



Article

Human rights in countries of origin and the mental health of migrants to Canada

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ABSTRACT

This study explores the effect of human rights violations in countries of origin on migrants' mental health, using archival data on human rights violations from 1970-2011, merged to a representative probability sample of 2412 adults living in a large Canadian metropolitan area. The context of exit is defined at the country level, as opposed to self-reported individual experiences of trauma. While most studies start from a question about direct exposure to human rights violations, they may miss the effect of the national-level social context - threat, instability, disruption of lives, and uncertainty - on mental health. Findings indicate that high levels of human rights violations in countries of origin have long-term effects on migrants' mental health. The impact of human rights violations is substantially explained by the combined effect of stressors both before and after migration, suggesting a cumulative process of stress proliferation following this context of exit.

Introduction

The violation of human rights often accompanying fragile or repressive state regimes has resulted in the displacement of large numbers of migrants (Castles, 2003; Zolberg, Suhrke, & Aguayo, 1989). Because of the social and political context described by these conditions, these migrants may experience later mental health problems after resettlement. The specific question in this paper is whether human rights violations leading up to and at time of exit from a home country have long-term deleterious consequences on migrants' mental health. Given the promise of escape from difficulty in the country of origin coupled with the promise of a new start in the country of reception, at issue is whether the cumulative life history of stressful life experiences following from this context of exit (Joly & Wheaton, 2015; Rumbaut, 1991; Vega & Rumbaut, 1991) may explain the long-term deterioration in mental health after migration.

Current understandings of the effect of human rights violations on migrants' mental health are largely based on studies that include only a small number of countries of origin - often one to three (see Guarnaccia, 1997; Portes & Rumbaut, 2006 for reviews). These studies usually exclude those who are *not* recognized as refugees, or those who are not the direct targets of violence (Bojic, Njoku, & Priebe, 2015). Because these studies often start from a question about direct individual

exposure to human rights violations and traumatic events (e.g. Marshall, Schell, Elliott, Berthold, & Chun, 2005; Momartin, Silove, Manicavasagar, & Steel, 2003; Priebe et al., 2010), they may miss the effect of the broader social context - threat, instability, disruption of lives, uncertainty - on migrants' mental health.

Contexts of exit described by human rights violations are interpreted in this paper as a contextual effect defined by a macro-level continuing chronic stress occurring at the country level. The unpredictability of violence, and the threat of imminent or random application of loss of rights may have a generalized impact on the population. Following others (Aneshensel, 2010; Wheaton, Young, Montazer, & Stuart-Lahman, 2013), these macro-level stressors may also have important cross-over effects on exposure to related stressors in individual lives.

Because the data used here is gathered at a common destination, we cannot estimate the influence of the context of exit in a multilevel framework: migration data will either be sparse with regards to the number of countries of origin, or the number of migrants per country. However, we invoke the theoretical concept of national contexts of exit, while estimating this influence necessarily as a part of life history - just as would be the case in any study of life history contexts.

The emphasis in the literature on direct exposure to human rights violations focuses on an important question, but it also excludes the

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possibility that the impact of a *climate* of human rights violations may be broader. This argument is fundamental in the literature on chronic stress, where the expectation of harm, or the continuing pressure of threat, is the stressor (Wheaton et al., 2013). Our question asks more broadly: is there a significant increase in risk due to exposure to a social context defined by human rights violations, and all of the accompanying fallout in day-to-day social life?

We first examine the effect of human rights violations in countries of origin at the time of migration using country-level data from the Political Terror Scale (Gibney & Dalton, 1996), on migrants' mental health, measured in terms of levels of distress, using individual-level data from a representative probability sample of adults living in a large metropolitan area of Canada, followed by the explanatory role of pre- and post-migration stressors that may accompany or follow from this context of exit. The sample includes more than 100 different countries of origin, which allows for a clearer separation of the effects of this context of exit from the particulars of culture, region, or history. In addition, we include a comparison with the native-born, which allows the separation of context of exit described by human rights violations from the effects of migration per se. Including the native-born as a secondary control group in the design is important to our overall interpretation of findings. By including the native-born, we see additionally how differences among migrants compare to the norms for the native-born. For example, we want to know if differences in exposure to stress result in significant differences in mental health between migrants and the native-born.

Context of exit and mental health

The literature on social stress argues that social contexts vary in their level of collective threat, instability, and uncertainty and thus have direct consequences for mental health (Aneshensel, 1992; Aneshensel et al., 2007). Social contexts that are threatening or perceived as dangerous have also been empirically linked with worse mental health outcomes (Aneshensel & Sucoff, 1996; O' Campo et al., 2015), notably through their influence on subsequent stressors and a cumulative sense of powerlessness, mistrust, and victimization (Ross & Mirowsky, 2009). Interpreted as a form of contextual threat, state repression may have especially detrimental and long-term consequences on mental health (De Jong, 2002; Pedersen, 2002).

The prevalence of human rights violations in a population may have generalized impacts on mental health risk even when individuals are not directly exposed to individual stressors. Contextual stressors exert their impact through the diffusion of both a generalized sense of threat and a continuous sense of unpredictability, the widespread disruption of essential institutions, and thus ultimately the fundamental disruption of individual identities and lives. In repressive countries, torture, extrajudicial killings, political detention, and forced disappearance lead to fear and insecurity that become part of the social fabric of everyday life (Desjarlais, Eisenberg, Good, & Kleinman, 1995). Terror can destroy social relations, amplify the sense of mistrust, and lower a person's sense of personal control, which may affect mental health (Martín-Baró, 1989; Mirowsky & Ross, 1990).

An exception to the prevalent approach in the literature focusing on individual exposure is a study by Steel et al. (2009), who examined the effect of human rights violations on mental health in a meta-analysis of 161 studies using country data from the Political Terror Scale. However, the sample is limited to refugees and displaced persons from conflict-affected countries, thus limiting generalizability. Still, consistent with our argument, Steel et al. (2009) found a higher rate of post-traumatic stress disorder among displaced and refugee populations from countries with high levels of human rights violations (39 percent) compared to those from countries with lower levels of human rights violations (28 percent).

