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Mental health and well-being of recent immigrants in Canada: Evidence from the Longitudinal Survey of Immigrants to Canada

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Abstract

According to the 2006 Census, the proportion of foreign-born population is at the highest level it has been in 75 years. Therefore, the well-being of recent immigrants has powerful consequences for our current and future success as a nation. The process of immigration and settlement is inherently stressful, and the well-being of recent immigrants is of particular concern, primarily when migration is combined with additional risk factors such as unemployment and language barriers.

There is limited Canadian research on the mental health of recent immigrants, more specifically on the disparities among immigrant sub-groups. This paper addresses these gaps using data from the Longitudinal Survey of Immigrants to Canada. It examines different aspects related to mental health, including prevalence of emotional problems and stress levels. Potential factors that may be associated with mental health outcomes, including socio-economic variables, are also explored.

Findings from this paper support the importance of mental health service provision to immigrants, which was recently one of the main focuses of the first ever mental health strategy for Canada, prepared by the Mental Health Commission of Canada. The Commission presented five recommendations targeted at improving immigrant and refugee mental health which are discussed within this paper.

Executive summary

Research on the mental health and well-being of recent immigrants, and on the mental health disparities among immigrant sub-groups (e.g., refugees, family class and economic class immigrants), is limited. Existing studies suggest that recent immigrants experience better mental health than other groups, but it is unclear whether this health advantage persists over time; using data from the Longitudinal Survey of Immigrants to Canada (LSIC), this paper addresses these gaps.

This paper examines the different aspects related to mental health and well-being during the initial four years after landing, including prevalence of emotional problems, emotional help received, stress levels and main sources of stress. Potential factors that may be associated with the incidence of emotional problems and stress, including socio-demographic, socio-economic, social networking variables, health utilization effects and psycho-social variables are also explored through logistic regression.

Results from analysis of the LSIC data show that, overall, about 29% of immigrants reported having emotional problems and 16% reported high levels of stress at wave 3.

Descriptive and regression results suggest that females were more likely to report experiencing emotional problems.

Results also suggest that immigration category is associated with the prevalence of emotional problems and stress. Refugees were significantly more likely to report experiencing emotional problems and high levels of stress compared to family class immigrants.

Region of origin was found to be associated with the prevalence of emotional problems. Immigrants from South and Central America were more likely to report experiencing emotional problems, whereas immigrants from North America, United Kingdom and Western Europe were less likely to report experiencing emotional problems, compared to those from Asia and Pacific. As for high levels of stress, immigrants from North America and all Europe were less likely to rate most days as very or extremely stressful than immigrants from Asia and Pacific.

Recent immigrants in the lowest income quartile were significantly more likely to report experiencing high levels of stress and emotional problems compared to those in the highest income quartile.

Finally, evidence from the LSIC suggests that recent immigrant perceptions of the settlement process were related to emotional problems. Immigrants who were 'neither satisfied or dissatisfied' or 'dissatisfied' with the settlement process were more likely to report experiencing emotional problems than those who were satisfied.

Introduction

Over the past five years, Canada's foreign-born population grew four times faster than the Canadian-born population. Today, Canada's foreign-born population accounts for approximately one out of every five Canadian residents[1]. Therefore, the well-being of recent immigrants has powerful consequences for our current and future success as a nation. The process of immigration and settlement is inherently stressful (Levitt et al. 2005), and the mental and emotional well-being of recent immigrants is of particular concern, primarily when migration is combined with additional risk factors or post-migration stressors such as unemployment, separation from family, discrimination and prejudice, language barriers and lack of social support (Canadian Mental Health Association - Ontario 2010).

Existing studies suggest that recent immigrants experience better mental health (Hyman 2007), but it is unclear whether this health advantage persists over time. Research on the mental health and well-being of recent immigrants, and on the mental health disparities among immigrant sub-groups (e.g., refugees, family class and economic class immigrants), is limited. Using data from the Longitudinal Survey of Immigrants to Canada (LSIC), this paper addresses these gaps.

This paper examines the different aspects related to mental health and well-being during the initial four years after landing, including prevalence of emotional problems, emotional help received, stress levels and main sources of stress. Potential factors that may be associated with the incidence of emotional problems and stress, including socio-demographic, socio-economic, social networking, health utilization and psycho-social variables are also explored through logistic regression.

Specifically, this paper addresses the following questions:

1. What are the mental health outcomes of recent immigrants, specifically incidence of emotional problems and stress, after arrival in Canada?
2. Are there differences between immigrant sub-groups (e.g., refugee, family class and economic class immigrants) in terms of mental health outcomes after arrival in Canada?
3. What are the social, demographic and economic factors that are associated with emotional problems and stress?

[1] According to the 2006 Census, 19.8% of the population of Canada is foreign-born (Statistics Canada 2007).

Literature review

The World Health Organization (WHO) defines mental health as a "state of well-being in which the individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his own community" (2007). Mental health is a significant and necessary component to overall good health and quality of life. Good mental health is not only defined by the absence of mental disorders and problems, but also by the presence of various coping skills such as resilience, flexibility and balance (Canadian Mental Health Association 2010). Simply put, "mental health depends on a complex interaction between risk factors that jeopardize mental health and the social and psychological factors that protect it" (Beiser and Hyman 1997, 45).

Mental health status is associated with a variety of integration outcomes, including educational attainment, social networks and relationships, economic outcomes, and physical well-being (Canadian Mental Health Association 2010), and can significantly impact an immigrant's ability to adjust to life in Canada (Pumariega et al. 2005). This paper conceptualizes mental health as a reflection of broad dimensions of individual lives including biological, psychological and social dimensions. This perspective is reflected in the biopsychosocial model of health.

Stress is considered to be a major risk factor for a variety of diseases including mental illness (Health Canada 2008), and the mental health of immigrants "might be undermined by their acculturative stress, in the course of uprooting, relocation, and adaptation" (Lou and Beaujot 2005, 3). Immigrants and refugees may be exposed to a variety of stressors including pre-migration stressors that may put them at a heightened health risk such as refugee camp internment, catastrophic experiences, as well as post-migration stressors including separation from family, unemployment and poverty (Fenta et al. 2004). Moreover, recent immigrants may be faced with multiple adjustment challenges including integration pressures, role and identity changes, as well as discrimination (Noh and Avison 1996; Beiser and Edwards 1994). These stresses, coupled with a lack of social support and resources, may adversely impact psychological well-being and could possibly lead to low self-esteem or depression. For instance, results from Noh et al. (1999) highlight the relationship between perceived discrimination and depressive symptoms for migrants.

There are multiple barriers to accessing the medical system that immigrants may face after arrival in Canada. For instance, unfamiliarity or a discomfort with the medical system may pose major challenges for recent immigrants (Newbold 2005). Furthermore, a medical system that does not provide culturally sensitive care may create additional challenges. For instance, although mental illnesses have similar symptoms across cultures, "their manifestations and how people describe and interpret symptoms vary with ethnicity and culture" (Canadian Mental Health Association - Ontario 2010). This may lead to an incorrect diagnosis by the health care provider, and therefore, leave the mental health problem untreated.

The buffering hypothesis suggests that social and personal resources act as moderating forces which impact stress exposure, and therefore may affect mental and physical health status (Turner and Lloyd 1999). According to Levitt et al. (2005) "both personal characteristics and contextual factors will play a role in immigrant adaptation. Personal factors include the developmental life stage and ethnicity of the individual. Contextual factors include the socioeconomic status, circumstances of migration, and receiving context of the immigrant family including the amount of social support of social capital available to the newcomers" (160).

For immigrants, protective factors that exert a positive effect on stress and overall well-being have been identified in the literature. Fenta et al. (2004) found that fluency in the host country language, ethnic pride, and social resources, such as family and ethnic community support, are associated with better mental health status. Simich et al. (2005) found that "social support enhances coping, moderates the impact of stressors and promotes health" (16). The authors also note that social support does not only have protective effects, it also empowers individuals to cope with and to overcome the challenges in their lives.

