SSM - Population Health 10 (2020) 100551

Contents lists available at ScienceDirect

SSM - Population Health

journal homepage: http://www.elsevier.com/locate/ssmph

Article

The migration journey and mental health: Evidence from Venezuelan forced migration

Haley Carroll, PhD [a, b, *], Marta Luzes, MS [c], Luisa Feline Freier, PhD [c], Matthew D. Bird, PhD [c]

[a] Harvard Medical School, USA
[b] Boston University, USA
[c] Universidad del Pacífico, Lima, Peru

ARTICLE INFO

Keywords:
Migration
Depression
Anxiety
Mental health
Venezuela
Peru

Introduction

Migration and mental health

Regardless of whether individuals are among the globe's 763 million internal migrants or 258 million international migrants ((IOM, 2018), being on the move has the potential to negatively influence their mental health, especially if the migration is forced (Hou et al., 2020; Zimmerman, Kiss, & Hossain, 2011). These figures are expected to rise given the likelihood of increased migration due to population pressure, wars, social and political unrest, poverty, and climate change (Grassani, 2018, pp. 1–4; Tacoli, 2009; Vidal, Tjaden, & Global Migration Data Analysis Centre, 2018). Since mental health disorders are already considered the largest contributor to global disease burden (Whiteford et al., 2013), understanding the relationship between migration and mental health is critical for public health prevention efforts.

Migration involves multiple decisions made over time within different individual, social, and political contexts. The migration experience thus depends on its circumstances (e.g., Lindert, Ehrenstein, Priebe, Mielck, & Brähler, 2009; Zimmerman et al., 2011) and phase (e.g., Alegria, Carson, Goncalves, & Keefe, 2011; Bhugra, 2004; James, Iyer, & Webb, 2019), prompting researchers to conceptualize its influence on mental health in terms of pre-migration, migration, and post-migration factors (e.g., Cantekin & Gençöz, 2017; James et al., 2019, 2019).

Some factors, which relate to an increased likelihood of having common mental health disorders, may be experienced before, during, and after migration. These include poverty, insecurity, homelessness, and risk of violence (e.g., Alegría, Álvarez, & DiMarzio, 2017; Bhugra, 2004; Patel & Kleinman, 2003). Other factors are unique to the pre-migration phase. People fleeing their homes due to forced displacement are more likely to have experienced trauma before migrating compared to those who voluntarily leave in search of improved economic opportunities (Zimmerman et al., 2011). Post-migration factors may include family and neighborhood context, social position, social support and exclusion, language competency, and discrimination and acculturative stress (Alegría et al., 2017).

However, while the potential for significant stress associated with migration is often linked to negative mental health outcomes (Dinesh Bhugra & Jones, 2001), the migration process can also relate to positive mental health results (Virupaksha, Kumar, & Nirmala, 2014). Cultural, community, familial, and individual factors may either increase the likelihood of migration contributing to mental health disorders (Siriwardhana, Ali, Roberts, & Stewart, 2014) or foster resilience in multiple domains (Cardoso & Thompson, 2010).

Based on a review of the literature, Bhugra (2004) developed a contingency model which hypothesizes vulnerability (risk factors) or resiliency (protective factors) for psychological disorders based on the person's situation and migration stage. Much research has focused on the pre- and post-migration phases (Cantekin & Gençöz, 2017;

* Corresponding author. Boston University Medical Center, Department of Global Psychiatry, Doctor's Office Building, 720 Harrison Ave, Boston, MA, 02118, USA.
E-mail address: haley.carroll@bmc.org (H. Carroll).

https://doi.org/10.1016/j.ssmph.2020.100551
Received 2 September 2019; Received in revised form 29 January 2020; Accepted 2 February 2020
Available online 5 February 2020

Schweitzer, Brough, Vromans, & Asic-Kobe, 2011; Silove, Sinnerbrink, Field, Manicavasagar, & Steel, 1997), given the known risk of pre-migration factors to contribute to mental illness and the malleable nature of post-migration factors which provide potential for intervention (Chen, Hall, Ling, & Renzaho, 2017). But less work has identified how the experience of the migration journey itself relates to mental health. To address this gap, the present study investigates context-relevant pre-migration and migration journey variables and their relation to the mental health of Venezuelan migrants as they cross the border between Ecuador and Peru. Since the model proposed by Bhugra (2004) is based on evidence on migration across the world, we adapted the framework for the Venezuelan context, using literature on forced migration and Latin American migrant populations when available (see Fig. 1).

An adapted migration and mental health model

Pre-migration vulnerabilities include factors operative in the migrant's country of origin, including the migrant's personality, age, skills deficits, and persecution. Given that Venezuelan migration to Peru increasingly constitutes forced displacement (Berganza et al., 2018), we expect an elevated risk for mental disorders for those entering Peru. Overall, few studies have examined the effect of pre-migration age on mental health, despite the propensity of younger people to migrate more than older generations. When age is considered, studies relate it instead to risk factors associated with post-migration acculturation processes (Kimbro, 2009). In regard to sex, rates of common mental health disorders are higher among women than men (Whiteford et al., 2013), a phenomenon reflected in migrant populations (e.g., Aroian, Norris, González de Chávez Fernández, & García Averasturi, 2008; Bhugra, 2004; Del Amo et al., 2011). Rates of common mental health disorders are thus likely higher for women migrating from Venezuela to Peru.

Pre-migration resiliency is linked to situations in which the decision to migrate was voluntary and migrants could prepare for the endeavor. Migrating for a specific reason may therefore enhance a person's sense of preparedness (Bhugra & Jones, 2001). The reasons for migrating and choosing a destination country are thus related to how different stressors play out in the pre-migration phase. For instance, those forcibly displaced to ensure survival likely have more elevated stressors than those migrating to access better labor or education opportunities. Furthermore, even under forced circumstances, having an elaborate migration plan and sound reasons for choosing a destination country may be protective against mental health disorders. Given that the present study focuses on the mental health status of people as they entered Peru, not before they left Venezuela, we adapted the model to the context of Venezuelan forced migration and focused on the reasons migrants had for choosing their destination country, including preferences for existing social networks, improved economic standing via access to labor opportunities, access to legal migration status, or higher perceived levels of respect for Venezuelan migrants.

Vulnerability factors operative during the migration phase may be related to experiences of loss (e.g., relationships, assets, support), bereavement, and trauma. We thus examined the migration vulnerability factors of status loss, mode of transportation, and traveling with children. We focus on education and wealth as a proxy for potential status loss since qualitative evidence from Latin American exiles in Sweden suggest that social degradation has a profound impact on mental health (Sundquist, Iglesias, & Isacsson, 1995). Status loss does not represent an objective loss of money or education, but relative differences in the wealth (e.g., inflation and/or currency rates) and education (e.g., degrees not transferring into a new country and/or loss of professional status) associated with migration.

Other researchers have identified mode of transportation as a component of structural vulnerability during migration (Valdez, Valdez, & Sabo, 2015; Vogt, 2013). We thus consider whether migrants are walking during their journey, given its relevance to Venezuelan forced displacement. While some research examines the effect of transportation on health for those residing long term in one place (Macintyre, Ellaway, & Cummins, 2002), to our knowledge studies have yet to investigate the empirical relationship between mode of transport and mental health. Relatedly, the length of the migration journey may be associated with increased stress. While the relationship between the length of journey and mental health remains understudied, prior research has found that the amount of time migrants spend in a city is associated with attachment to the new city (Gilbert & Crankshaw, 1999) and this attachment is a predictor of better overall health (Dufour & Piperata, 2004).

In regard to traveling with children, research on Latino migration to the US has found that migrating with children is stressful for parents and exposes migrant parents to risk of mental health disorders (Ornelas & Perreira, 2011). Likewise, it is well documented that migrating while pregnant is related to common mental health disorders (Fellmeth, Fazel, & Plugge, 2017; Miszurka, Goulet, & Zunzunegui, 2010; Zelkowitz et al.,

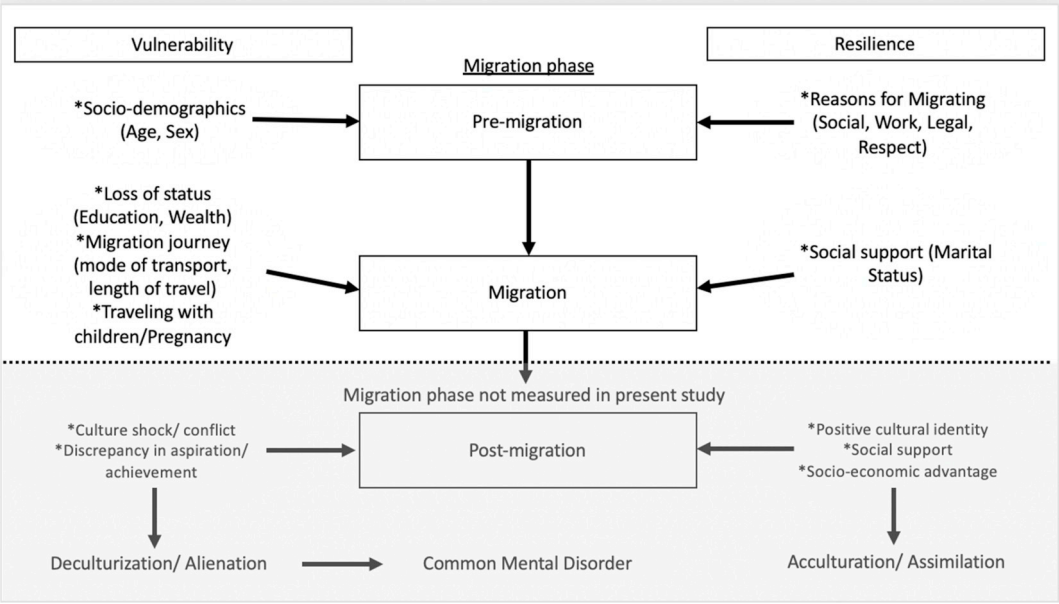

Fig. 1. Modified model of migration and mental health (Bhugra, 2004).