Other research provides clues that the mental health effects of human rights violations in countries of origin can extend beyond those who are directly exposed or most at risk of exposure. Studies from El

Salvador and Colombia, for example, found a high prevalence of mental disorders in communities not directly affected by conflict (Londoño, Romero, & Casas, 2012; Ugalde, Selva-Sutter, Castillo, Paz, & Cañas, 2000). A study of young adults in Indonesia also reported that forty percent of those who lived in areas not directly affected by conflict felt their lives were in danger as compared to seventy percent of those in areas most affected by conflict, and this feeling of threat was associated with an increased risk of psychological distress (Turnip, Klungsøyr, & Hauff, 2010).

Another way national context defined by human rights violations may affect mental health is through the impact of associated country-level forms of stress, such as armed conflicts and low economic development (Davenport, 2007). Armed conflicts can disrupt the economy, destroy social networks, and restrain access to basic needs and services, which may affect mental health (Murray, King, Lopez, Tomijima, & Krug, 2002). Additionally, low economic development can affect mental health through its effect on the education and health care systems, and level of violence (Patel, 2007).

The effects of a background social context defined by human rights violations may not be confined to an initial period of adjustment in a new country. This would be the case especially if the life history of individuals from countries where human rights violations are prevalent is also marked by the continuation and spread of stressors reflecting the transfer of threat and insecurity to new circumstances. Joly and Wheaton (2015), in a study on the impact of armed conflicts in countries of origin, found that migrants from countries involved in a major intra-state armed conflict at the time of migration had worse mental health compared to those from countries involved in a minor or no conflict, and to the native-born population, on average, up to 12 years later. They also found that the spillover of stress over time was evident for migrants from armed conflict backgrounds. Therefore, we may see that contextual exposure to human rights violations and individual experience of stress combine to produce long-term outcomes after migration occurs.

Contexts of exit, stress proliferation, and mental health

This paper attempts to explain the long-term effect of human rights violations on migrants' mental health using the stress proliferation argument. According to this argument, an initial stressor, such as exposure to a threatening social context, can produce a chain of secondary exposures to other stressors (Pearlin, 1999). In fact, one of the cornerstones of the original Stress Process model (Pearlin, Menaghan, Lieberman, & Mullan, 1981) was the fact that stress exposures changed the likelihood of subsequent stress exposures, in effect, that stress inequality cumulates over time. An initial stressor may therefore have an indirect effect on mental health, by either the maintenance of a "signal" of threat or insecurity or through the cumulation of stress exposure over time (Thoits, 2010).

Fig. 1 shows the basic outline of the argument we propose. It shows the connections between the context in country of origin and eventual mental health in the country of reception. As shown in Fig. 1, contexts of exit such as high human rights violations may be associated with these disparities through both concurrent and subsequent stress exposures that could occur before and after migration. We argue that differences in stress exposure after migration apply differentially depending on contexts of exit: differences with the native-born may be larger for migrants whose contexts of exit were more stressful, following the stress proliferation argument, but also via the spillover of a sense of threat and insecurity that survives after migration.

The migration literature also argues that contexts of exit may have significant influence on lived experiences in countries of origin and subsequent adaptation in countries of reception (Portes & Böröcz, 1989; Vega & Rumbaut, 1991). Living in contexts defined by human rights violations can expose individuals to multiple kinds of traumatic events before migration that may undermine mental health (Scholte et al.,

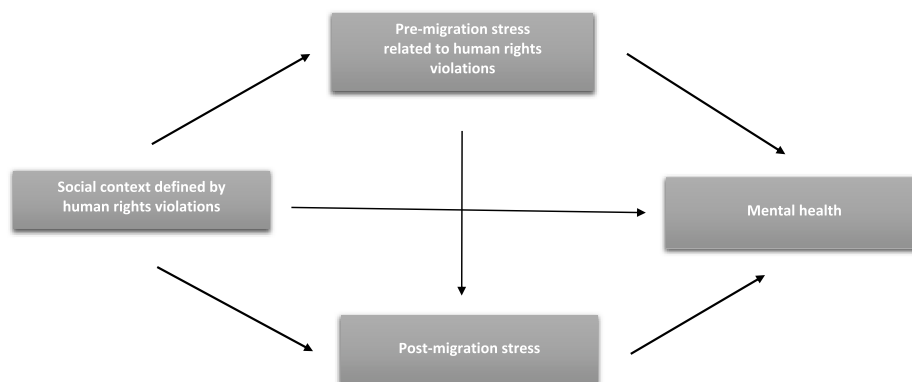


Fig. 1. Connections between human rights violations in countries of origin and eventual mental health in the country of reception.

2004). Traumatic events such as being injured, witnessing violence, or knowing about the disappearances of others, and the direct experience of human rights violations, such as being tortured, kidnapped, or imprisoned, have been associated with various mental health outcomes after migration (Momartin et al., 2003; Priebe et al., 2010).

These contexts can also expose migrants to more stress after migration. Migrants from countries with high levels of human rights violations may start in a new land with specific disadvantages. The consequences could include unemployment and inactivity in the labor force after migration (Van Tubergen, Maas, & Flap, 2004), and acculturative stress (Steel, Silove, Bird, McGorry, & Mohan, 1999). Rees, Silove, Tay, and Kaneth (2013) found that migrants who leave during periods of human rights violations may experience post-migration stress resulting from the persistence of problems in their countries of origin.

In sum, the life course pathways set in motion by exposure to a context of human rights violations suggest both the generality and stability over time of mental health consequences. But because of the design of prior studies, we still do not know whether human rights violations as a macro-level form of stress is associated with migrants' mental health, whether the effects of human rights violations survive after controlling for related forms of contextual stress at the country-level (such as armed conflict), and whether chains of stress experience are set off by a context of human rights violations.

