Title

Trauma, Post-Migration Stress, and Mental Health: A Comparative Analysis of Refugees and Immigrants in the United States.

Journal

Journal of immigrant and minority health, 21(5)

ISSN

1557-1912

Authors

Sangalang, Cindy C
Becerra, David
Mitchell, Felicia M
et al.

Publication Date

2019-10-01

DOI

10.1007/s10903-018-0826-2

Peer reviewed

Journal of Immigrant and Minority Health
https://doi.org/10.1007/s10903-018-0826-2

ORIGINAL PAPER

Trauma, Post-Migration Stress, and Mental Health: A Comparative Analysis of Refugees and Immigrants in the United States

Cindy C. Sangalang[1] · David Becerra[2] · Felicia M. Mitchell[2] · Stephanie Lechuga-Peña[2] · Kristina Lopez[2] · Isok Kim[3]

Abstract
Numerous studies describe mental health effects of pre-migration trauma and post-resettlement stress among refugees, yet less research examines these associations with non-refugee immigrants. Additionally, few studies assess the prevalence and impact of traumatic experiences after settlement in a new country. Using a U.S.-based representative sample of Asian (n = 1637) and Latino (n = 1620) refugees and immigrants, we investigated how traumatic events prior to and after migration, and post-migration stressors, are associated with mental illness and distress. Pre-migration trauma posed risk across a broad range of psychological outcomes for Asian refugees and Latino immigrants. Deleterious effects of post-migration trauma were notable for both groups of refugees and immigrants. Discrimination, acculturative stress, and family conflict increased risk for disorder and distress across groups in complex ways. Findings highlight the importance of examining trauma and stress at pre- and post-migration phases across migrant populations, including those not labeled as refugees.

Keywords Refugees · Immigrants · Trauma · Post-migration stressors · Mental health

Introduction

Refugees experience multiple forms of trauma, including persecution, physical and sexual violence, and life-threatening situations, prior to and during the process of migration [1, 2]. These experiences can have severe and long-term mental health consequences [3, 4]. In addition to trauma, studies have called attention to the ways in which post-migration stressors tied to resettlement in another country pose significant risk for psychological problems and poor mental health [5–7]. In contrast to refugees, less research examines the mental health effects of trauma and stress at pre- and post-migration phases for non-refugee immigrants [8, 9]. These limitations can be attributed to the ways in which studies classify foreign-born or migrant groups as "immigrants" broadly, or examine disparities between immigrant and native-born populations without accounting for important differences in subgroups of migrants [2, 10, 11].

Generally speaking, immigrants leave their countries of origin by choice in search of social and economic opportunity while refugees are forced to migrate in search of safety from conflict and persecution. Yet, in the U.S. non-refugee immigrants often survive conditions characterized by mass violence and traumatic events prior to emigration but do not qualify for legal status as a refugee [9, 12]. In the case of immigrants who enter the U.S. without authorization, many endure violence during the process of transit, including detention, verbal and physical assaults, and other human rights abuses [13–15]. A number of non-refugee immigrants may emigrate under circumstances related to family reunification or other temporary statuses, but have also experienced political violence and displacement [16]. Confounding the issue, some individuals who have legal refugee status may reject public recognition as a refugee due to the term's association with stigma and past adversity [17].

Additionally, few studies examine the prevalence and impact of trauma experiences after migration to the U.S. According to the American Psychiatric Association [18], trauma includes having direct exposure to or witnessing

✉ Cindy C. Sangalang
Cindy.Sangalang@calstatela.edu

[1] School of Social Work, California State University, Los Angeles, 5151 State University Drive, ST 815, Los Angeles, CA 90032, USA

[2] School of Social Work, Arizona State University, 411 N. Central Avenue, Suite 800, Phoenix, AZ 85004, USA

[3] School of Social Work, University of Buffalo, The State University of New York, 685 Baldy Hall, Buffalo, NY 14260, USA

Published online: 22 September 2018

an event that involves actual or threatened death or serious injury and violence. The voluminous refugee mental health literature often assesses trauma in one's place of origin, in the process of flight, and during temporary settlement (e.g. refugee camps) though often without temporal delineations in these events [12]. Prior research has recognized specific forms of trauma, such as intimate partner violence, in immigrant populations [19], yet few studies look at trauma experiences broadly after settlement in a new country. Researchers have long conceptualized the migration process as having multiple stages [1, 2], and described ways in which prior trauma increases vulnerability to subsequent traumas and stress [6]. Yet, the explicit study of trauma after resettlement has not been applied broadly across refugee and non-refugee immigrant populations.

To address existing gaps, we draw on a U.S.-based representative sample of Asian and Latino refugees and non-refugee immigrants (hereafter, referred to as "immigrants") to address the following research questions: (1) How are traumatic events, prior to and after migration, associated with mental health problems among refugees and immigrants? (2) Accounting for trauma exposure, what post-migration stressors are associated with mental health problems?

This study has a number of unique features. First, with notable exceptions [10, 11], this paper is among the few to use national data to compare a range of stressors and mental health outcomes for refugees and immigrants of diverse Asian and Latin American national origins. Our study builds on prior findings by investigating the contribution of both pre- and post-migration stress on outcomes that include depressive disorders, anxiety disorders, and psychological distress. Furthermore, we examine the timing of trauma experiences in relation to resettlement in the U.S., as few studies assess for post-migration trauma.

After accounting for trauma, our analyses also explore mental health outcomes linked to post-migration stressors, including acculturative stress, discrimination, neighborhood factors, and family conflict. Challenges associated with sociocultural adjustment in a new country resulting from dissonance between one's culture of origin and the host culture (acculturative stress) as well as experiences of racial/ethnic discrimination are robust predictors of poor mental health [20, 21]. Similarly, migrants are prone to neighborhood contexts affected by residential segregation and poverty, which play important roles in shaping health behaviors and well-being [22]. Finally, these adjustment stressors can adversely affect family relationships and lead to family conflict, which is strongly linked to psychological distress and mental health in migrant populations [23].

