Immigrant density was not associated with suicidal ideation among white immigrants or urban settings. Immigrant density and sense of community belonging may correlate with suicidal ideation through distinct mechanisms of association.

Keywords Canada · Immigrant · Suicidal ideation · Immigrant density · Race · Multilevel model

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Background

Suicide is a serious public health concern in Canada. Approximately 11.1 out of every 100,000 Canadians deliberately end their own lives each year, thus ranking suicide as the 10th leading cause of death in Canada [1]. Immigrants to Canada are generally at lower risk for suicide due partly to a "healthy migrant" effect [2], but the absolute burden of immigrant suicide may be growing. Due to the influx of immigrants to Canada [3], immigrants will likely represent a greater proportion of suicides. The percentage of immigrants in Canada is expected to increase from 20 % currently to ~ 25 % by the year 2031 [3]. Based on such projections and the most recent immigrant suicide rates (9.9 suicides per 100,000 persons) [2], immigrants will represent 20.4 % of all suicides in Canada by the year 2031.

Completed suicide is an inherently complex process, necessarily preceded by a self-inflicted injury with some intent to die (i.e., suicide attempt) and thoughts of ending one's own life (i.e., suicidal ideation). Although the vast majority of individuals who experience suicidal ideation do not progress to completed suicide [4, 5], suicidal ideation is a logical precursor to completed suicide, and therefore represents a critical opportunity for suicide intervention. Globally, approximately 30 % of people who experience suicidal ideation proceed to attempt suicide [4].

Conceptual framework

Risk for suicidal ideation can be conceptualized as the joint function of individual-level and area-level interactions [6]. Individual-level risk factors for suicidal ideation have previously been classified into three domains: personal

characteristics (e.g., male sex and ethnic minority cultural identity), negative life experiences (e.g., discrimination, medical problems, suicide in the family), and social support (e.g., close friends, family, and sense of community belonging) [7]. Essentially, personal characteristics initially condition susceptibility to suicidal ideation, and in the absence of appropriate social support, exposure to certain negative life experiences will ultimately trigger suicidal ideation. For immigrants, the post-migration process of resettlement can present an array of challenging negative experiences which may not be shared by most multi-generational native-born residents. Unique issues such as language barriers, acculturative stress, or cultural bereavement can be psychologically distressing for many immigrants [8–10], but must be confronted without the home country social support network. Mental health professionals of the host country can play a key supportive role in mitigating such psychological distress, though such services are often underutilized among immigrants [11, 12].

Invariably, these individual-level processes are also influenced by contextual area-level factors such as urbanization, community socioeconomic deprivation, and ethno-racial group density. The geographic density of one's own ethno-racial group has been linked to adverse mental health outcomes among certain ethno-racial groups in North America and Europe [13–16], though the mechanisms of association remain unclear. Neither racism nor social support appear to explain correlations between own-group density and adverse mental health outcomes among ethno-racial groups in England [14].

With respect to suicidal ideation among immigrants, area immigrant density is of particular relevance. In Canada, suicide among immigrants is higher in areas of low immigrant density [2], though it is unclear what accounts for this association. Conceivably, dense immigrant communities may offer its members better access to critical emotional, cultural, informational, and material resources that promote well-being and are protective against suicide risk. In his seminal study of suicide patterns, sociologist Emile Durkheim [17] argued that attachment to a group or community was protective against suicide because group membership helped one to maintain a sense of self-purpose and avoid anomie (i.e., a lack of normative regulation on one's own behaviors that resulted from being socially isolated). Low immigrant density has been linked to psychological distress among racial minority immigrants in Canada and the Netherlands [18, 19], but few if any studies have examined the effect of immigrant density on suicidal ideation, or tested the potential mediating factors by which immigrant density and suicidal ideation are hypothetically associated. One possible mediator of interest is sense of community belonging.

Sense of community belonging – the degree to which an individual feels attached to his/her local community – has been found to be highly correlated with measures of actual social network ties (particularly ties located within one's neighborhood and city/town) [20] and associated with lower odds of suicidality [21, 22]. Areas of high immigrant density may foster the establishment of community belonging for immigrants via neighborhood enclaves, ethnic-specific amenities, organizations, and formal services, as well as linkages to other broader networks – thereby promoting the mental well-being of immigrants. Conversely, sense of community belonging may be more difficult to achieve for immigrants that live in areas with a preponderance of native-born residents who may not share similar experiences, practices, or cultural values.