Specifying human rights violations

Our study uses the Political Terror Scale (Gibney & Dalton, 1996) to specify the level of human rights violations in each country. The Political Terror Scale (PTS) is a widely used indicator of states' human rights violations that is increasingly being used in mental health research among conflict-affected populations (Charlson et al., 2019; Steel et al., 2009). The PTS is created along dimensions useful to our study, including the intensity, scope, and range of states' violations of physical or personal integrity rights such as political imprisonment, extrajudicial killings, and disappearances, based on Amnesty International annual country reports (Wood & Gibney, 2010). On this scale countries are given a score of 1, 2, 3, 4, or 5 in a given year, defined as: 1) "countries ... under a secure rule of law [...]" (Wood & Gibney, 2010, p. 373) 2) "a limited amount of imprisonment for nonviolent political activity. However, few persons are affected, torture and beatings are exceptional [...]" 3) "extensive political imprisonment ... Execution or other political murders and brutality may be common [...]" 4) "the practices of level 3 are expanded to larger numbers. Murders, disappearances, and torture are part of life [...]" 5) and "the terrors of level 4 have been extended to the whole population [...]" The Political Terror Scale has been found to correlate highly with the Cingranelli-Richards (CIRI) Human Rights Data Project ($r = 0.65$), which is another indicator of states' violations of physical integrity rights (Cingranelli & Richards, 1999; Wood & Gibney, 2010). Exposure to traumatic events also appears

to be higher in countries that have a higher score on the Political Terror Scale (Steel et al., 2009).

Research questions

We assess three basic research questions in this study: 1) is there a threshold level of human rights that results in long-term shifts in mental health, even after migration?; 2) do human rights violations have a net effect on mental health, after controlling for related country-level conditions?; and 3) what are the implications of both pre- and post-migratory stressors in these differences?

Methods

Data

The analysis is based on individual-level data merged with country-level data. The individual-level data come from the Neighbourhood Effects on Health and Well-being (NEHW) Study. The NEHW study is a multistage area probability sample of English-speaking adults aged between 25 and 64 living in the city of Toronto, Canada (O' Campo et al., 2015). In-person interviews were done between 2009 and 2011 with 2412 individuals, representing a response rate of 72 percent.

The analytical sample includes 1461 Canadian-born and 612 foreign-born respondents from more than 110 different countries of origin, as shown in Table 1. The highest percentage of any single country is around 9 percent and it takes 24 countries to reach 70 percent. Of these countries, the United States, the United Kingdom, Sri Lanka, Pakistan, Portugal, the Philippines, China, Jamaica, Trinidad & Tobago, Guyana, and India are the most represented. Importantly, even these countries represent diverse origins.

The country-level data come from the Political Terror Scale (Gibney & Dalton, 1996), the Penn World Tables (Heston, Summers, & Aten, 2009), and the UCDP Conflict Termination dataset (Kreutz, 2010). The Political Terror Scale provides data on human rights violations from more than 180 countries for the years 1976 through 2011. Penn World Tables provides macroeconomic data for countries worldwide such as the Gross Domestic Product per capita for the years 1950s onward. The UCDP Conflict Termination dataset consists of global data on armed conflicts collected for the years 1946–2007.

Measures

Psychological distress

Psychological distress is measured with 10 items based on the Kessler Psychological Distress Scale (K10) (Kessler et al., 2002). Respondents were asked how often in the past two weeks they experienced symptoms of anxiety and depression such as feeling "nervous," "sad," and "like everything was an effort," "tired all of the time," "depressed",

Table 1
Countries of origin in the migrants sub-samples (n = 612), by percent.

Less than 1%				
Afghanistan	Dominican Republic	Kenya	Romania	Venezuela
Albania	Egypt	Kuwait	Russia	Vietnam
Angola	El Salvador	Latvia	Saint Lucia	Yemen
Argentina	Estonia	Lebanon	Saudi Arabia	Zambia
Australia	Ethiopia	Lesotho	Serbia	Zimbabwe
Austria	Finland	Liberia	Sierra Leone	
Bahamas, The	Fiji	Malaysia	Singapore	
Barbados	France	Mauritius	Slovakia	
Belgium	Gambia, The	Moldova, Rep. of	South Korea	
Bermuda	Germany	Montenegro	Spain	
Bosnia	Ghana	Morocco	Sweden	
Brazil	Guatemala	Mozambique	Switzerland	
Bulgaria	Haiti	Nicaragua	Syrian Arab Republic	
Burundi	Hungary	Nepal	Taiwan	
Chile	Iceland	Netherlands	Tanzania	
Colombia	Indonesia	Netherland	Thailand	
Croatia	Iraq	New Zealand	Turkey	
Cuba	Israel	Nicaragua	Turkey	
Czech Republic	Italy	Nigeria	Uganda	
DR of the Congo	Japan	Panama	United Arab Emirates	
		Peru	Uruguay	
		Rep. of Macedonia		
Between 1% and 2%				
Bangladesh	Grenada	Mexico	Somalia	St-Vincent & Grenadine
Ecuador	Iran, Islamic Rep. of	Rep. of Ireland	South Africa	
Between 2% and 9%				
China	Jamaica	Poland	Sri Lanka	United States
Guyana	Pakistan	Portugal	Trinidad & Tobago	United Kingdom
India	Philippines			

“over-excited,” “just as good as other,” “fidgety,” “that your life was a failure,” and “so nervous, nothing keep you calm.” Responses are coded from none of the time (1) to all of the time (5) and, for the one positively-worded item, reverse-coded, so that high scores reflect more psychological distress ($\alpha = 0.83$).

