


Suicidality in first-generation, second-generation and non-immigrant youth in Canada

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ABSTRACT

Background: The number of people migrating globally has drastically increased in the last two decades and continues to rise. Although adult migrants are typically in better health than the population they migrate to, the evidence regarding migrant children's health, and especially their mental health, is mixed.

Objectives: To assess whether the prevalence of suicidal ideation and suicide attempt differs between first- and second-generation immigrant youth, compared to non-immigrants, and whether other sociodemographic factors moderate any associations.

Methods: We analyzed a subsample of youth aged 15–17 years from the 2019 Canadian Health Survey on Children and Youth – a national, representative, cross-sectional survey. We conducted multivariable logistic regression analysis, with past-year suicidal ideation and suicide attempt as outcomes and migrant status as exposure. We also investigated whether sociodemographic factors (including sex, family income, parental divorce) moderated these associations using interaction terms.

Results: Second-generation immigrants had almost twice the risk of first-generation immigrants and non-immigrants of having attempted suicide (OR 1.68, 95%CI: 1.07, 2.63). The association between second-generation immigrant status and suicide attempt was stronger among those not from low-income households (OR 2.04, 95%CI: 1.30, 3.21) and those with divorced parents (OR 5.19, 95%CI: 1.41, 19.12). The association between second-generation immigrant status and suicidal ideation was stronger among males (OR 1.78, 95% CI: 1.04, 3.07) and those with divorced parents (OR 4.13, 95%CI 1.40, 12.14). Additionally, some effects among first-generation immigrants varied by time since arrival.

Relevance: The healthy immigrant effect with respect to suicidality does not appear to pass from the first-generation to the second-generation. The magnitude of effect among second generation immigrant youth varies according to other sociodemographic factors.

1. Introduction

The number of people moving across international borders globally has increased from 176 million in 2000 to 272 million in 2019 (Belmonte et al., 2020). In 2020, it was estimated that 40.9 million youth aged under 19 resided in a country other than the one where they were born (United Nations, 2024). International migration is predicted to increase due to the persistence and intensification of several drivers of migration such as economic pressures, changing age structures, population growth, urbanization and environmental stress (National Intelligence Council, 2021).

The health profile of migrants is typically different than that of the population they are migrating to. Despite the fact that migrants are often at a socioeconomic disadvantage compared to the native population, they are usually healthier than the native population of the country to which they immigrate (Athari, 2020; Feliciano, 2005). This paradox is often referred to as the Healthy Immigrant Effect (HIE) (Athari, 2020; Feliciano, 2005). It has been attributed to the fact that migrants are not a randomly selected sample of the country they are migrating from, but are rather a select group of wealthier, healthier and more educated individuals than the population they are leaving (Feliciano, 2005; Vang et al., 2017).

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Despite this self-selection, migration is a psychologically challenging experience (Bustamante et al., 2017). Hence, several studies have sought to investigate whether the healthy immigrant effect applies to mental health outcomes (Elshahat et al., 2022; Lee, 2019). Although migration is a well-established risk factor for psychotic disorders, the evidence for other mental disorders is less consistent: some studies have found that symptoms of psychological distress, depression, anxiety and personality disorders are less common among immigrants, while others have found that there some migrant groups might be at a higher risk, or that there may not be a significant difference between immigrant and non-immigrant groups (Elshahat et al., 2022; Selten et al., 2020; Mindlis and Boffetta, 2017). Fewer studies have considered the effect of migrant status on suicidal behaviours. Of those that have, some evidence suggests that immigrants may be at a higher risk for suicidal ideation, but at a lower risk of suicide attempt and completed suicides (Borges et al., 2009; Forte et al., 2018; Donath et al., 2019).