In summary, the current study examines the mental health effects of trauma and stress prior to and after migration among refugees and immigrants in the U.S. We hypothesize that both pre-migration trauma and post-migration trauma are associated with greater risk of mental illness and increased psychological distress for immigrants as well as refugees. Similarly, we hypothesize that post-migration stressors will amplify risk for mental illness and elevate psychological distress.

Methods

Data and Sampling

Data from this study were drawn from the National Latino and Asian American Study (NLAAS), an epidemiological survey of mental illness and mental health service use among Latinos and Asian Americans in U.S. The NLAAS used a complex three-stage stratified sampling design that has been described in detail elsewhere [24, 25]. Eligible respondents were age 18 years or older and were not in the military or institutionalized. The NLAAS recruited a total of 2554 Latino and 2095 Asian participants between 2002 and 2003.

Lay interviewers conducted interviews with participants using computer-assisted survey instruments in the participants' preferred language (English, Spanish, Mandarin, Cantonese, Tagalog, or Vietnamese). The final overall response rate for Asians was 65.6% and the rate for Latinos was 75.5% [25, 26]. We analyzed data on 3268 respondents born outside the U.S. (n = 1639 Asian; n = 1629 Latino). The use and analysis of the NLAAS was approved by the Interuniversity Consortium for Political and Social Research and the authors' University Institutional Review Boards.

Measures

Depressive and Anxiety Disorders in the past 12 Months

Participants were classified with DSM-IV diagnoses in the past year (0 = absent, 1 = present) using the World Health Organization's expanded version of the Composite International Diagnostic Interview [WHO-CIDI, 27]. Any depressive disorder included at least one diagnosis of depressive disorder or dysthymia in the last year. Any anxiety disorder was based on diagnosis of at least one of the following disorders in the past year: panic disorder, agoraphobia without panic, social phobia, generalized anxiety disorder, or post-traumatic stress disorder (PTSD).

Psychological Distress

The Kessler Psychological Distress scale assessed the frequency of experiencing mental and emotional distress in the past month [28]. Items included how often participants felt depressed, hopeless, restless/fidgety, and tired for no good

reason. Responses ranged from 1 (none of the time) to 5 (all of the time). The index demonstrated high internal consistency (α = 0.86 for Asians; α = 0.93 for Latinos).

Pre-migration and Post-migration Trauma Exposure

Twenty-six items captured whether participants experienced a variety of traumatic events, with a subsequent follow-up item for each regarding the age they first experienced the aforementioned traumatic event. Taken from the WHO-CIDI, these items were included in the NLAAS to assess PTSD symptoms. Representative items included whether participants were an unarmed civilian in a war zone, a civilian exposed to ongoing war, saw injuries or dead bodies, were mugged, or sexually assaulted (items previously published [11]; see Appendix for most common items by group). As was done in prior research [5, 10, 11], to determine the timing of pre- and post-migration events, we subtracted participants' age of migration from the age they first experienced the traumatic events; negative values represented traumatic events prior to migration to the U.S. and positive values represented those after migration to the U.S. Affirmative responses were summed for each period (range 0–14).

Discrimination

Participants reported the frequency of unfair treatment with the 9-item Everyday Discrimination scale [29]. Representative items, ranging from 1 (never) to 6 (almost everyday), asked how often participants were threatened/harassed, called names/insulted, and treated with less respect than others. Higher summed scores reflected more frequent experiences of discrimination (α = 0.90 for Asians; α = 0.90 for Latinos).

Acculturative Stress

A 10-item scale adapted from the Mexican American Prevalence and Services Survey [30] assessed acculturative stress. Items tapped into strains associated with adjustment to a new country, including whether participants felt guilty about leaving family/friends in their country of origin, felt respected in the U.S. compared to their country of origin, had difficulty finding work due to Latino/Asian descent, or were questioned about their legal status. Dichotomous responses (0 = no, 1 = yes) were summed, with higher summed scores indicating greater acculturative stress (α = 0.57 for Asians; α = 0.69 for Latinos).

Family Conflict

Five items drawn from the Hispanic Stress Inventory assessed the relative frequency of perceived family conflict due to incongruent cultural values [31]. Participants responded on a scale of 1 (hardly ever or never) to 3 (often) to statements including "Being too close to family interfered with my goals" and "I argue with family over different customs" (α = 0.76 for Asians; α = 0.79 for Latinos).

Neighborhood Environment

A seven-item scale focused on respondents' perceptions of safety and social cohesion in their neighborhood [24, 32]. Representative items included whether people in the neighborhood could be trusted, get along with each other, and help in an emergency. Two items were reverse coded ("People get mugged in the neighborhood" and "People sell/use drugs in neighborhood"). Responses ranged from 1 (not at all true) to 4 (very true), with summed scores ranging from 4 to 28 (α = 0.78 for Asians; α = 0.81 for Latinos).

Covariates

We controlled for gender, age, ethnicity, education, marital status, duration in the U.S., work status, and social desirability. To assess social desirability reporting bias, a 10-item measure assessed respondents' agreement (0 = false, 1 = true) to statements such as "I never met a person I didn't like," "I have never been bored," and "I am not bothered by someone taking advantage of me" [33]. Summed scores ranged from 0 to 10 (α = 0.71 for Asians; α = 0.77 for Latinos).