Human rights violations

Human rights violations in the country of origin is measured using the country’s scores on the Political Terror Scale (PTS) (Gibney & Dalton, 1996) at the year of immigration. Scores could range from 1 to 5, with higher scores indicating greater repression of human rights (Wood & Gibney, 2010). Because of the sparseness in some categories and/or the absence of differences in adjacent categories (analyses not shown) we collapsed some categories, and identified countries of origin as experiencing low, moderate, and high levels of human rights violations if their score on the PT scale was lower than, equal to, or greater than 3. We also used data collected on politicide and genocide (Harff, 2003; Harff & Gurr, 1988) to identify countries experiencing high levels of human rights violations between the years 1970–75, and supplemented these with PTS scores for the year of 1976 to classify countries of origin as either low or moderate level of human rights violations. Migrants arriving before 1970 cannot be included in this analysis (N = 194). By concentrating on post-1970 migrants, we remove the distinction between the pre- and post-points system era for admission of migrants to Canada (Boyd & Vickers, 2000).

Results use a conditional coding scheme to separate the effects of foreign-born status per se from differences due to context of exit among the foreign-born. Foreign-born status is measured by a dummy variable with foreign-born coded 1 and native-born coded 0. The foreign-born are then subdivided into three groups based on the level of human rights violations (HRV) in countries of origin at the time of migration: high HRV (n = 188), moderate HRV (n = 126), and low HRV (n = 298).

In this conditional coding system, the dummy variable for foreign-born status contrasts migrants from the lowest HRV with the native-born Canadians (because this is the reference group on the coding of HRV). The difference between the other migrant groups and the reference group of low HRV is estimated by two dummy variables describing moderate and high HRV, and the differences with the native-born Canadians are then estimated by the sum of the coefficients for each coded context of exit and for foreign-born status. The statistical significance of the differences is assessed with post-hoc tests.

Stress

Pre-migration stressful life events is measured with 9 items (Turner, Wheaton, & Lloyd, 1995). Items include: “have you ever been in a major fire, flood, earthquake, or other natural disaster;” “have any of your parents died;” “has a spouse of other loved one, including other children you have had, died;” “did you ever have a major illness or accident that required you to spend two weeks or more in the hospital;” “have you ever had a serious accident, injury or illness that was life-threatening or caused long-term disability;” “did either or your parents drink or use drugs so often or so regularly that it caused problems for the family;” “did your parents often have major arguments with each other,” “did either of your parents have such a problem with nerves or depressions that they were unable to work or had to have treatment;” and “did your parent(s) had so little money that you’ve lived much of your childhood in poor housing, or not being able to pay bills or buy food and clothes.” To determine whether the event occurred before migration, we used the age reported for each event compared to the age at immigration. The final scale is the count of stressful life events the foreign-born respondents experienced before immigration.

Post-migration acculturative stress is measured with a 10-item scale adapted from the Acculturative Stress Index (Noh & Avison, 1996). Foreign-born respondents were asked to indicate how often, on a 4-point scale from never (1) to very often (4), they experience difficulties because of feelings or circumstances such as “missing their country of origin,” “having difficulties with the English language,” and “being disappointed with their standard of living.” Responses are averaged to form a scale ($\alpha = 0.98$), which is standardized to a mean of 0. Native-born respondents are then given a value of 0, so that the basic effect of foreign-born vs. native-born is at the average level of differences among the foreign-born. Thus, acculturative stress is conditionally coded and only represents variation among the foreign-born.

Perceived discrimination is measured with a six-item version of the Everyday Discrimination Scale (Williams, Yu, Jackson, & Anderson, 1997). For example, respondents were asked how often in their day-to-day life they “are threatened or harassed,” “are called names or insulted,” because of their race, ethnicity or culture. Responses for each item range from almost every day (1) to never (6). All items are reverse-coded and averaged ($\alpha = 0.87$).

Recent life events is a count of affirmative responses to twenty items about stressful events experienced in the past year, similar to many other lists of life events (Turner et al., 1995). Sample items include being “fired or laid off,” “robbed,” “in trouble with the law,” “accused or arrested for a crime,” having “major financial problems,” and “a serious accident or injury.”

Non-employment is coded 1 for not employed and 0 for currently employed.

Work-related stress consists of six items (Wheaton, 1991). Sample items include “work is boring and repetitive,” “have no control over the pace of work,” and “don’t get paid enough.” Responses are coded from not true (0) to very true (2) and averaged to form a scale, which is standardized to a mean of 0 ($\alpha = 0.65$). Respondents who do not work are given a value of 0 on this variable, using conditional coding.

Financial strain is measured with three items asking respondents the extent to which they “don’t have enough money to buy the things you (or your kids) need,” “don’t have enough money to take vacations,” and their “rent or mortgage is too much” (Wheaton, 1991). Responses are

coded from not true (0) to very true (2) and are averaged ($\alpha = 0.77$).

In addition, we created a measure of cumulative stress with these measures. This combines our measures of pre- and post-migration stress, which we standardized. The final scale is the sum of these measures standardized to a mean of 0 and a standard deviation of 1.

Table 2 presents the means, standardized deviations, and correlation matrix of the disaggregated social stress variables included in the analysis. As we can see, collinearity is not an issue. The highest correlation is between work stress and financial stress ($r = 0.31$).

Modifiers and controls

Length of stay is a continuous variable centered to a mean of 0, with native-born coded 0 using conditional coding. Because the mental health effect of human rights violations and stress may lessen or increase with time, our models include a quadratic term for length of stay.

Control variables include sociodemographic characteristics that may be associated with psychological distress or human rights violations and act as confounders. Refugee status is coded 1 for respondents who came to Canada as refugees and 0 for all others (i.e. immigrants, on work visa/permit, family-class, international students, visitors, and others). The native-born are conditionally coded 0. Gender is coded 1 for females and 0 for males. Education is measured with two continuous variables centered at their mean: years of schooling for the foreign-born, with the native-born conditionally coded 0, and years of schooling for the native-born, with the foreign-born conditionally coded 0. This allows for specific estimation of the potentially distinct effects of education among the foreign-born vs. the native-born. Race/ethnicity is coded into ten dummy variables following a modified version of the classification used by Statistics Canada in the census of 2006: Black, Caribbean, Latin American, East/Southeast Asian, South Asian, West Asian/Arab, Jewish, other racial/ethnic group, multiple groups, and White (the reference group). Marital status is coded 1 for married and 0 for unmarried. Age is measured in years and includes a quadratic term.

