

**The Stress Process Among Foreign-born Latinos:
Examining the Roles of Migration-related Stress and Family Relationships
in Psychological Distress**

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Abstract

Latino immigrants may face stressors related to the process of migration and the challenges they face as they attempt to integrate into U.S. society. These stressors may have deleterious mental health consequences, such as psychological distress. Previous research suggests that strong family cohesion among Latinos may buffer the negative effects of such stressors. This study draws on the stress process model to examine the roles of migration-related stress (e.g., felt guilty for leaving family in country of origin; find it hard interacting with others because of difficulties with the English language) and family conflict in psychological distress, and whether family cohesion mediates or moderates the association between psychological distress and migration-related stress. We examine foreign-born Latinos from the National Latino and Asian American Survey (n=1,524). Results show that family cohesion is protective among those with low migration-related stress. Moreover, those with the highest family conflict have much higher distress levels than those with the lowest conflict (approximately 20 versus 11, respectively). While the relationships among migration stress, family cohesion, and family conflict were similar for all Latino groups, there were notable group differences in predicted distress levels. Findings reveal the harmful mental health effects of migration-related stress and family conflict, and the role of family cohesion in protecting against psychological distress in foreign-born Latinos, but only among those with low migration stress. These results can inform interventions aimed at reducing psychological distress among foreign-born Latinos by focusing on decreasing family conflict, and focusing on family cohesion particularly among those with low levels of migration stress.

Introduction

Migration is among the most stressful life events (Holmes and Rahe 1967) and has important consequences for mental health (Vega, Kolody, and Juan Ramon 1987). Yet migrants are infrequently the focus of mental health interventions in the United States, in part because of the common belief that immigrants, particularly Latino immigrants, are at lower risk for mental health disorders than the U.S.-born population. Although this “immigrant paradox” is observed in some Latino subgroups and with some health outcomes, it is a complex phenomenon that does not apply uniformly to Latino immigrant groups or across all mental or physical health conditions. Therefore, there is a need for research that examines the factors, particularly those related to migration, influencing Latino immigrants’ mental health outcomes. The present study examines the roles of migration-related stress and family conflict in psychological distress, and whether family cohesion mediates or moderates the association between psychological distress and migration-related stress.

Migration and the subsequent process of adaptation to the host society create unique stressors for migrants. The magnitude of stress and its consequences to migrants depend on many factors, such as migrants’ reasons for migrating, the nature of the migratory process itself, the reception in the host society (both legally and socially), and the coping resources available to mitigate the impact of that stress on health. Thus, the different historical, geographic, social, and economic forces driving migration from various countries shapes the varying experiences of migrant groups in the United States. Among Latinos, some migrants endure separation from family members, socioeconomic struggles, discrimination, and language barriers that may affect migrants’ lives, such as access to social services and job opportunities.

Despite the importance of migration-related stressors in migrants' daily lives, to date few large-scale studies have examined how migration-related stress is associated with psychological distress among Latinos. A notable exception includes the recent study by Torres and Wallace (Torres and Wallace 2013), which also examines the National Latino and Asian American Survey, finding that migration-related stress is associated with increased distress; however, their study does not examine the potential mediating and moderating role of family cohesion in that association, nor other social support factors that may serve as stress mediators. There are also a few qualitative studies of Latino immigrants that reveal, for example, the emotional consequences for female migrants who are separated from family members left behind in their countries of origin (Sternberg 2010), and the impact of undocumented legal status on the mental and emotional health of immigrant youth (Gonzales, Suárez-Orozco, and Dedios-Sanguinetti 2013). Among the most important health determinants and sources of distress are social conditions (Link and Phelan 1995; Mirowsky and Ross 2012), including low social status (Alegria et al. 2007) and discrimination (Flores et al. 2008; Viruell-Fuentes 2007)—issues that are particularly salient to Latino immigrant groups. Nevertheless, there remains a need for large-scale studies that address the associations among migration stress, family conflict, family cohesion and psychological distress.