The migratory experience differs between adults and children. Children and adolescents are more vulnerable due to their dependence on others and lack of cognitive development and knowledge to navigate the migration process (Guarnaccia and Lopez, 1998). Moreover, since the migration decisions are made by the parents, the same selection mechanisms that are hypothesized to support the healthy immigrant effect may not apply to youth (Vang et al., 2017). Accordingly, the HIE effect has not been consistently observed in the early life course (Vang et al., 2017; Siddiqi et al., 2013; Newbold and Filice, 2006). For example, first-generation migrant children in Ontario, Canada were found to exhibit more signs of psychological distress than their Canadian-born counterparts, though illicit drug use did not differ by migrant status (Hamilton et al., 2009). Immigrant youth have also been found to have higher suicide rates than non-immigrant counterparts (Forte et al., 2018).

Children face different challenges depending on their generation of migration as well. For example, because of their unique position between the immigrant generation and native-born peers, second-generation youth may experience multiple social reference groups, causing conflicts and internal struggles about their identity (Wolf, 1997; Portes and Rumbaut, 2001; Zhou, 1997). Additionally, the socioeconomic disadvantage that parents often face as immigrants can also have cumulative effects that contribute to poorer health outcomes for second generation migrant children (Zhang et al., 2019). Accordingly, studies have found children from immigrant families to be in worse physical health than their non-immigrant counterparts (Huang et al., 2006). Second generation youth have also been shown to be at a disadvantage compared to non-immigrant counterparts when it comes to mental health (Lee, 2019; Montazer and Wheaton, 2011). In particular, some studies have suggested that suicidality may vary based on migrant generational status (Hansson et al., 2012; Bursztein Lipsicas and Henrik Mäkinen, 2010).

However, these studies tended to focus on a single ethnic group, or compared one generation of migrants to another, with no comparison to native populations (Hansson et al., 2012; Bursztein Lipsicas and Henrik Mäkinen, 2010). For example, Peña et al. showed that the rates of suicide attempts among Latino youth in the US were lower for first-generation immigrants compared to second-generation immigrants, but did not consider other ethnic groups or make comparisons with non-migrants (Peña et al., 2008). Likewise, Aubert et al. found that Chinese-Canadians reported higher levels of suicidality compared to other Canadians (Aubert et al., 2004). Another example is a study conducted by Burger et al. in the Netherlands, which compared suicide attempts between migrants of different origins and suicide attempts among the native population, but could not stratify these results by generation of migration (Burger et al., 2009).

Several variables have been identified in the literature as potentially confounding the association between generation of migration and mental health. Sociodemographic variables such as sex, age, minority status and income are all commonly included in mental health and

migrant health studies (Hansson et al., 2012; Bursztein Lipsicas and Henrik Mäkinen, 2010). In addition to this, family factors such as parental relationship have also been identified as differing by migrant status and influencing suicidal behaviour (Ponnet et al., 2005; Dronkers and Kalmijn, 2013; Svedin et al., 1994; Nesteruk, 2018; Hua et al., 2020). Migrant children also experience different social environments, including social factors such as parental connectedness, self-determination and bullying, which also influence suicidal outcomes (Stevens and Vollebergh, 2008; Morales, 2020; Nuñez-Fadda et al., 2022; Conner et al., 2016; Hill and Pettit, 2013; Consoli et al., 2015). Using substances such as cannabis and alcohol is also known to vary by generation of migration and to influence suicidal behaviour, indicating their importance in the relationship between migration status and suicidality (Borges et al., 2009; Hjerm and Allebeck, 2002; Salas-Wright et al., 2014; Pompili et al., 2010).

The purpose of the present study was therefore to assess the risk of suicidal ideation and suicide attempt among first-generation and second-generation immigrant adolescents in Canada as compared to their non-immigrant peers, adjusting for sociodemographic confounders, social factors and substance use. As a secondary objective, we examined whether associations between migrant status and suicidal ideation and suicide attempt differ between subgroups by assessing effect modification.