We control also for armed conflict and the level economic development, which have been associated with migrants' mental health (Joly & Wheaton, 2015; Montazer & Wheaton, 2017). Armed conflict in the country of origin is measured using data from the UCDP Conflict Termination dataset (Kreutz, 2010). We considered the start and end year of armed conflict episodes and the year of immigration to Canada to determine whether migration took place during an armed conflict episode. We then considered information on the type of armed conflicts to determine if migration occurred during an intrastate conflict. Using the same conditional coding scheme as for the measure of human rights violations, armed conflict is coded 1 for those who migrated during an intrastate armed conflict and 0 otherwise. Economic development in the country of origin is measured using country-year data from Penn World Table 6.3 (Heston, Summers, & Aten, 2009) on gross domestic product (GDP). The variable is centered at its mean, with the native-born coded 0 again using conditional coding.

Table 2

Means, standard deviations, and correlations among the social stress scales included in the analysis (N = 2073).

Variable	Mean	S.D.	Variable					
			(1)	(2)	(3)	(4)	(5)	(6)
(1) Premigration stress	0.26	0.49	-	-	-	-	-	-
(2) Acculturative stress ^a	0.09	0.53	0.27	-	-	-	-	-
(3) Discrimination	1.44	0.65	0.04	0.11	-	-	-	-
(4) Recent life events	0.55	0.98	0.03	-0.01	0.19	-	-	-
(5) Financial strain	0.61	0.62	0.13	0.22	0.24	0.25	-	-
(6) Work-related stress ^a	0.01	0.35	0.09	0.12	0.17	0.09	0.31	-
(7) Non-employment	0.30	0.45	-0.01	0.10	0.09	0.13	0.20	-0.01

^a Scales standardized to a mean of 0, with the native-born conditionally coded 0.

Analysis

Because the data are from a neighbourhood survey, mixed models are used throughout. These models specify both fixed (regression) and random (variance) components of the model. In all models reported, the primary random component is variation at the neighbourhood level. In our analysis this variation is controlled, but not specified. As mentioned above, the sparseness of embeddedness of individuals within countries prevents a multi-level specification of those contextual effects. There are many types of theoretically plausible contextual effects which deserve attention, but may not conform to the data demands of an explicit multi-level approach. Therefore, our results for HRV could indirectly reflect other unmeasured differences across countries not considered here.

The analysis begins with a set of models that estimate the effect of human rights violations on psychological distress, with adjustment for the controls discussed above. We then estimate a second set of models that examine the role of pre-migration stressful life events and post-migratory stressors in explaining the effects of human rights violations on psychological distress. Finally, we also estimate models to test the time-dependent effect of human rights violations on psychological distress using interaction terms between length of stay and the human rights violations variables.

Results

Descriptive results

Table 3 presents descriptive statistics for the sample by nativity and human rights violations (HRV). As can be seen, 30 percent of migrants in the sample come from countries with high HRV, and just over 20 percent come from countries with moderate HRV. Another 50 percent of migrants come from countries with low HRV.

In general, migrants from countries with moderate and high HRV are more likely to come from countries affected by armed conflicts and lower levels of economic development, compared to migrants from countries with low HRV. They are also more likely to have left their home countries as refugees, have been in Canada for fewer years, and are more educated. A higher proportion of migrants from countries with moderate and high HRV are married and are South Asian, compared to migrants from countries with low HRV and the native-born. The moderate HRV group has fewer women than the native-born, while the low HRV group has more women.

Migrants who left their home countries during conditions of moderate/high HRV report more stressful life events experienced prior to immigration than migrants who left their countries during conditions of low HRV. After migration, they also experience more acculturative stress. Migrants who left during conditions of high HRV report more discrimination than the native-born. They are however less exposed to negative life events in Canada than both migrants from countries with low HRV and the native-born. All migrant groups experience greater economic hardship than the native-born, and migrants from countries with moderate and high HRV experience more economic hardship and

Table 3
Descriptive statistics by nativity and human rights violations in countries of origin (N = 2073).

	Migrants from Countries with			Native-born Canadians
	Low human rights violations	Moderate human rights violations	High human rights violations	
	N = 298 (49%)	N = 126 (21%)	N = 188 (30%)	N = 1461
Armed Conflict (%)	1.05	25.49 ^a	70.55 ^a	–
GDP	7546.86 (422.91)	5716.54 (617.45) ^a	3464.31 (180.76) ^a	–
Refugees (%)	5.06	9.62 ^a	15.56 ^a	–
Length of stay	23.65(0.63)	14.85(0.87) ^a	14.13(0.72) ^a	–
Age	43.78(0.60)	42.63(0.90)	42.66(0.64)	42.77(0.28)
Female gender (%)	59.49 ^b	41.15 ^{a,b}	48.48 ^a	49.80
Married (%)	46.92	70.02 ^{a,b}	74.37 ^{a,b}	43.03
Education (years)	15.88(0.24) ^b	17.06(0.30) ^a	16.73(0.28) ^a	16.58(0.09)
Black (%)	9.35 ^b	4.74 ^{a,b}	8.39 ^b	0.27
Caribbean (%)	13.75 ^b	4.86 ^{a,b}	–	0.58
East/Southeast Asian (%)	6.07 ^b	13.07 ^{a,b}	15.88 ^{a,b}	1.76
South Asian (%)	3.25 ^b	21.66 ^{a,b}	36.98 ^{a,b}	1.10
Latin American (%)	4.14 ^b	15.66 ^{a,b}	8.03 ^{a,b}	0.40
West Asian/ Arab (%)	–	7.59 ^b	7.20 ^b	0.22
Jewish (%)	2.66 ^b	2.86	2.00 ^b	6.71
Other (%)	1.20	–	1.36	1.12
Multi (%)	24.89 ^b	6.65 ^a	14.66 ^{a,b}	8.37
White (%)	34.69 ^b	23.74 ^{a,b}	5.76 ^{a,b}	79.46
Pre-migration stress	0.18(0.03)	0.43(0.07) ^a	0.32(0.05) ^a	–
Recent life events	1.15(0.05)	1.70(0.11)	1.05(0.06) ^b	0.59(0.03)
Acculturative stress	1.01(0.04)	1.43(0.06) ^a	1.52(0.05) ^a	–
Discrimination	1.45(0.04)	1.46(0.06)	1.59(0.05) ^{a,b}	1.38(0.02)
Financial strains	0.64(0.04) ^b	0.74(0.06) ^{a,b}	0.78(0.05) ^{a,b}	0.50(0.02)
Work-related stress	0.54(0.03)	0.71(0.05) ^{a,b}	0.63(0.03) ^{a,b}	0.56(0.01)
Non-employment (%)	30.88	28.81	32.05	29.70
Cumulative stress	0.14(0.65)	0.13(0.77)	0.14(0.63)	-0.22(0.37)

