



# Source-country individualism, cultural shock, and depression among immigrants

Kristyn Frank<sup>1,2</sup> · Feng Hou<sup>1,3</sup>

Received: 12 December 2017 / Revised: 22 August 2018 / Accepted: 13 February 2019 / Published online: 1 March 2019  
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## Abstract

**Objectives** To determine whether there is a relationship between source-country individualism and depression among different immigrant groups.

**Methods** Pooled data from the 2009–2014 waves of the Canadian Community Health Survey (CCHS) were used. The CCHS is a cross-sectional, nationally representative household survey. A sample of 4347 immigrants in Canada were studied, representing 101 source countries.

**Results** Multi-level logistic regression analysis showed a curvilinear relationship between source-country individualism and depression. A positive relationship was found among immigrants from countries with mid- to high levels of individualism. However, an inverse relationship was observed among immigrants from countries with low to mid-levels of individualism. Depression was significantly associated with the linear form of the source-country individualism measure [odds ratio (OR) 0.950; 95% confidence interval (CI) 0.915–0.987] and its squared term (OR 1.063; 95% CI 1.026–1.102).

**Conclusions** A high level of source-country individualism tends to increase the prevalence of depression among immigrants. There is also a cultural shock effect: the prevalence of depression was stronger in the initial years after immigration for those who migrated from countries with low levels of individualism.

**Keywords** Culture · Depression · Immigrants · Individualism · Mental health

## Introduction

The relationship between social determinants and health outcomes is widely accepted by health researchers (Razum and Spallek 2014). Although cultural factors are regarded as an important determinant of mental health, quantitative empirical evidence is not well established. Studies that include cultural variables typically employ simple measures, providing minimal insight into the complex links between culture and health outcomes (Eckersley 2006;

Kohrt et al. 2009; Singer et al. 2016). Moreover, large variations in culture can only be observed over a long period of time within a country or across many countries. Cross-national research is often limited to a few Western nations or broad regions of origin and tends to be descriptive in nature, preventing the examination of possible confounding factors (Bryan and Jenkins 2016; Haroz et al. 2017; Hollander et al. 2016; Kirmayer et al. 2017; Salway et al. 2011). If cultural factors are associated with health outcomes, generalizing results from only a few nations is a significant limitation as it presumes that the underlying mechanisms of health outcomes are universal (Chiao and Blizinsky 2013).

National comparisons also have difficulty disentangling cultural values from the social, political, and economic contexts in which individuals live (Hruschka and Hadley 2008; Singer et al. 2016). As a way to overcome these difficulties, social scientists are increasingly examining immigrants from different countries who settle in the same host country to identify how cultural variations in attitudes

✉ Kristyn Frank  
Kristyn.Frank@canada.ca

<sup>1</sup> Social Analysis and Modelling Division, Statistics Canada, R.H. Coats Building, Floor 24I, 100 Tunney's Pasture Driveway, Ottawa, ON K1A 0T6, Canada

<sup>2</sup> Department of Sociology, University of British Columbia, Vancouver, Canada

<sup>3</sup> Department of Psychiatry, University of Toronto, Toronto, Canada

and behaviours associated with source-country characteristics affect their socio-economic outcomes. For instance, recent studies find that immigrant women's fertility, labour force participation, and gender division of household labour in the host country are related to source-country cultural values on gender roles (Adserà and Ferrer 2016; Blau et al. 2011; Frank and Hou 2015). Immigrants who were socialized in different cultural environments tend to share some common cultural traits that are long-lasting and portable when they migrate to the resettlement country. The examination of many immigrant groups ensures large variations in cultural traits and thus increases generalizability.

There has been some consideration of cultural explanations in the psychological and sociological literature on mental health (Eckersley 2001). Individualism is the dimension of culture that has received the most attention, with researchers comparing the psychological well-being of people in individualistic and collectivistic societies. Individualistic societies, defined as those in which individuals are primarily focused on themselves and their immediate family, are associated with values such as freedom of choice, individuation, and self-fulfilment. Collectivistic societies are defined by strong kinship ties and have values that centre on duties, obligations, and interdependence (Kirmayer et al. 2017; Bhugra 2005; Hofstede 2001). Although certain individualistic values are linked to increased well-being (e.g. personal control, self-esteem), high levels of individualism are generally found to be detrimental to mental health (Eckersley 2006). Seligman (1990: 1) argued that the large increase in the prevalence of depression in the USA since the 1950s was a result of "the waxing of the individual and the waning of the commons".