2. Materials and methods

2.1. Data source and participants

The data source for this study was the 2019 Canadian Health Survey on Children and Youth (CHSCY), which collected data from a sample of Canadians aged 1 to 17 years old living in private dwellings in the ten provinces and three territories, excluding those living on First Nations reserves and other Indigenous settlements in the provinces, in foster homes and institutions (Statistics Canada, 2023). Since suicidality was only assessed among respondents aged between 15 and 17, only respondents in this age group were included in the analytic sample.

Information about the exposure and outcome of interest were collected through self-report questionnaires that were filled out by the respondents themselves or the person most knowledgeable (PMK) in the household, who is most often a parent. Questions relating to suicide were asked directly to the youth, while questions about immigration were asked to the PMK. Weights were assigned to each respondent by Statistics Canada to ensure that the data obtained from this sample were representative of the target population.

The survey had a 52% response rate out of the 92,172 children and youth who were sampled (Statistics Canada, 2023; Wang et al., 2023). For the purposes of this study, only cases where the PMK was their biological parent (over 96% of cases) were included in order to be able to trace back migration generation. The total sample that met the inclusion criteria for this study was 6595.

2.2. Variables

2.2.1. Suicidality measures

Two dichotomous outcome variables were created based on adolescents' self-reports of previous-year suicidal ideation (yes/no) and lifetime suicide attempt (yes/no). Participants responded to the questions "In the past 12 months, did you ever seriously consider attempting suicide or taking your own life" and "Have you ever attempted suicide or tried taking your own life".

2.2.2. Migration status measures

Migrant status was assessed based on questions relating to whether the youth or PMK was born in Canada. The exposures of interest were whether the youth were a first-generation immigrant, a second-generation immigrant or neither. If the youth themselves identified as

being a landed immigrant, they were categorized as being a first-generation immigrant. If they did not identify as being a landed immigrant, but either their PMK or the PMK’s spouse did, they were categorized as being a second-generation immigrant. If neither the adolescent, the PMK, nor the PMK’s spouse was a landed immigrant, the adolescent was categorized as being a non-immigrant.

2.2.3. Covariates

Socio-demographic covariates considered in the analysis included sex, age and family history (3 dichotomous variables indicating whether they were raised in a single parent family, whether they experienced the death of a sibling or parent, and whether they experienced divorce of a parent). We derived visible minority status from the parent-reported population group of their child (White, South Asian, Chinese, Black, Filipino, Arab, Latin American, Southeast Asian, West Asian, Korean, Japanese, other). We considered parent-reported family incomes below Can\$40 000, before taxes and deductions, as low income, reflecting Canada’s average official poverty line based on a family of 2 adults and 2 children (Kingsbury et al., 2022; Statistics Canada, 2016).

Social factors included level of parental connectedness (based on 5 questions scored out of 5, which were summed and divided to create a categorical variable with 3 levels: low, medium and high) and self-determination. Self-determination among youth was based on 6 questions about autonomy, 6 about relatedness and 6 about competence as defined by the self-determination theory, with scores for each set of 6 questions summed and divided to create low/high categories for 3 corresponding variables (Ryan and Deci, 2017). Self-determination theory argues that goal directed behaviours are driven by 3 innate psychological needs: autonomy, that is the need to feel ownership of one’s behaviour, competence, that is the need to produce desired outcomes and to experience mastery, and relatedness, that is the need to feel connected to others. Satisfying these three needs results in higher levels of motivation (Ryan and Deci, 2017; Wang et al., 2019). Adolescents were asked about their experiences with bullying and cyberbullying in the previous 12 months. Response options for each item ranged from 1 (never) to 5 (daily). If they responded anything but never to all the questions about bullying, they were categorized as “Yes” for the bullying variable. The same process was repeated for questions related to cyberbullying.

Alcohol use was assessed using a question about any past 30-day alcohol consumption (yes/no). Cannabis use was assessed using a question about any past 90-day cannabis use (yes/no).