Note: Means and standard errors (in parentheses) for continuous variables.

^a Different from migrants from low HRV countries (p < 0.05).

^b Different from the native-born (p < 0.05).

work-related stress than migrants from countries with low HRV. Migrants who left their countries during conditions of moderate/high HRV also experience greater cumulative exposure to stress than migrants who left their countries during conditions of low HRV as well as the native-born.

Psychological distress after migration

Table 4 presents the results of mixed regression models for the effect of human rights violations (HRV) in countries of origin predicting psychological distress, first without controls, and then with controls. Model 1 is the baseline model and shows that migrants from countries with high HRV have significantly more distress than migrants from countries with low HRV. Migrants from countries with high HRV also have significantly more distress than the native-born, whereas migrants from countries with low HRV have significantly less distress.

Controlling for the level of economic development and armed conflicts in countries of origin in model 2 has little effect on differences due

to HRV background. In analyses not shown, we found that the level of economic development in countries of origin was unrelated to distress, both when examined in separate models alone or with human rights violations or armed conflict in the model. By contrast, it was found that armed conflicts had a significant effect on distress, net of the level of economic development. Human rights violations and armed conflicts are overlapping, and so, looking at the results in model 2 we see some suggestion that the inclusion of both armed conflict and human rights violations reduces the significance of one, and that the effect of armed conflict is somewhat explained by the associated influence this may have on human rights violations. These results suggest the importance of considering multiple features of the context of exit, especially if policies are only able to focus on single markers of risk.

In model 3, controlling for sociodemographic characteristics leads to a modest change in the coefficient for high HRV vs. low HRV – but this change is towards a larger net difference. The differences for moderate vs. low HRV also increase, by close to 40%. These changes likely reflect some suppression either due to SES differences, since migrants from higher HRV countries are more educated than those from lower HRV countries, or due to the prevalence of women from lower HRV backgrounds. When both factors are controlled, this adjusts the net distress differences downward for lower HRV countries and upwards in moderate to higher HRV countries.

In model 4, with all controls, we observe the same general differences as in model 1 except in the case of one group – differences between the moderate vs. low HRV group are notably stronger.

Post-hoc tests not shown further show that the level of distress in migrants from countries with moderate HRV is not significantly different from the level of distress in migrants from countries with higher HRV, suggesting there is a threshold to the effect of HRV, starting at moderate levels. We also assessed an interaction between human rights violations and length of stay on distress, and important to our results overall, it was not significant. This finding, in conjunction with the average length of time in Canada among migrants from moderate/high HRV countries (15 years) suggests long-term effects, since the effect of HRV background does not resolve with time.

Table 5 presents the results of mixed regression models which show the role of pre-migration stress and variants of post-migratory stress in explaining the effect of human rights violations on psychological distress. Since armed conflict and economic development in countries of origin are not associated significantly with psychological distress due to HRV background (Table 4), they are not included in these models. However, the other controls are present, though not shown in the table. Comparing model 1 to model 2 we see that the higher level of distress among migrants from countries with moderate and high HRV is only in small part due to stressful life events experienced before migration. The coefficient estimates are smaller, but by minor amounts, with the coefficient for migrants from moderate HRV countries being reduced to marginal significance. This reflects the higher rates of pre-migration stressors in this group noted in Table 3. In model 3, these differences also diminish slightly once length of stay is controlled, but more so for the moderate HRV groups than others. The coefficient for the moderate HRV group remains essentially nonsignificant from this model forward. Because of this, we focus on explaining the effect of higher HRV background.

Models 4 through 8 add post-migratory stressors to model 3 individually before all are added in model 9. Comparisons in these columns are between each model and model 3 as the baseline. With the addition of acculturative stress in model 4 the coefficient for high HRV countries is reduced somewhat (by 21 percent) but remains significant. This suggests that acculturative stress does help to explain the elevated level of distress among migrants from countries with high HRV. It also reflects the fact that acculturative stress is more prevalent among this group (Table 3).

Model 5 shows that post-migratory (and recent) life event stress has little to do with explaining the effects of high HRV on distress. This

Table 4
Mixed regression models estimating the effect of context of exit on distress after migration (N = 2073).