The quality of family relationships, which is particularly important for Latinos given their strong family orientation (Marin 1993; Sabogal et al. 1987), has been shown to have important effects on the health and wellbeing of Latinos. On one hand, family conflict may be detrimental to health (Bostean 2010; Hovey and Magaña 2002). Conflict may arise, for example, in cross-generational relationships when the younger generation acquires English more quickly than the older generation (Rumbaut 1997), and a role reversal between parents and children occurs

whereby children are responsible for assisting parents in acquiring cultural knowledge in the host society. These strains on family relationships and family functioning, in turn, have health ramifications.

On the other hand, scholars often cite family cohesion as a buffer against the negative health impacts of stress among Latinos (Gil, Wagner, and Vega 2000). There is some evidence that having strong family cohesion can be protective against the psychological distress caused by family conflict for some Latino groups (Rivera et al. 2008). However, the role of family cohesion in mitigating the deleterious effects of migration-related stress on psychological distress has been inadequately examined empirically; thus it is unclear whether family cohesion serves as a mediator or moderator of the stress-distress association.

There is mixed evidence suggesting two potential roles of family cohesion in modifying the effect of migration stress on mental health among Latino immigrants. A common notion is that family cohesion protects against the negative impact of migration-related stress. While there is evidence that greater family cohesion among foreign-born Latinos explains some of the nativity differences in health (Bostean 2010; Viruell-Fuentes and Andrade 2012), family cohesion may not be sufficient to protect against the impact of migration-related stress among foreign-born Latinos. For example, since separation from family and friends is among the migration-related stressors, having high family cohesion may, at best, do nothing to protect against psychological distress, or at worse, exacerbate distress. Therefore, family cohesion may function as a moderator of the association between migration stress and psychological distress, meaning that the impact of family cohesion varies across levels of migration stress. A common notion is that family cohesion may buffer against the impact of increased migration stress. If family cohesion is a stress mediator, it should lessen the impact of migration stress on distress.

Alternatively, if family cohesion serves as a moderator of migration-related stress, then it should lessen the impact of stress on distress only for some groups; furthermore, the buffer hypothesis specifies that family cohesion would decrease the negative impacts of increased migration stress. We test the two potential roles of family cohesion as mediator and moderator.

The stress process model (Pearlin et al. 1981) may shed light on the relationships between psychological distress and migration stress, family conflict, and family cohesion. The model emphasizes three main conceptual domains of the stress process: the sources of stress, the mediators of stress, and the manifestations of stress. Some potential sources of stress for migrants include family conflict and separation from family, as previously mentioned. Additional stressors may arise from the process of adaptation to the host society. For example, language barriers may impede access to critical services, job opportunities, and/or lead to discrimination. Family cohesion is a potential stress mediator because strong positive family relationships may help to reduce distress in the face of stressors. Finally, among the myriad physical and mental manifestations of stress, psychological distress is particularly relevant to migrants because it encompasses symptoms of anxiety and depression and can capture emotional states that, whether or not they meet the clinical threshold for psychological disorder, affect migrant's well-being and daily functioning.

The present study draws on the stress process model to examine the predictors and mediators of psychological distress among foreign-born Latinos. We focus on migration-related stress and family conflict as sources of stress, family cohesion as a potential mediator or moderator of stress, and psychological distress as a manifestation of stress. We address the following empirical questions: 1. Are migration-related stress and family conflict significant predictors of distress? 2. If so, to what extent does family cohesion modify those relationships?

Based on findings from previous research, we expect that migration-related stress and family conflict are both associated with greater distress, and that family cohesion modifies the association between migration-related stress and distress.

This study contributes to existing literature on Latino mental health by examining the stress process in a nationally-representative sample of foreign-born Latinos. We improve upon previous studies by focusing on immigrants to consider how migration-related stress, family conflict, and family cohesion, are associated with psychological distress. We examine an index of migration-related stress that incorporates issues previously found to be individually associated with increased psychological distress, including perceived discrimination, separation from family, language barriers. Immigrants may face a multitude of other stressors that we cannot account for here; however, we also include social status measures, as well as other predictors of stress related to immigration, such as age at immigration (a measure of exposure to the U.S.), and language spoken with family. Additionally, while we focus on family cohesion as a mediator, we also include other measures of social support to control for their impact on distress. Finally, we present predicted mean distress by Latino sub-groups.