Although there is not a significant amount of information about immigrant mental health outcomes (Ali 2002), several studies provide insight into this area (see Ali 2002; Wu et al. 2003; Malenfant 2004; Lou and Beaujot 2005; Kennedy et al. 2005).

Ali (2002) and Lou and Beaujot (2005) used data from the Canadian Community Health Survey (CCHS), to examine the mental health of immigrants as well as the Canadian-born population. Ali examined six immigrant cohort groups to determine if there were differences between the Canadian-born and immigrant populations in terms of depression and alcohol dependence. Findings showed that, in general, recent immigrants were in the best mental health: "immigrants who had arrived in Canada in the previous few years had the lowest rates of both depression and alcohol dependence" (3). However, "those who had arrived 10 to 14 years ago or more than 20 years ago were not significantly different from the Canadian-born population in depression" (3). Ali also found that immigrants, who have been residing in Canada for a longer period of time, reported a moderately higher rate of alcohol dependence compared to recent immigrants.

Lou and Beaujot (2005) analyzed CCHS data from cycle 1.2 which focuses on mental health and well-being to determine if there are differences between the mental health outcomes of immigrants compared to the Canadian-born population. Findings indicated that "the proportion of self-rated poor mental health among the foreign-born population is lower than that of the Canadian-born population (5.95% and 7.04% respectively)" (5). However, findings also indicated that Canadian-born respondents and long-term immigrants were found to have similar self-rated mental health: "there is a tendency towards convergence between the health of long-term immigrants and that of the native-born population, in terms of both percentage and odds ratio of self-rated poor mental health" (6). Recent immigrants were found to have better self-rated mental health compared to long-term immigrants. Also, men were found to be less likely to report poor mental health compared to women.

Using data from the 1996-1997 National Population Health Survey, Wu et al. (2003) looked at rates of depression symptoms and depression among ethnic groups. Although the authors did not look at immigrant status in particular, they wanted to examine the impact of ethnicity on mental health. Results suggest that, even after controlling for social support and socio-economic status, depression symptoms varied with ethnicity. For instance, respondents who self-identified as East, South-East and South Asian, Black or Chinese experienced lower depressive symptoms than other groups.

Using data from the World Health Statistics Database of the World Health Organization and Canadian Vital Statistics (1991 and 1996), Malenfant (2004) compared suicide rates between the Canadian-born and immigrant populations. Suicide patterns were examined by age, sex, continent of birth, and residence in Toronto, Montreal and Vancouver. Malenfant found that "immigrants are much less likely than native-born Canadians to commit suicide […] when the rates are age-standardized, the rate for immigrants is almost half that for the Canadian-born: 7.9 versus 13.3 per 100,000" (12). Malenfant proposes three possible explanations for the low

suicide rates of immigrants: 1) close social networks and community ties, sometimes found within certain immigrant communities, may help insulate members against suicide; 2) suicidal behavior may be the result of socialization and the adoption of certain cultural traits early in life; 3) health screening of immigrants prior to migration may create a 'selection effect' which may also influence the prevalence of immigrant suicide rates. Malenfant's findings also indicate that residence in three of the countries largest cities (Toronto, Montreal and Vancouver) offers some protective factors in terms of suicide. This may be attributed to close social networks and community ties: "It is possible that there may be greater social integration of newcomers in areas with large immigrant communities" (15).

Kennedy et al. (2005) assessed 1,135 undergraduate students of Indo-Asian, Chinese and European origin to see if there are differences in suicidal ideation, plans, and attempts by generation level and ethnicity. The results indicated that almost half of the sample population had contemplated suicide. Results also indicated that there were no differences among generation levels or ethnic groups. However, the authors did find a modest association between identification with heritage culture and suicidal thoughts: "Participants who identified closely with their heritage culture were at an increased risk for suicidal thought but not for suicidal plans or attempts" (355). This finding may highlight the challenges faced by young immigrants in negotiating and balancing traditional cultural values with the larger Canadian values and norms.

Data and definition

Data source

The data source used in this paper is the Longitudinal Survey of Immigrants to Canada (LSIC). The LSIC is designed to examine the first four years of immigrant settlement, a time when new immigrants establish economic, social and cultural ties to Canadian society. The LSIC provides information on how new immigrants adjust to life in Canada and provides insight into the factors that can help or hinder this adjustment. The survey was jointly conducted by Statistics Canada and Citizenship and Immigration Canada[2]. The target population of the LSIC includes all immigrants who have the following characteristics: arrived in Canada between October 2000 and September 2001; were 15 years of age and over at the time of landing; and landed from abroad. The first LSIC interview (Wave 1) took place at about six months after landing. The second LSIC interview (Wave 2) was at approximately two years after landing. The third interview (Wave 3) was at approximately 4 years after landing. This paper focuses on the sample of the approximately 7,700 immigrants (weighted population: 157,600) that were interviewed over all the three waves of the LSIC.

Mental health and well-being indicators

Due to data limitations in the LSIC, we are unable to provide a complete measure of mental and psychological health of recent immigrants. However, in this paper we examine immigrant's responses to two questions which focus on emotional problems (e.g., persistent feelings of sadness, depression, loneliness, etc.) and level of stress. These two variables are used as dependent variables in our regression analysis.

Emotional Health Indicator: In the current paper, whether an immigrant reported experiencing emotional problems or not, was used as an indicator of mental health. In the first wave of the LSIC, the respondents were asked "since you came to Canada, have you had any emotional or mental problems?", however, for wave 2 and 3 the question was changed to "since your last interview, have you experienced any emotional problems? By emotional problems, I mean persistent feelings of sadness, depression, loneliness, etc". The respondents were given the option of answering 'yes' or 'no'. The responses to this question were grouped into two categories: those that had experienced mental/emotional problems and those that had not.

Stress Level Indicator: According to Health Canada (2002) "stress has traditionally been viewed as a major risk factor for depression" (38). However, stress is not inherently negative; for example, a low to moderate degree of stress in one's life should not be considered to be unhealthy. However, prolonged negative and chronic stress is a risk factor for a variety of diseases including mental illness (Health Canada 2008). In Waves 2 and 3 of the LSIC, respondents were asked the question, "thinking about the amount of stress in your life, would you say that most days are: not at all stressful, not very stressful, a bit stressful, very stressful or extremely stressful?" For the purposes of this paper, the responses to this question were grouped into two categories: not at all/not very/a bit stressful and very/extremely stressful.

[2] For more details about the LSIC, please see Statistics Canada, http://72.14.207.104/search?q=cache:XSnA6aiuXi4J:www.statcan.ca/english/sdds/4422.htm+LSIC&hl=en&gl=ca&ct=clnk&cd=1

Determinants of health framework

After an examination of health-related papers that have utilized the LSIC (Newbold 2009; Zhao 2007; Zhao et al. 2010), we used the determinants of health framework developed by Evans and Stoddart (1990) adapted by Newbold (2009), which recognizes that health is influenced by a wide range of variables, as well as the interaction and interrelationships between these variables. Newbold's framework demonstrates associations between self-rated health and (1) socio-demographic, (2) socio-economic, (3) social networking effects and (4) health utilization variables.

Socio-demographic variables:

Socio-demographic variables that have possible effects on the emotional health and stress levels of recent immigrants are controlled for in our regression analysis; they include *age, sex, immigrant category, region of origin* and *visible minority status*.

For the purposes of this paper, we analyzed responses from individuals 20 years or older, and separated the population into three age groups: 20 to 34 years, 35 to 44 years and 45 years old or more. Similar to Zhao et al. (2010) immigrant class is grouped into five categories: family class immigrants, skilled workers: principal applicants, skilled workers: spouses and dependants, refugees, and other immigrants. Source countries were grouped into five broad regions: North America, United Kingdom and Western Europe; Other Europe (except United Kingdom and Western Europe); Asia and Pacific; Africa and Middle-East, and South and Central America. In order to examine if visible minority status is associated with level of stress or incidence of emotional problems, this variable was captured as: visible minority or non-visible minority.