Cross-national research indicates that people living in individualistic societies are more likely to experience anxiety and depression and to express feelings of dissatisfaction, alienation, and loneliness compared to those from collectivist societies (Eckersley 2001; Kasser 2002; Maercker 2001; Twenge 2000). This difference has been attributed to the more diverse and higher-quality social support of others that exists in collectivist societies, which better enables individuals to cope with stress (Triandis et al. 1988). Therefore, the first hypothesis of this study is that the level of individualism in the source country is positively related to the prevalence of depression among immigrant groups.

However, the literature on acculturative stress among immigrants presents an opposite hypothesis related to the idea of cultural distance and cultural shock (Schwartz et al. 2006, 2010). Several studies have examined the extent to which the match (or lack of it) between individual's values and behaviours and the shared values and expectations of behaviour in their cultural setting is associated with mental

health (e.g. Chentsova-Dutton et al. 2010; Dressler et al. 2018; Wan et al. 2007). Factors related to immigration have been found to influence individuals' mental health (Nesterko et al. 2018); evidence indicates that the stress of cultural change can result in mental health issues such as depression and anxiety (Berry 1997; Berry and Kim 1988; Dressler 1999, 2007). Individuals who migrate from a collectivist society to a more individualist society typically have to "psychologically switch" between the two cultural approaches as a means of adapting to their new society (Chiao et al. 2010: 2). Therefore, a large discrepancy between the cultural values of immigrants' source and host countries may contribute to greater psychological stress, thereby negatively affecting their mental health. According to this hypothesis, immigrants from countries with very low levels of individualism may be at higher risk of depression than those from countries with high levels of individualism after migrating to a highly individualistic host country. This study will test these two hypotheses based on a large sample of immigrants in Canada from 101 source countries.

## Methods

This study used pooled data from the 2009 to 2014 waves of the Canadian Community Health Survey (CCHS). The CCHS is a cross-sectional, nationally representative survey with a sample size of about 60,000 annually. It collects a standard set of demographic and socio-economic characteristics as well as information on individuals' health status, determinants of health, and health system utilization. Response rates ranged from 73% in 2009 to 66% in 2014.

This study pools 6 years of CCHS data for three reasons. First, these surveys all represent the national population. They have the same sample design and are collected within a relatively short period of 6 years. Second, these surveys use the same instruments (questions) for depression and common explanatory variables. Third, and most importantly, pooling similar surveys has the advantage of reducing sampling, coverage, and measurement errors (Schenker and Raghunathan 2007). The combined dataset increases the sample size and improves the reliability of multi-level regression estimates. Although the overall sample size was very large, only about one-quarter to one-third of respondents each year were asked questions on depression due to funding constraints. The final study sample included 4347 immigrants from 101 source countries. Of these source-country groups, 33 had a minimum sample size of 30.

## Measures

The depression measure indicates the probability that the respondent would be diagnosed as having experienced a major depressive episode in the past 12 months. It is derived from the Composite International Diagnostic Interview Short Form for Major Depression (CIDI-SFMD), developed by Kessler et al. (1998). The CIDI is a structured diagnostic instrument designed to produce diagnoses according to the definitions and the criteria of both DSM-III-R and the Diagnostic Criteria for the Research of the ICD-10. The short form of major depressive episodes (MDE) used in the CCHS was developed to operationalize Criteria A through C of the DSM-III-R diagnosis of MDE. Statistics Canada has included the CIDI-SFMD in major national health surveys and involved CIDI experts in consultative, planning, and training processes prior to data collection. A respondent was categorized as depressed if he/she had a symptom score of 4 or greater on the depression scale or a probability of caseness of 0.8 or over. In the selected immigrant sample, 5.4% of immigrants were classified as having MDE. At the source-country group level, the mean rate of MDE was 4.9% (not weighted by source-country sample size) with a standard deviation of 6.2 percentage points. Among the source-country groups with a minimum sample size of 100, the rate of MDE was the highest among US immigrants (9.8%) and lowest among Romanian immigrants (0.9%).