Nevertheless, evidence suggests that increases in general immigrant density may not exert a uniform effect on suicide risk factors for all immigrants. Low immigrant density is associated with depression for racial minority, but not white Canadians [23]. This disparity may be due to issues of racism and social integration. Compared to white immigrants, racial minority immigrants are consistently more likely to perceive discrimination or feel "uncomfortable or out of place in Canada" due to their racial/ethnic backgrounds [24]. Hence, living in a racially diverse area of high immigrant density may help to mitigate the effects of racism among racial minority immigrants.

Elucidating the relationship between immigrant density and suicidal ideation among immigrants may lead to more informed approaches to immigrant suicide prevention planning. This study investigates the potential association between immigrant density and suicidal ideation among racial minority and white Canadian immigrants, while specifically examining sense of community belonging as a mediating factor. Focusing on immigrant density in health regions, we test the following three multilevel hypotheses:

1. Higher immigrant density will be associated with lower odds of suicidal ideation.
2. Sense of community belonging will mediate the association between immigrant density and suicidal ideation.
3. Higher immigrant density will be more strongly associated with suicidal ideation among racial minority versus white immigrants.

Methods

Data sources

The multilevel data required for this study were obtained from two sources. Individual-level data were derived from

the 2007–2008 Canadian Community Health Survey (CCHS) [25] and linked to health region-level data derived from the 2006 Canadian Census [26]. Retrieval and analyses of these data were conducted in full compliance with the University of British Columbia's research ethics board guidelines.

The CCHS is a national survey conducted biennially and designed to yield probability samples representative at the health region level [25]. Canadian residents aged 12 and older and who are neither institutionalized nor living on aboriginal reservations are eligible for participation. Further details about the CCHS can be found at Statistics Canada [25]. The CCHS suicide module was administered to participants over 15 years old living in three Canadian provinces: Alberta, British Columbia, and Ontario.

Using area-level measures derived at the health region level is conceptually important for this research. Nationwide, Canada has 130 health regions defined by the provincial ministries of health and tasked with administering public health promotion programs and services [27]. Thus, health region-level characteristics are salient in considering availability of services and programs for our study sample as well as for health planning and policy in general.

Participants

Our study sample was restricted to foreign-born respondents (i.e., immigrants) who were administered the CCHS suicide module. Individuals with missing responses for sense of community belonging or suicidal ideation were excluded. Of the 13,378 immigrants who completed the suicide module and had responses for sense of community belonging and suicidal ideation, 427 (3.2 %) were excluded due to missing responses for race/ethnicity, recency of immigration, marital status, or education. Sensitivity analyses indicated that participants with missing responses for these confounder variables were slightly older than non-excluded participants, but otherwise comparable with respect to distribution of sex and prevalence of suicidal ideation. The final analytic sample comprised 12,951 respondents within 57 health regions.

Measures

Individual-level Measures

Our dependent variable was suicidal ideation, which was dichotomously coded based on whether a respondent seriously considered committing suicide in the previous 12 months.

Sense of community belonging was measured with a single item asking, "How would you describe your sense of belonging to your community?" Possible responses were "very strong," "somewhat strong," "somewhat weak," and "very weak." In order to ensure a sufficient number of outcomes for each category of the variable, we coded sense of community belonging as weak or strong. A prior validation study of this measure using Canadian national data found that it correlated with a range of measures of actual social network ties—and most strongly with measures focused on ties located within one's neighborhood and city/town [20].