2004).

As for resiliency during the migration journey, having social support may be protective against common mental health disorders. While Bhugra (2004) has framed marriage as a form of social support, other work suggests marriage may not be protective against mental health in migrant populations beyond other migration-related stressors (James et al., 2019). Given the mixed evidence thus far, more research within a gender-focused framework is needed to better understand the relationship between migration, health, and gender (Llácer, Zunzunegui, del Amo, Mazarrasa, & Bolůmar, 2007). We thus investigate the relationship between pre-migration and migration-related factors to mental health, using the ongoing Venezuelan migration to Peru as a case example.

Venezuelan forced migration

In early 2020, Venezuela's economic, political and humanitarian crisis led to the departure of at least 4.5 million people since 2014 (IOM & UNCHR, 2019) – over 13 percent of the country's total population. We briefly summarize the historic and socio-economic context of contemporary Venezuelan forced migration. In the 19th century, when many countries in Latin America were ruled by military dictatorships, Venezuela was democratic and wealthy, and its prosperous economy and high living standards made it an attractive destination for migrants from across Europe and Latin America (Ordosgoitti, 1991).

As outlined by Vivas & Paez (2017), in the 21st century, Venezuela shifted from a migrant receiving to a migrant sending country. In 1998, Hugo Chávez won the presidential election promising more equality by applying what he called "Socialism of the 21st Century." A constitutional reform was enacted in 1999. The first phase of emigration began in 2000. In this phase, migrants were mainly from the upper- and middle-classes, many of whom disagreed with Chávez's economic policies, including expropriations of private property and the nationalization of industries. Others were concerned about growing insecurity and social and political tensions. The main countries of destination in this first phase of emigration were the United States and Europe, given the migrants' relative wealth (Vivas & Paez, 2017).

Vivas and Paez (2017) describe a second emigration phase which began in 2012, at the end of the Latin American commodity boom and re-election of Hugo Chávez for a third consecutive term. By then, the Venezuelan economy – which was and remains dependent on oil – entered a serious recession, with migrant profiles shifting to include people from less privileged social backgrounds. Consequently, geographically proximate countries such as Colombia, Panama, and the Dominican Republic became the main countries of destination (Vivas & Paez, 2017).

Finally, Vivas and Paez (2017) identify the third and current emigration phase to have begun around 2015, after the death of Hugo Chávez and the election of Nicolás Maduro as president in 2013. From 2015 to 2019 the Venezuelan economy effectively collapsed and the country fell into a severe humanitarian crisis. Venezuelans experienced a lack of food security, a broken public health system, restricted personal freedom and political persecution, and high levels of crime and insecurity (Vivas & Paez, 2017).

Given the lack of official data, it is difficult to capture this crisis in reliable numbers. According to the *Encuesta de Condiciones de Vida* (ENCOVI), which is perhaps the most accurate measure of indicators such as poverty, food, employment, access to housing, and education, multi-dimensional poverty grew 10% in three years from 2015 to 2018, 90% of Venezuelans did not have enough income to buy food in 2018 and life expectancy fell by 3.5 years (ENCOVI, 2018). The ENCOVI survey found 808,000 children under five and 232,000 pregnant women (with 52.7% of pregnant women in the country living in poor households) at risk of or qualifying for undernourishment in 2018.

The vast majority of hospitals suffer from an acute shortage of surgical materials, medicines, and radiography and tomography services (OIM, 2019), while the incidence of disease among the Venezuelan population is elevated (Doocy, Page, de la Hoz, Spiegel, & Beyrer, 2019). Intimidation and political persecution threaten personal freedom, with the OIM (2019) reporting arbitrary arrests and the excessive use of violence by law enforcement agencies. Between January 2014 and November 2018, an estimated 12,949 people were arbitrarily detained (OAS, 2019). Armed groups, known as *colectivos,* also contribute to political intimidation by supporting security forces in the repression of the population.

Beginning in early 2019, political tensions increased when Juan Guaidó, president of the National Assembly, declared himself acting president. The opposition, led by the National Assembly, did not recognize Maduro's re-election in May 2018 as legitimate. Since then, Guiadó has been recognized as president of Venezuela by over 50 countries, including the US and most countries in Latin America. Despite a base of support for Guiadó, the National Assembly was rendered powerless by the creation of the loyalist National Constituent Assembly in 2017, and the military's continued support of Nicolas Maduro. By 2020, the political divide between Guiadó and Maduro had resulted in political stalemate and the opposition's disillusionment with the Guiadó movement.

For many, including both (former) supporters and opponents of Chávez and Maduro, migration now constitutes a survival strategy. In October 2019, the countries that received the most Venezuelan migrants and refugees were Colombia (1.4 million), Peru (860,000), Chile (371,000) and Ecuador (330,000), and Brazil (212,000; IOM, 2019). In this period, migrant profiles further diversified, including many who could not afford plane tickets or bus fares and thus had no other option than to travel on foot to neighboring Colombia, Ecuador and Peru, despite the dangers this entails.

The vulnerability of Venezuelan migrants is multi-dimensional. While most migrants identify economic reasons for leaving (Freier, 2018), the circumstances under which they leave are "not those typically associated with purely economic migrations" (OAS, 2019, p. 6), resembling instead conditions of forced displacement. Based on the Cartagena declaration's definition of refugee, which 15 countries in the region have incorporated in their legislation, Venezuelan migrants have a legal claim to refugee status (Berganza et al., 2018). Despite the significance of the Venezuelan displacement crisis, which could outpace Syrian displacement in 2020 (Dooley, 2019), few studies to date have examined the mental health effects of Venezuelan forced migration. To our knowledge, the only existing study of the mental health of Venezuelans displaced by the ongoing crisis examined discrimination against migrants during the post-migration phase in the United States and Colombia (Schwartz et al., 2018). This study is the first to focus on pre-migration and migration factors influencing the mental health of Venezuelan migrants.

Method

Power analysis

Prior to fieldwork, we conducted sample size calculations for comparison of gender differences with the ability to detect 0.2 standardized effects with 80% power and an alpha of 0.05. This resulted in a suggested sample size of 393 males and 393 females. We met these sample requirements with a final sample of 799, or 405 males and 394 females.

Survey procedures

All procedures were approved by the review board at Universidad del Pacífico (IRB 19–10) as a part of a larger study investigating the socio-labor integration of Venezuelan migrants in Peru. Data collection took place from April 8–15, 2019 at the *Centro Binacional de Atención de Frontera* (CEBAF, Binational Border Care Center) in Tumbes, Peru. The CEBAF is located in northern Peru, on the border between Ecuador and Peru. Given the high levels of Venezuelan immigration at the time,

migration control was lengthy, and migrants spent several hours, if not days, at CEBAF. At the time, 1,310 Venezuelans passed through the CEBAF on average per day (OIM, 2019). Migrants were approached to complete the survey throughout the day.

The sampling and survey methods followed those used by the International Organization for Migration (IOM) in their quarterly Displacement Tracking Matrix (DTM, OIM, 2019). Surveys were conducted by trained surveyors who were native speakers or fluent in Spanish. All surveyors completed training sessions prior to data collection to familiarize themselves with the research instrument, participant confidentiality, and responsible conduct of research. To collect a representative sample, surveys occurred in shifts between 8am and 10pm, with one team of three surveyors conducting surveys from 8am to 2pm, and another team of three completing interviews from 2pm to 10pm. Each surveyor completed an average of 16 surveys per day over a continuous period of eight days.

In accordance with IOM protocol, surveyors were instructed to approach people at random, assuring that they maintained a gender balance. Participants were eligible if they were migrating from Venezuela, were over 18 years of age, accepted the invitation to participate, and signed a consent form. When approaching a participant, surveyors introduced the study and explained the aim to "understand their migration decisions, experiences and journey." If the participant expressed interest, the surveyor read the consent form, reminding the participants that participation was voluntary, confidential, and would not result in any material or financial help. Following signing of the informed consent, the survey began. Participants subsequently received referrals to relevant social services (e.g., mental health tent, Red Cross complex, food and meals tent). Although the research team did not use any mechanism to track refusals to participate, surveyors reported that refusals were rare. When potential participants did refuse to complete the survey, they generally reported a lack of time because they had been called to complete one of the immigration procedures at the border. If someone could not finish the survey at a given time, the surveyor offered to return later. All measures were collected verbally using tablets.