Methods

Data and Sample

We use data from the 2002-2003 National Latino and Asian American Survey (NLAAS), a nationally-representative survey of non-institutionalized Latino and Asian American adults who reside in households in the United States (Alegria et al. 2004). This survey has a large sample of foreign-born Latinos from various ethnic sub-groups, and the availability of data on migration-related stress and family cohesion, together with psychological distress. The sampling scheme is

based on a stratified area probability design (see Heeringa et al. 2004). The interviews were conducted in respondents' homes using computer-assisted personal interview between May 2002 and December 2003. Respondents were interviewed in their preferred language (58.6% were interviewed in Spanish). The response rate among Latino respondents was 75.5%. We excluded U.S.-born Latinos (n=924) and respondents with missing information on the variables analyzed (less than 6% of the sample; details below), yielding an analytic sample size of n=1,524 foreign-born Latinos (n=463 Mexican; n=479 Cuban; n=188 Puerto Rican; n=402 Other Latino). Respondents born in Puerto Rico are considered alongside the foreign-born (despite being U.S. citizens by birth) because they are also at risk of experiencing migration-related stress as well as other forms of discrimination (Alegria et al. 2008) and because there are substantial sociodemographic and mental health differences between Puerto Ricans and other U.S.-born groups.

Dependent Variable

Psychological distress is the outcome of interest. The distress scale is based on the following questions from the K10 scale, a non-specific psychological distress screener (Kessler et al. 2003; Kessler et al. 2002): “During the last 30 days, how often did you feel...depressed; so depressed nothing could cheer you up; hopeless; fidgety or restless; so restless that you could not sit still; tired out for no good reason; that everything was an effort; worthless; nervous; so nervous that nothing could calm you down?” Responses ranged from 1 (“All of the time”) to 5 (“None of the time”); we reverse coded and summed these responses, and excluded two cases that were missing responses on more than one scale item. The final scale (Cronbach $\alpha=0.906$ for English

respondents and 0.931 for Spanish respondents) ranged from 10-50, with higher numbers indicating greater distress.

Independent Variables

Stressors

Migration-related stress and ***family conflict*** were key stressors of interest. *Migration-related stress* was measured using a scale including the following questions (yes=1, no=0): “Please tell me if you have felt this way, in the following situations:

1. Have you felt guilty for leaving family or friends in your country of origin;
2. Do you feel that in the United States you have the same respect you had in your country of origin (reverse coded such that no=1);
3. Do you feel that living out of your country of origin has limited your contact with family or friends;
4. Do you find it hard interacting with others because of difficulties you have with the English language;
5. Do people treat you badly because they think you do not speak English well or speak with an accent;
6. Do you find it difficult to find the work you want because you are of Latino descent;”

(See Appendix for response distribution for each question by Latino sub-group.)

The scale was created by summing responses and averaging across the number of questions with non-missing responses; cases missing responses on two or more scale items were excluded (n= 63). The scale ranged from zero to one, with higher scores indicating greater migration-related stress. Scale reliability (KR20) is 0.628 overall. In addition to the continuous coding, we also standardized the scale to have a mean of zero and standard deviation of one, following the approach of Mulvaney-Day and colleagues (2007). Lastly, we coded a dichotomous variable indicating low versus high migration stress, with the cut-point at the 25th percentile; the cut-point was chosen based on

sensitivity analyses showing the greatest difference between those with low versus higher stress.

Family conflict was measured using a scale created from the following questions:

“Please tell me how frequently the following situations have occurred to you:

1. You have felt that being too close to your family interfered with your own goals.
2. Because you have different customs, you have had arguments with other members of your family.
3. Because of the lack of family unity, you have felt lonely and isolated.
4. You have felt that family relations are becoming less important for people that you are close to.
5. You have felt that family relations are becoming less important for people that you are close to.”

Response options ranged from 1-3, or “Hardly or Never,” “Sometimes,” and “Often,” respectively. The scale (Cronbach $\alpha=.793$) was created by summing the scores and averaging over the number of non-missing responses; cases missing on more than one item were excluded (n=6). The final scale ranged from 1-3, with higher values indicating greater family conflict. We also standardized the scale to a mean of zero and standard deviation of one.