2.3. Data analyses

Proportions of first-generation and second-generation youth experiencing suicidal ideation and with past suicide attempts was compared to non-immigrant youth using Chi Square tests of independence. Logistic regression models were used to obtain odds ratios and 95% confidence intervals for the outcome of interest. Sex, age, minority status, income, family history (living situation, parental marital status, death of a loved one), social factors (parental connectedness, competence, relatedness, autonomy, bullying, cyberbullying) and substance use (alcohol and cannabis) were included as main effects, and covariates that differed between exposed and unexposed groups based on the Chi square test of independence were tested as effect modifiers using maximum likelihood estimates. Complex survey design was adjusted for by reporting weighted percentages and odds ratios (ORs), including bootstrap weights. Subgroup analysis was also used to compare the magnitude of effect within the different strata of effect modifiers identified. We conducted sensitivity analyses by further stratifying first-generation migrants into recent migrants (5 years or less since migration), and non-recent migrants (over 5 years since migration).

Findings are presented with both non-immigrant and first-generation immigrant youth as reference groups in order to have a clear comparison between first and second-generation immigrant youth.

3. Results

3.1. Sample characteristics

Of the 6595 adolescents included in the study, 16.0% were first-generation immigrants and 19.2% were second-generation immigrants

Table 1
Characteristics of respondents (aged 15–17) of the 2019 Canadian Health Survey on Children and Youth.

Variable	Total (%) (N = 6595)	Non-Immigrant (%)	First Generation (%)	Second Generation (%)	p-value
Suicidal Ideation					0.0459
No	85.9	85.3	89.2	85.4	
Yes	14.1	14.7	10.8	14.6	
Past Suicide Attempt					0.0186
No	93.2	93.0	95.8	91.9	
Yes	6.8	7.0	4.2	8.1	
Sex					0.4459
Male	51.0	50.7	53.3	50.0	
Female	49.0	49.3	46.7	50.0	
Age					0.9930
15	35.6	35.8	35.2	35.2	
16	33.9	33.6	34.6	34.2	
17	30.5	30.6	30.2	30.6	
Minority status					<0.0001
No	68.4	89.2	19.3	39.4	
Yes	31.6	10.8	80.7	60.6	
Two-parent household					<0.0001
No	25.2	32.0	26.7	1.0	
Yes	74.8	68.0	73.3	99.0	
Parents divorced					<0.0001
No	74.2	66.4	83.1	93.1	
Yes	25.8	33.6	16.9	6.9	
Death of close family member					<0.0001
No	95.0	94.6	92.3	98.4	
Yes	5.0	5.4	7.7	1.6	
Conversation with parents					0.04
High	31.9	32.6	28.5	32.4	
Medium	60.2	60.4	61.4	58.3	
Low	7.9	7.0	10.1	9.2	
Income					<0.0001
High	83.9	86.1	71.2	86.9	
Low	16.1	13.9	28.8	13.1	
Bullying					0.0001
No	30.8	28.7	37.3	32.3	
Yes	69.2	71.3	62.7	67.7	
Cyberbullying					<0.0001
No	72.8	69.9	80.1	76.4	
Yes	27.2	30.1	19.9	23.6	
Cannabis					<0.0001
No	86.3	82.9	95.1	90.2	
Yes	13.7	17.1	4.9	9.8	
Alcohol					<0.0001
No	81.5	75.6	93.1	91.8	
Yes	18.5	24.4	6.9	8.2	
Autonomy					0.18
No	2.8	3.1	2.3	1.9	
Yes	97.2	96.9	97.7	98.1	
Related					0.31
No	1.4	1.5	1.7	0.8	
Yes	98.6	98.5	98.3	99.2	
Competence					0.78
No	2.4	2.4	2.6	2.0	
Yes	97.6	97.6	97.4	98.0	

(Table 1). We found that 14.7% of non-immigrants, 10.8% of first-generation immigrants and 14.6% of second-generation immigrants reported experiencing past-year suicidal ideation. In addition, 7% of non-immigrants, 4.2% of first-generation immigrants, and 8.1% of second-generation immigrants reported lifetime suicide attempt.