	Model 1	Model 2	Model 3	Model 4
Human rights violations (vs. low HRV)				
Moderate hrv.	0.560	0.568	0.978*	0.946*
High hrv.	1.420***	1.404***	1.677***	1.487***
Human rights violations (vs. native-born)				
Low hrv.	-0.563*	-0.651*	-0.454†	-0.570†
Moderate hrv.	-0.003	-0.083	0.524*	0.377
High hrv.	0.858**	0.753†	1.223*	0.917 *
Controls				
GDP		0.000	–	0.000
Armed conflict		0.227	–	0.518
Refugee status			1.139†	1.144†
Female gender			1.123***	1.116***
Married			-1.540***	-1.560***
Education – migrants			-0.113*	-0.117*
Education – native-born			-0.257***	-0.256***
Age			-0.151	-0.155
Age squared			0.000	0.001
Black			-2.400***	-2.296**
Caribbean			0.072	0.173
Latin American			-0.137	-0.067
East/Southeast Asian			0.621	0.645
South Asian			0.177	0.139
West Asian/Arab			2.389**	2.423**
Jewish			1.162†	1.170
Other			0.390	0.509
Multi			1.008*	1.081**
Intercept	17.927***	17.928***	22.430***	22.483***
-2 log likelihood	12732.9	13749.9	13579.9	13596.5

***p < 0.001, **p < 0.01, *p < 0.05, †p < 0.10 (one-tailed test).

reflects the finding in Table 3 that migrants from high HRV countries do not experience more event-based stressors after migration.

In model 6, the addition of perceived discrimination reduces the effects of high HRV on distress. However, the level of distress among this group of migrants remains significantly higher than both migrants from countries with low HRV (1.249, p = 0.01) and the native-born (0.711, p = 0.02). Perceived discrimination specifically is more prevalent among migrants from high HRV countries (Table 3). In model 7, the coefficients for migrants from countries with high HRV remain essentially unchanged with the addition of financial hardship, except when compared to the native-born. The effect on differences between higher HRV

background vs. the native-born amounts to about a 16% reduction. This suggests financial hardship is a form of chronic stress somewhat distinguishing higher HRV migrants from the native-born. With non-employment and work-related stress added in model 8, the coefficients for migrants from countries with high HRV change only slightly.

In model 9, the significant effects due to high HRV from model 3 survive when all post-migratory factors are included, but are generally smaller (by 26%). Different reference points for this model provide clues about what is being explained. Using model 1 as the reference point, the effects of pre- and post-migration stressors explain a considerable amount of the differences in distress among migrants (85% for moderate

Table 5
Mixed effects regression models estimating psychological distress on context of exit and pre- and post-migratory factors (N = 2073).

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Human rights violations (vs. low HRV)									
Moderate h.r.v.	0.978*	0.752†	0.648†	0.453	0.376	0.658†	0.528	0.274	0.141
High h.r.v.	1.677***	1.545***	1.465***	1.154**	1.430***	1.249**	1.370***	1.387***	1.083**
Human rights violations (vs. native-born)									
Low h.r.v.	-0.454†	-0.412	-0.206	0.148	0.007	-0.104	-0.318	0.013	0.148
Moderate h.r.v.	0.524	0.339	0.442	0.601	0.384	0.555	0.210	0.288	0.289
High h.r.v.	1.223**	1.133**	1.259***	1.302**	1.437**	1.145*	1.052*	1.400***	1.231**
Pre-migration stress									
		0.929***	0.892***	0.714**	0.731**	0.711**	0.260	0.680**	0.026
Post-migration factors									
Length of Stay			-0.023	0.078***	-0.031	-0.024	0.002	-0.018	0.039†
Length of Stay sq.			-0.002	-0.002	-0.002	-0.001	-0.003*	-0.002†	-0.002†
Acculturative Stress				2.533***	–	–	–	–	1.218***
Recent Events					1.109***	–	–	–	0.511***
Discrimination						2.219***	–	–	1.330***
Financial Stress							3.956***	–	2.942***
Work-related Stress								4.066***	2.238***
Not employed								1.827***	0.644**
Intercept	22.430***	22.415***	22.452***	23.986***	22.079***	18.642***	22.100***	20.177***	20.468***
-2 log likelihood	13579.9	13566.9	13582.4	13513.9	13506.3	13449.6	13182.6	13394.2	13007.5

***p < 0.001, **p < 0.01, *p < 0.05, †p < 0.10 (one-tailed test).

Notes: All models include controls (as Table 4).

HRV; 35% for high HRV) but considerably less of the differences with native-born Canadians. Given that most of the post-migratory stressors have the expected effect on distress, these differences in stress experience after migration are much more important to explaining differences in mental health among migrants than between migrants and the native-born. The native-born are a socially heterogeneous category on several other grounds, including SES, ethnicity, and marital status, and this heterogeneity would reduce the power of stress per se in explaining differences with the foreign-born from countries with a high level of HRV.

Table 6 presents the results for the effects of cumulative stress in explaining differences in distress. Comparisons in this table are between model 2 and model 1. Model 1 is the baseline and includes all control and modifiers variables included in Table 5. With the addition of cumulative stress, which had an understandably positive effect on distress, the coefficient for high HRV vs. low HRV is reduced by about 34%, but remains significant compared to model 1. The coefficient for high HRV vs. the native-born is reduced by 80%, and is no longer statistically significant. This suggests that cumulative stress especially helps explain the higher levels of distress in migrants from countries with high HRV relative to the native-born, and may be a particularly efficient representation of the total impact of different stressors in comparing these groups.

Discussion and conclusion

This study used individual and country data to examine the effect of human rights violations in countries of origin at the time of exit on migrants' mental health. Findings indicate that human rights violations in countries of origin have a significant effect on migrants' mental health, even after controlling for related country-level forms of stress. In general, migrants from countries with moderate-to-high levels of human rights violations experience more psychological distress than migrants from countries with low levels of human rights violations. Those from countries with high levels of human rights violations also experience

more psychological distress than the native-born.

This finding is not restricted to the experiences of refugees, it is not a short-term adjustment issue, and it is not based on the self-reports of individuals about the direct experience of human rights violations. Instead, we emphasize the important possibility that the entire national-level climate accompanying human rights violations has a long-term effect even among those not directly exposed, because the context of exit socializes constant vigilance in the face of threat, insecurity, and uncertainty.