Immigration factors are additional stressors and potential confounders of the association between migration-related stress and psychological distress. *Reason for migrating* (self-reported) is included (had to migrate or wanted to). *Age at immigration* is coded: <12 years old (reference), 13-17 years, 18-34 years, 35 or older. *Language spoken with family* categories are: Spanish all or most of the time (reference), Spanish and English about equally, or English all or most of the time. A dummy variable for *English proficiency* was included (poor=1; fair, good or very good=0). Preliminary analyses also included years of residence in the U.S., but because it was not a significant predictor of distress, final analyses retained only age at immigration.

Social status measures are additional stressors. Demographic characteristics include *Latino sub-group* (Mexican=reference, Cuban, Puerto Rican, Other Latino), *age* (continuous, 18-85), *sex* (male=reference, female), *marital status* (married=reference, unmarried). Socioeconomic measures include: *education* (16+ years=reference, vs. less than 16 years), *employment status* (employed=reference, versus unemployed), *poverty* (household income above poverty line=reference, below poverty line).

Stress Mediators

Family cohesion is a key variable of interest as a potential stress mediator. Respondents were asked how strongly they agree (1= strongly agree, 2= somewhat agree, 3=somewhat disagree, 4=strongly disagree) with each of the following statements:

1. "Family members respect one another,"
2. "We share similar values and beliefs as a family,"
3. "Things work well for us as a family,"
4. "We really do trust and confide in each other,"
5. "Family members feel loyal to the family,"
6. "We are proud of our family,"
7. "We can express our feelings with our family,"
8. "Family members like to spend free time with each other,"
9. "Family members feel very close to each other,"
10. "Family togetherness is very important."

The scale (Cronbach $\alpha = .933$) was created by reverse coding the responses, summing the scores, and calculating the mean based on the number of questions answered. Thus, the scale ranged from one to four, with higher numbers indicating greater cohesion. We coded the scale in three ways: continuously (1-4), standardized with a mean of zero and standard deviation of one, and categorically (low, medium, high cohesion), with cut-points at the 25th percentile and median.

Social support measures are included as additional stress mediators. *Friend support* is a scale ranging from three to 13, with higher values indicating greater support. It was created from three questions asking how often the respondent gets together with friends, how much they can rely on friends for help with a serious problem, and how much they can open up to friends to talk about worries. We also standardized the friend support scale to a mean of zero and standard deviation of one. *Religious service attendance* indicates how often respondents reported attending religious services (Never=1, Less than once per month=2, At least once per month=3); we included cases missing responses (n=87) on this variable as a separate category in analyses.

Analyses

Analyses were conducted in Stata 12, using survey design adjustments to account for the complex sampling design of the NLAAS. We first examined sample characteristics by Latino sub-group, weighting the data to be nationally-representative (Table 1). The means of the unstandardized scales of migration stress, family cohesion, and family conflict are presented. To test for sub-group differences, we used χ^2 tests of independence for categorical variables and ANOVA-style contrasts (reporting F-statistics) for continuous variables.

Next, we conducted a series of nested negative binomial regressions predicting psychological distress among all foreign-born Latinos (Table 2), using the standardized scales for independent variables migration stress, family cohesion, family conflict, and friend support. Diagnostic and sensitivity analyses confirmed the appropriateness of negative binomial due to the dependent count variable, with a highly skewed and overdispersed distribution. We found no evidence of collinearity between migration-related stress and family cohesion using variance inflation factors (VIF) and tolerance.

The analytic approach was as follows: Model 1 included sociodemographic stressors. Model 2 added immigration factors. Models 3 and 4 address the first research question: Model 3 adds migration-related stress to examine its association with distress, net of sociodemographic and immigration controls, and Model 4 added family conflict. Adjusted Wald statistics are presented as measures of model goodness of fit.

Model 5 addresses the second research question, adding family cohesion to examine its potential mediating effect between psychological distress, and migration stress and family conflict. Lastly, Model 6 added social support variables as additional stress mediators to observe the effect of family cohesion net of social support. Finally, we added an interaction between family cohesion and migration stress to the model to examine the potential role of family cohesion as a moderator (Table 3). Preliminary analyses showed that the interaction was non-linear, hence we used categorical family cohesion and migration stress variables to model the interaction. From this regression equation, we calculated the predicted distress levels for each Latino sub-group by migration stress, family cohesion, and family conflict levels, holding other covariates in the model constant at the sub-group means. These are marginal effects at the means, which are the predicted distress level for an individual with the specified characteristics. We then graphed these predictions to visualize the differences in predicted distress across these dimensions and aid in interpreting the interaction (Figure 1).