3.2. Multivariable logistic regression examining the association between generation of migration and suicidal behaviours

In unadjusted models, second-generation youth had higher odds of suicidal ideation (OR 1.41, 95% confidence interval [CI]: 1.02, 1.96) and of lifetime suicide attempt (OR 2.01, 95% CI: 1.20, 3.34) compared to first-generation immigrant youth. In adjusted models, second-generation migrant youth had higher odds of lifetime suicide attempt compared to non-immigrant youth (OR 1.68, 95% CI: 1.07, 2.63; Table 2), as well as compared to first-generation immigrant youth (OR 1.95, 95% CI: 1.12, 3.39).

The effect modifiers identified for the association between generation of migration and suicidal outcomes were parental separation or divorce, income and sex (Table 3). Among youth who had experienced the separation or divorce of a parent, second-generation immigrants had higher odds of suicidal ideation (OR 4.13, 95% CI: 1.40, 12.14) and suicide attempt (OR 5.19, 95% CI: 1.41, 19.12) compared to first-generation immigrant youth. This association was not observed among those whose parents had not separated or divorced. Among males, second-generation immigrant youth had higher odds (OR 1.78, 95% CI: 1.04, 3.07) of suicidal ideation compared to first-generation immigrants. This association was not observed among females. Finally, among those who were not from low-income families, second-generation immigrant youth had higher odds (OR 2.04, 95% CI: 1.30, 3.21) of suicide attempts compared to non-immigrants. This association was not observed among those with low family incomes.

3.3. Sensitivity analyses

3.3.1. Recent migrants

Of the 6595 youth included in the present study, 5.1% were recent migrants (arrived in previous 5 years), and 11.0% were non-recent first-generation immigrants.

Second-generation migrant youth had higher odds of suicidal ideation (OR 2.11, 95% CI: 1.14, 3.90) compared to recent migrants (Table 4). Parental divorce or separation was identified as an effect modifier of the association between generation of migration and suicidal ideation (Table 4).

Among children who had not experienced separation or divorce of a

Table 2

Multivariable logistic regression models of suicidal ideation and past suicide attempt by migrant status.

Migrant Status	Suicidal Ideation	Suicide Attempt
<i>Crude Model</i>		
Non-Immigrant	Ref	Ref
First Generation	0.70 (0.53, 0.94)	0.58 (0.38, 0.89)
Second Generation	1.00 (0.79, 1.26)	1.17 (0.83, 1.65)
First Generation	Ref	Ref
Non-Immigrant	1.42 (1.06, 1.90)	1.71 (1.12, 2.63)
Second Generation	1.41 (1.02, 1.96)	2.01 (1.20, 3.34)
<i>Adjusted Model¹</i>		
Non-Immigrant	Ref	Ref
First Generation	0.87 (0.59, 1.27)	0.86 (0.50, 1.49)
Second Generation	1.16 (0.86, 1.58)	1.68 (1.07, 2.63)
First Generation	Ref	Ref
Non-Immigrant	1.15 (0.79, 1.70)	1.16 (0.67, 2.00)
Second Generation	1.34 (0.93, 1.94)	1.95 (1.12, 3.39)

¹ : adjusted for sex, age, minority status, family history, income, bullying, cyberbullying, social factors (parental connectedness, relatedness, autonomy, competence) and substance use.

Table 3

Multivariable logistic regression models of suicidal ideation and past suicide attempt by migrant status with stratification by effect modifiers.