The individualism scale was developed by Hofstede (2001). It was initially based on a worldwide survey of IBM employees and further refined from subsequent cross-national surveys and the World Values Survey (Hofstede et al. 2010). The widely used scale ranges from 0 to 100. Societies with higher individualism scores have stronger preference for a loosely-knit social framework in which individuals are expected to take care of only themselves and their immediate families. Conversely, societies with lower scores prefer a more tightly-knit framework in which relatives and group members are expected to look after each other. Among the source countries in this study, individualism scores ranged from 6 to 91, with a mean score of 37 and standard deviation of 21. The three source countries with the lowest individualism scores were Guatemala (6), Ecuador (8), and Panama (11); the three highest were the UK (89), Australia (90), and the USA (91). Canada, the destination country, had a score of 80 which is only lower than the top three countries. In this study, immigrants to Canada were assigned their source-country individualism score.

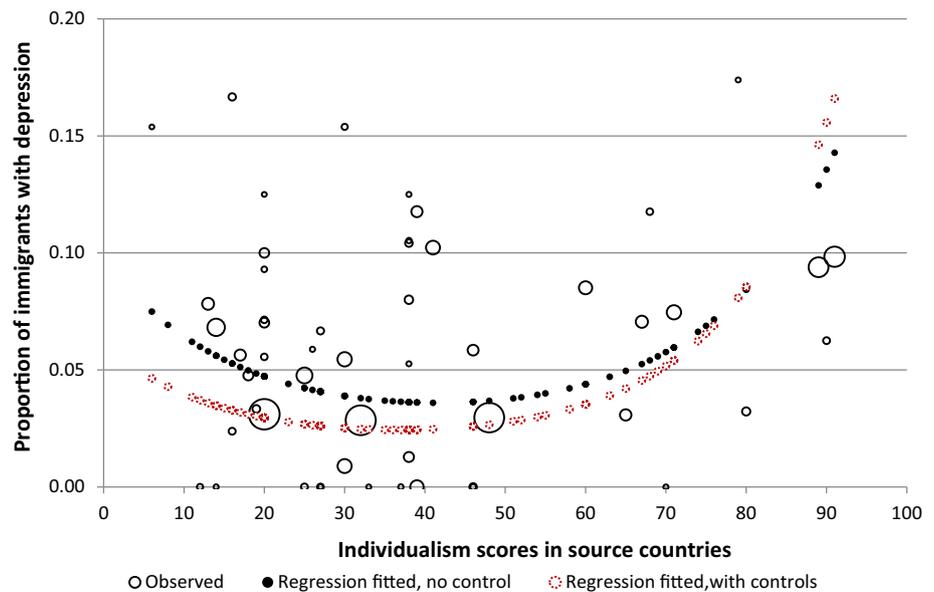
## Statistical analysis

Statistical analyses were performed with the STATA software. We first plotted the average percentage of MDE by immigrant source country against source-country individualism scores (Fig. 1). The plot shows that the relationship between the two variables is not linear, but quadratic. Accordingly, we first estimate a multi-level logistic model with individual-level MDE as the outcome and source-country individualism and its squared term as the predictors (Model 1). This model fits the data significantly better than the model with only the linear form of source-country individualism as the predictor (the Chi-square difference between the two models is 11.5 with 1 degree of freedom,  $p < 0.001$ ).

To account for group differences in socio-demographic characteristics, we fit two additional multi-level multivariate logistic models with MDE as the dependent variable. Model 2 included source-country individualism scores and its squared term, source-country gross domestic product (GDP) per capita (United Nations 2015), demographic characteristics, socio-economic status, and health status. Source-country GDP was included to ensure the effect of source-country individualism was independent of the source-country level of economic development and standard of living. Source-country GDP was measured at an immigrant's year of immigration to Canada, but adjusted to 2005 US constant dollars. Some source countries had missing GDP data for certain years. When this occurred, the missing data were replaced with the observed data point in adjacent years. For those with no valid data points, missing values were replaced with the values of the means of the region to which the country belongs (e.g. Guyana to South America).