Analysis

We conducted all analyses in Stata 15 and used the appropriate sampling weights to account for the NLAAS multistage survey design [34]. After describing and testing for group differences across migrant status in the Latino and Asian American samples, we examined associations between pre- and post-migration stressors and mental health outcomes. We employed logistic regression for binary outcomes (depressive and anxiety disorders) and multivariable linear regression to model effects on psychological distress. Because missing data was minimal we proceeded with complete cases. Our analyses were stratified by migrant status based on a single item that asked foreign-born participants the following question: "Were you ever a refugee—that is, did you ever flee from your home to a foreign country or place to escape danger or persecution?" This item indicates self-reported rather than legal status as a refugee (0 = immigrant, 1 = refugee) and has been used in prior research with this data [5, 10, 11].

Results

Table 1 presents characteristics of both Asian and Latino samples, comparing immigrants and refugees, respectively, within each sample. Among Asians, a significantly greater proportion of refugees were older and of Vietnamese heritage (57.93%), had lower levels of education and English language proficiency, and a longer duration of residence in the U.S. Furthermore, the proportion of Asian refugees who were unemployed was double that of the proportion of unemployed immigrants, though refugees had comparatively lower levels of poverty. Asian refugees had significantly higher levels of pre-migration trauma and lower levels of perceived everyday discrimination compared to immigrant counterparts. There were no significant differences between refugees and immigrants in the rate of 12-month disorders or psychological distress.

Among Latinos, a greater proportion of refugees were male, older, and of Cuban descent (49.65%) compared to immigrants. Latino refugees had higher levels of education, greater English language proficiency, higher levels of poverty, and were less likely to be uninsured compared to immigrants. Additionally, Latino refugees had significantly higher levels of pre-migration and post-migration trauma than their immigrant counterparts. Refugees and immigrants did not differ in rates of 12-month disorders or psychological distress.

Next, we present odd ratios and OLS regression coefficients for the associations between pre- and post-migration stressors and mental health outcomes (any depressive disorder, any anxiety disorder, and psychological distress, respectively) for Asians and Latinos. Among Asians (Table 2), pre-migration trauma was associated with greater odds of depressive disorder and psychological distress for refugees; pre-migration trauma was associated with greater odds of anxiety disorders for immigrants. Post-migration trauma was linked to depressive disorders for both refugees and immigrants. For refugees, discrimination was associated with greater odds of anxiety disorders. For immigrants, discrimination was associated with greater odds of depressive and anxiety disorders as well as psychological distress. Acculturative stress was linked to lower odds of anxiety disorders and greater psychological distress for refugees, but not linked to mental health for immigrants. Across both refugees and immigrants, family conflict increased odds of depressive and anxiety disorders and psychological distress. Finally, there was no association between one's neighborhood context and mental health outcomes.

Among Latinos (Table 3), pre-migration trauma increased risk of psychological distress for refugees; pre-migration trauma was associated with greater odds of disorders and psychological distress for immigrants. Post-migration trauma was linked to greater psychological distress for refugees; post-migration trauma was associated depressive disorders and psychological distress for immigrants. Discrimination was linked to poorer mental health across all outcomes for immigrants, but not associated with mental health outcomes for refugees. Acculturative stress was linked to elevated odds of depressive disorder for refugees; for immigrants acculturative stress was linked to greater odds of depressive disorders and psychological distress. Family conflict was associated with poorer mental health across all outcomes for refugees, and with anxiety disorders and psychological distress for immigrants. Similar to Asians, neighborhood context was not linked to mental health outcomes for Latino refugees and immigrants.

Discussion

This study compared effects of pre- and post-migration trauma and stress on mental illness and distress across refugees and immigrants in a representative U.S. sample with Latino and Asian origins. In support of our primary hypotheses, pre- and post-migration trauma was linked to mental disorders and distress, with varied associations by racial/ethnic group and migrant status. For Asians, trauma exposure prior to and after migration was similarly linked to poorer mental health across refugee and immigrant groups. Among Latinos, our results indicate both pre- and post-migration trauma had deleterious effects across a broader range of mental health problems for immigrants compared to their refugee counterparts.

The findings regarding pre-migration trauma align with prior research demonstrating the destructive, long-term mental health consequences of war and political violence migrants face in their countries of origin and in transit [8, 9, 12]. Our results are also consistent with the refugee mental health literature indicating traumatic events are the most common pre-migration factor associated with psychiatric symptoms [35]. Numerous studies highlight pre-migration trauma among Latino immigrants escaping individual, institutional, and state-based violence [8] as well as Asian immigrants escaping everyday violence tied to repressive regimes in their home countries [12, 36]. In all, these data highlight the importance of understanding effects of pre-migration trauma broadly in migrant populations, including those not labeled or seen as refugees.

A unique contribution of our study was the inclusion of post-migration trauma as a risk for mental health. For both Asian refugees and immigrants, post-migration trauma heightened risk for depressive disorders, though the odds for disorder were double for refugees. A history of severe war trauma and barriers to appropriate mental health services

Table 1 Weighted sample characteristics of refugees and immigrants: NLAAS (n = 3268)