Socio-economic variables:

Socio-economic variables that may be associated with emotional health and stress are also controlled for in this paper; they include *family income level, employment status, education level at landing, number of individuals in immigrating unit, marital status* and *official language ability*.

To capture family income level, we grouped immigrants into four categories by family income quartile: 0 to 25 percent, 25 to 50 percent, 50 to 75 percent and 75 to 100 percent. For the purposes of this paper, employment status was grouped into two categories: employed and not employed. Similar to Zhao et al. (2010), education at landing was grouped into four categories: high school or less, trade certificate or college/some university, bachelor's degree and master's degree or above. The number of individuals in an immigrating unit was separated into two categories: one person in the immigrating unit and two or more persons in the immigrating unit. Marital status was grouped into two categories: married/common-law and other (i.e., single, divorced, separated or widowed). Self-assessed official language ability in either English or French was grouped into two categories: speaking English and/or French (fairly well, well or very well) or not speaking English nor French (poorly or not able to speak).

Social networking variables:

Social networks have been shown to have a positive impact on immigrants' self-rated health (van Kemenade et al. 2006, Zhao 2007, Newbold 2009, Zhao et al. 2010). Furthermore, organizational networks including ethnic and immigration associations, community organizations and religious groups are also important sources of support for recent immigrant in the

integration process. Putnam (2000) argues that social networks may serve as "a psychological triggering mechanism, stimulating people's immune systems to fight disease and buffer stress" (327). To determine if social networks are associated with emotional health and stress, we examined both the structure and content of social networks. We used information from the LSIC on presence of family and friends in city, frequency of interaction with family and friends, and group/organization participation.

To capture the presence of family and friends in the city at landing, two variables were used and the responses were: *family in the city* and no *family in the city*, and *friends in the city* and no *friends in the city*, respectively. The frequency of interaction with family and friends living in Canada, and the frequency of interaction with family outside of Canada were grouped into four categories: weekly, monthly, yearly and not at all (which includes the respondents who indicated no friends or no family). Finally, group or organizational participation was categorized into member and not a member.

Health utilization variables:

Health care access and utilization has been associated with self-rated health status (Zhao et al. 2010). Variables that have been found to be associated with health outcomes are explored in our regression analysis and include: *problems accessing health care services and region of residence*.

The LSIC contains information on problems accessing health care services including long waiting times, discrimination, problems finding a doctor accepting new patients, transportation, no insurance plan, etc. Similar to Zhao et al. (2010), accessibility to the Canadian health care system is grouped into two categories: had problems and did not have problems accessing health care services. Region of residence was grouped into five categories: Atlantic, Quebec, Ontario, Prairies, and British Columbia. The region of residence was included to reflect the possible variation in the way the health care services are provided across provinces. We also looked at whether the respondent had a provincial health card or not as an indicator of health coverage but almost all respondents (98%) already had a card at the time of the first wave of the survey.

Psycho-social variables:

For the purposes of this paper, we have decided to add a fifth category: psycho-social variables to Newbold's (2009) framework. Psycho-social variables provide insight into the interaction between a variety of factors, including those identified in our model (e.g., demographic, economic, social networking and health utilization), as well as psychological factors (e.g., attitudes and perceptions). In order to capture the psycho-social variables that may impact overall well-being and mental health, two variables were explored in our regression models: *perceptions of the settlement process* and *stress*.

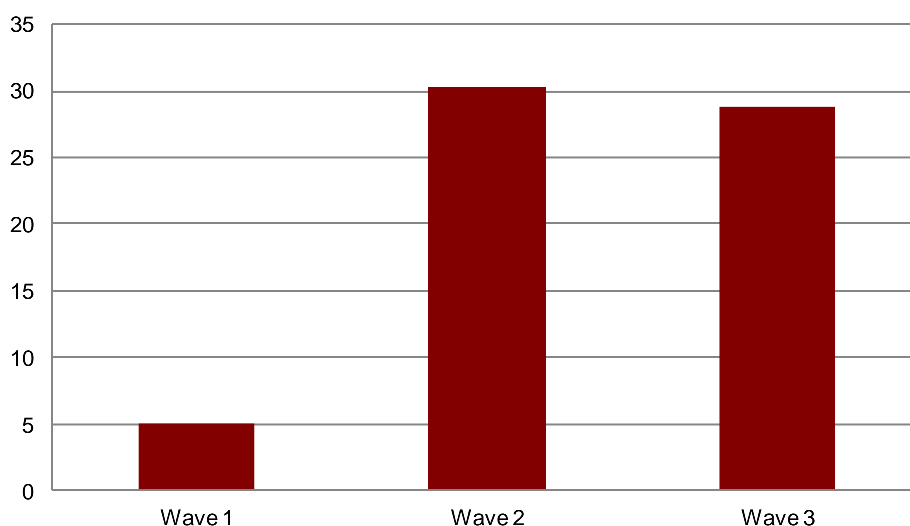
Stress level, although used as a dependent variable in select logistic regression models, is also included as an independent variable in our emotional health regression models. Stress level was grouped into two categories: not at all/not very/a bit stressful and very/extremely stressful. Findings from Newbold (2009) suggest that perception of the settlement process is associated with health outcomes for immigrants. Perceptions with the settlement process were regrouped into three categories: satisfied, neither satisfied or dissatisfied, and dissatisfied.

Descriptive analysis

Evidence from the LSIC indicates that, for immigrants, as time spent in Canada increases, health decreases (Newbold 2009, Zhao et al. 2010). According to Newbold (2009), "new arrivals experience a rapid decline in health as measured by self-assessed health, mental health, and physical health problems" (325). In order to provide further insight into the mental health of recent immigrants, we examined the incidence of emotional problems and stress by sex, immigration category, and region of origin through descriptive analyses.

As shown in Figure 1, emotional problems appear to increase substantially from 5% in the first wave to 30% in the second wave, and then slightly decline to 29% at Wave 3. However, these results should be interpreted with caution, due to the change in wording of the question from Wave 1 to Wave 2. The inclusion of the phrase 'mental problems' in the first wave, and the subsequent change in wording to the question in Waves 2 and 3, makes it difficult to compare the responses across all three waves. Findings from the Canadian Alliance of Mental Illness and Mental Health indicate that almost half of individuals surveyed claimed that if they had a mental health problem, they would be uncomfortable revealing it to others (2008). Therefore, because this change in wording could create a bias, we separated the mental/emotional problem question in the first wave from the emotional problem question in the second and third wave. The following analyses presented in this paper exclude the mental/emotional problem question from Wave 1 and focus on results from Waves 2 and 3.

Figure 1: Percentage of emotional problems among recent immigrants



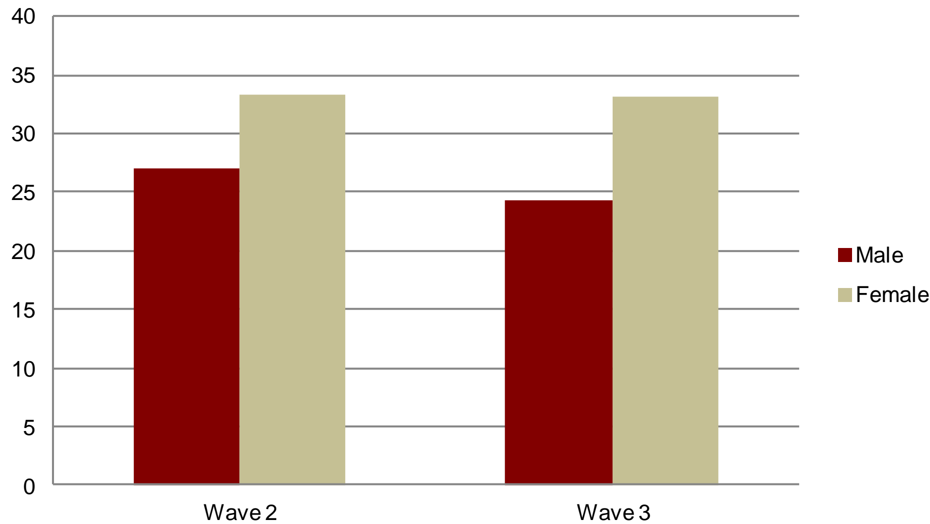
Data source: LSIC, Wave 3

According to the WHO, gender is a critical determinant of mental health outcomes: "depression, anxiety, psychological distress, sexual violence, domestic violence and escalating rates of substance use affect women to a greater extent than men across different countries and different settings" (2010). Therefore, it is important to examine mental health within a gender analysis framework that allows analysis of variables and stressors that, as indicated in the literature, are experienced more by females (WHO 2000).