Our analyses also include several individual-level sociodemographic confounders: sex, age, race/ethnicity, recency of immigration, marital status, and education (recognized correlates of suicidal behavior [7, 28] and/or sense of community belonging [29]). Race/ethnicity was categorized as white or racial minority, the only two racial/ethnic classifications available in the CCHS public dataset. Recency of immigration was a dichotomous variable coded using the only two categories available in the dataset: fewer than 10 years and more than 10 years. Marital status was classified as married/common-law, widowed/separated/divorced, and single/never married. Education measured the respondent's highest level of education using four categories ranging from "did not graduate from high school" to "college graduate." Annual household income was also considered as an indicator of socioeconomic status, but was ultimately excluded from the analyses because of excessive missing responses (15 % of the total sample). Sensitivity analyses revealed that prevalence of suicidal ideation and strong sense of community belonging was comparable between participants who did and did not report household income.

Area-level Measures

For each health region, we assessed immigrant density and three area-level confounders: median household income, residential stability (percentage of residents who lived at the same address five years ago), and population density. Immigrant density was calculated as the percentage of immigrants comprising a health region's total population. Similar to previous studies, immigrant density was assessed in units of 10 % [15, 23]. Median household income was assessed in units of CAD $10,000 and residential stability in units of 10 %.

Given some prior evidence of an association between urbanization and increased suicide rates [30, 31], we controlled for population density (population per square kilometer), which was Log(10) transformed due to its skewed distribution. No evidence of collinearity was detected among area-level variables that were used. Due to its strong correlation with immigrant density, racial minority density was not used (Pearson's $r = 0.96$), as, for the provinces included in this study, immigrants are

predominantly from countries of non-European and non-white background (e.g., China, India, Hong Kong, Philippines, Jamaica) [32].

Analysis

Due to the multilevel nature of our hypotheses and data (persons living within health regions) as well as the presence of significant variation in the odds of suicidal ideation between health regions ($p < .0001$), we conducted our analyses using two-level random intercept binary logistic models in the GLIMMIX procedure of SAS 9.2 (Cary, North Carolina). Individual-level and health region-level variables were modeled as fixed effects at levels 1 and 2 respectively, with a single random effect specified for the intercept to vary across health regions. All analyses were conducted using probability weights derived from the CCHS public dataset survey weights and statistical significance was based on p value < 0.05.

Results

Prevalence of suicidal ideation and strong sense of community belonging was 1.3 and 62.5 %, respectively. Additional descriptive findings for individual-level and area-level variables are respectively shown in Tables 1 and 2.

Multivariate Results

Is higher immigrant density associated with lower odds of suicide ideation and does sense of community belonging mediate this relationship? Table 3, Models 1–3 show results for tests of our first two hypotheses over three successive models, and indicates that immigrant density was not significantly associated with suicidal ideation. The inclusion of sense of community belonging (Model 3) indicated that weak belonging was associated with suicidal ideation (odds ratio (OR) = 1.68, 95 % CI: 1.24 to 2.27). However, the stability of the (non-significant) estimate for immigrant density in model 3 relative to models 1 and 2, indicated that mediation was not present. Also, though not shown, several individual-level confounding variables had (in Model 3) significant associations with suicidal ideation that were consistent with prior research [7] (e.g., widowed/separated/divorced vs. married/common-law (OR = 2.62, 95 % CI: 1.76 to 3.91)).

Next, we tested whether the previous results differed between white and racial minority immigrants (hypothesis 3). Models 4 and 5 show the results for models that specify a cross-level interaction term for area immigrant density and respondent race/ethnicity (The referent group was 'racial minority'). In Model 4, immigrant density is significantly inversely associated with suicidal ideation among racial minority immigrants, but this association is attenuated and loses significance in Model 5 after controlling for area-level confounders. The interaction term indicates that the effect of immigrant density on suicidal ideation significantly differed between white and racial minority immigrants. However, immigrant density was not significantly associated with suicidal ideation among white immigrants in any model (Model 4 unadjusted odds ratio (UOR) = 1.00, 95 % CI: 0.83 to 1.23). Controlling for sense of community belonging in Model 6, though once again showing a significant, inverse, independent effect on suicidal ideation (OR = 1.66, 95 % CI: 1.23 to 2.26), did not substantially impact the effect of immigrant density on suicidal ideation.