Our analysis indicates that the effect of human rights violations on migrants' mental health is substantially explained by the effect of pre- and post-migration stressors. While the effect of moderate level of human rights violations is explained by stressful life events experienced before migration, the effect of high levels of human rights violations is explained more by post-migration stress experiences. Discrimination, acculturative stress, and economic hardship are post-migration stressors that help explain the higher levels of psychological distress in migrants from countries with high levels of human rights violations. Because individual sociodemographic characteristics such as race/ethnicity and refugee status are controlled and have little influence on the effect of human rights violations net of other controls, this suggests that migrating from a high human rights violations context leads to more stress exposures after migration.

Broadly, results are consistent with the concept of stress proliferation (Pearlin, 1989, 1999) and the argument that contexts of exit may lead to more stress before and after migration (Torres & Wallace, 2013; Vega & Rumbaut, 1991). They also add to those of Steel et al. (2009) by showing the effects of human rights violations contexts on the mental health of both refugee and non-refugee migrants, and by highlighting the explanatory role of stress before and after migration.

Some potential limitations, however, must be considered in interpreting the results. First, in our analysis, we treated stressors over time additively, but it is also possible that earlier stress may either sensitize or de-sensitize migrants to the effects of later stress. We tested this possibility in analyses not shown, by testing interactions between pre-migration stress and post-migration stress. We found in these analyses that greater exposure to pre-migration stress does not elevate the effect of post-migration stress on distress, with the one exception of acculturative stress. The coefficient for the interaction between pre-migration stress and acculturative stress was positive and statistically significant (1.822, p = 0.001). This interaction, however, had little impact on the results we report or the mediating role of stressors overall. Second, the list of items used to measure stressful life events that occurred before migration do not capture all traumatic events experienced under situations of severe and systematic human rights violations. A special emphasis in future research should be placed on the effect of human rights violations at both the individual-level and country-level. Third, mental health was measured only at the time of the interview. Obviously, longitudinal data would allow tracking of real-time changes after arrival. Fourth, the effects reported in this study were examined in a sample of English-speaking adults living in Toronto, Canada, which could reduce the generalizability of the findings. These effects, as well as differences in exposure to stress, may be smaller given that non-English speaking migrants were not included in the sample. However, we note that the average percent of residents speaking English as one of their daily languages is 96% in Toronto census tracts in 2006, and that in 85% of the tracts with a high number of migrants, at least 90% speak English (Statistics Canada, 2008). Moreover, we note that Canada has a "points system" for entry that weights language skills, and that all primary applicants must pass English tests. This is not true of sponsored spouses and refugees, but we sampled English-speakers in households when a targeted respondent did not speak English. The data are also weighted by migrant status and other socio-demographic variables, meaning that the sample was quite representative of the population living in the census tracts that were selected for the survey (O'Campo et al., 2015). Relatedly and fifth, migrants in Canada are quite a heterogeneous group and there

Table 6
Mixed effects regression models estimating the effects of context of exit and cumulative stress on psychological distress (N = 2073).

	Model 1	Model 2
Human rights violations (vs. low HRV)		
Moderate hrv.	0.748†	0.066
High hrv.	1.478***	0.969**
Human rights violations (vs. native-born)		
Low hrv.	-0.263	-0.734*
Moderate hrv.	0.485	-0.667
High hrv.	1.214**	0.235
Controls		
Refugee status	1.070*	0.708
Female gender	1.127***	0.957***
Married	-1.595***	-0.358
Education – migrants	-0.114*	-0.039
Education – native-born	-0.256***	-0.102*
Age	-0.159	-0.159*
Age squared	0.001	0.001
Black	-2.450***	-2.713***
Caribbean	0.072	-0.116
Latin American	-0.040	-0.939
East/Southeast Asian	0.551	-0.090
South Asian	0.145	-0.666
West Asian/Arab	2.404**	1.881*
Jewish	1.203†	1.398**
Other	0.397	0.938
Multi	1.021*	-0.675†
Length of stay	-0.039*	0.041*
Length of stay sq.	-0.001	-0.002†
Cumulative stress		6.111***
Intercept	22.465***	24.271***
-2 log likelihood	13593.5	13015.7

***p < 0.001, **p < 0.01, *p < 0.05, †p < 0.10 (one-tailed test).

is of course a risk that not all this heterogeneity has been captured by the controls.

Despite these limitations, this study advances our understanding of the impact of human rights violations in countries of origin on migrants' mental health by considering how human rights violations as a macro-level form of stress at the country level affect migrants' mental health, and potentially in the long-term. Results show that a context of exit defined by moderate to high levels of human rights violations is associated with more distress after migration than a context of exit defined by low levels of human rights violations. An overly specific or insufficient measure of the challenges presented by stress after migration will misrepresent the life course consequences of migration from human rights violations conditions and its effect on long-term mental health for migrants. The quite generalized deployment of stressors used here allowed the explanation of differences in distress between and across a diverse set of migrant groups from a very large and diverse set of countries of origin.

This study advances also our understanding of how social contexts at exit influence migrants' mental health. Guided by the stress proliferation argument, this study suggests that one important pathway for the effect of social contexts at exit is through the the cumulation of stress both over time and across social contexts.

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Ethical statement

This paper uses data from the Neighbourhood Effects on Health and Well-being study, which received ethics approval from the Social Sciences, Humanities and Education Research Ethics Board of the University of Toronto, and the Research Ethics Board at St. Michael's Hospital in Toronto, Canada.

Declaration of competing interest

There are no conflicts of interest.

CRedit authorship contribution statement

Marie-Pier Joly: Conceptualization, Formal analysis, Writing - original draft, Writing - review & editing. **Blair Wheaton:** Supervision, Formal analysis, Writing - original draft, Writing - review & editing.

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