As shown in Figure 2, when looking at the incidence of emotional problems by gender at Waves 2 and 3, there are disparities between male and female immigrant respondents. At Wave 2,

approximately 27% of males and 33% of females reported experiencing emotional problems such as persistent feelings of sadness, depression or loneliness. By Wave 3 this gap had increased slightly to 24% of males, compared to 33% of females.

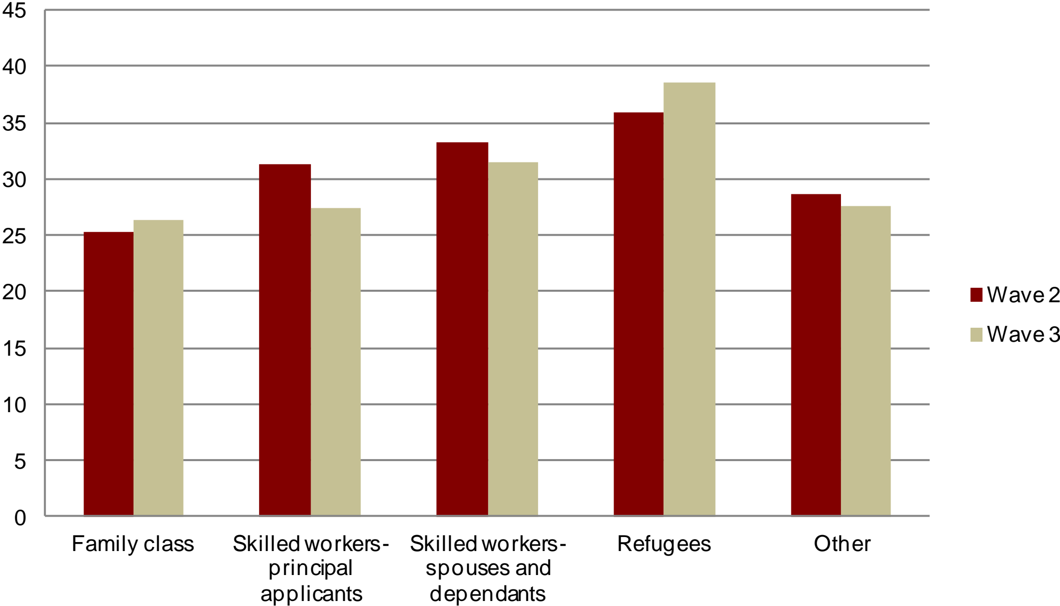
Figure 2: Percentage of emotional problems among recent immigrants by gender



Data source: LSIC, Wave 3

As shown in Figure 3, when looking at the emotional health of immigrants by immigrant category, there are disparities among immigrant sub-groups. Refugees exhibit the highest levels of emotional problems of all the immigration categories at Waves 2 and 3 (approximately 36% and 38%, respectively), whereas family class immigrants exhibit the lowest levels at both waves (approximately 25% and 26%, respectively). This is consistent with other research based on findings from the LSIC which indicate that refugees are more likely to report being in poor health compared to other immigrant sub-groups (see Zhao et al. 2010; Newbold 2009). The higher level of emotional problems experienced by refugees may be a result of a variety of factors including pre-migration stressors, such as war and the loss of family members or post-migration stressors such as social isolation, discrimination and adjustment challenges (Beiser and Hyman 1997).

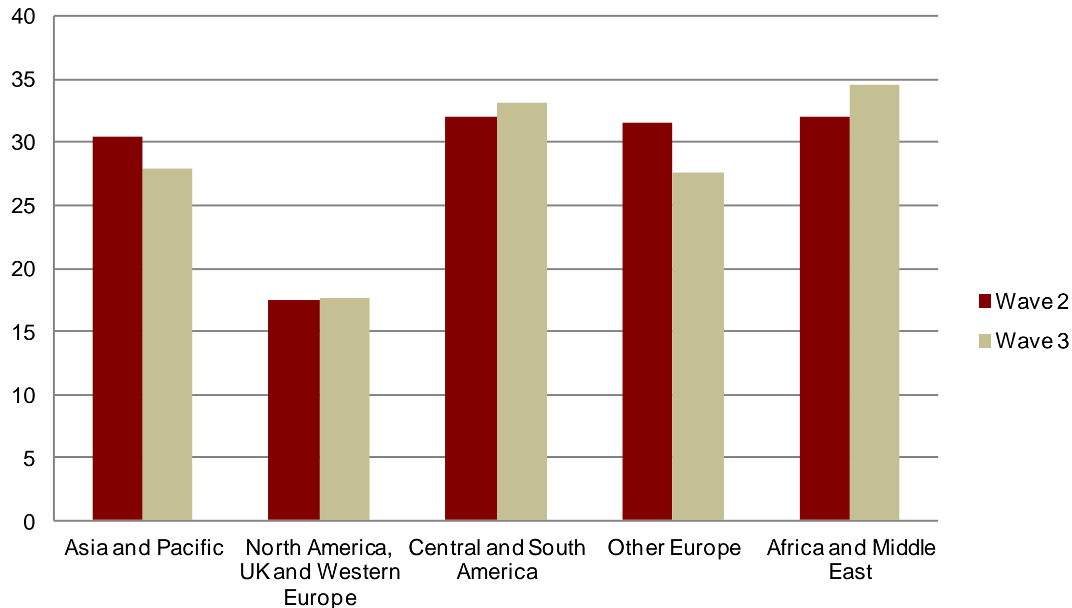
Figure 3: Percentage of emotional problems among recent immigrants by immigration category



Data source: LSIC, Wave 3

Figure 4 presents the percentage of emotional problems among recent immigrants by region of origin. Findings show that recent immigrants from North America, United Kingdom and Western Europe reported the lowest levels of emotional problems of all groups in both Waves 2 and 3 (approximately 17%), whereas recent immigrants from Central and South America, and Africa and the Middle East reported the highest levels of emotional problems at both Waves 2 and 3. When looking at changes across the two waves, recent immigrants from Asia and Pacific and Other Europe showed a decrease in emotional problems from Wave 2 to 3, whereas immigrants from Africa and the Middle East, and Central and South America showed an increase.

Figure 4: Percentage of emotional problems among recent immigrants by region of origin

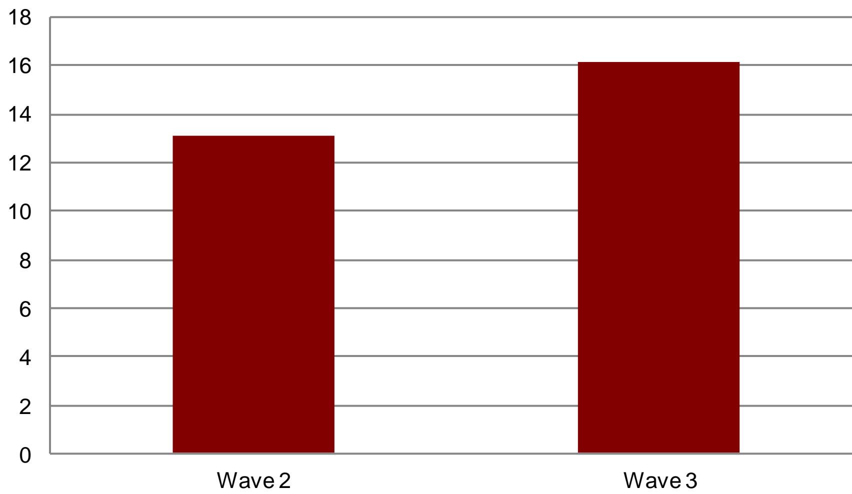


Data source: LSIC, Wave 3

In Waves 2 and 3 of the LSIC, respondents who answered that they have experienced emotional problems since their last interview were also asked whether they got help or talked to someone about these problems. The majority of respondents (68% at Wave 2 and 65% at Wave 3) answered that they got help or talked to someone about the emotional problems they were experiencing. Interestingly, only 12% of the respondents who indicated that they received help or talked to someone at Wave 2 did so by getting help from a professional (17% at Wave 3). Professionals included doctor-general practitioner, doctor-specialist (excluding psychiatrist), nurse, counsellor, psychologist, psychiatrist and social worker. It would be interesting to further investigate if immigrants experience difficulty accessing professional help for emotional problems.