Measures

Participants provided information on pre-migration factors, migration journey factors, and symptoms of anxiety and depression.

First, we assessed factors that influenced participants before migrating (see Fig. 1). These pre-migration factors included the sociodemographic variables of **age** (continuous) and **sex** (binary: male, female). Pre-migration factors also included **reasons for selecting the destination country** (dummy code). Options for selecting the destination country included if the destination country was desirable because it had (i) family, friends or other acquaintances, (ii) work opportunities, (iii) respect for Venezuelans, (iv) access to legal status such as migrant or refugee, (v) legal entry to the country, (vi) geographic proximity to Venezuela (vii) services such as education and health, and/or (viii) low criminality. Participants could select multiple responses. A principal component analysis (Karamizadeh, Abdullah, Manaf, Zamani, & Hooman, 2009) revealed four factors: legal access and welfare services; family reunification; safety and respect; and region of host country. "Legal access and welfare services" included responses (iv) access to legal status such as migrant or refugee and (vii) services such as education and health. "Family reunification" included response (i) family, friends or other acquaintances. The "Safety and respect" component included responses (iii) respect for Venezuelan populations and (viii) low criminality. Finally, the "Region of host country" component consisted of reason (vi) geographic proximity to Venezuela.

Next, we assessed factors conceptualized to influence the migration journey experience (See Fig. 1). Migration factors variables that reflect status loss during migration included **education** level (categorical, none, primary education, secondary education, technical education, higher education, postgraduate education), and **participant subjective wealth** (categorical, 1–10), as measured with a modified economic Cantril ladder, known as the economic ladder question (Ravallion & Lokshin, 1999). The economic ladder question is a measure of perceived wealth, as opposed to actual wealth. **Venezuela subjective wealth** was measured by asking participants to imagine that all the people in Venezuela were placed on a ladder, where those on the first rung were the poorest and those on the tenth, or top rung, were the wealthiest. Participants provided a number between 1 and 10 to represent where they saw themselves on the wealth ladder 5 years ago. Five years were used in order to capture perceived wealth prior to the most acute bouts of socio-economic crisis, as described in the introduction. **Community subjective wealth** asked the same question of participants, but considering their relative wealth on a ladder representing their local community in Venezuela five years ago. Migration factors also included variables reflecting the migration experience itself such as whether the migrant **walked during their journey** (dummy code), their **original country of choice** (dummy code, Chile, Colombia, Peru, with 92% of respondents choosing one of these three), and the number of **days spent traveling** (log of number of days reported, 3 to 1159, with 77% having spent less than 31 days traveling). Migration factors also included participant childcare-related responsibilities, such as if the participant was **pregnant** (binary for women only, yes/no), and the **number of children traveling** with the participant (continuous, 0 to 7). Migration factors also included a variable for marital **status** (dummy code, single, married, divorced, widowed) to capture this aspect of social support.

Finally, we assessed common mental health disorders including anxiety and depression. **Depression** was measured with the Spanish version of the 9-item Patient Health Questionnaire (PHQ-9, Calderón et al., 2012; Kroenke, Spitzer, & Williams, 2001). The PHQ-9 has been validated (Calderón et al., 2012; Zhong, Gelaye, Rondon, Sánchez, Simon, Henderson et al., 2015) and used (Barrios et al., 2015; Gomez-Beloz, Williams, Sanchez, & Lam, 2009) widely in Peruvian and Venezuelan populations (Ghisi et al., 2017). Participants responded to nine prompts assessing how often they have been bothered by depressive symptoms over the past 14 days (2 weeks) such as having "little interest or pleasure in doing things" between 0 = not at all to 3 = almost every day. The resulting summary score ranges between 0 and 27. A cut off of 10 was used as a provisional diagnosis for depression, given substantial evidence that this is the ideal cutoff based on sensitivity and specificity (Levis, Benedetti, & Thombs, 2019). Internal consistency for the PHQ-9 was good (Cronbach's alpha = 0.82).

Anxiety was measured with the Spanish version of the 7-item generalized anxiety disorder questionnaire (GAD-7, Garcia-Campayo et al., 2010; Spitzer, Kroenke, Williams, & Löwe, 2006). The GAD-7 has been adapted for Spanish speaking populations (Garcia-Campayo et al., 2010), including being validated in Peruvian populations (Zhong, Gelaye, Zaslavsky, Fann, Rondon, Sánchez et al., 2015) and used with people migrating from Venezuela to Colombia and the United States (Calderón et al., 2012). Participants respond to 7 prompts assessing how bothered they have been by problems related to anxiety over the past 14 days (2 weeks) such as "feeling nervous, anxious, or on edge" from 0 = not at all, to 3 = nearly every day. The resulting summary score ranges from 0 to 21. A cut off of 10 was used to capture "moderate" severity of generalized anxiety disorder (Spitzer et al., 2006), with evidence supporting the sensitivity and specificity of this cutoff in Spanish-speaking populations (Garcia-Campayo et al., 2010). Cronbach's alpha in the present analysis was acceptable (Cronbach's alpha = 0.78).

Statistical analysis

First, we examined the frequency distribution of demographic characteristics and migration factors. Logistic regressions were used to calculate odds ratios (OR) and 95 percent confidence intervals (95% CI) to assess the associations between exposure factors consistent with pre-migration/migration factors and depression and anxiety. Separate models were run for anxiety and depression, and all analyses included

all independent variables explicated in the methods section, as well as fixed effects for surveyors, day of the week, and morning vs. afternoon shift. Initially, we ran a pooled model with the entire sample, modelling anxiety and depression separately. All variables were entered into the model simultaneously. Next, we performed the same regressions interacting gender with each independent variable. First, we entered variables associated with pre-migration (Model 1), and then added the migration factors (Model 2). Finally, as a robustness check, we partitioned the database by gender, creating two separate models for each main outcome. The regression models were tested for multicollinearity for which there was no evidence, with a total variance inflation factor below 2. Data analysis was conducted with the use of Stata (StataCorp, 2019). The level of statistical significance was set at p values < 0.05, and all tests were two-tailed.

Results

Table 1 presents the sample's sociodemographic and mental health characteristics. Sex balancing of the sample was successful with 49% of participants identifying as female. Nineteen percent of the sample qualified for a provisional depression diagnosis with a score on the PHQ-9 of 10 or higher, and 23% of the sample qualified for a provisional generalized anxiety disorder with a score of 10 or higher on the GAD-7.

Further analysis examined predictors of depression and anxiety, beginning with the pooled model (Table 2). For pre-migration factors and depression, citing safety and respect (OR = 1.16; 95% CI: 1.01–1.33) as a reason for choosing the destination country was associated with increased odds for depression. For migration factors and depression, being pregnant (OR = 4.15; 95% CI: 1.05–16.48) was related to increased odds for depression. For pre-migration factors and anxiety, none of the factors were associated with anxiety. For migration factors and anxiety, loss of status as proxied by education (OR = 1.37; 95% CI: 1.11–1.67) and walking at any point in the journey (OR = 1.65; 95% CI: 1.03–2.64) were associated with increased odds of anxiety. Additionally, choosing Peru as a destination country (OR = 0.45; 95% CI: 0.22–0.95) was associated with decreased odds for anxiety.

Next, we examined the model interacted with gender (Table 3), with the pre-migration and migration factors entered separately for depression and anxiety. For women and the pre-migration model and depression (Table 3, Depression Model 1), choosing the destination country for safety and respect (OR = 0.60; 95% CI: 0.40–0.90) was associated with decreased odds for depression. For women and the migration model and depression (Table 3, Depression Model 2), being pregnant was related to increased odds of depression (OR = 4.37; 95% CI: 1.05–18.24). Although the days spent traveling missed standard levels of significance (log, OR = 0.80; 95% CI: 0.63–1.03) the decreased odds of depression are suggestive. Finally, choosing Colombia as the destination country was associated with decreased odds of depression (log, OR = 0.12; 95% CI: 0.02–0.70). For women and pre-migration and anxiety (Table 3, Anxiety Model 1), choosing the destination country for safety and respect (OR = 0.54; 95% CI: 0.41–0.70) was associated with decreased odds for anxiety. For women and migration and anxiety (Table 3, Anxiety Model 2), choosing the destination country for safety reasons were replicated. In addition, the choice of Peru (OR = 0.29; 95% CI: 0.09–0.93) and Chile (OR = 0.23; 95% CI: 0.06–0.82) as destination country were associated with decreased odds of anxiety (See Appendix A, for similar results when women were analyzed in the partitioned database.).

For men when pre-migration and migration factors were entered separately for depression and anxiety (Table 3), we found overall less significance for migration and pre-migration factors. For men and pre-migration and depression (Table 3, Depression Model 1), choosing the

Table 1
Sociodemographic and mental health characteristics of the study population.