To evaluate the geographic consistency of our findings, we also conducted a stratified analysis by area-level urban/rural status. We used the OECD definition for rural

Table 1 Immigrants in Alberta, British Columbia, and Ontario, Canada: study participant characteristics (n = 12,951)

	n (weighted %)
Suicidal ideation	
Yes	189 (1.3)
No	12,762 (98.7)
Sense of community belonging	
Strong	8,547 (62.5)
Weak	4,404 (37.5)
Sex	
Male	5,809 (48.2)
Female	7,142 (51.9)
Age (years)	
15–24	875 (10.3)
25–39	2,606 (24.8)
40–54	2,932 (30.6)
55–69	3,696 (22.7)
70 or more	2,842 (11.8)
Race/ethnicity	
Racial minority	5,397 (57.8)
White	7,554 (42.2)
Education	
College graduate	7,748 (61.2)
Some college education	785 (6.8)
High school graduate	2,125 (16.5)
Did not graduate high school	2,293 (15.5)
Marital status	
Married or Common-law	8,015 (68.9)
Widowed, separated, or divorced	2,852 (12.4)
Single, never married	2,084 (18.7)
Recency of immigration to Canada	
Fewer than 10 years ago	2,388 (26.3)
Greater than 10 years ago	10,563 (73.7)

Table 2 Descriptive statistics of health regions in Alberta, British Columbia, and Ontario, Canada by urban/rural status (n = 57)

	Mean	Standard deviation	Minimum	Maximum
Total population (n = 57)	339,841	400,384	64,107	2,503,281
Rural regions (n = 43)	215,396	223,576	64,107	1,206,930
Urban regions (n = 14)	722,068	566,126	174,461	2,503,281
Percent immigrant density	16 %	13 %	3 %	57 %
Rural regions	11 %	5 %	3 %	28 %
Urban regions	34 %	13 %	18 %	57 %
Population per square kilometer	272	805	0.29	4508
Rural regions	25	35	0.29	147
Urban regions	1031	1402	192	4508
Median annual household income	$57,778	$10,427	$44,226	$104,447
Rural regions	$55,915	$9,483	$44,226	$104,447
Urban regions	$63,500	$11,446	$47,101	$83,496
Percentage who lived at the same				
Address 5 years ago	59	6	45	69
Rural regions	60	6	45	69
Urban regions	56	4	49	64

Table 3 Adjusted odds ratios (95 % confidence intervals) for suicidal ideation among immigrants in Alberta, British Columbia, and Ontario, Canada (n = 12,951 participants within 57 health regions)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Health region level						
Per 10 % increase in immigrant density	0.88 (0.74, 1.05)	0.93 (0.69, 1.27)	0.95 (0.70, 1.29)	0.75** (0.61, 0.93)	0.82 (0.60, 1.13)	0.84 (0.61, 1.15)
Per 1 unit increase in Log10(population density)		0.90 (0.59, 1.37)	0.88 (0.58, 1.35)		0.86 (0.57, 1.32)	0.85 (0.56, 1.29)
Per $10,000 increase in median household income		0.85 (0.67, 1.09)	0.85 (0.66, 1.08)		0.82 (0.64, 1.05)	0.82 (0.64, 1.04)
Per 10 % increase in proportion who lived at same address 5 years ago		0.89 (0.50, 1.57)	0.91 (0.52, 1.61)		1.00 (0.56, 1.76)	1.02 (0.58, 1.81)
Individual level						
Sense of community belonging						
Strong			1.00			1.00
Weak			1.68*** (1.24, 2.27)			1.66** (1.23, 2.26)
Race/ethnicity						
Racial minority	1.00	1.00	1.00	1.00	1.00	1.00
White	1.07 (0.76, 1.51)	1.07 (0.75, 1.51)	1.04 (0.74, 2.71)	0.65 (0.40, 1.07)†	0.62 (0.38, 1.03)†	0.62 (0.38, 1.02)†
Cross-level Interaction						
Per 10 % increase in immigrant density × race/ethnicity				1.33** (1.08, 1.65)	1.36** (1.10, 1.68)	1.35** (1.09, 1.67)
Variance between health regions (SE)	0.238 (0.123)	0.232 (0.130)	0.226 (0.128)	0.254 (0.128)	0.225 (0.130)	0.218 (0.127)

All models adjust for individual level sex, age, recency of immigration, marital status, and education. Area-level variables are mean centered

† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 4 Adjusted odds ratios (95 % confidence intervals) for suicidal ideation among immigrants in Alberta, British Columbia, and Ontario, Canada stratified by urban/rural status

	Rural health regions (n = 5,139 participants within 43 health regions)			Urban health regions (n = 7,812 participants within 14 health regions)		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Health region level						
Per 10 % increase in immigrant density	0.41*	0.33*	0.34*	0.89	1.27	1.28
	(0.20, 0.83)	(0.14, 0.77)	(0.15, 0.79)	(0.61, 1.30)	(0.82, 1.96)	(0.83, 1.97)
Per 1 unit increase in Log10(population density)		1.24	1.18		0.26**	0.25**
		(0.71, 2.14)	(0.69, 2.03)		(0.10, 0.66)	(0.10, 0.64)
Per $10,000 increase in median household income		0.68	0.68		0.73*	0.73*
		(0.42, 1.12)	(0.42, 1.10)		(0.55, 0.98)	(0.55, 0.97)
Per 10 % increase in proportion who lived at same address 5 years ago		0.74	0.79		1.07	1.07
		(0.35, 1.59)	(0.37, 1.68)		(0.40, 2.85)	(0.41, 2.79)
Individual level						
Sense of community belonging						
Strong			1.00			1.00
Weak			2.26***			1.44†
			(1.44, 3.54)			(0.96, 2.16)
Race/ethnicity						
Racial minority	1.00	1.00	1.00	1.00	1.00	1.00
White	0.20***	0.19***	0.19***	1.46	1.49	1.47
	(0.11, 0.39)	(0.10, 0.37)	(0.10, 0.37)	(0.87, 2.45)	(0.89, 2.49)	(0.88, 2.45)
Cross-level interaction						
Per 10 % increase in immigrant density × race/ethnicity	3.74**	4.24**	4.13**	1.07	1.07	1.06
	(1.69, 8.31)	(1.80, 9.98)	(1.76, 9.69)	(0.74, 1.56)	(0.74, 1.55)	(0.73, 1.54)
Variance between health regions (SE)	0.300	0.273	0.246	0.322	0.101	0.090
	(0.201)	(0.226)	(0.215)	(0.222)	(0.191)	(0.187)

All models adjust for individual level sex, age, recency of immigration, marital status, and education. Area-level variables are mean centered

† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

community, defined as communities with population densities less than 150 residents per square kilometer [33]. Prevalence of suicidal ideation was highest among rural racial minority immigrants (2.1 %), compared with urban racial minority immigrants (1.2 %), rural white immigrants (1.3 %), and urban white immigrants (1.5 %). Table 4 shows results of the same interaction models used in Table 3, but stratified by rural health regions (5139 participants in 43 regions) and urban health regions (7812 participants in 14 regions). Among rural regions, Model 2 indicates that for each 10 % increase in immigrant density, odds of suicidal ideation for racial minority immigrants significantly decreased by 67 % (95 % CI: 23–86 %). Including sense of community belonging in Model 3 did not substantially impact the magnitude of this association, thus implying no mediation. Among urban regions, immigrant density was not associated with suicidal ideation for racial minority or white immigrants (Model 4 UOR = 0.96, 95 % CI: 0.67 to 1.38). In urban regions, effect of immigrant density on suicidal ideation was not significantly different between whites and racial minorities.

Discussion

This study sought to test several a priori hypotheses regarding possible associations between health region-level immigrant density, personal sense of community belonging, and suicidal ideation among Canadian immigrants. Our analyses reveal three key findings.

First, stratified analyses revealed that within rural regions, immigrant density was associated with lower odds of suicidal ideation among racial minority immigrants, but not among white immigrants. These findings are consistent with prior work by Stafford et al. identifying an association between high immigrant density and lower odds of depression among Canadian racial minority (but not white) residents [23]. Given that immigrant density was strongly

correlated with racial minority density in our study, increased immigrant density may have protective health benefits for racial minority immigrants because of the concomitant increase in racial minority persons who may share similar cultural backgrounds.