	Asians (n = 354)					Latinos (n = 1629)				
	Refugees (n = 354)		Immigrants (n = 1285)			Refugees (n = 306)		Immigrants (n = 1323)		
	Mean (%)	SE	Mean (%)	SE	p	Mean (%)	SE	Mean (%)	SE	p
Sociodemographic characteristics										
Female	47.70%	0.04	54.32%	0.02		38.19%	0.05	49.09%	0.02	*
Age	45.68	1.58	41.67	0.65	*	42.96	1.64	38.29	0.54	**
Asian subgroup										
Vietnamese	57.93%	0.05	8.83%	0.02	***					
Filipino	0.53%	0.01	23.05%	0.03						
Chinese	16.51%	0.03	32.81%	0.03						
Other Asian	25.02%	0.04	35.31%	0.03						
Latino subgroup										
Cuban						49.65%	0.06	3.59%	0.01	***
Puerto Rican						1.16%	0.01	7.63%	0.01	
Mexican						6.35%	0.04	58.73%	0.05	
Other Hispanics						42.83%	0.05	30.04%	0.04	
Education										
11 years or less	29.51%	0.03	15.61%	0.01	***	32.75%	0.05	56.19%	0.02	***
12 years	17.61%	0.03	16.14%	0.02		16.36%	0.04	20.10%	0.01	
13–15 years	19.89%	0.02	22.20%	0.02		28.97%	0.05	15.49%	0.01	
16+ years	32.99%	0.04	46.04%	0.02		21.92%	0.04	8.21%	0.01	
Marital status										
Married/cohabiting	73.49%	0.04	73.91%	0.01		69.28%	0.05	70.13%	0.02	
Divorced/separated/widowed	10.06%	0.03	7.17%	0.01		14.42%	0.03	13.92%	0.01	
Never married	16.45%	0.03	18.92%	0.01		16.31%	0.05	15.95%	0.01	
English language proficiency	6.70%	0.26	8.26%	0.13	***	6.29%	0.35	5.43%	0.17	*
Social desirability bias	7.43	0.20	7.60	0.11		23.19	1.38	20.15	0.36	*
Duration of residence in the U.S										
Less than 5 years	5.41%	0.02	20.22%	0.02	***	15.03%	0.04	16.97%	0.02	
5–10 years	16.53%	0.03	15.81%	0.01		14.55%	0.03	15.71%	0.01	
11–20 years	32.83%	0.03	34.47%	0.02		28.87%	0.05	31.41%	0.02	
20+ years	45.23%	0.04	29.49%	0.02		41.55%	0.06	35.91%	0.02	
Work status										
Employed	61.24%	0.04	63.67%	0.02	*	66.55%	0.05	63.39%	0.03	
Unemployed	11.42%	0.02	5.58%	0.01		4.13%	0.02	6.63%	0.01	
Not in labor force	27.33%	0.03	30.76%	0.02		29.32%	0.05	29.98%	0.03	
Income-to-poverty ratio	4.22	0.32	5.72%	0.18	***	4.09%	0.53	2.67%	0.18	*
Uninsured	11.16%	0.02	14.61%	0.01		25.61%	0.05	43.83%	0.02	**
Pre-migration stress										
Pre-migration traumas	1.88	0.12	0.84	0.04	***	2.28	0.18	0.96	0.06	**
Post-migration stress										
Post-migration traumas	0.6	0.06	0.56	0.04		1.45	0.11	0.98	0.06	*
Everyday discrimination	14.29	0.3	15.88	0.22	***	16.21	0.37	14.84	0.29	
Acculturative stress	2.1	0.15	1.73	0.08	*	2.34	0.14	2.5	0.08	
Family conflict	6.74	0.12	6.49	0.08		6.13	0.09	6.23	0.07	
Neighborhood context	22.06	0.37	21.49	0.25		21.01	0.38	20.21	0.2	
Mental health outcomes										
Any depressive disorder	6.9	0.03	4.09	0.01		7.91	0.02	7.44	0.01	
Any anxiety disorder	5.14	0.02	5.58	0.01		13.91	0.04	8.54	0.01	
Psychological distress	11.69	0.47	11.16	0.19		11.78	0.47	11.63	0.32	

Statistically significant differences relative to same-group refugees (Rao-Scott χ^2 accounted for weighted survey proportions):
*p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001

Table 2 Associations between pre- and post-migration stressors and mental health outcomes for asian refugees and immigrants: NLAAS (n = 1637)

	Refugees (n = 353)			Immigrants (n = 1284)		
	Any depressive disorder	Any anxiety disorder	Psychological distress	Any depressive disorder	Any anxiety disorder	Psychological distress
	OR (95% CI)	OR (95% CI)	b (95% CI)	OR (95% CI)	OR (95% CI)	b (95% CI)
Pre-migration stress						
Pre-migration traumas	1.92 (1.39, 2.66)***	1.07 (0.84, 1.37)	0.55 (0.16, 0.95)**	0.96 (0.73, 1.27)	1.17 (1.03, 1.34)*	0.18 (−0.05, 0.42)
Post-migration stressors						
Post-migration traumas	2.51 (1.43, 4.41)**	1.30 (0.89, 1.90)	0.57, (−0.40, 1.54)	1.26 (1.04, 1.55)*	1.22 (0.93, 1.59)	0.26 (−0.06, 0.57)
Discrimination	1.07 (0.94, 1.20)	1.17 (1.04, 1.32)*	0.04 (−0.06, 0.14)	1.11 (1.07, 1.14)***	1.07 (1.03, 1.12)**	0.16 (0.09, 0.24)***
Acculturative stress	1.30 (0.85, 2.00)	0.40 (0.19, 0.87)*	0.43 (0.003, 0.86)*	1.10 (0.91, 1.34)	1.05 (0.92, 1.20)	0.02 (−0.17, 0.21)
Family conflict	1.91 (1.29, 2.81)*	1.99 (1.25, 3.18)*	0.74 (0.25, 1.25)**	1.30 (1.13, 1.50)**	1.32 (1.15, 1.51)***	0.73 (0.53, 0.93)***
Neighborhood context	1.18 (0.98, 1.42)	0.95 (0.84, 1.08)	0.05 (−0.14, 0.23)	1.05 (0.98, 1.13)	0.97 (0.92, 1.02)	−0.01 (−0.06, 0.04)