	All Participants (N = 799)	
	n	%
Pre-migration Factors		
Female	394	49%
Age	M = 30 (SD = 10.3) Min = 18, Max = 70	
Country of Choice		
Peru	503	63%
Colombia	80	10%
Chile	152	19%
Others	64	8%
Chose host country for (multiple choice):		
Social reasons	564	71%
Work reasons	477	60%
Respect reasons	15	2%
Legal reasons	19	2%
Migration Factors		
Education≥Secondary	319	40%
Wealth Venezuela ≤5	329	41%
Wealth Community ≤ 5	365	46%
Marital Status		
Single	436	55%
Married	337	42%
Divorced	20	2%
Widowed	6	1%
Traveling with children	232	29%
1 Child	130	16%
2 Children	69	9%
3+ Children	33	4%
Pregnant (n = 394 women)	27	7%
Walked at any point	251	31%
Days travelled	M = 65 SD = 162.4	
Mental Health Outcomes		
Depression (PHQ9≥10)	149	19%
Anxiety (GAD≥10)	181	23%

Table 2
Logit regression modelling relation between pre-migration and migration factors and depression (PHQ9≥10, N = 799) and anxiety (GAD7≥10, N = 799).

	Depression		Anxiety	
	OR	CI	OR	CI
Premigration Factors				
Female	1.62*	0.96–2.72	1.37	0.90–2.10
Age	1.01	0.98–1.03	1.00	0.98–1.02
Reasons for Migrating:				
Legal access and welfare services	1.11	0.95–1.31	1.04	0.91–1.19
Family reunification	1.24*	0.97–1.60	1.09	0.91–1.32
Safety and respect	1.16**	1.01–1.33	0.91	0.71–1.17
Region of host country	1.23	0.95–1.59	0.96	0.80–1.16
Migration Factors				
Education	0.98	0.76–1.27	1.37***	1.11–1.67
Wealth Venezuela	1.17	0.91–1.50	0.92	0.75–1.13
Wealth Community	0.83	0.64–1.07	1.01	0.83–1.22
Pregnant[a]	4.15**	1.05–16.48	1.59	0.49–5.24
Married[b]	1.25	0.73–2.16	1.35	0.85–2.14
Divorced[c]	0.98	0.31–3.06	0.66	0.18–2.47
Widowed[d]	1.70	0.40–7.26	1.15	0.23–5.80
Traveling with children	1.00	0.72–1.39	1.16	0.92–1.47
Walked at any point [e]	1.50	0.85–2.67	1.65**	1.03–2.64
Log Days travelled	0.88	0.73–1.06	1.02	0.88–1.19
Destination Country[f]:				
Peru	0.69	0.25–1.87	0.45**	0.22–0.95
Colombia	0.32*	0.09–1.11	0.98	0.39–2.42
Chile	0.71	0.23–2.19	0.53	0.23–1.19
Constant	0.10*	0.01–1.21	0.05***	0.01–0.25

CI = Robust confidence intervals in OR= Odds ratios. ***p < 0.01, **p < 0.05 and * p < 0.1.
[a] *Ref = Not pregnant.*
[b] *Ref = Single.*
[c] *Ref = Single.*
[d] *Ref = Single.*
[e] Ref = No walking during the journey.
[f] *Ref: All other countries.*

Table 3
Logit regression modelling interaction between gender and pre-migration factors and depression (PHQ9≥10, N = 799) and anxiety (GAD7≥10, N = 799), Model 1 includes premigration factors only and, Model 2 included premigration and migration factors.

	Depression				Anxiety			
	Model 1		Model 2		Model 1		Model 2	
	OR	CI	OR	CI	OR	CI	OR	CI
Female	2.46	0.54–11.29	16.49	0.36–763.76	6.67***	2.04–21.85	15.84*	0.71–355.00
Premigration Factors								
Male # Age	1.02	0.98–1.06	1.01	0.97–1.05	01.03*	1.00–1.06	1.03	1.00–1.07
Male # Legal access and welfare services	1.15*	0.98–1.36	1.16	0.97–1.40	1.10	0.96–1.27	1.11	0.95–1.29
Male # Family reunification	1.32	0.95–1.83	1.34*	0.95–1.89	1.32**	1.02–1.70	1.37**	1.05–1.79
Male # Safety and respect	1.71***	1.22–2.41	1.79***	1.31–2.46	1.22	0.87–1.73	1.25	0.89–1.75
Male # Region of host country	0.97	0.64–1.48	1.07	0.64–1.76	1.19*	0.97–1.47	1.11	0.85–1.44
Female # Age	1.00	0.97–1.03	1.01	0.98–1.04	0.98*	0.95–1.00	0.98	0.95–1.01
Female # Legal access and welfare services	1.06	0.69–1.63	1.00	0.61–1.66	0.99	0.72–1.36	0.96	0.74–1.24
Female # Family reunification	1.19	0.87–1.63	1.16	0.82–1.66	0.90	0.70–1.15	0.89	0.69–1.16
Female # Safety and respect	0.60**	0.40–0.90	0.66**	0.44–0.97	0.54***	0.41–0.70	0.49***	0.37–0.63
Female # Region of host country	1.12	0.87–1.45	1.31*	0.97–1.78	0.95	0.76–1.18	0.79*	0.60–1.04
Constant (Male)	0.05***	0.01–0.22	0.02***	0.00–0.37	0.03***	0.01–0.11	0.01***	0.00–0.10

Logit regression modelling interaction between gender (male) and migration factors and depression (PHQ9≥10, N = 799) and anxiety (GAD7≥10, N = 799), Model 1 includes premigration factors only and, Model 2 included premigration and migration factors.

	Depression				Anxiety			
	Model 1		Model 2		Model 1		Model 2	
	OR	CI	OR	CI	OR	CI	OR	CI
Female	2.46	0.54–11.29	16.49	0.36–763.76	6.67***	2.04–21.85	15.84*	0.71–355.00
Migration Factors								
Male # Education			1.08	0.71–1.63			1.60***	1.17–2.20
Male # Wealth Venezuela			1.18	0.84–1.67			1.02	0.77–1.36
Male # Wealth Community			0.81	0.57–1.16			0.91	0.69–1.20
Male # Married[1]			1.16	0.52–2.58			1.14	0.59–2.20
Male # Divorced[2]			1.64	0.29–9.14			0.92	0.16–5.42
Male # Widowed[3]			–	–			–	–
Male # Traveling with Children			1.09	0.65–1.84			1.22	0.85–1.75
Male # Walked at any point[4]			1.19	0.53–2.67			1.95*	1.00–3.81
Male # Log Days Travelled			0.95	0.70–1.30			0.92	0.72–1.18
Male # Peru[5]			2.29	0.65–8.06			0.74	0.25–2.18
Male # Colombia[6]			1.25	0.22–6.98			1.28	0.35–4.76
Male # Chile[7]			1.72	0.36–8.37			1.16	0.35–3.88
Constant (Male)	0.05***	0.01–0.22	0.02***	0.00–0.37	0.03***	0.01–0.11	0.01***	0.00–0.10

Logit regression modelling interaction between gender (female) and migration factors and depression (PHQ9≥10, N = 799) and anxiety (GAD7≥10, N = 799), Model 1 includes premigration factors only and, Model 2 included premigration and migration factors.

	Depression				Anxiety			
	Model 1		Model 2		Model 1		Model 2	
	OR	CI	OR	CI	OR	CI	OR	CI
Migration Factors								
Female # Education			0.94	0.66–1.35			1.25	0.93–1.68
Female # Wealth Venezuela			1.18	0.84–1.67			1.02	0.67–1.12
Female # Wealth Community			0.83	0.60–1.14			1.13	0.87–1.47
Female # Pregnant[8]			4.37**	1.05–18.24			1.25	0.36–4.38
Female # Married[9]			1.39	0.60–3.21			1.53	0.78–2.99
Female # Divorced[10]			0.77	0.14–4.37			0.72	0.11–4.68
Female # Widowed[11]			2.47	0.40–15.10			1.99	0.36–11.01
Female # Traveling with Children			0.82	0.53–1.26			1.06	0.76–1.48
Female # Walked at any point[12]			2.05	0.86–4.89			1.70	0.83–3.52
Female # Log Days Travelled			0.80*	0.63–1.03			1.11	0.89–1.38
Female # Peru[13]			0.27	0.05–1.38			0.29**	0.09–0.93
Female # Colombia[14]			0.12**	0.02–0.70			0.87	0.21–3.66
Female # Chile[15]			0.34	0.06–1.87			0.23**	0.06–0.82

CI = Robust confidence interval, OR = Odds ratio. ***p < 0.01, **p < 0.05 and * p < 0.1. Fixed effects for surveyor and shift.
Reference categories are specific to gender groups (e.g., all male categories are referent to male categories).
[1,2,3,9] & [10] *ref: Single. There are no widowed male so the variable is blank.*
[4] & [12] *ref: No walking during the journey.*
[5] & [13] *ref:* Not Peru.
[6] & [14] *ref:* Not Colombia.
[7] & [15] *ref:* Not Chile.
[8] ref: Not Pregnant.

destination country for safety and respect was associated with increased odds for depression (OR = 1.71; 95% CI: 1.22–2.41). This was replicated in the migration model for depression, with no further migration factors relating to increased odds for depression in men (Table 3, Depression Model 2). For men and pre-migration and anxiety (Table 3, Anxiety Model 1), choosing the destination country for family reunification (OR = 1.32; 95% CI: 1.02–1.70) and loss of status as proxied by education (OR = 1.19; 95% CI: 0.97–1.147) was associated with increased odds of anxiety, though education missed standard levels of significance (See Appendix B, for similar results when men were analyzed in the partitioned database.).