Migrant Status	Suicidal Ideation	Suicide Attempt
<i>Experienced Parental Separation or Divorce¹</i>		
Non-Immigrant	Ref	Ref
First Generation	0.37 (0.16, 0.86)	0.38 (0.12, 1.17)
Second Generation	1.51 (0.67, 3.39)	1.98 (0.76, 5.12)
First Generation	Ref	Ref
Non-Immigrant	2.73 (1.16, 6.43)	2.62 (0.85, 8.05)
Second Generation	4.13 (1.40, 12.14)	5.19 (1.41, 19.12)
<i>No Parental Separation or Divorce¹</i>		
Non-Immigrant	Ref	Ref
First Generation	1.09 (0.71, 1.68)	1.09 (0.57, 2.09)
Second Generation	1.22 (0.86, 1.73)	1.66 (0.97, 2.85)
First Generation	Ref	Ref
Non-Immigrant	0.92 (0.59, 1.41)	0.92 (0.48, 1.77)
Second Generation	1.12 (0.75, 1.67)	1.53 (0.82, 2.85)
<i>Low Income²</i>		
Non-Immigrant	Ref	Ref
First Generation	0.40 (0.16, 1.01)	0.16 (0.02, 1.19)
Second Generation	1.31 (0.44, 3.89)	0.22 (0.03, 1.44)
First Generation	Ref	Ref
Non-Immigrant	2.48 (0.99, 6.24)	6.14 (0.84, 44.80)
Second Generation	3.25 (0.90, 11.68)	1.35 (0.12, 15.35)
<i>Regular Income²</i>		
Non-Immigrant	Ref	Ref
First Generation	1.07 (0.71, 1.62)	1.21 (0.68, 2.17)
Second Generation	1.21 (0.88, 1.68)	2.04 (1.30, 3.21)
First Generation	Ref	Ref
Non-Immigrant	0.94 (0.62, 1.42)	0.82 (0.46, 1.47)
Second Generation	1.14 (0.77, 1.68)	1.68 (0.94, 3.00)
<i>Males³</i>		
Non-Immigrant	Ref	Ref
First Generation	0.80 (0.47, 1.37)	NA
Second Generation	1.43 (0.87, 2.35)	NA
First Generation	Ref	Ref
Non-Immigrant	1.25 (0.73, 2.14)	NA
Second Generation	1.78 (1.04, 3.07)	NA
<i>Females³</i>		
Non-Immigrant	Ref	Ref
First Generation	0.91 (0.53, 1.55)	NA
Second Generation	1.00 (0.68, 1.47)	NA
First Generation	Ref	Ref
Non-Immigrant	1.10 (0.65, 1.88)	NA
Second Generation	1.10 (0.65, 1.86)	NA

¹ : adjusted for sex, age, minority, family history (except parental separation or divorce), income, bullying, cyberbullying, substance use and social factors.

² : adjusted for sex, age, minority, family history, bullying, cyberbullying, substance use and social factors.

³ : adjusted for age, minority, family history, income, bullying, cyberbullying, substance use and social factors.

parent, those who were non-recent first-generation immigrant youth had higher odds (OR 2.19, 95% CI: 1.03, 4.68) of suicidal ideation compared to recent migrants. This association was not observed among those who had experienced separation or divorce of parents.

We completed an additional analysis investigating whether there were differences between those with one immigrant parent and those with two immigrant parents (among second generation participants). No differences were observed (data not shown).

4. Discussion

This large, population-based study demonstrated that second-generation immigrant youth had almost twice the risk of attempted suicide in the past 12 months, relative to both first-generation immigrants and non-immigrants. This association between second-generation immigrant status and suicide attempt was stronger among youth who were not from low-income households relative to non-immigrants, and among those with parents who were separated or divorced relative to first-generation immigrants. The association between second-generation immigrant status and suicidal ideation was significant among males and

Table 4
Sensitivity analysis with first-generation stratified into recent and non-recent migrants.