Interestingly, significant associations between immigrant density and suicidal ideation were observed in rural, but not urban regions. One possible explanation is that greater access to mental health services in urban regions [34] may be obviating the effects of immigrant density on suicidal ideation. Under such circumstances, uptake of mental health services such as psychological counseling or psychiatric medication would effectively prevent the onset of suicidal ideation induced by low immigrant density. Additionally, some evidence suggests that racism may be more engrained and difficult to address in rural communities [35]. If this is true for Canada, then simultaneous protective effects of high immigrant and racial minority densities for racial minority immigrants may be more pronounced in rural regions, given that high ethnic density has been shown to buffer against racial discrimination [36]. Finally, the absence of an association between immigrant density and suicidal ideation among urban regions may also be due to the study's limited number of urban regions.

Second, contrary to what we hypothesized, sense of community belonging, though independently associated with lower odds of suicidal ideation, did not account for the significant associations between immigrant density and suicidal ideation. Several possible explanations exist. Given that sense of community belonging has been found to be most strongly associated with local network ties [20], it may be more influenced by factors located within one's neighborhood and surrounding area than the larger health region area. Nonetheless, the absence of mediation via sense of community belonging warrants considering other factors that may account for the association between health region immigrant density and suicidal ideation among racial minority Canadian immigrants — one of which may be racial discrimination. Research from England has shown that higher ethnic minority density is associated with weaker effects of racism on psychotic symptoms [14, 36]. The association between immigrant density and suicidal ideation may also be mediated by access to culturally sensitive mental health resources such as multi-lingual healthcare professionals, in which case, sense of community belonging may be less important. Evidence has shown that Canadian immigrants are more cognizant of and willing to access mental health resources when services are offered in their native language [37, 38]. Conceivably, availability of such suicidality prevention resources would be greater in areas of higher immigrant density.

Findings from this study may be instructive for future suicide prevention planning. To address suicidal ideation in rural regions of low immigrant density, primary care physicians can receive culturally sensitive training on how to recognize and address suicide risk factors among immigrant patients, particularly racial minority immigrants. Generally, primary care physician education has proven to be an effective means of suicide prevention and reaching at-risk populations [39], as approximately half of completed suicides occur within one month of contact with a primary care physician [40, 41]. Extremely small immigrant populations may complicate the provision of transcultural mental health services in rural areas of low immigrant density, but advances in internet videoconferencing theoretically enable healthcare providers and social workers to access the critical assistance of interpreters and intercultural mediators remotely. At the community level, concerted efforts to build an inclusive sense of community belonging among immigrants and non-immigrants alike may help to prevent onset of suicidal ideation, and by extension, completed suicide. Explicit models for building local sense of belonging have been promoted by the UK government [42], though the impact of such initiatives on suicidal ideation and suicide remains indeterminate.

Limitations and Strengths

Our study results should be interpreted in light of several limitations. First, the nature of the CCHS public dataset did not permit us to examine specific racial/ethnic groups or specific measures of social capital. Aggregating all immigrants into racial minority and white racial/ethnic groups attenuated effect sizes and masked ethnic group variation. Nonetheless, significant associations between immigrant density and suicidal ideation were still observed among racial minority immigrants. Likewise, sense of community belonging was the most refined measure available for assessing community ties, though has been shown to correlate with actual social ties and social capital [20].

Second, the cross-sectional nature of the data precluded causal inferences. In some instances, suicidal ideation may have preceded weak sense of community belonging, and persons at greater risk for suicidal ideation may have tended to settle in low immigrant density areas.

Third, the CCHS suicide module was only administered in three of Canada's ten provinces (Alberta, British Columbia, and Ontario). However, 82 % of all Canadian immigrants live in these three provinces [25], hence ensuring the sampling of a significant majority of the Canadian immigrant population.

Conclusion

Previous research has suggested an inverse association between immigrant density and suicidal ideation and that

this relationship may be mediated by the degree of social integration within a community. Our results do not support this theory, suggesting that sense of community belonging and immigrant density associate with suicidal ideation via distinct mechanisms of association. Future studies should examine how perceived racism, access to mental health services, and reverse causality may account for associations between immigrant density and suicidal ideation among rural racial minority immigrants. Longitudinal study designs are warranted.

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