Demographic characteristics include age at immigration (five categories:  $\leq 11$ , 12–17, 18–24, 25–49, and  $\geq 50$ ), years since immigration, sex (women = 1, men = 0), marital status (married, common-law, widowed, divorced or separated, and never married), and presence of children living at home. Socio-economic status includes racial minority status (racial minorities = 1, whites = 0), home language in relation to Canada's official languages (does not speak English/French at home = 1, speaks English/French = 0), education (university education, some post-secondary education, high school graduation, and less than high school), employment status (employed, unemployed, not in labour force), and household income (lowest income: annual income  $< \$30,000$ , lower-middle income:  $\$30,000$ – $\$59,999$ , middle income:  $\$60,000$ – $\$99,999$ , upper-middle income:  $\$100,000$ – $\$149,999$ , highest income:  $\geq \$150,000$ , and income not reported). Physical health status was measured by the number of physical chronic illnesses diagnosed by a health professional including asthma,

**Fig. 1** Source-country individualism and average probability of depression among immigrant groups, Canada, 2009–2014. *Note* Size of the circles for the observed data is proportional to sample size of source-country group. *Source:* Canadian Community Health Survey, 2009–2014, Statistics Canada



arthritis, back problems, high blood pressure, migraine, chronic bronchitis, diabetes, heart disease, cancer, stomach or intestinal ulcers, effects of a stroke, urinary incontinence, bowel disorder, and Alzheimer's disease/other dementia (scores range from 0 to 8). Model 3 adds the interaction between years since immigration and individualism which tests whether the effect of individualism weakens with increased time in the host country.

In our data, individuals are nested within source-country groups. The dependency among observations within a source-country group may underestimate standard errors in the regression coefficients. To address this, we use cluster-robust variance estimation which accounts for cluster effects, that is, correlated errors within a source-country group and unequal variances across source-country group (Angrist and Pischke 2009).

Sensitivity analyses were also conducted in which all analyses were repeated using multi-level linear regression with the continuous CIDI-SFMD scale as the outcome. The results were similar to those from multi-level logistic regression examining the probability of MDE. The models were also run separately for men and women; source-country individualism had similar effects on both men and women.

## Results

Results in Model 1 of Table 1 show that both the linear form of source-country individualism and its squared term were associated with the probability of MDE, with the former being negative (odds ratio lower than 1) and the latter positive (odds ratio higher than one). This curvilinear

relationship is illustrated by the curve marked with black dots in Fig. 1. At the lower end of the individualism scale, the probability of MDE decreased with higher levels of individualism. For instance, the predicted probability of MDE among immigrants was about 6% when the source-country individualism score was about 10 (e.g. similar to Colombia's score of 13), but decreased to 3.5% when the individualism score was about 40 (e.g. similar to Iran's score of 41). However, at the upper end of the scale (starting around a score of 40) the probability of MDE increased with higher levels of individualism. The estimated probability of MDE among immigrants was 14% when the source-country individualism score was 90 (e.g. 91 for the US). Thus, among immigrants from source countries with very low to mid-level scores for individualism, there was a decline of about 2.5 percentage points in the probability of MDE. However, there was a 10.5 percentage point increase among immigrants from source countries with individualism scores ranging from the middle to highest levels.

Model 2 controlled for selected covariates. Both the linear and squared terms of individualism remained statistically significant ( $p < 0.05$ ), but the shape of the curvilinear relationship between individualism and the probability of MDE changed. In Fig. 1, the curve marked with dotted circles represents Model 2 estimates. Compared with the curve with no controls, the negative association between source-country individualism and immigrant depression at the lower end of the individualism scale became much weaker. For instance, the predicted probability of MDE decreased from about 4% when the source-country individualism score was 10 to about 2.5% when the score was 40. This 1.5 percentage point decrease