As shown in Figure 5, the prevalence of high stress levels (immigrants who responded that most days are very stressful or extremely stressful) increased slightly from approximately 13% in the second wave to 16% in the third wave. The stress question was not in the wave 1 questionnaire of the LSIC and was only added at Wave 2. Therefore, this variable is only available for Waves 2 and 3.

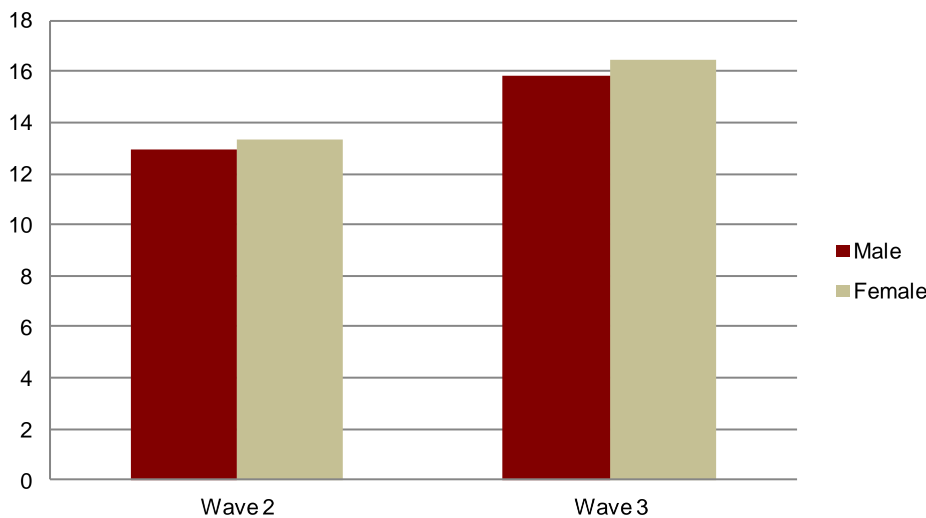
Figure 5: Percentage of high stress levels among recent immigrants



Data source: LSIC, Wave 3

Figure 6 presents the percentage of immigrants who expressed high stress levels by gender. Responses were similar between males and females for both Waves 2 and 3, with females expressing slightly higher levels in both waves. Between Waves 2 and 3 there was found to be a slight increase for both men and women in high levels of stress.

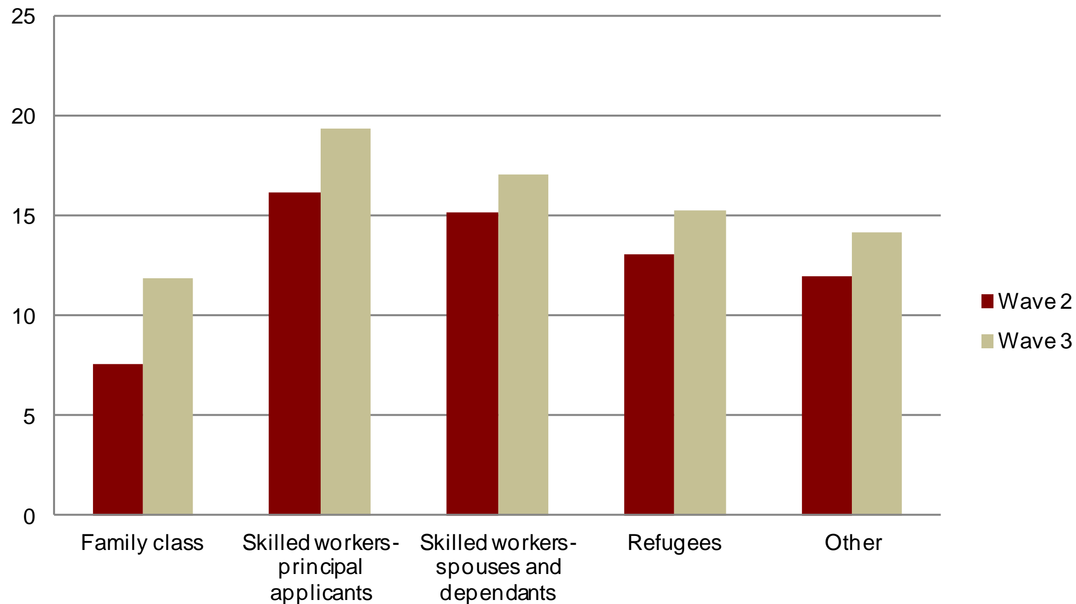
Figure 6: Percentage of high stress levels among recent immigrants by gender



Data source: LSIC, Wave 3

Figure 7 shows the percentage of recent immigrants who reported high stress levels by immigration category. Skilled worker-principal applicants reported the highest levels of all the immigrant sub-groups at both Waves 2 and 3 (approximately 16% and 19%, respectively), whereas family class immigrants reported the lowest levels at both waves (approximately 8% and 12%, respectively). All immigrant sub-groups showed an increase in high stress levels between Waves 2 and 3, with family class immigrants and skilled worker-principal applicants exhibiting the most substantial increase between the two waves.

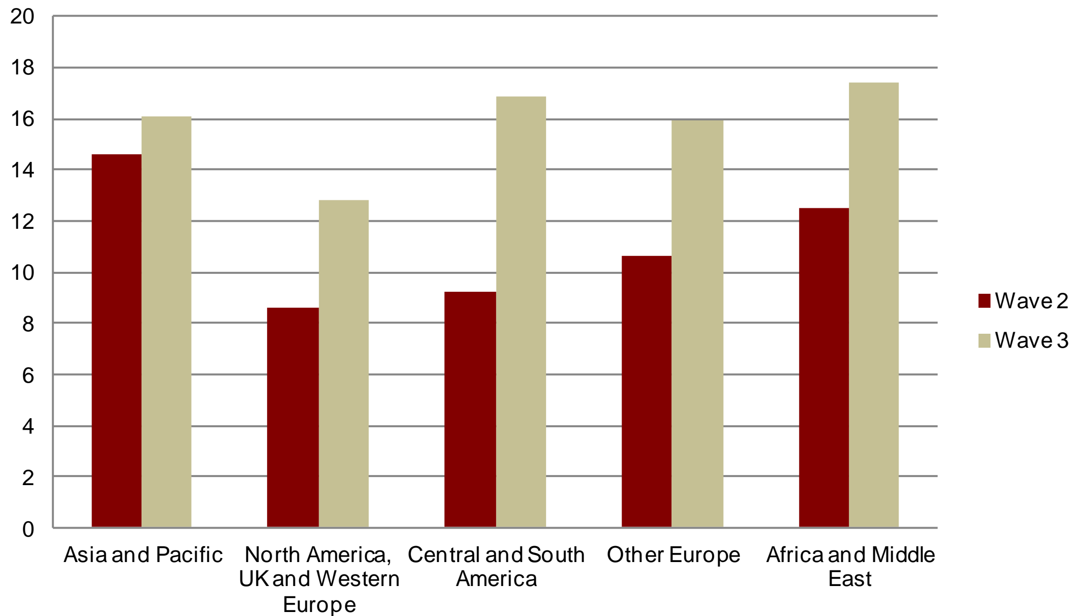
Figure 7: Percentage of high stress levels among recent immigrants by immigration category



Data source: LSIC, Wave 3

As shown in Figure 8, when looking at high stress levels by region of origin, recent immigrants from North America, United Kingdom and Western Europe reported the lowest levels of all the groups in both Waves 2 and 3 (approximately 9% and 13%, respectively). Immigrants from Asia and Pacific reported the highest levels at Wave 2 (approximately 15%), and immigrants from Africa and the Middle East reported the highest levels at Wave 3 (approximately 17%). All groups expressed an increase in stress between Wave 2 and 3, with the most pronounced increase being among immigrants from Central and South America (approximately 9% at Wave 2 to 17% at Wave 3).