Discussion

This study investigates the prevalence of depression and anxiety in Venezuelan migrants crossing the border between Ecuador and Peru and the contribution of relevant migration factors to their incidence. Our analysis, guided by a modified version of Bhugra's (2004) migration and mental health model, found elevated levels of depression and anxiety in Venezuelans migrating into Peru. On one hand, the prevalence of depression was 19% for anxiety and 23% for depression, which are higher than rates found in global population prevalence studies, where longitudinal analyses find depression point prevalence rates at about 4.4% and anxiety point prevalence rates ranging from 3.8 to 4% (Baxter et al., 2014). On the other hand, the prevalence found is lower compared to other migration – and especially forced displacement populations – such as rates of depression in Syrian refugee populations estimated at about 45% (Cantekin & Gençöz, 2017; Poole, Hedt-Gauthier, Liao, Raymond, & Bärnighausen, 2018). However, most studies investigate mental health status of migrants during the post-migration phase or within refugee resettlement campgrounds. Indeed, models of migration would posit that mental health effects may continue to rise in the post-migration phase if settlement conditions are less than ideal (Bhugra, 2004). Our study thus provides a preliminary look at the migration related mental health effects of a population in the migration journey phase.

In general, pre-migration was not a substantial contributor to mental health. The only variable associated with increased risk for anxiety and depression was choosing the destination country for safety and respect. For women, choosing the destination country for safety and respect was associated with decreased odds of depression and anxiety, while for men, it was associated with increased odds of depression and anxiety. Prior research has found that forced migration is particularly harmful for mental health as migrants are unable to sufficiently prepare for the migration journey (James et al., 2019). Thus, while many migrants likely imagine that their safety will increase upon leaving Venezuela, the reality is that the journey is also dangerous (UNHCR, 2019) and destination countries, such as Peru, are showing increasing levels of xenophobia (Associated Press, 2019; Freier & Parent, 2019; Sequera, 2019). It may be that men in particular continue to experience the perceived burden of providing protection against insecurity and xenophobia, while women feel relief from having escaped insecurity in Venezuela. However, the present study cannot speak to the reasons behind this finding, and future qualitative research is warranted.

Several significant relationships appeared linking migration journey factors with depression and anxiety. Pregnancy contributed to depression for women; walking at any point in the journey was related to anxiety for both men and women; length of travel and choosing Colombia as a destination country were protective against depression in women; choosing Peru and Chile were protective against anxiety in women; and education contributed to anxiety for men.

The most robust relationship between migration and mental health was between pregnancy and depression. Thus, pregnancy may be the most significant factor that women deal with while migrating, though one must consider that being pregnant may also have entered into the decision to migrate in the first place. Other research has found rates of depression are high among pregnant women in Peru (Gelaye, Rondon, Araya, & Williams, 2016). That migrant women in the present study were nearly four times more likely to qualify for a depression diagnosis than non-pregnant women is concerning, and, unfortunately, in line with other research on pregnant migrant women (Miszurka et al., 2010; Zelkowitz et al., 2004). In addition, the number of children Venezuelans were migrating with was not related to depression or anxiety. While migrating with children has been found to be stressful for parents (Ornelas & Perreira, 2011), the stress may not be great enough to outweigh the benefits of being with your children. Additionally, research on the effect of parental migration on children suggests that migrant children seem to mostly be protected from the effects of risk factors on mental health (Stevens & Vollebergh, 2008). Thus, in terms of familial variables related to migration, pregnancy is more robustly related to mental disorders, and pregnant migrants should be screened for depression. However, it is important to note that prior research on pregnancy and migration (e.g., Miszurka et al., 2010) has not conceptualized pregnancy in terms of pre-migration and migration related phases, and it is difficult to say whether the relation between depression and pregnancy is due to the pre-migration variables associated with the pregnancy (e.g., motivations for leaving the country with pregnancy) or the stressors associated with the migration journey (e.g., physical and hormonal changes in pregnancy). Future conceptual models of migration should further explore how pregnancy may affect individual women in the migration journey context.

Next, whether migrants walked at any point during the migration journey was related to generalized anxiety. A bus ticket from Venezuela to Peru can cost between 180 USD to 300 USD per person. While some can pay for a bus by using their savings or selling belongings before traveling (Blouin & Freier, 2019; JRS, 2019), not all can afford traveling parts of, much less the entire, trip by bus. This has led hundreds of thousands to leave the country on foot (Casey & González, 2019), which results in increased vulnerability and a higher likelihood of exposure to stressful and traumatic experiences.

When examining mode of traveling, our results suggest that days spent traveling was protective against depression in women though it nearly missed standard levels of significance. This contrasts with existing, but limited, literature that suggests the more time migrants spend in a city, the more attachment they have to that new city (Gilbert & Crankshaw, 1999) and the better their overall health (Dufour & Piperata, 2004). It may be that in this particular context, the ability to take one's time during the journey, often involving more extended time in Colombia or Ecuador, is associated with more integration, better migration conditions, or other factors related to depression. Indeed, more granular information is needed on this novel finding, and future research should explore this relationship, ideally in qualitative exploration. Similarly, the relationship between destination country of choice and mental health was protective for women. The choice of Colombia was protective against depression, while choosing Peru or Chile was protective against anxiety. In this case, given that people are arriving in Peru at the time of the survey, the arrival in your country of choice (Peru) or the most proximate country (Chile) may provide relief that overrides feelings of anxiety. Ultimately, these findings provide further support that the variables associated with the migration journey, such as how you travel, how long you travel, and where you intend to travel, are particularly important for mental health outcomes in forcibly displaced populations.

In regard to status loss, and in line with our conceptual model, we found that education was related to anxiety for men. Given the considerable percentage of students dropping out of schools in Venezuela (Albarrán Peña, 2019), the process of status loss occurs before and during migration, affecting a large number of migrants, and may be a particularly salient contributor to mental health in the current context (McIlwaine, 2008; Roizblatt & Pilowsky, 1996). However, status loss as measured by relative wealth did not significantly relate to mental health. This lack of a relationship between (subjective) wealth and

mental health may be related to the ubiquity of wealth loss in Venezuela.

We did not find a significant relationship between marital status and mental health. While marital status has been a protective factor in some prior studies, other variables have been more important than marriage for mental health. For example, the psychological distress associated with the inability to work while asylum claims are being assessed or inadequate state support were found to negatively influence mental health over and above social support (James et al., 2019). Unfortunately, we did not assess if couples were traveling together, making it difficult to assert if marital status represents social support or fails to counteract other forms of distress during migration.

This study is not without limitations. Due to the cross-sectional research design, we cannot claim any of the variables studied here are causally related to mental health. While the strength of the present analysis is that the interviews took place during the migration journey phase as migrants crossed the Ecuador-Peru border, it is limited to information during one phase of migration. In the model proposed by Bhurgra (2004), post-migration factors are also important for predicting mental health outcomes. Ideally, longitudinal analysis would test the effects of differential migration phases on mental health over time. Indeed, there is an overall dearth of literature examining the longitudinal effects of the migration journey on mental health. Research should continue to follow the effects of pre- and migration-related factors on mental health for migrants in later stages of the migration process, especially in circumstances of forced displacement. Evidence in other forced displacement contexts, such as Syrian refugees, indicate a significant burden of common mental health disorders during the period of seeking asylum (Poole et al., 2018). We might expect a similar burden of common mental health disorders for Venezuelan populations when seeking asylum and experiencing difficulties in acquiring legal migration status in Peru. At the time of this survey, Peru *de facto* granted legal entry to all Venezuelan migrants, but since has implemented more restrictive visa and asylum policies that leave many without legal access to the country (Acosta, Blouin, & Freier, 2019; Bolivar, Freier, & Luzes, 2019; Freier & Castillo, 2019; Freier & Luzes, 2020). Future research should investigate the effects of changing immigration policies – especially of restrictive policy changes – on mental health.

As explicated above, the conceptual model utilized in the present study is not without limitations. We were missing variables such as mental health status pre-migration and family mental health history, while several variables we did include lacked additional nuance that would be informative in future research. For instance, our pregnancy variable was binary and did not include gestational stage, which may influence the likelihood of depression due to hormonal (Maccari, Darnaudéry, Morley-Fletcher, Zuena, & Reeth, 2003) and environmental factors (Heijmans, Tobi, Lumey, & Slagboom, 2009). A more nuanced understanding of the relative timing of significant events (i.e., pre-migration or migration), such as discovering one is pregnant before migrating or during the migration journey, will strengthen future investigations with the present conceptual model and likely reduce the variability (i.e., high confidence intervals) in the results. However, as this is the first study of its kind, and such data is difficult to collect from individuals who have been forcibly displaced from their country of origin, we find the study results to be an important addition to the existing literature.