All analyses are weighted and control for the following: gender, age, ethnicity, duration of stay in the U.S., English language proficiency, marital status, employment, health insurance, and social desirability bias

*p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001

Table 3 Associations between pre- and post-migration stressors and mental health outcomes for latino refugees and immigrants: NLAAS (n = 1620)

	Refugees (n = 304)			Immigrants (n = 1316)		
	Any depressive disorder	Any anxiety disorder	Psychological distress	Any depressive disorder	Any anxiety disorder	Psychological distress
	OR (95% CI)	OR (95% CI)	b (95% CI)	OR (95% CI)	OR (95% CI)	b (95% CI)
Pre-migration stress						
Pre-migration traumas	1.05 (0.86, 1.28)	0.95 (0.70, 1.30)	0.60 (0.39, 0.81)**	1.32 (1.15, 1.51)**	1.20 (1.04, 1.40)*	0.51 (0.31, 0.91)***
Post-migration stressors						
Post-migration traumas	1.10 (0.81, 1.52)	0.99 (0.74, 1.32)	0.50 (0.13, 0.87)*	1.34 (1.10, 1.63)***	1.08 (0.94, 1.23)	0.46 (0.13, 0.79)**
Discrimination	0.93 (0.86, 1.01)	1.03 (0.96, 1.11)	0.03 (−.04, 0.09)	1.04 (1.01, 1.07)*	1.05 (1.02, 1.07)***	0.14 (0.06, 0.22)**
Acculturative stress	1.35 (1.03, 1.77)*	1.06 (0.80, 1.42)	0.15 (−.50, 0.80)	1.19 (1.01, 1.41)*	1.17 (0.99, 1.39)	0.38 (0.11, 0.64)**
Family conflict	1.47 (1.10, 1.96)*	1.28 (1.01, 1.63)*	1.25 (0.60, 1.90)**	1.09 (0.98, 1.20)	1.15 (1.06, 1.25)**	0.70 (0.44, 0.95)***
Neighborhood context	1.10 (1.00, 1.22)	0.93 (0.81, 1.05)	0.05 (−.05, 0.15)	1.00 (0.95, 1.05)	0.99 (0.95, 1.03)	0.06 (−.006, 0.13)

All analyses are weighted and control for the following: gender, age, ethnicity, duration of stay in the U.S., English language proficiency, marital status, employment, health insurance, and social desirability bias

*p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001

among for Southeast Asian refugees has been well-documented [37, 38] and these factors combined with contemporary traumas may heighten trauma's effects in the Asian refugee sample [39]. In contrast, for Latinos, post-migration trauma similarly increased risk for psychological distress across refugees and immigrants but also increased risk for depressive disorders among immigrants only. Though we did not have data on visa type or authorized legal status, these findings may partially reflect experiences of undocumented Latino immigrants. Many endure perilous journeys to the U.S. and, upon arrival, can encounter threats of deportation, ineligibility for government services, and anti-immigrant rhetoric [40], which can heighten effects of post-migration trauma on mental health.

Other post-migration stressors detracted from mental health outcomes after accounting for trauma exposure, aligned with a growing body of literature underscoring the salience of the post-resettlement context on migrants' health [4–7]. Discrimination consistently predicted poorer mental health for Asian and Latino immigrants. This finding echoes the substantial literature illustrating the negative psychological and health consequences of discrimination [41, 42]. People often migrate to the U.S. in search of increased freedoms and economic opportunities in order to provide better lives for themselves and their families, arriving with great optimism and hope for their future [43]. However, immigrants encounter discrimination due to racial/ethnic, religious, and language biases in the U.S. as well as harmful social and political discourse regarding immigrants from developing countries. Although discrimination increased risk of anxiety disorders among Asian refugees, discrimination largely did not influence mental health outcomes for refugee groups. One explanation is that due to refugees' experiences with trauma and severe violence in their home countries, they may minimize everyday discrimination in the U.S. Furthermore, despite their potentially greater need for material and social support upon arrival, refugees are provided with some financial and housing support from refugee resettlement agencies to ease the transition to a new country; it may be that the need to maintain relative safety supersedes refugees' concerns with everyday negative treatment. In contrast, immigrants who leave their homelands with expectations for a better life in the U.S. may be especially vulnerable to the effects of discrimination.

We found acculturative stress increased risk of depressive disorders for Latino refugees and immigrants and contributed to greater psychological distress for Asian refugees and Latino immigrants. These results are consistent with prior literature describing the negative influence of acculturative stress on the psychological adjustment of Latino and Asian immigrants [44, 45]. However, the finding that acculturative stress was associated with lower risk of anxiety disorders among Asian refugees was unexpected. Anxiety is characterized by excessive fear and worry about the future [46]. Asian refugees in our sample who escaped war-torn pasts might view stressors tied to the cultural adjustment process as a type of "immigrant tax" [47] paid in exchange for resettlement in the U.S., which nonetheless frames the future with optimism rather than fear. Research has shown that coping in the form of forbearance, or emotional restraint in light of challenges, has buffered the stress of discrimination among Southeast Asian (Chinese, Vietnamese, and Lao) refugees in Canada [48]. More research is needed to investigate variables omitted in our analysis that may capture mechanisms underlying this anomalous finding.

The most consistent predictor of negative mental health across all refugee and immigrant groups was family conflict. Our data parallel the vast literature indicating that family conflict rooted in value differences and acculturation gaps predicts poorer mental health [49, 50]. Though value clashes in families are normative, migration-related stressors and experiences of displacement may uniquely shape problems in migrant family relationships and functioning [51], which in turn detract from mental health. Thus, interventions that address family-based conflict may hold significant promise in reducing risk of mental health problems for individuals in migrant families.