Figure 8: Percentage of high stress levels among recent immigrants by region of origin



Data source: LSIC, Wave 3

Main sources of stress

Respondents who indicated that most of their days were not very stressful, a bit stressful, very stressful or extremely stressful, were also asked to indicate the main source of stress in their daily life. When looking at Table 1, we can see that the three most frequent main sources of stress for immigrants in Wave 2 were related to their economic situation (work, finance and employment). Time pressures/not enough time came in fourth position at Wave 2. However, it is interesting to note that the frequency of the employment status as main source of stress dropped by half in Wave 3, whereas time pressures/not enough time frequency increased by more than 50%. The *other* category included other main sources for which the frequency was too small to be reported: discrimination, lack of adequate/affordable housing, integration into Canadian society (own or children's), health of family members in Canada, no source in particular and other.

Table 1: Main source of stress, LSIC, waves 2 and 3

Main Source of Stress	Wave 2	Wave 3
Own work situation	19.3%	22.0%
Financial situation	17.7%	17.0%
Employment status	17.5%	8.8%
Time pressures/not enough time	10.9%	17.3%
Caring for own family or for other than own family	7.4%	6.4%
School	4.4%	3.8%
Adjusting to life in Canada	3.7%	1.8%
Concern for family members abroad	3.6%	2.5%
Loneliness/lack of family support	3.3%	2.3%
Language barrier(s)	3.3%	2.8%
Other personal or family responsibilities	2.6%	2.3%
Own health problem or condition (physical/emotional/mental)	2.2%	3.6%
Personal/family safety (including family abroad)	2.0%	0.9%
Personal relationships	1.3%	1.2%
Other	0.8%	7.3%

Data Source: LSIC, Wave 3.

Regression results and discussion

Due to data limitations of the LSIC, only two points in time (Wave 2 and Wave 3) were available for longitudinal analysis. This is due to a change in the wording of the mental/emotional health question at Wave 2 and the absence of the stress question in Wave 1. There are also some variables that were only collected in Wave 1 (such as presence of family or friends in the city and perception of settlement). Therefore, a regression analysis for Waves 2 and 3 was completed separately.

Logistic regression was used to explore the association between emotional health and stress, socio-demographic, socio-economic, and social networking effects, as well as health utilization variables and psycho-social variables. Bootstrap weights were used to estimate variances and confidence intervals. Results for Wave 2 are shown and discussed in this section. Results for Wave 3 are highlighted only if different than the ones from Wave 2.

Table 2 presents the results of the logistic regression analysis of the emotional health question (experienced emotional problems versus did not experience emotional problems) at Wave 2. The model has an acceptable fit with a p-value > 0.05 for the Hosmer and Lemeshow test (a test which assesses if there is evidence of lack of fit in a logistic regression model). It is worth noting that the same model applied to the Wave 3 data also provided a good fit (with a p-value > 0.05 for the Hosmer and Lemeshow test).

Table 2: Results of logistic regression model for emotional problem, LSIC, wave 2

Variables	Odds Ratio	95% Confidence Interval	p-value
Socio-demographic			
Age group			
(20 to 34)			
35 to 44	1.00	0.8682-1.1536	0.9918
45 and more	0.84	0.7113-1.0034	0.0546
Sex			
(Female)			
Male	0.69	0.5986-0.7853	<0.0001
Visible minority			
(Non-visible minority)			
Visible minority	0.72	0.5465-0.9617	0.0257
Immigrant category			
(Family class)			
Skilled worker - principal applicants	1.08	0.8710-1.3457	0.4745
Skilled worker - spouses and dependants	0.96	0.7669-1.2112	0.7517
Refugees	1.47	1.1182-1.9233	0.0056
Other immigrants	1.11	0.8404-1.4652	0.4629
Region of origin			
(Asia and Pacific)			
North America , United Kingdom and Western Europe	0.51	0.3451-0.7519	0.0007
South and Central America	1.36	1.0591-1.7463	0.0160
Other Europe	0.89	0.6385-1.2447	0.4999
Africa and Middle-East	1.18	0.9781-1.4116	0.0848

Variables	Odds Ratio	95% Confidence Interval	p-value
Socio-economic			
Family income level			
Income quartile 0-25%	1.72	1.4398-2.0577	<0.0001
Income quartile 25-50%	1.37	1.1571-1.6329	0.0003
Income quartile 50-75%	1.16	0.9692-1.3841	0.1062
(Income quartile 75-100%)			
Employment status			
(Employed)			
Not employed	1.03	0.8985-1.1841	0.6597
Education level at landing			
High school or less	0.64	0.5279-0.7861	<0.0001
Trade certificate or college/some university	0.80	0.6780-0.9492	0.0103
(Bachelor's degree)			
Master's degree or above	0.81	0.6865-0.9641	0.0172
Number of individuals in immigrating unit			
(One)			
Two or more	0.96	0.8155-1.1357	0.6501
Marital status			
(Married/common-law)			
Other	0.70	0.5844-0.8369	0.0001
Official language ability			
(Speaking English and/or French)			
Not speaking English or French	0.88	0.7053-1.0873	0.2294
Social networks			
Presence of family in city			
(Family in the city)			
No family in the city	1.05	0.9078-1.2075	0.5285
Presence of friends in city			
(Friends in the city)			
No friends in the city	1.03	0.9078-1.1746	0.6248
Frequency of interaction with family living in Canada			
(Weekly)			
Monthly	1.23	0.9832-1.5511	0.0696
Yearly	0.86	0.6234-1.1907	0.3667
Not at all	0.96	0.8199-1.1124	0.5542
Frequency of interaction with friends living in Canada			
(Weekly)			
Monthly	1.00	0.8421-1.1814	0.9762
Yearly	1.25	0.9797-1.6071	0.0723
Not at all	1.17	0.7599-1.7988	0.4772
Frequency of interaction with family outside Canada			
(Weekly)			
Monthly	0.80	0.6967-0.9101	0.0008
Yearly	0.71	0.5574-0.8944	0.0039
Not at all	0.56	0.3950-0.8038	0.0015

Variables	Odds Ratio	95% Confidence Interval	p-value
Group/organization participation			
(Member)			
Not a member	1.16	1.0151-1.3354	0.0297
Health Utilization			
Problems accessing health care services			
(Did not have problems accessing health care services)			
Had problems accessing health care services	1.89	1.6165-2.2001	<0.0001
Region of residence			
(Ontario)			
Atlantic	1.07	0.5357-2.1295	0.8515
Quebec	0.48	0.3923-0.5783	<0.0001
Prairies	1.18	0.9934-1.3969	0.0596
British Columbia	0.69	0.5775-0.8145	<0.0001
Psycho-social			
Stress			
(Not at all/not very/a bit stressful)			
Very/extremely stressful	2.42	2.0541-2.8426	<0.0001
Perceptions of the settlement			
(Satisfied)			
Neither satisfied or dissatisfied	1.43	1.2170-1.6836	<0.0001
Dissatisfied	2.03	1.6595-2.4753	<0.0001

Notes: Reference categories are in parentheses. R2=0.8699
Data Source: LSIC, Wave 3.

Immigrant males were less likely to report emotional problems than females, and so were immigrants identifying themselves as visible minorities compared to non-visible minorities. Immigrant category and region of origin were also associated with the prevalence of emotional health. Refugees were more likely to report emotional problems than immigrants from the family class. However, immigrants from other categories were not significantly different from family class immigrants. These results are similar to what Newbold (2009) found in his analysis of poor self-reported health.