Migrant Status	Suicidal Ideation	Suicide Attempt
<i>Adjusted Model¹</i>		
First Generation (<5)	Ref	Ref
Non-Immigrant	1.82 (0.97, 3.44)	1.08 (0.46, 2.52)
First Generation (>5)	1.87 (0.98, 3.56)	0.90 (0.35, 2.32)
Second Generation	2.11 (1.14, 3.90)	1.81 (0.81, 4.06)
<i>Experienced Parental Separation or Divorce²</i>		
First Generation (<5)	Ref	Ref
Non-Immigrant	2.29 (0.55, 9.60)	NA
First Generation (>5)	0.72 (0.14, 3.64)	NA
Second Generation	3.48 (0.75, 16.23)	NA
<i>No Parental Separation or Divorce²</i>		
First Generation (<5)	Ref	Ref
Non-Immigrant	1.69 (0.80, 3.60)	NA
First Generation (>5)	2.19 (1.03, 4.68)	NA
Second Generation	2.05 (0.98, 4.31)	NA

¹ : adjusted for sex, age, minority status, family history, income, social factors and substance use.

² : adjusted for sex, age, minority status, family history (except parental separation or divorce), income, bullying, cyberbullying, social factors and substance use.

those with parents who were separated or divorced relative to first-generation immigrants. Additional analyses suggested that differences among second-generation immigrants were more pronounced when compared to recent first-generation youth (i.e., arrived in the last five years).

Previous studies have also showed that second-generation immigrant youth are at a higher risk for suicide attempt compared to first-generation immigrants. Peña et al. found that among US Latino youth, second-generation immigrants had higher rates of suicide attempts compared to first-generation immigrants (Peña et al., 2008). Additionally, another study conducted in Sweden found that second generation immigrants are at a higher risk of death by suicide compared to the native population (Hjern and Allebeck, 2002). These results could be explained by the fact that while first-generation immigrants are typically healthier due to the selection required to undertake the immigration process, members of the second generation are unlikely to be selected in this way (Hjern and Allebeck, 2002). They may also face the compounded effect of immigrants typically having lower SES compared to the native population, and the negative health effects of discrimination against ethnic minorities (De Maio and Kemp, 2010; Kazemipur and Halli, 2001).

Our results also showed that among youth who were not from low-income households, the association between second-generation immigrant status and suicide attempt was stronger relative to non-immigrants. A study conducted by McMillan et al. found that the association between income and suicidality can vary by ethnicity (McMillan et al., 2010). The distribution of ethnic groups among different income categories is not homogenous, and this may have contributed to our observed effect (Statistics Canada, 2021).

Our results also showed that the association between second-generation immigrant status (vs. first-generation) and suicidal ideation was significant among males, but not among females. Second-generation immigrant boys, but not girls, are more likely than first-generation immigrant boys to engage in aggressive behaviours and to have internalizing problems such as being withdrawn, isolated, sad or lonely (Stevens et al., 2015; Lien, 2008). These all represent risk factors for suicidal behaviour (Soto-Sanz et al., 2019). Second-generation immigrant boys also face the combined challenges of having similar societal expectations as native-born boys, while also facing more discrimination or prejudice, family obligations and expectations of parents (Zlotnick et al., 2017). However, they also do not benefit from the same cultural or societal support and information from their immigrant parents or organizational structures as do first-generation immigrant boys,

resulting in worse mental health outcomes (Zlotnick et al., 2017). While these factors are also important for immigrant girls, studies have reported that they tend to experience less harsh parenting, more parental support and lower expectations to succeed in various pursuits outside the home compared to boys, which may explain why the same generational effect is not observed (DiPietro and Gender, 2014; Suárez-Orozco and Qin, 2006; Kwak, 2003).