Finally, we did not find a link between neighborhood context and mental health. Many refugees and immigrants in urban areas live in ethnic minority-concentrated neighborhoods characterized by residential segregation and economic disadvantage [52]. However, prior analyses with this data have found that co-ethnic neighborhood density can confer social and cultural resources that benefit health [32]. It may be that the inclusion of trauma exposure in our analyses captures some the environmental variability tied to risk for disorder and distress. While not the focus of this study, additional research is needed to further examine if trauma exposure mediates the relationship between neighborhood context and mental health in migrant populations.

We acknowledge a number of study limitations. First, our analyses are based on self-reported refugee status, and the extent that self-reported status aligns with legal distinctions of migrant status in the data is unknown. This measure is an improvement upon prior studies that may assume refugee status based on country of origin [8, 53]. Still, the lack of reliable data on legal refugee status is pervasive in large, non-clinical studies of immigrants and refugees and should be addressed in future research [54]. Second, the measures of traumatic events were based on retrospective accounts and are subject to recall bias. Due to the sensitive nature of trauma, participants could have repressed or forgotten such experiences, or chose to not disclose this information to interviewers. Relatedly, higher scores on these measures assessed exposure to a greater variety of traumatic events rather than a higher frequency of trauma exposure (i.e. individuals may have seen a dead body on multiple occasions, yet this was counted as one traumatic event). These concerns, and the relatively low prevalence rates of trauma in our study, may reflect an underestimation in the measurement of lifetime exposure to trauma. Furthermore, with cross-sectional data we caution against causal statements among variables in our study, particularly with regards to post-migration stressors and mental health outcomes. The reverse relationship is possible, such that refugees and immigrants with psychiatric problems may be vulnerable to the impact of subsequent traumatic and stressful events once they are exposed. Longitudinal research is needed to confirm directionality in these relationships. It is also important to note that most migrants in our sample had lived in the U.S.

for more than 10 years and that we do not measure lifetime mental health symptoms; thus our data cannot speak to reactions to and processes of adaptation following trauma that can change over time. Finally, we did not have data on refugees and immigrants from parts of the world outside Asia and Latin America, including the Middle East and Africa. Because a significant proportion of migrants have origins in these regions, future research must include these populations.

Taken together, our study findings highlight the importance of understanding pre- and post-migration experiences as they relate to mental health for refugees and immigrants. Notably, it is critical for research to examine trauma's effects on mental health for migrant populations, regardless of status as a refugee or immigrant. As our results suggests, traumatic experiences tied to the migration process are perhaps more common among immigrants than is widely recognized. Furthermore, our results underscore how attention to racial, ethnic, and cultural factors that shape the experiences of refugee and immigrant populations continues to be imperative for understanding disparities in risk and resilience for psychiatric illness and distress.

Trauma-informed, culturally grounded interventions, as well as humane immigration policies, are needed to reduce the risk of psychiatric illness and distress for refugees and immigrants alike.

In sum, the U.S. is one of the leading recipients of the global share of immigrants and refugees, with over 43 million foreign-born individuals [55], and various factors influence negative mental health outcomes for these populations. Community organizations, social service agencies, and mental health service providers are well-poised to address the needs of these populations but may need appropriate training to identify mental health issues rooted in trauma before, during, and after migration to the U.S. World events will continue to create new immigrants and refugees, and it is therefore vital that their mental health needs are better understood, assessed, and supported.

Author Contributions C. C. Sangalang led the study conceptualization, data analysis and interpretation, and writing. D. Becerra contributed to the writing and interpretation of data. F. M. Mitchell, S. Lechuga-Pena, and K. Lopez contributed to the writing and theoretical content. I. Kim contributed to the study concept and interpretation of data.

Compliance with Ethical Standards

Conflict of interest All listed authors have reviewed and approved this manuscript, report no conflicts of interest, and will accept responsibility for its content.

Appendix

See Tables 4 and 5.

Table 4 Top five pre-migration traumatic events for refugees and immigrants

Asians (n = 1639)					
Refugees (n = 353)			Immigrants (n = 1285)		
Weighted %	n	Traumatic event	Weighted %	n	Traumatic Event
28.78	110	Witness death or saw dead body	13.59	206	Witness death or saw dead body
27.92	126	Civilian in war zone	10.83	141	Unexpected death of someone close
20.26	72	Civilian in terror zone	9.61	137	Natural disaster
18.03	46	Unexpected death of someone close	7.02	90	Civilian in terror zone
12.11	45	Kidnapped or held in captivity	4.82	73	Civilian in war zone
Latinos (n = 1629)					
Refugees (n = 306)			Immigrants (n = 1323)		
Weighted %	n	Traumatic event	Weighted %	n	Traumatic event
29.93	102	Civilian in terror zone	13.05	187	Natural disaster
29.19	48	Witness death or saw dead body	12.09	162	Unexpected death of someone close
29.13	63	Civilian in war zone	12.09	153	Witness death or saw dead body
19.76	60	Unexpected death of someone close	7.13	78	Beaten up by parents
14.21	42	Natural disaster	7.00	85	Mugged/held up/threatened with weapon