In sum, although we found few pre-migration related factors associated with the incidence of mental health disorders, we did find various migration journey factors related to mental health. Accordingly, within the context of forced displacement, the most complex relationships between mental health and migration seem to center around the experience of the migration journey itself. This suggests that pathways to mental health in displaced populations may be bolstered by screening and support for individuals who have had particularly difficult migrations journeys (i.e., walking, pregnant). Indeed, more work is needed to model the journey, understand the influence of forced displacement on mental health, and explore the implications of how people migrate on their long-term health. Future work would benefit from more nuance in the measurement of migration-related variables, such as through qualitative supplemental interviews. Regardless, the fact that we find associations between pre- and migration-related factors and mental health is important and concerning, as the experience of migration and associated psychological distress may influence post-migration mental health (Bhugra, 2004). For this sample, the effects of pre- and migration-related factors on mental health will likely increase in the post-migration phase at least over the short term as migrants seek initial integration.

Acknowledgements/Funding Sources:

The mentors on the project, Drs. Bird and Freier, were supported on a VRI grant received from the Universidad del Pacífico (Lima, Peru). Ms. Luzes, the research coordinator and data analyst on the project, was also supported by the PPA grant from the Universidad del Pacífico. Finally, Dr. Carroll's efforts to prepare the manuscript were supported by T32 MH116140-02. The sponsors had no role in study design; in the collection, analysis and interpretation of data; in the writing of the articles; and in the decision to submit it for publication.

Appendix C. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ssmph.2020.100551.

Appendix A. Women Only: Logit regression modelling relation between pre-migration and migration factors and depression (PHQ9≥10, N = 394) and anxiety (GAD7≥10, N = 394), Model 1 includes premigration factors only and, Model 2 included premigration and migration factors

	Depression				Anxiety			
	Model 1		Model 2		Model 1		Model 2	
	OR	CI	OR	CI	OR	CI	OR	CI
Premigration Factors								
Age	1.00	0.97–1.03	1.01	0.98–1.04	0.98**	0.95–1.00	0.98	0.96–1.01
Reasons for Migrating:								
Legal access and welfare services	1.10	0.72–1.68	1.02	0.62–1.69	1.04	0.77–1.42	1.00	0.77–1.30
Family reunification	1.17	0.86–1.59	1.14	0.81–1.60	0.91	0.72–1.14	0.89	0.70–1.14
Safety and respect	0.60**	0.40–0.90	0.69*	0.46–1.03	0.55***	0.42–0.72	0.50***	0.37–0.68
Region of host country	1.12	0.84–1.48	1.33*	0.96–1.83	0.98	0.78–1.23	0.81	0.61–1.09
Migration Factors								

(*continued on next page*)

(*continued*)

	Depression				Anxiety			
	Model 1		Model 2		Model 1		Model 2	
	OR	CI	OR	CI	OR	CI	OR	CI
Education			0.96	0.66–1.38			1.24	0.93–1.67
Wealth Venezuela			1.24	0.88–1.75			0.84	0.64–1.09
Wealth Community			0.79	0.56–1.12			1.17	0.91–1.52
Pregnant[1]			3.63*	0.92–14.39			1.33	0.39–4.55
Married[2]			1.24	0.55–2.81			1.49	0.75–2.95
Divorced[3]			0.66	0.11–3.94			0.67	0.12–3.70
Widowed[4]			2.07	0.33–12.74			1.59	0.27–9.37
Traveling with children			0.85	0.56–1.27			1.03	0.73–1.45
Walked at any point[5]			1.96	0.84–4.56			1.78	0.88–3.56
Log Days Travelled			0.79*	0.60–1.04			1.12	0.90–1.39
Destination Country[6]:								
Peru			0.27*	0.06–1.26			0.30**	0.10–0.91
Colombia			0.12**	0.02–0.61			1.10	0.28–4.37
Chile			0.33	0.06–1.74			0.25**	0.07–0.84
Constant	0.19**	0.04–0.92	0.56	0.01–22.61	0.32*	0.09–1.10	0.19	0.02–1.71

CI = Robust confidence interval, OR = Odds ratio. ***p < 0.01, **p < 0.05 and * p < 0.1.

[1] *ref: Not pregnant.*

[2, 3] & [4] *ref: Single.*

[5] *ref: No walking during the journey.*

[6] *ref: All other countries.*

Appendix B. Men Only: Logit regression modelling relation between pre-migration and migration factors and depression (PHQ9≥10, N = 405) and anxiety (GAD7≥10, N = 405), Model 1 includes premigration factors only and, Model 2 included premigration and migration factors

	Depression				Anxiety			
	Model 1		Model 2		Model 1		Model 2	
	OR	CI	OR	CI	OR	CI	OR	CI
Premigration Factors								
Age	1.01	0.97–1.05	1.01	0.97–1.06	1.03**	1.00–1.07	1.04	1.00–1.08
Reasons for Migrating:								
Legal access and welfare services	1.11	0.95–1.31	1.13	0.94–1.35	1.07	0.92–1.25	1.07	0.91–1.27
Family reunification	1.26	0.88–1.79	1.25	0.87–1.81	1.31*	0.99–1.73	1.38**	1.04–1.82
Safety and respect	1.72***	1.19–2.49	1.76***	1.26–2.45	1.18	0.83–1.67	1.15	0.82–1.62
Region of host country	1.07	0.74–1.56	1.18	0.77–1.83	1.26*	0.98–1.63	1.22	0.90–1.66
Migration Factors								
Education			1.09	0.72–1.65			1.75***	1.25–2.44
Wealth Venezuela			1.14	0.78–1.68			1.06	0.77–1.47
Wealth Community			0.83	0.55–1.24			0.85	0.63–1.16
Married[1]			1.03	0.46–2.30			1.06	0.53–2.09
Divorced[2]			1.10	0.17–7.26			0.79	0.14–4.50
Traveling with children			1.21	0.71–2.07			1.29	0.89–1.85
Walked at any point[3]			1.22	0.55–2.73			1.89*	0.92–3.84
Log Days Travelled			1.02	0.76–1.37			0.97	0.76–1.24
Destination Country[4]:								
Peru			2.65	0.79–892			0.96	0.30–3.05
Colombia			1.33	0.23–7.72			1.02	0.24–4.42
Chile			2.05	0.46–9.20			1.36	0.38–4.86
Constant	0.01***	0.00–0.11	0.00***	0.00–0.07	0.01***	0.00–0.06	0.00***	0.00–0.02

CI = Robust confidence interval, OR = Odds ratio. ***p < 0.01, **p < 0.05 and * p < 0.1.

[1] & [2] ref: Single.

[3] ref: No walking during the journey.

[4] *ref: All other countries.*

References

JRS. (2019). *Jesuit refugee service annual report 2018*. https://jrs.net/wp-content/uploads/2019/06/JRS-2018-annual-report.pdf.

Acosta, D., Blouin, C., & Freier, F. (2019). *La emigración venezolana: Respuestas latinoamericanas". Documento de Trabajo, no 3 (2a época)*. Madrid: Fundación Carolina.

Albarrán Peña, J. M. (2019). *La deserción estudiantil en la Universidad de Los Andes (Venezuela). (Spanish)*. josematias1@hotmail. com (pp. 60–92). https://doi.org/10.17081/eduhum.21.36.2806. Student Desertion at the University of Los Andes (Venezuela). (English), 21(36).

Alegría, M., Álvarez, K., & DiMarzio, K. (2017). Immigration and mental health. *Current Epidemiology Reports, 4*(2), 145–155. https://doi.org/10.1007/s40471-017-0111-2.

Alegria, M., Carson, N. J., Goncalves, M., & Keefe, K. (2011). Disparities in treatment for substance use disorders and Co-occurring disorders for ethnic/racial minority youth. *Journal of the American Academy of Child & Adolescent Psychiatry, 50*(1), 22–31. https://doi.org/10.1016/j.jaac.2010.10.005.

Aroian, K. J., Norris, A. E., González de Chávez Fernández, M. A., & García Averasturi, L. M. (2008). Gender differences in psychological distress among Latin American immigrants to the Canary Islands. *Sex Roles, 59*(1), 107–118. https://doi.org/10.1007/s11199-008-9418-2.

Associated Press. (2019, October 18). In *Latin America, fears of rising discrimination, xenophobia against Venezuelan migrants.*. https://www.nbcnews.com/news/latino/latin-america-fears-rising-discrimination-xenophobia-against-venezuelan-migrants-n1068536.