**Table 1** Odds ratios and 95% confidence intervals (CI) for multi-level logistic regression models predicting the probability of depression, Canada, 2009–2014. *Source:* Canadian Community Health Survey 2009–2014, Statistics Canada

|   | Model 1<br>Odds ratio (95% CI) | Model 2                    | Model 3                    |
|---|--------------------------------|----------------------------|----------------------------|
| Individualism                             | <b>0.950</b> (0.915–0.987)     | <b>0.950</b> (0.916–0.983) | 0.943 (0.911–0.976)        |
| Individualism squared/100                 | <b>1.063</b> (1.026–1.102)     | <b>1.073</b> (1.034–1.113) | 1.072 (1.032–1.112)        |
| Log Gross Domestic Product per capita     |                                | 1.057 (0.856–1.303)        | 1.058 (0.857–1.306)        |
| Age at immigration (reference: 25–49)     |                                |                            |                            |
| ≤ 11                                      |                                | 1.121 (0.425–2.949)        | 1.095 (0.411–2.917)        |
| 12–17                                     |                                | 0.828 (0.364–1.879)        | 0.839 (0.371–1.898)        |
| 18–24                                     |                                | 0.863 (0.415–1.792)        | 0.859 (0.409–1.802)        |
| ≥ 50                                      |                                | 0.700 (0.091–5.346)        | 0.723 (0.095–5.506)        |
| Years since immigration                   |                                | <b>1.040</b> (1.009–1.070) | 1.009 (0.962–1.057)        |
| Women                                     |                                | <b>1.930</b> (1.279–2.911) | 1.918 (1.274–2.885)        |
| Marital status (reference: married)       |                                |                            |                            |
| Common-law                                |                                | <b>2.669</b> (1.503–4.737) | <b>2.752</b> (1.544–4.902) |
| Widowed                                   |                                | 0.608 (0.070–5.262)        | 0.598 (0.070–5.074)        |
| Divorced or separated                     |                                | <b>2.772</b> (1.491–5.151) | <b>2.764</b> (1.490–5.126) |
| Never married                             |                                | 1.617 (0.847–3.087)        | 1.625 (0.846–3.119)        |
| Children living at home                   |                                | 1.046 (0.849–1.287)        | 1.046 (0.847–1.292)        |
| Not speak English/French at home          |                                | 0.722 (0.428–1.217)        | 0.709 (0.420–1.193)        |
| Racial minorities                         |                                | <b>2.871</b> (1.688–4.881) | <b>2.807</b> (1.619–4.864) |
| Education (reference: university degrees) |                                |                            |                            |
| Some post-secondary                       |                                | <b>1.757</b> (1.226–2.515) | 1.761 (1.224–2.532)        |
| High school graduation                    |                                | 1.259 (0.671–2.362)        | 1.252 (0.664–2.359)        |
| Less than high school                     |                                | 1.343 (0.572–3.149)        | 1.362 (0.582–3.185)        |
| Employment status (reference: employed)   |                                |                            |                            |
| Unemployed                                |                                | <b>2.078</b> (1.203–3.590) | <b>2.060</b> (1.196–3.548) |
| Not in the labour force                   |                                | 0.703 (0.404–1.220)        | 0.697 (0.401–1.209)        |
| Household income                          |                                |                            |                            |
| Lowest income                             |                                | 1.721 (0.918–3.224)        | 1.718 (0.914–3.224)        |
| Lower-middle income                       |                                | 1.293 (0.689–2.421)        | 1.314 (0.697–2.474)        |
| Middle income                             |                                | 1.491 (0.654–3.398)        | 1.528 (0.671–3.473)        |
| Highest income                            |                                | 1.077 (0.502–2.307)        | 1.064 (0.495–2.281)        |
| Income not reported                       |                                | 1.574 (0.719–3.441)        | 1.577 (0.720–3.453)        |
| Physical chronic condition                |                                | <b>1.445</b> (1.225–1.703) | <b>1.446</b> (1.228–1.703) |
| Individualism * years since immigration   |                                |                            | <b>1.001</b> (1.000–1.001) |
| Pseudo- $R^2$                             | 0.025                          | 0.127                      | 0.129                      |