Ranked by weighted %

Table 5 Top five post-migration traumatic events for refugees and immigrants

Asians (n = 1639)					
Refugees (n = 353)			Immigrants (n = 1285)		
Weighted %	n	Traumatic event	Weighted %	n	Traumatic event
9.18	28	Unexpected death of someone close	10.39	121	Unexpected death of someone close
7.62	20	Mugged/held up/threatened with weapon	7.01	87	Life-threatening auto accident
7.49	20	Life-threatening auto accident	6.79	90	Natural disaster
6.80	34	Natural disaster	4.75	58	Mugged/held up/threatened with weapon
4.36	16	Child had life-threatening illness or injury	3.98	43	Witness death or saw dead body
Latinos (n = 1629)					
Refugees (n = 306)			Immigrants (n = 1323)		
Weighted %	n	Traumatic event	Weighted %	n	Traumatic event
23.40	50	Mugged/held up/threatened with weapon	15.10	233	Unexpected death of someone close
18.68	77	Natural disaster	13.20	161	Life-threatening auto accident
18.18	51	Unexpected death of someone close	11.76	157	Mugged/held up/threatened with weapon
15.91	40	Life-threatening auto accident	6.05	114	Natural disaster
11.05	23	Witness death or saw dead body	4.77	74	Child had life-threatening illness or injury

Ranked by weighted %

References

1. Perez Foster R. When immigration is trauma: guidelines for the individual and family clinician. Am J Orthopsychiatry. 2001;71(2):153–70.
2. Zimmerman C, Kiss L, Hossain M. Migration and health: a framework for 21st century policy-making. PLoS Med. 2011;8(5):p.e1001034.
3. Fazel M, Wheeler J, Danesh J. Prevalence of serious mental disorder in 7000 refugees resettled in Western countries: a systematic review. Lancet. 2005;365(9467):1309–14.
4. Porter M, Haslam N. Predisplacement and postdisplacement factors associated with mental health of refugees and internally displaced persons: a meta-analysis. JAMA. 2005;294(5):602–12.
5. Kim I. Beyond Trauma. Post-resettlement factors and mental health outcomes among Latino and Asian refugees in the United States. J Immigr Minor Health. 2016;18:740–8.
6. Li M. The pre-migration trauma and post-migration stressors for Asian and Latino American Immigrants: transnational stress proliferation. Soc Indic Res. 2016;129(1):47–99.
7. Miller KE, Rasmussen A. War exposure, daily stressors, and mental health in conflict and post-conflict settings: bridging the divide between trauma-focused and psychosocial frameworks. Soc Sci Med. 2010;70(1):7–16.
8. Fortuna LR, Porche MV, Alegria M. Political violence, psychosocial trauma, and the context of mental health services use among immigrant Latinos in the United States. Ethnicity Health. 2008;13(5):435–63.
9. Perreira KM, Ornelas I. Painful passages: traumatic experiences and post-traumatic stress among immigrant Latino adolescents and their primary caregivers. Int Migrat Rev. 2013;47(4):976–1005.
10. Crager M, Chu T, Link B, Rasmussen A. Forced migration and psychotic symptoms: an analysis of the National Latino and Asian American study. J Immigr Refug Stud. 2013;11(3):299–314.
11. Rasmussen A, Crager M, Baser RE, Chu T, Gany F. Onset of posttraumatic stress disorder and major depression among refugees and voluntary migrants to the United States. J Trauma Stress. 2012;25:705–12.
12. Rousseau C, Drapeau A. Premigration exposure to political violence among independent immigrants and its association with emotional distress. J Nerv Ment Dis. 2004;192(12):852–6.
13. Gong F, Xu J, Fujishiro K, Takeuchi DT. A life course perspective on migration and mental health among Asian immigrants: the role of human agency. Soc Sci Med. 2011;73:1618–26.
14. Infante C, Alvaro I, Sanchez-Dominguez M, Vinhas S, Gonzalez-Vazquez T. Violence committed against migrants in transit: experiences on the Northern Mexican border. J Immigr Minor Health. 2012;14(3):449–59.
15. Torres JM, Wallace SP. Migration circumstances, psychological distress, and self- rated physical health for Latino immigrants in the United States. Am J Public Health. 2013;103(9):1619–27.