Barrios, Y. V., Gelaye, B., Zhong, Q., Nicolaidis, C., Rondon, M. B., Garcia, P. J., et al. (2015). Association of childhood physical and sexual abuse with intimate partner

violence, poor general health and depressive symptoms among pregnant women. *PloS One, 10*(1), e0116609. https://doi.org/10.1371/journal.pone.0116609.
Baxter, A. J., Scott, K. M., Ferrari, A. J., Norman, R. E., Vos, T., & Whiteford, H. A. (2014). Challenging the myth of an "epidemic" of common mental disorders: Trends in the global prevalence of anxiety and depression between 1990 and 2010. *Depression and Anxiety, 31*(6), 506–516. https://doi.org/10.1002/da.22230.
Bhugra, D. (2004). Migration and mental health. *Acta Psychiatrica Scandinavica, 109*(4), 243–258. https://doi.org/10.1046/j.0001-690X.2003.00246.x.
Bhugra, D., & Jones, P. (2001). Migration and mental illness. *Advances in Psychiatric Treatment, 7*, 216–223.
Blouin, C., & Freier, L. F. (2019). Población venezolana en Lima: Entre la regularización y la precariedad. In L. Gandini, F. Lozano Ascencio, & V. Prieto (Eds.), *Migración de Población Venezolana en Contextos de Crisis y las Respuestas de los países Latinoamericanos*. UNAM.
Bolivar, L., Freier, L. F., & Luzes, M. (2019). In *2 Propuesta de Política Publica: Los Impactos Adversos de las Visas Humanitaria. Policy Brief by the Centro de Investigación de la Universidad del Pacífico*. http://sisisemail.up.edu.pe/sisisemail/_data/2019/19350/CIUP-PPP-No2.pdf.
Calderón, M., Gálvez-Buccollini, J. A., Cueva, G., Ordoñez, C., Bromley, C., & Fiestas, F. (2012). Validación de la versión peruana del PHQ-9 para el diagnóstico de depresión. *Revista Peruana de Medicina Experimental y Salud Pública, 29*, 578–579. https://doi.org/10.1590/S1726-46342012000400027.
Cantekin, D., & Gençöz, T. (2017). Mental health of Syrian asylum seekers in Turkey: The role of pre-migration and post-migration risk factors. *Journal of Social and Clinical Psychology, 36*(10), 835–859. https://doi.org/10.1521/jscp.2017.36.10.835.
Cardoso, J. B., & Thompson, S. J. (2010). Common themes of resilience among Latino immigrant families: A systematic review of the literature. *Families in Society: The Journal of Contemporary Social Services, 91*(3), 257–265. https://doi.org/10.1606/1044-3894.4003.
Casey, N., & González, J. C. (2019). *A staggering exodus: Millions of Venezuelans are leaving the country, on foot*. February 20. The New York Times https://www.nytimes.com/2019/02/20/world/americas/venezuela-refugees-colombia.html.
Chen, W., Hall, B. J., Ling, L., & Renzaho, A. M. (2017). Pre-migration and post-migration factors associated with mental health in humanitarian migrants in Australia and the moderation effect of post-migration stressors: Findings from the first wave data of the BNLA cohort study. *The Lancet Psychiatry, 4*(3), 218–229. https://doi.org/10.1016/S2215-0366(17)30032-9.
Del Amo, J., Jarrín, I., García-Fulgueiras, A., Ibáñez-Rojo, V., Alvarez, D., Rodríguez-Arenas, M.Á., et al. (2011). Mental health in Ecuadorian migrants from a population-based survey: The importance of social determinants and gender roles. *Social Psychiatry and Psychiatric Epidemiology, 46*(11), 1143–1152. https://doi.org/10.1007/s00127-010-0288-x.
Doocy, S., Page, K. R., de la Hoz, F., Spiegel, P., & Beyrer, C. (2019). Venezuelan migration and the border health crisis in Colombia and Brazil. *Journal on Migration and Human Security, 233150241986013*. https://doi.org/10.1177/2331502419860138.
Dooley, D. B., & M. (2019, December 9). Venezuela refugee crisis to become the largest and most underfunded in modern history. Brookings https://www.brookings.edu/blog/up-front/2019/12/09/venezuela-refugee-crisis-to-become-the-largest-and-most-underfunded-in-modern-history/.
Dufour, D. L., & Piperata, B. A. (2004). Rural-to-urban migration in Latin America: An update and thoughts on the model. *American Journal of Human Biology, 16*(4), 395–404. https://doi.org/10.1002/ajhb.20043.
ENCOVI. (2018). *Preliminary results Encuesta de Condiciones de Vida (ENCOVI): November 2018*. https://elucabista.com/wp-content/uploads/2018/11/RESULTADOS-PRELIMINARES-ENCOVI-2018-30-nov.pdf.
Fellmeth, G., Fazel, M., & Plugge, E. (2017). Migration and perinatal mental health in women from low- and middle-income countries: A systematic review and meta-analysis. *BJOG: An International Journal of Obstetrics and Gynaecology, 124*(5), 742–752. https://doi.org/10.1111/1471-0528.14184.
Freier, L. F. (2018). *Why Latin America should recognize Venezuelans as refugees*. https://www.newsdeeply.com/refugees/community/2018/09/28/why-latin-america-should-recognize-venezuelans-as-refugees.
Freier, L. F., & Castillo, S. (2019). *El Presidencialismo y la Política Migratoria en América Latina: Un Análisis de las Reacciones Políticas frente al desplazamiento de Ciudadanos Venezolanos* (Internacia).
Freier, L. F., & Luzes, M. (2020). How humanitarian are humanitarian visas? An analyses of theory and practice in south America. In L. Jubilut, G. Mezzanotti, & M. Vera Espinoza (Eds.), *Latin America and refugee protection: Regimes, logics and challenge*.
Freier, L. F., & Parent, N. (2019). *A turning tide? Venezuelan displacement and migration governance in Peru*. https://blogs.eui.eu/migrationpolicycentre/author/luisa-feline-freier-and-nicolas-parent/.
Garcia-Campayo, J., Zamorano, E., Ruiz, M. A., Pardo, A., Perez-Paramo, M., Lopez-Gomez, V., et al. (2010). Cultural adaptation into Spanish of the generalized anxiety disorder-7 (GAD-7) scale as a screening tool. *Health and Quality of Life Outcomes, 8*(1), 8. https://doi.org/10.1186/1477-7525-8-8.
Gelaye, B., Rondon, M., Araya, R., & Williams, M. A. (2016). Epidemiology of maternal depression, risk factors, and child outcomes in low-income and middle-income countries. *The Lancet Psychiatry, 3*(10), 973–982. https://doi.org/10.1016/S2215-0366(16)30284-X.
Ghisi, G. L. de M., Santos, C. V. A., Benaim, B., Lopez-Jimenez, F., Herdy, A. H., Inojosa, J. M., et al. (2017). Severity of depressive symptoms pre- and postcardiac rehabilitation: A comparison among patients IN Brazil, Canada, Colombia, the United States, and Venezuela. *Journal of Cardiopulmonary Rehabilitation and Prevention, 37*(3), 182–190. https://doi.org/10.1097/HCR.0000000000000189.
Gilbert, A., & Crankshaw, O. (1999). Comparing South African and Latin American experience: Migration and housing mobility in soweto. *Urban Studies, 36*(13), 2375–2400. https://doi.org/10.1080/0042098992476.
Gomez-Beloz, A., Williams, M. A., Sanchez, S. E., & Lam, N. (2009). Intimate partner violence and risk for depression among postpartum women in Lima, Peru. *Violence & Victims, 24*(3), 380–398.
Grassani, A. (2018). *IOM perspectives on migration, enviornment, and climate change*. International Orgnaization for Migration.
Heijmans, B. T., Tobi, E. W., Lumey, L. H., & Slagboom, P. E. (2009). The epigenome: Archive of the prenatal environment. *Epigenetics, 4*(8), 526–531. https://doi.org/10.4161/epi.4.8.10265.
Hou, W. K., Liu, H., Liang, L., Ho, J., Kim, H., Seong, E., et al. (2020). Everyday life experiences and mental health among conflict-affected forced migrants: A meta-analysis. *Journal of Affective Disorders, 264*, 50–68. https://doi.org/10.1016/j.jad.2019.11.165.
IOM. (2018). International Organization for Migration: World Migration Report 2018. *UNITED NATIONS PUBNS*.
IOM. (2019). *Venezuelan refugee and migrant crisis | international organization for migration*. https://www.iom.int/venezuela-refugee-and-migrant-crisis.
IOM, & UNCHR. (2019). *Regional inter-agency coordination platform for refugees and migrants from Venezuela: Situación respuesta a los venezolanos*. https://r4v.info/es/situations/platform.
James, P., Iyer, A., & Webb, T. L. (2019). The impact of post-migration stressors on refugees' emotional distress and health: A longitudinal analysis. *European Journal of Social Psychology*, 1–9. https://doi.org/10.1002/ejsp.2589, 0(0).
Karamizadeh, S., Abdullah, S. M., Manaf, A. A., Zamani, M., & Hooman, A. (2009). *Principal component analysis*. Encyclopedia of Biometrics. https://doi.org/10.1007/978-0-387-73003-5_479.
Kimbro, R. T. (2009). Acculturation in context: Gender, age at migration, neighborhood ethnicity, and health behaviors*. *Social Science Quarterly, 90*(5), 1145–1166. https://doi.org/10.1111/j.1540-6237.2009.00651.x.
Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9. *Journal of General Internal Medicine, 16*(9), 606–613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x.
Levis, B., Benedetti, A., & Thombs, B. D. (2019). *Accuracy of Patient Health Questionnaire-9 (PHQ-9) for screening to detect major depression: Individual participant data meta-analysis* (Vol. 11).
Lindert, J., Ehrenstein, O. S. von, Priebe, S., Mielck, A., & Brähler, E. (2009). Depression and anxiety in labor migrants and refugees – a systematic review and meta-analysis. *Social Science & Medicine, 69*(2), 246–257. https://doi.org/10.1016/j.socscimed.2009.04.032.
Llácer, A., Zunzunegui, M. V., del Amo, J., Mazarrasa, L., & Bolůmar, F. (2007). The contribution of a gender perspective to the understanding of migrants' health. *Journal of Epidemiology & Community Health, 61*(Suppl 2). https://doi.org/10.1136/jech.2007.061770. ii4–ii10.
Maccari, S., Darnaudéry, M., Morley-Fletcher, S., Zuena, A. R., & Reeth, O. van (2003). Prenatal stress and long-term consequences: Implications of glucocorticoid hormones. *Neuroscience & Biobehavioral Reviews, 27*, 119–127. https://doi.org/10.1016/S0149-7634(03)00014-9.
Macintyre, S., Ellaway, A., & Cummins, S. (2002). Place effects on health: How can we conceptualise, operationalise and measure them? *Social Science & Medicine, 55*(1), 125–139. https://doi.org/10.1016/S0277-9536(01)00214-3.
McIlwaine, C. (2008). *Negotiating gender-based violence: The paradoxes of migration for Latin American women in London*. Queen Mary University of London. https://www.researchgate.net/profile/Cathy_Mcilwaine/publication/237772619_Negotiating_gender-based_violence_the_paradoxes_of_migration_for_Latin_American_women_in_London/links/00b7d531727201e2c6000000.pdf.
Miszurka, M., Goulet, L., & Zunzunegui, M. V. (2010). Contributions of immigration to depressive symptoms among pregnant women in Canada. *Canadian Journal of Public Health, 5*, 358–364.
OIM. (2019). *Organización Internacional para las Migraciones: Monitoreo de Flujo de Población Venezolana en el Perú DTM ronda 5*.
Ordosgoitti, E. A. G. (1991). *Diez ensayos de cultura venezolana*. Fondo Editorial Tropykos.
Ornelas, I. J., & Perreira, K. M. (2011). The role of migration in the development of depressive symptoms among Latino immigrant parents in the USA. *Social Science & Medicine (1982), 73*(8), 1169–1177. https://doi.org/10.1016/j.socscimed.2011.07.002.
Patel, V., & Kleinman, A. (2003). Poverty and common mental disorders in developing countries. *Bulletin of the World Health Organization, 81*, 609–615. https://doi.org/10.1590/S0042-96862003000800011.
Poole, D. N., Hedt-Gauthier, B., Liao, S., Raymond, N. A., & Bärnighausen, T. (2018). Major depressive disorder prevalence and risk factors among Syrian asylum seekers in Greece. *BMC Public Health, 18*(1), 908. https://doi.org/10.1186/s12889-018-5822-x.
Ravallion, M., & Lokshin, M. (1999). *Subjective economic welfare*. The World Bank. https://doi.org/10.1596/1813-9450-2106.
Roizblatt, A., & Pilowsky, D. (1996). Forced migration and resettlement: Its impact on families and individuals. *Contemporary Family Therapy, 18*(4), 513–521. https://doi.org/10.1007/BF02195714.
Schwartz, S. J., Salas-Wright, C. P., Pérez-Gómez, A., Mejía-Trujillo, J., Brown, E. C., Montero-Zamora, P., et al. (2018). Cultural stress and psychological symptoms in recent Venezuelan immigrants to the United States and Colombia. *International Journal of Intercultural Relations, 67*, 25–34. https://doi.org/10.1016/j.ijintrel.2018.09.001.
Schweitzer, R. D., Brough, M., Vromans, L., & Asic-Kobe, M. (2011). Mental health of newly arrived Burmese refugees in Australia: Contributions of pre-migration and