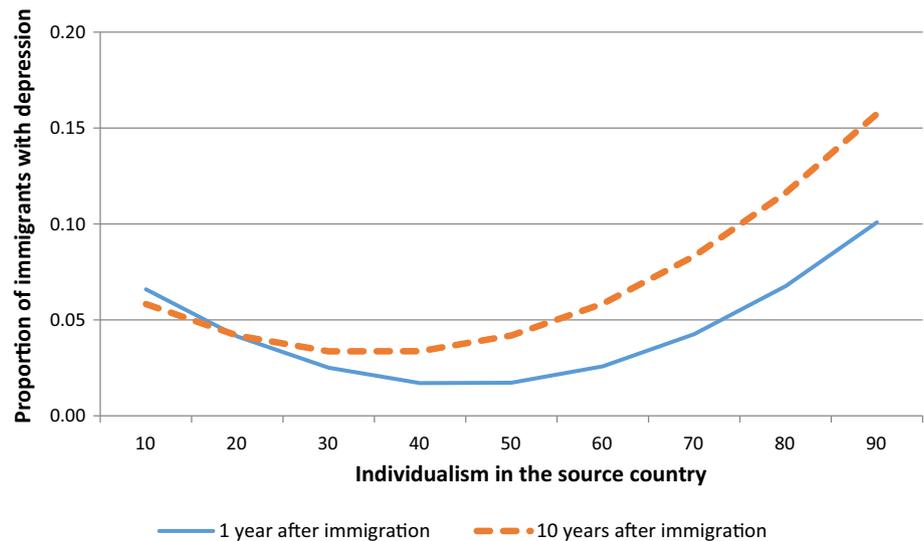
Bold numbers are statistically significant at  $p < 0.05$

is smaller than the 2.5 percentage point decrease in the uncontrolled estimates. However, the estimates that accounted for the covariates show that the positive association between source-country individualism and immigrant depression became stronger at the upper end of individualism. The predicted probability of MDE increased 12 percentage points from about 2.5% when the source-country individualism score was 40 to about 14.5% when the score was 90. This suggests that the covariates

accounted for a large part of the culture shock effect. However, controlling for these factors strengthened the positive association between individualism and depression among immigrants from source countries with moderate to high levels of individualism.

Model 3 adds the interaction between source-country individualism and years since immigration. This interaction term is positive and marginally significant. Figure 2 illustrates this by plotting the estimated interaction effect at the

**Fig. 2** Interaction effect of individualism and years since immigration, Canada, 2009–2014 *Source:* Canadian Community Health Survey, 2009–2014, Statistics Canada



first year and 10th year after immigration. Overall, the prevalence of depression increased with years after immigration; however, this was not the case for immigrants from countries with very low levels of individualism. Among immigrants from these source countries, it is clear that the negative association between individualism and depression was stronger in the initial years after immigration. Among immigrants from source countries with high levels of individualism, the positive association between individualism and depression was weaker in the early years after immigration. For instance, the difference in the predicted prevalence of depression between immigrants with a source-country individualism score of 10 and those with a score of 40 was 4.9 percentage points in the first year after immigration. This difference was reduced to 2.5 percentage points by the 10th year. In comparison, the difference in the predicted prevalence of depression between immigrants with a source-country individualism score of 40 and those with a score of 90 was 8.4 percentage points in the first year after immigration. This difference increased to 11.5 percentage points by the 10th year.

Among the included covariates, sex, years since immigration, marital status, racial minority status, employment status, and chronic physical conditions were significantly associated with the probability of MDE ( $p < 0.05$ ). Women had a higher rate of MDE than men (OR 1.93; 95% CI 1.279–2.911, model 2). MDE increased with more years in the receiving country. Immigrants who were divorced or separated had a higher odds of having MDE (OR 2.772; 95% CI 1.491–5.151) than those who were married. Racial minorities had a higher MDE rate than whites. The unemployed had a higher MDE rate (OR 2.078; 95% CI 1.203–3.590) than those who were working. Each additional chronic physical condition increased the prevalence of MDE.

## Discussion

Results from this study indicated that the prevalence of MDE differed greatly between immigrant groups. The findings supported the hypothesis that greater levels of individualism are detrimental to mental health (Eckersley 2006; Seligman 1990; Kasser 2002; Maercker 2001; Twenge 2000). Among immigrants from source countries with moderate to high levels of individualism, the prevalence of MDE increased with source-country individualism. This effect was relatively large.