16. Chu T, Keller AS, Rasmussen A. Effects of post-migration factors on PTSD outcomes among immigrant survivors of political violence. J Immigr Minor Health. 2013;15(5):890–7.
17. Ludwig B. "Wiping the refugee dust from my feet": advantages and burdens of refugee status and the refugee label. Int Migr. 2013;54(1):5–18.
18. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. Vol 5th. Arlington: American Psychiatric Publishing; 2013.
19. Gupta J, Acevedo-Garcia D, Hemenway D, Decker MR, Raj A, Silverman JG. Premigration exposure to political violence and perpetration of intimate partner violence among immigrant men in Boston. Am J Public Health. 2009;99(3):462–9.
20. Torres L, Driscol M, Voell M, Zárate MA. Discrimination, acculturation, acculturative stress, and Latino psychological distress: a moderated mediational model. Cult Divers Ethn Minor Psychol. 2012;18(1):17–25.
21. Gee GC, Spencer M, Chen J, Yip T, Takeuchi DT. The association between self-reported racial discrimination and 12-month DSM-IV mental disorders. Soc Sci Med. 2007;64:1984–96.
22. Williams D, Collins C. Racial residential segregation: a fundamental cause of racial disparities in health. Public Health Rep. 2001;116(5):404–16.
23. Dillon F, De La Rosa M, Ibanez G. Acculturative stress and diminishing family cohesion among recent Latino immigrants. J Immigr Minor Health. 2013;15(3):484–91.
24. Alegria M, Vila D, Woo M, Canino G, Takeuchi D, Vera M, et al. Cultural relevance and equivalence in the NLAAS instrument: integrating etic and emic in the development of cross-cultural measures for a psychiatric epidemiology and services study of Latinos. Int J Methods Psychiatr Res. 2004;13(4):270–88.
25. Heeringa SG, Wagner J, Torres M, Duan N, Adams T, Berglund P. Sample designs and sampling methods for the Collaborative Psychiatric Epidemiology Studies (CPES). Int J Methods Psychiatr Res. 2004;13(4):221–40.
26. Pennell B-E, Bowers A, Carr D, Chardoul S, Cheung G, Dinkelmann K, et al. The development and implementation of the National Comorbidity Survey Replication, the National Survey of American Life, and the National Latino and Asian American Survey. Int J Methods Psychiatr Res. 2004;13(4):241–69.
27. World Mental Health Survey Consortium. Prevalence, severity, and unmet need for treatment of mental disorders in the World Health Organization World Mental Health Surveys. JAMA. 2004;291:2581–90.
28. Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand S-LT, et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. Psychol Med. 2002;32.
29. Williams DR. Race, socioeconomic status, and health: the added effects of racism and discrimination. Ann N Y Acad Sci. 1999;896:173–88.
30. Vega WA, Kolody B, Aguilar-Gaxiola S, Alderete E, Catalano R, Caraveo-Anduaga J. Lifetime prevalence of DSM-III-R psychiatric disorders among urban and rural Mexican Americans in California. Arch Gen Psychiatry. 1998;55:771–8.
31. Cervantes RM, Padilla AM, Salgado De Snyder N. Reliability and validity of the Hispanic Stress Inventory. Hisp J Behav Sci. 1990;12(1):76–82.
32. Alegria M, Molina KM, Chen C. Neighborhood characteristics and differential risk for depressive and anxiety disorders across racial/ethnic groups in the United States. Depress Anxiety. 2014;31(1):27–37.
33. Zuckerman M, Michael KD, Joireman J, Teta P, Kraft M. A comparison of three structural models for personality: the big three, the big five, and the alternative five. J Pers Soc Psychol. 1993;65:757–68.
34. StataCorp. Stata statistical software: release 15. College Station, TX: StataCorp LLC.
35. Bogic M, Njoku A, Priebe S. Long-term mental health of war-refugees: a systematic literature review. BMC Int Health Hum Rights. 2015;15(29):1–41.
36. McCoy A. Philippine populism: Local violence and global context in the rise of a Filipino strongman. Surveill Soc. 2017;15(3/4):514–22.
37. Wong EC, Marshall GN, Schell TL, Elliott MN, Hambarsoomians K, Chun C, et al. Barriers to mental health care utilization for U.S. Cambodian refugees. J Consult Clin Psychol. 2006;74(6):1116–20.
38. Abe-Kim J, Takeuchi DT, Hong S, Zane N, Sue S, Spencer MS, Appel H, Nicdao E, Alegria M. Use of mental gealth-related services among immigrant and US-born Asian Americans: results from the National Latino and Asian American Study. Am J Public Health. 2007;97(1):91–8.
39. Chung RC-Y, Kagawa-Singer M. Predictors of psychological distress among Southeast Asian refugees. Soc Sci Med. 1993;36(5):631–9.
40. Becerra D. Anti-immigration policies and fear of deportation: a human rights issue. J Hum Rights Soc Work. 2016;1(3):109–19.
41. Schmitt MT, Branscombe NR, Postmes T, Garcia A. The consequences of perceived discrimination for psychological well-being: a meta-analytic review. Psychol Bull. 2014;140(4):921–48.
42. Pascoe EA, Smart Richman L. Perceived discrimination and health: a meta-analytic review. Psychol Bull. 2009;135(4):531–54.
43. Raleigh E, Kao G. Do immigrant minority parents have more consistent college aspirations for their children? Soc Sci Q. 2010;91(4):1083–102.
44. Xu L, Iris C. Acculturative stress and depressive symptoms among Asian immigrants in the United States: the roles of social support and negative interaction. Asian Am J Psychol. 2013;4(3):217–26.
45. Torres L, Driscoll MW, Voell M, Zárate MA. Discrimination, acculturation, acculturative stress, and Latino psychological distress: a moderated mediational model. Cult Divers Ethn Minor Psychol. 2012;18(1):17–25.
46. Borkovec TD, Costello E. Efficacy of applied relaxation and cognitive-behavioral therapy in the treatment of generalized anxiety disorder. J Consult Clin Psychol. 1993;61(4):611–9.
47. Minhaj H (Writer), Storer C (Director). Homecoming King. Netflix; 2017.
48. Noh S, Beiser M, Kaspar V, Hou F, Rummens J. Perceived racial discrimination, depression, and coping: a study of Southeast Asian refugees in Canada. J Health Soc Behav. 1999;40(3):193–207.
49. Dennis J, Basanez T, Farahmand A. Intergenerational conflicts among Latinos in early adulthood: separating values conflicts with parents from acculturation conflicts. Hisp J Behav Sci. 2010;32(1):118–35.
50. Lee RM, Liu H-TT. Coping with intergenerational family conflict: comparison of Asian American, Hispanic, and European American college students. J Couns Psychol. 2001;48(4):410–9.
51. Sangalang CC, Jager J, Harachi TW. Effects of maternal traumatic distress on family functioning and child mental health: an examination of Southeast Asian refugee families in the US. Soc Sci Med. 2017;184:178–86.
52. Logan JR, Zhang W. Separate but Equal: Asian Nationalities in the U.S. 2013. https://s4.ad.brown.edu/Projects/Diversity/Data/Report/report06112013.pdf.
53. Zetter R. More, Labels. Fewer refugees: remaking the refugee label in an era of globalization. J Refug Stud. 2007;20(2):172–92.

54. Semere W, Yun S, Ahalt C, Williams B, Wang EA. Challenges in identifying refugees in national health data sets. Am J Public Health. 2016;106(7):1231–2.
55. Zong J, Batalova J, Hallock J. Frequently requested statistics on immigrants and immigration in the United States. Migration Policy Institute. https://www.migrationpolicy.org/article/frequently-requested-statistics-immigrants-and-immigration-united-states.