post-migration experience. *Australian and New Zealand Journal of Psychiatry, 45*(4), 299–307. https://doi.org/10.3109/00048674.2010.543412.

Sequera, V. (2019, September 29). *Venezuela chides Peru for "xenophobia" against migrants—Reuters*. Reuters. https://www.reuters.com/article/us-venezuela-peru/venezuela-chides-peru-for-xenophobia-against-migrants-idUSKBN1WF05F.

Silove, D. M., Sinnerbrink, I. B., Field, A. M., Manicavasagar, V., & Steel, Z. L. (1997). Anxiety, depression and PTSD in asylum-seekers: Associations with pre-migration trauma and post-migration stressors. *British Journal of Psychiatry: Journal of Mental Science, 170*, 351–357. https://doi.org/10.1192/bjp.170.4.351.

Siriwardhana, C., Ali, S. S., Roberts, B., & Stewart, R. (2014). A systematic review of resilience and mental health outcomes of conflict-driven adult forced migrants. *Conflict and Health, 8*(1), 13. https://doi.org/10.1186/1752-1505-8-13.

Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine, 166*(10), 1092–1097. https://doi.org/10.1001/archinte.166.10.1092.

StataCorp. (2019). *Stat statistical software: Release 16*. StataCorp LLC.

Stevens, G. W. J. M., & Vollebergh, W. A. M. (2008). Mental health in migrant children. *Journal of Child Psychology and Psychiatry, 49*(3), 276–294. https://doi.org/10.1111/j.1469-7610.2007.01848.x.

Sundquist, J., Iglesias, E., & Isacsson, Å. (1995). Migration and health: A study of Latin American refugees, their exile in Sweden and repatriation. *Scandinavian Journal of Primary Health Care, 13*(2), 135–140. https://doi.org/10.3109/02813439508996750.

Tacoli, C. (2009). Crisis or adaptation? Migration and climate change in a context of high mobility. *Environment and Urbanization, 21*(2), 513–525. https://doi.org/10.1177/0956247809342182.

UNHCR. (2019). *UNHCR protection monitoring report for Venezuela situation: Update #1*. https://reliefweb.int/sites/reliefweb.int/files/resources/UNHCR%20Protection%20Monitoring%20Report%20for%20VenSit%20-%20EN%20-%20July%202019.pdf.

Valdez, E. S., Valdez, L. A., & Sabo, S. (2015). Structural vulnerability among migrating women and children fleeing Central America and Mexico: The public health impact of "humanitarian parole. *Frontiers in Public Health, 3*. https://doi.org/10.3389/fpubh.2015.00163.

Vidal, E. M., Tjaden, J. D., & Global Migration Data Analysis Centre. (2018). *Global migration indicators 2018: Insights from the global migration data portal*. www.migrationdataportal.org. https://publications.iom.int/system/files/pdf/global_migration_indicators_2018.pdf.

Virupaksha, H. G., Kumar, A., & Nirmala, B. P. (2014). Migration and mental health: An interface. *Journal of Natural Science, Biology and Medicine, 5*(2), 233–239. https://doi.org/10.4103/0976-9668.136141.

Vivas Peñalver, L., & Paez, T. (2017). The Venezuelan diaspora, another impending crisis?. https://doi.org/10.13140/RG.2.2.17819.87843.

Vogt, W. A. (2013). Crossing Mexico: Structural violence and the commodification of undocumented Central American migrants: Migration, violence, and commodification. *American Ethnologist, 40*(4), 764–780. https://doi.org/10.1111/amet.12053.

Whiteford, H. A., Degenhardt, L., Rehm, J., Baxter, A. J., Ferrari, A. J., Erskine, H. E., et al. (2013). Global burden of disease attributable to mental and substance use disorders: Findings from the Global Burden of Disease Study 2010. *The Lancet, 382*(9904), 1575–1586. https://doi.org/10.1016/S0140-6736(13)61611-6.

Zelkowitz, P., Schinazi, J., Katofsky, L., Saucier, J. F., Valenzuela, M., Westreich, R., et al. (2004). Factors associated with depression in pregnant immigrant women. *Transcultural Psychiatry, 41*(4), 445–464. https://doi.org/10.1177/1363461504047929.

Zhong, Q.-Y., Gelaye, B., Rondon, M. B., Sánchez, S. E., Simon, G. E., Henderson, D. C., et al. (2015). Using the patient health questionnaire (PHQ-9) and the edinburgh postnatal depression scale (EPDS) to assess suicidal ideation among pregnant women in Lima, Peru. *Archives of Women's Mental Health, 18*(6), 783–792. https://doi.org/10.1007/s00737-014-0481-0.

Zhong, Q.-Y., Gelaye, B., Zaslavsky, A. M., Fann, J. R., Rondon, M. B., Sánchez, S. E., et al. (2015). Diagnostic validity of the generalized anxiety disorder—7 (GAD-7) among pregnant women. *PloS One, 10*(4), e0125096. https://doi.org/10.1371/journal.pone.0125096.

Zimmerman, C., Kiss, L., & Hossain, M. (2011). Migration and health: A framework for 21st century policy-making. *PLoS Medicine, 8*(5), e1001034. https://doi.org/10.1371/journal.pmed.1001034.