Results

Table 1 provides evidence of the heterogeneity of foreign-born Latinos in terms of psychological distress, and potential stressors and stress mediators. Latino sub-groups differ significantly from each other ($p \leq 0.05$) in all examined characteristics except sex. Among all foreign-born Latinos,

the mean level of psychological distress is 13.7 (range 10-50); Puerto Ricans have the highest levels (16.2), and Mexicans the lowest (13.2). By contrast, migration-related stress is highest among Mexicans, with a mean of 0.35 (range 0-1), and lowest among Puerto Ricans (0.24). In terms of family conflict, Cubans have the lowest levels (1.20) and Puerto Ricans the highest (1.27). Family cohesion is high for all groups (overall mean 3.68 out of 4), but Cubans have the highest mean levels (3.80) and Puerto Ricans the lowest (3.58).

There are also significant sub-group differences in sociodemographic, immigration, and social support characteristics. Mexicans are the youngest group, have the highest marriage rates, lowest educational attainment, among the highest employment rates, and highest poverty rates. Mexicans are also the most likely group to arrive in the U.S. between the ages of 13 and 34, have high rates (89%) of speaking mostly Spanish with family members, have the highest rates of poor English proficiency (59%), have the lowest levels of friend support, and the highest rate of frequent attendance at religious services. Cubans are the oldest group, have the highest educational attainment, are most likely to report migrating because they “had to,” most likely to have arrived in the U.S. after age 34, have the highest rates of Spanish language use with family (90%), the highest levels of friend support, and are the most likely group to never attend religious services. Puerto Ricans are most likely to be unmarried, have the lowest poverty rates, are most likely to have arrived in the U.S. before age 13, and have the highest rates of English language use with family and highest rates of being English proficient. Other Latinos, including Central and South Americans, have the highest rates of both employment and unemployment, and fall between the other groups in terms of other characteristics.

Table 2 presents regressions predicting psychological distress in all foreign-born Latinos. Sociodemographic factors are strongly associated with psychological distress (Model 1), as

previous research has shown. Cubans and Puerto Ricans have significantly higher, and Other Latinos marginally higher rates of distress than Mexicans. Other factors that predict greater distress include being female, unmarried, unemployed or not in the labor force, or in poverty. Having a college education is associated with lower distress than those with less than high school. Net of sociodemographic characteristics, only one immigration factor is associated with distress (Model 2). Those who reporting that they migrated because they “had to,” as opposed to “wanted to,” have higher incidence rates of distress. Model 3 reveals that migration-related stress is positively associated with distress, controlling for sociodemographic and immigration factors. Greater migration stress confers approximately 7% higher rate of distress ($p < .001$). Beyond the effect of migration stress, family conflict also is a significant predictor of distress (Model 4), but its addition to the model has little impact on the magnitude of the migration stress effect.

Model 5 examines the potential role of family cohesion as a mediator of the negative effects of migration-related stress and family conflict on distress. The addition of family cohesion to the model does not attenuate the relationship between psychological distress and neither migration-related stress nor family conflict, and family cohesion is not significantly associated with psychological distress net of controls. This suggests that family cohesion does not, overall, protect against the negative impact of these stressors on psychological distress net of the effect of family conflict.

Although there is no evidence of family cohesion serving as a mediator, it may serve as a moderator of the effect of migration stress on distress. Table 3 presents the regression model including an interaction between migration stress and family cohesion, controlling for all covariates. The overall interaction is statistically significant ($F=5.12, p<.01$). The term for high

stress and high cohesion is statistically significant, suggesting that those with low stress and high family cohesion have higher distress than those with low stress and low cohesion.