As for the region of origin, immigrants from North America, United Kingdom and Western Europe were less likely to report emotional problems, whereas immigrants from South and Central America were more likely to report emotional problems, compared to immigrants from Asia and Pacific regions. When looking at socio-economic variables, lower income immigrants were more likely to report emotional problems. Interestingly, immigrants with lower education than a bachelor degree, as well as individuals with a master's degree or more, were less likely to report emotional problems than those with a bachelor degree. Finally, immigrants who were not married were less likely to have experienced emotional problems than those who were married. Further analysis is required to explain these results fully.

Most of the social networks variables were not significant in the emotional problems model. Nevertheless, it is interesting to note that immigrants who had interactions with their family outside Canada less than weekly were less likely to report emotional problems than those with weekly interactions. Further analysis is required to explain this result more fully; it may be the case that individuals who are experiencing emotional problems are more likely to be in frequent

contact with family outside Canada. However, it is also possible that frequent contact with family outside of Canada is associated with family struggles and issues which may compromise emotional well-being. Findings also showed that individuals who were a member of a group or organization were less likely to experience emotional problems than those who were not a member of a group or organization. Zhao et al. (2010) reported similar results for self-rated health status; their findings indicated that individuals who were a member of a group or organization had better self-rated health.

Findings also show that immigrants who had monthly or yearly interactions with their family living in Canada were more likely to report emotional problems than individuals who had weekly interactions. According to Levitt et al. (2005) "the capacity of individuals to cope with transitional circumstances is facilitated by the presence of social support" (160), therefore, infrequent interaction with family living in Canada may be indicative of lower levels of social support and social capital which may put individuals at an increased risk for stress and mental illness.

Both health utilization variables were found to be significant. Immigrants who experienced problems accessing health care services were more likely to report emotional problems (compared with immigrants who did not), and immigrants living in Quebec and British Columbia were more likely to experience emotional problems compared to those living in Ontario. Finally, a high level of stress was associated with emotional problems. This is consistent with the literature on stress and mental illness (Health Canada 2008). Immigrants who indicated that they were neither satisfied nor dissatisfied, as well as those who indicated they were dissatisfied, with the settlement process were more likely to report emotional problems than immigrants who were satisfied. This highlights the importance of a positive settlement and integration experience to immigrants' overall health and well-being. Similar results were observed with the responses from Wave 3; however, the effect of education and marital status disappeared.

Table 3 presents the results of the logistic regression analysis of the stress question (most days are not at all or not very or a bit stressful versus most days are very or extremely stressful) at Wave 2. The model has a good fit with a p-value > 0.05 for the Hosmer and Lemeshow test and some interesting findings can be observed.

Table 3: Results of logistic regression model for stress, LSIC, Wave 2

Variables	Odds Ratio	95% Confidence Interval	p-value
Socio-demographic			
Age group			
(20 to 34)			
35 to 44	1.04	0.8601-1.2579	0.6850
45 and more	1.06	0.8375-1.3541	0.6080
Sex			
(Female)			
Male	0.89	0.7431-1.0635	0.1982
Visible minority			
(Non-visible minority)			
Visible minority	0.71	0.4926-1.0295	0.0710
Immigrant category			
(Family class)			
Skilled worker - principal applicants	1.83	1.3265-2.5129	0.0002
Skilled worker - spouses and dependants	1.53	1.0911-2.1483	0.0137
Refugees	1.92	1.3296-2.7693	0.0005
Other immigrants	1.39	0.9327-2.0828	0.1053
Region of origin			
(Asia and Pacific)			
North America , United Kingdom and Western Europe	0.57	0.3393-0.9414	0.0284
South and Central America	0.88	0.6026-1.2987	0.5315
Other Europe	0.54	0.3464-0.8304	0.0052
Africa and Middle-East	0.88	0.6855-1.1246	0.3031
Socio-economic			
Family income level			
Income quartile 0-25%	1.57	1.2178-2.0121	0.0005
Income quartile 25-50%	1.38	1.0949-1.7518	0.0066
Income quartile 50-75%	0.97	0.7567-1.2394	0.7987
(Income quartile 75-100%)			
Employment status			
(Employed)			
Not employed	0.94	0.7810-1.1223	0.4763
Education level at landing			
High school or less	0.86	0.6565-1.1333	0.2886
Trade certificate or college/some university	0.95	0.7589-1.2005	0.6903
(Bachelor's degree)			
Master's degree or above	1.13	0.9116-1.3948	0.2682
Number of individuals in immigrating unit			
(One)			
Two or more	1.00	0.7824-1.2739	0.9895
Marital status			
(Married/common-law)			
Other	1.18	0.9088-1.5326	0.2140

Variables	Odds Ratio	95% Confidence Interval	p-value
Official language ability			
(Speaking English and/or French)			
Not speaking English nor French	0.73	0.5577-0.9621	0.0252
Social networks			
Presence of family in city			
(Family in the city)			
No family in the city	0.98	0.8052-1.1982	0.8598
Presence of friends in city			
(Friends in the city)			
No friends in the city	1.11	0.9378-1.3203	0.2210
Frequency of interaction with family living in Canada			
(Weekly)			
Monthly	1.29	0.9461-1.7663	0.0696
Yearly	1.03	0.6533-1.6170	0.9055
Not at all	1.11	0.8882-1.3783	0.5542
Frequency of interaction with friends living in Canada			
(Weekly)			
Monthly	1.12	0.9095-1.3847	0.9095
Yearly	1.05	0.7612-1.4349	0.7850
Not at all	2.42	1.5136-3.8841	0.0002
Frequency of interaction with family outside Canada			
(Weekly)			
Monthly	0.97	0.8144-1.1610	0.7569
Yearly	0.86	0.6226-1.1786	0.3417
Not at all	0.92	0.5664-1.4998	0.7427
Group/organization participation			
(Member)			
Not a member	0.98	0.8146-1.1735	0.8086
Health Utilization			
Problems accessing health care services			
(Did not have problems accessing health care services)			
Had problems accessing health care services	1.62	1.3344-1.9690	<0.0001
Region of residence			
(Ontario)			
Atlantic	0.90	0.2846-2.8588	0.8608
Quebec	0.75	0.5790-0.9663	0.0263
Prairies	1.10	0.8681-1.3819	0.4428
British Columbia	0.98	0.7914-1.2243	0.8871
Psycho-social			
Perceptions of the settlement			
(Satisfied)			
Neither satisfied or dissatisfied	1.93	1.5978-2.3310	<0.0001
Dissatisfied	2.55	2.0132-3.2212	<0.0001

Notes: Reference categories are in parentheses. R2=0.6259
Data Source: LSIC, Wave 3.

With respect to the socio-demographic variables, the immigrant category and region of origin were found to be associated with high levels of stress. Skilled workers (principal applicants and spouses and dependents) and refugees were more likely to report high levels of stress than immigrants from the family class. Immigrants from North America and Europe were less likely to experience high levels of stress than immigrants from Asia and Pacific regions.

Immigrants with lower income were more likely to report a high level of stress. Furthermore, individuals who indicated poor or no ability to speak English or French were less likely to experience stressful days than immigrants with the ability to speak at least one of the two official languages. Further analysis is required to explain this result fully. Other socio-economic variables were not found to be statistically significant.

Similar to the emotional health model, the majority of the social networks variables were not significant in the stress model. This result is similar to Newbold's (2009) findings with self-assessed health. The one significant result indicates that immigrants who had no interactions with friends living in Canada (this includes immigrants who indicated having no friends in Canada) were more likely to report a high level of stress. Participation in groups or organizations was not found to be significant.

Both health utilization variables, *problems accessing healthcare* and *region of residence*, were significant. Immigrants who had problems accessing health care services were more likely to report high levels of stress than those who did not have problems. Immigrants living in Quebec (but not immigrants living in British Columbia) were less likely to experience stressful days than those living in Ontario. Finally, immigrants who indicated that they were *neither satisfied nor dissatisfied* or *dissatisfied* with the settlement process were more likely to report high levels of stress than immigrants who were satisfied with the process.