Parental separation or divorce also modified the association between migrant status and suicidality. We found that the association between second generation immigrant status and both past suicide attempt and suicidal ideation was prominent among children whose parents were separated or divorced relative to first-generation immigrants. Other studies have similarly found that parents separating or divorcing is a risk factor for suicidality (Chau et al., 2016; Cho and Haslam, 2010). Hence, while all migrant children may experience the negative effects of parental separation or divorce, the presence of additional challenges such as increased family conflict and decreased family cohesion among second-generation immigrant youth may explain why they are more impacted by migration than first-generation youth who are also experiencing parental separation or divorce (Chang et al., 2013).

Additionally, the children of immigrants often reach a higher level of acculturation and education than their parents, contributing to inter-generational conflict, decreased understanding, and decreased closeness between children and parents (Ratkowska and Leo, 2013; van Bergen et al., 2010). These represent risk factors for suicidality (Bursztein Lipsicas and Henrik Mäkinen, 2010; Cho and Haslam, 2010; Ratkowska and Leo, 2013; Vazsonyi et al., 2017; Rapp et al., 2017). Accordingly, the sensitivity analyses in the study found that first-generation youth who had been in the country longer than 5 years and second-generation immigrant youth both had higher odds of suicidal ideation compared to recent migrants.

Moreover, among children who did not experience the separation or divorce of a parent, non-recent first-generation youth had higher odds of suicidal ideation compared to recent migrants. It is possible that this observed difference between non-recent migrants and recent migrants can be attributed to non-recent migrants becoming more acculturated and educated than their parents, and conflict with parents being more pronounced when parents are together compared to when they are separated or divorced (Musick and Meier, 2010). It is also possible that first-generation immigrant parents are less likely to separate or divorce despite conflict at home, leading to a stressful environment for children which gets worse with time spent in the country of migration (Hyman et al., 2008; Bulanda and Brown, 2007).

Strengths of this study include the large, nationally representative sample size that was available for analysis. The large sample size made it possible to consider first-generation and second-generation immigrant youth separately, as well as consider effect modifiers.

Limitations of this study include the fact that previous research has shown that members of certain cultures may have concerns about a negative impact on family members following disclosure of mental illness (Yang et al., 2014; Koschorke et al., 2014; Lv et al., 2013; Li et al., 2017). This may lead to an underreporting of suicidal ideation and past suicide attempts among immigrant youth, which may have led to an underestimation of the associations we observed between migrant status and suicidality, depending on the ethnic distribution in our sample (Lee and Wong, 2020). We were unable to consider different ethnicities and countries of origin separately due to sample size limitations. We also were unable to explore how aspects of the migratory experience influenced suicidality, and whether the relationship between migration and suicidality was the same across different migration classes, such as economic migrants, family sponsored migrants, and refugees.

5. Conclusion

Overall, second generation immigrant youth face the compounded difficulties of similar societal expectations as native children, while also

experiencing the discrimination, prejudice and increased family conflict due to becoming different from their parents through acculturation (Peña et al., 2008; Hjerm and Allebeck, 2002; Zlotnick et al., 2017; Diamantis et al., 2023). At the same time, they do not benefit from the same support as first-generation immigrants (Zlotnick et al., 2017; Diamantis et al., 2023). This same rationale can be extended to non-recent first-generation immigrants, who are at a higher risk for suicidal ideation. These findings imply the importance of extending mental health support that is typically reserved to recent migrants to non-recent first-generation immigrant youth as well as second-generation immigrant youth. Youth with lower family cohesion and whose parents are experiencing divorce or separation should be provided with additional mental health support, and youth from diverse income brackets should be included in suicide prevention programs. Mental health support should also be gender-responsive, acknowledging differences in the challenges that immigrant boys and girls face. These findings highlight the importance of using an intersectional lens when studying migrant mental health and when designing interventions.

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CRedit authorship contribution statement

Ishika Obeegadoo: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing. **Mila Kingsbury:** Formal analysis, Investigation, Methodology, Writing – review & editing. **Kelly K. Anderson:** Writing – review & editing. **Ian Colman:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Supervision, Writing – original draft, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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