Figure 1 visualizes predicted psychological distress by migration-related stress, family cohesion, and family conflict, separately for each Latino sub-group. First, high family conflict is associated with higher psychological distress among all groups. Second, the interaction suggests that among those with low migration-related stress, persons with high family cohesion have lower distress than those with low family cohesion; however, among those with high migration-related stress, there is no difference in distress levels by family cohesion. In other words, those with low and medium family cohesion have high distress levels regardless of migration stress, whereas those with high family cohesion have lower distress when there is low migration stress, and distress increases with migration-related stress. Therefore, family cohesion may be protective against psychological distress among those with low migration-related stress, but not among those with high migration stress; it is also important to note that the magnitude of the effect is small, with family cohesion reducing distress levels by one or two points.

While the relationships among migration stress, family cohesion, and family conflict are similar for all Latino groups, there are notable group differences in predicted distress levels. Mexicans have the lowest levels of distress and Puerto Ricans the highest. For instance, among Mexicans with high family conflict, distress levels are approximately 21 (19 for those with low migration stress and high family cohesion), compared to distress levels of approximately 27 among Puerto Ricans with high conflict (24 among those with low migration stress and high family cohesion).

To summarize, higher migration stress and family conflict are both associated with increased psychological distress among foreign-born Latinos, even accounting for other

stressors. This remains true even when considering potential stress mediators, family cohesion, friend support and religious attendance. While family cohesion is not a mediator of the associations with distress of migration stress and family conflict, it is a moderator of the association between migration stress and distress such that greater family cohesion is protective at low levels of migration stress. In terms of sub-group differences in distress, when accounting for differences in sociodemographic and other characteristics, Puerto Ricans have the highest levels of distress, and Mexicans the lowest.

Conclusion

This study examined whether migration-related stress and family conflict are associated with greater psychological distress among foreign-born Latino groups, and whether family cohesion modifies those associations. There are several novel and important findings. First, individuals with greater migration-related stress, and those with greater family conflict, have higher levels of psychological distress; however, migration-related stress is only associated with higher distress among those with high family cohesion. Second, family cohesion has a protective effect against psychological distress only among those with low levels of migration stress. Third, individuals reporting low family cohesion and high family conflict have the highest levels of distress, regardless of migration stress. Finally, there are substantial ethnic disparities in psychological distress among foreign-born Latinos. These findings add to the body of knowledge about the impact of migration and its consequences on migrants' mental health.

Table 1. Weighted Characteristics of Foreign-born Latinos by Sub-group (NLAAS 2002-2003)

	Whole Sample (n=1,524)	Mexican (n=461)	Cuban (n=478)	Puerto Rican (n=184)	Other Latino (n=401)	p- value^a
Dependent Variable						
Mean Distress (Range 10-50)	13.7	13.2	14.4	16.2	13.9	0.0001
SE						
Key Independent Variables						
Mean Migration-related Stress (Range 0-1)	0.33	0.35	0.30	0.24	0.32	0.0001
SE						
Mean Family Conflict (Range 1-3)	1.25	1.25	1.20	1.27	1.24	0.0001
SE						
Mean Family Cohesion (Range 1-4)	3.68	3.64	3.80	3.59	3.74	0.0001
SE						
Other Independent Variables						
Sociodemographic Characteristics						
Age (mean)	38.7	35.5	50.7	46.5	39.9	0.0001
Female	47.7	44.6	48.2	47.4	53.4	0.058
Unmarried	29.4	23.9	35.1	38.5	36.2	0.0001
Educational Attainment						0.0001
<16 years	91.2	95.5	78.4	86.4	87.4	0.0001
Employment Status						0.045
Employed	64.2	65.0	57.0	53.9	66.6	
Unemployed	6.3	5.6	4.7	3.7	8.6	
Not in labor force	29.5	29.4	38.3	42.4	24.9	
Poverty	44.0	52.0	36.3	30.0	34.4	0.0001
Immigration Factors						
Had to migrate	32.4	27.7	67.4	31.0	33.2	0.0001
Age at Immigration						0.0001
12 yrs or younger	19.0	17.8	17.6	31.2	18.8	
13-17 yrs	19.1	24.3	6.4	17.4	12.7	
18-34 yrs	50.6	53.9	37.4	43.6	49.1	
35+ yrs	11.3	4.0	38.6	7.9	19.4	
Language Spoken with Family						0.009
Spanish most or all of time	87.7	89.3	90.0	73.4	87.4	
Eng & Span equal	7.6	7.4	6.2	14.1	6.9	
English most or all time	4.7	3.3	3.9	12.4	5.7	
Poor English Proficiency	49.9	59.0	52.2	24.1	38.5	0.0001
Social Support						
Friend Support, scale 1-13 (mean)	7.8	7.5	9.0	8.2	8.1	0.0001
Religious Service Attendance						0.0001
Never	16.4	14.1	27.7	22.8	16.4	
Less than once per month	26.6	27.7	29.4	25.0	24.2	
At least once per month	52.9	55.3	32.0	47.5	54.5	
No response	4.2	2.9	10.9	4.7	4.8	