Similar results were found with Wave 3 responses. However, the effect of region of origin, language ability and interactions with friends living in Canada disappeared. Immigrants who identified themselves as visible minorities were less likely to report high levels of stress compared to non-visible minorities. Also, immigrants living in British Columbia (not Quebec) were significantly less likely to experience high levels of stress than those living in Ontario.

Gender analysis

In the emotional health model, females were found to be more likely than males to report emotional problems such as feelings of sadness, depression or loneliness. This finding is consistent with the literature on mental health (WHO 2000). Additional logistic regression models for the emotional health indicator were fitted to explore potential factors affecting men and women differently. The data was separated in two groups (women and men) and a separate analysis was performed for each group. There are some interesting findings that are worth noting. Please note that only interesting findings from Wave 2 data are described below.

Although age was not a significant variable in the overall emotional problem model, it was found to be a significant factor for immigrant men. Immigrant males 35 to 44 years old and 45 years old and over were found to be less likely to report emotional problems than younger immigrant males (20 to 34 years old). This was not the case for women, where age was not significant. Visible minority status only seemed to be associated with emotional health for women, with those who identified themselves as visible minority being less likely to report emotional problems. Female immigrants from South America were more likely to report having emotional

problems that those from Asia and Pacific. This was not found to be the case for male immigrants.

While overall immigrants with a master's degree or above were less likely to report emotional problems, this level of education was only significant for men. Regarding the social networks variables, frequency of interaction with family outside Canada behaved the same way for women as for all immigrants with the odds ratio of reporting emotional problems decreasing with the frequency of interaction. This was not the case for men. Also, being a member of a group or organization was only significant for men (those being a member were less likely to report emotional problems than those who were not a member).

Income and refugee mental health

According to Bowen (2001) "one of the greatest areas of need is for mental health services, particularly for refugees" (31). Refugees have a distinct set of mental health needs; prior to arrival in Canada they may have experienced physical and/or sexual abuse, experienced the stress of war, the loss of family members, and may have spent a significant amount of time in refugee camps (Beiser and Hyman 1997). As a result, refugees may be at a higher risk for suffering from the effects of these various traumatic events (Khanlou 2009).

As indicated in the regression analyses, there are several variables that are highly associated with prevalence of stress and emotional problems including *family income level*. Further analysis into the refugee population reveals that at Wave 2, 46% of the refugee population was concentrated in the lowest income quartile, 35% in the second, 15% in the third and only 4% in the fourth income quartile. This is a very different profile than other non-refugee immigrant subgroups (24%, 24%, 26% and 26%, respectively). Furthermore, when looking at changes between Waves 2 and 3, the percentage of refugees in the lowest income quartile increased from 46% at Wave 2 to 51% at Wave 3, whereas the percentage of other non-refugee immigrant groups remained the same across the two waves (24% at Wave 2 and 23% at Wave 3). These results suggest that refugees may be at a greater risk for poor mental health.

Conclusion

Immigration is a "profound non-normative life transition requiring extensive adaptation" (Levitt et al. 2005, 160) and is often accompanied by a variety of stressors. Using Waves 2 and 3 of the LSIC, we investigated the mental health outcomes of recent immigrants through both descriptive and regression analyses and several key findings emerged.

Overall, about 29% of immigrants reported having emotional problems and 16% reported high levels of stress at wave 3. A slight increase was found in high stress levels from wave 2 to wave 3. Our descriptive and regression analyses suggest that *sex, immigration category, region of origin, income* and *perceptions of the settlement process* were associated with mental health and well-being outcomes for recent immigrants. Descriptive and regression results suggest that females were more likely to report experiencing emotional problems. This finding is consistent with other studies on mental health. According to Health Canada (2002) "studies have consistently documented higher rates of depression among women than men: the female-to-male ratio averages 2:1" (34). These differences in prevalence may be a result of differential symptoms between the sexes: "[f]or example, men are more likely to be irritable, angry and discouraged when depressed, whereas women express the more "classical" symptoms of feelings of worthlessness and helplessness, and persistent sad moods. As a result, depression may not be as easily recognized in a man" (Health Canada 2002, 34).

Results also suggest that immigration category is associated with the prevalence of emotional problems and stress. Refugees were significantly more likely to report experiencing emotional problems and high levels of stress compared to family class immigrants. This finding is supported by previous research on self-rated health using the LSIC (Zhao et al. 2010, Newbold 2009), and highlights the need for further research into the challenges faced by this high risk group.

Region of origin was also found to be associated with the prevalence of emotional problems. Immigrants from South and Central America were more likely to report experiencing emotional problems, whereas immigrants from North America, United Kingdom and Western Europe were less likely to report experiencing emotional problems, compared to those from Asia and Pacific. As for high levels of stress, immigrants from North America and all Europe were less likely to rate most days as very or extremely stressful than immigrants from Asia and Pacific.

Recent immigrants in the lowest income quartile were significantly more likely to report experiencing high levels of stress and emotional problems compared to those in the highest income quartile. This finding is supported by results from Orphana et al. (2009) which suggest that lower income is associated with a higher risk of psychological distress: "the study supports the social causation hypothesis of the income gradient in health, because lower income preceded the development of high psychological distress"(6).

Finally, evidence from the LSIC suggests that recent immigrant perceptions of the settlement process were related to emotional problems. Immigrants who were neither satisfied or dissatisfied or dissatisfied with the settlement process were more likely to report experiencing emotional problems than those who were satisfied.

Policy implications

Findings from this study contribute to our knowledge of disparities in mental health outcomes among recent immigrants. Evidence from the LSIC has shown that immigrant mental health and well-being is associated with a variety of socio-economic integration outcomes including income level, participation in groups or organizations and perceptions of the settlement process.

In May 2012, the Mental Health Commission of Canada released the first ever mental health strategy for Canada. This report contained five recommendations targeted at improving immigrant and refugee mental health which will be discussed within this section. One of the recommendations emphasized the importance of supporting immigrant-serving community organizations collaboration with services and supports in the mainstream mental health system. As the report elaborates, "in collaboration with mainstream mental health services and other service systems, these organizations also have an important role to play in assessing local mental health needs and strengths, and taking action on local priorities" (Mental Health Commission of Canada 2012, 84).

Building on the above noted recommendation, this study suggests that problems accessing health care services are associated with an increased likelihood of experiencing emotional problems and high stress levels. Therefore, community-based integrated mental health services that "address the social determinants of migrant mental health, are gender and life stage sensitive; and recognize both the challenges and resiliencies of diverse groups of migrants" (Khanlou 2009, 16) could help to identify and address barriers to accessing health care services. One example of this is Across Boundaries. Across Boundaries is a community-based ethno-culturally specific service funded by the Ontario Local Health Integration Network that addresses the unique needs of racialized communities by providing a range of services and support including capacity building, health care awareness and promotes community engagement (Across Boundaries 2010).

The other recommendations contained in the report focus on expanding the use of standards for cultural competency and cultural safety through accreditation bodies and associations. These efforts should recognize the role that power imbalances and social disparities can have on relationships. Increasing access to mental health services and other information in diverse languages and the development and implementation of jurisdictional mental health plans was recommended as important.

Government of Canada settlement programs can play a significant role in facilitating social and economic integration, and in turn, impact immigrant overall well-being. For example, this study found that participation in organizations and/or groups is associated with a decreased likelihood of experiencing emotional problems. One of the central priorities of Canada's settlement program is to encourage participation of immigrants in all aspects of Canadian social life and is designed to meet immigrant immediate needs by providing orientation and referral services and facilitates access to social, health and recreational facilities. Therefore, these programs can play a significant role in supporting immigrant settlement and integration into Canadian society.

Results from this paper also indicate that refugees may be at a greater mental health risk compared to other immigrant sub-groups, and they also have a distinct set of needs. Therefore, these findings highlight the need for the Government of Canada's continued support of resettlement services directed to meet the needs of the refugee population. Finally, further research into the mental health outcomes of Canada's refugee population is necessary in order to inform the development of policies and programs directed to meet the needs of this group.

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