The difference in the prevalence of MDE between immigrants from countries with moderate levels of individualism and those from countries with high levels of individualism (an estimated 10.5 percentage point difference in the probability of MDE) was much larger than the effects associated with some common life event stressors such as divorce or separation (estimated as 5.9 percentage points higher than the married) and unemployment (3.8 percentage points higher than the employed). Since individuals with collectivistic values are more likely to turn to their social support system when dealing with stress (Triandis et al. 1988), the positive relationship between source-country individualism and depression may represent a “protective function” of cultural values among immigrants from less individualistic countries (Sam 2000).

However, different results were discovered among immigrants from source countries with low to mid-levels of individualism. An inverse relationship between individualism and developing MDE was found for immigrants from these countries. This relationship was stronger in the initial years after migration. These findings are consistent with the expectation that immigrants experience unique stress-induced health effects when moving from one culture to another (Bhugra 2005; Schwartz et al. 2006, 2010).

Therefore, large discrepancies in individualism between immigrants' source and host countries likely contribute to acculturative stress, or cultural shock, which in turn results in a higher likelihood of developing MDE. Part of this cultural shock effect worked through other difficulties in the integration process, such as marital disruption and unemployment.

Although cultural explanations are widely accepted in the health literature, researchers argue that more explicit measures linking culture and health outcomes are needed (Eckersley 2006; Singer et al. 2016). Cross-national studies examining cultural differences in mental health outcomes are often confined to a limited range of variation among Western developed countries or broad regions (Bryan and Jenkins 2016; Haroz et al. 2017; Hollander et al. 2016; Kirmayer et al. 2017; Salway et al. 2011) which reduces the chances of identifying cross-cultural differences. Moreover, this approach makes distinguishing cultural factors from a society's social, economic, and political influences challenging (Hruschka and Hadley 2008; Singer et al. 2016). To address these limitations, this study examined immigrants from a wide range of countries who resided within the same host country. This approach allowed for a more in-depth analysis of the relationship between a specific dimension of culture—source-country individualism—and immigrants' mental health.

A limitation of this study is the potential for selection bias (Hruschka and Hadley 2008). The assignment of source-country individualism to immigrants assumes that cultural values formed in the source country were carried over into the host country. This issue could be particularly problematic if immigrants' attitudes and values differ substantially from non-immigrants in their source countries. For example, individuals who hold more individualistic attitudes within collectivist societies may be more likely to migrate. Furthermore, our approach overlooks potential differences among immigrants from the same source country. For example, previous research indicates that immigrants who arrive as refugees had a greater risk of mental disorders than non-refugees from the same region of origin (Hollander et al. 2016). Variations within the host country such as whether immigrants live in an area with a high degree of "own-group" ethnic density could also play a role (Das-Mushi et al. 2010). However, other intra-group variations that may affect immigrants' mental health are accounted for by selected socio-demographic covariates.

## Conclusion

Results from this study showed that the cultural value of individualism plays a role in the development of depression among immigrants. Immigrants who migrate from countries with low levels of individualism to a highly

individualistic nation were found to be particularly vulnerable during their initial years after migration, highlighting the role that cultural shock may play. The findings indicate that health practitioners and policymakers should take cultural differences such as individualism into consideration when evaluating MDE among immigrant populations, particularly in immigrant-receiving nations with high levels of individualism.

This study found a large variation in the prevalence of MDE among immigrants from different source countries. This variation was strongly associated with source-country individualism in a curvilinear way. Among immigrants from countries with medium to high levels of individualism, the prevalence of MDE increased with source-country individualism. This result is consistent with the hypothesis that a high level of individualism is detrimental to mental health. However, among immigrants from countries with very low levels of individualism, the prevalence of MDE decreased with higher levels of individualism. This relationship was partly accounted for by difficulties in socio-economic integration such as marital disruption and unemployment. This association was stronger in the initial years after immigration, consistent with the cultural shock hypothesis. These results contribute to a better understanding of the role that source-country individualism plays in the mental health of different immigrant groups.

## Compliance with ethical standards

**Ethical approval** This study obtained approval from Statistics Canada to use the Canadian Community Health Survey for analysis.

**Conflict of interest** The authors declare that they have no conflict of interest.

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