Notes: Data come from National Latino and Asian American Survey, 2002-2003. ^a p-value from χ^2 or Wald-test of ethnic difference.

Table 2. Incidence Rate Ratios Predicting Distress among All Foreign-Born Latinos from Negative Binomial Regression

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Stressors						
Sociodemographic Characteristics						
Latino ethnicity (Mexican, reference)						
Cuban	1.09** (0.03)	1.05 (0.04)	1.05 (0.04)	1.07* (0.03)	1.07* (0.03)	1.06+ (0.03)
Puerto Rican	1.22*** (0.03)	1.21*** (0.04)	1.21*** (0.04)	1.21*** (0.04)	1.21*** (0.04)	1.21*** (0.04)
Other Latinos	1.06+ (0.03)	1.05 (0.03)	1.05 (0.03)	1.06* (0.03)	1.06+ (0.03)	1.06+ (0.03)
Age	1.00 (0.00)	1.00 (0.00)	1.00 (0.00)	1.00 (0.00)	1.00 (0.00)	1.00 (0.00)
Female (Male, ref.)	1.11*** (0.02)	1.11*** (0.02)	1.11*** (0.02)	1.08** (0.03)	1.08** (0.03)	1.09*** (0.03)
Unmarried (Married, ref.)	1.06* (0.02)	1.06* (0.02)	1.06* (0.02)	1.03 (0.02)	1.03 (0.02)	1.03 (0.02)
Education, <16 yrs (16+ yrs, reference)	1.10** (0.04)	1.09** (0.03)	1.09** (0.03)	1.09** (0.03)	1.09** (0.03)	1.09** (0.03)
Employment Status (Employed, ref.)						
Unemployed	1.12* (0.05)	1.12* (0.05)	1.10* (0.05)	1.08+ (0.05)	1.08 (0.05)	1.08+ (0.05)
Not in labor force	1.14** (0.04)	1.14** (0.04)	1.14** (0.05)	1.13** (0.04)	1.13** (0.04)	1.13** (0.04)
Poverty (HH income > poverty line, ref.)	1.07+ (0.04)	1.07+ (0.04)	1.07+ (0.04)	1.07* (0.03)	1.07* (0.03)	1.07* (0.03)

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Table 2 (continued).

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Immigration Factors						
Reason for migrating (Wanted to, ref.)						
Had to		1.10** (0.03)	1.07* (0.03)	1.05+ (0.03)	1.05+ (0.03)	1.05+ (0.03)
Age at Immigration (Age 12 or younger, ref.)						
13-17 yrs		1.02 (0.05)	1.01 (0.05)	1.02 (0.05)	1.02 (0.05)	1.02 (0.05)
18-34 yrs		1.00 (0.05)	0.96 (0.05)	0.98 (0.05)	0.98 (0.05)	0.97 (0.05)
35+ yrs		1.03 (0.06)	0.99 (0.06)	1.02 (0.06)	1.01 (0.06)	1.01 (0.06)
Poor English Proficiency (Fair/Good/Excellent, ref.)		0.99 (0.03)	0.95+ (0.03)	0.97 (0.02)	0.97 (0.03)	0.97 (0.03)
Language Spoken w/ Family (Spanish all/most of time, ref.)						
Eng & Span equal		1.01 (0.06)	1.02 (0.06)	1.01 (0.05)	1.01 (0.05)	1.01 (0.05)
English most or all time		0.97 (0.05)	0.96 (0.04)	0.94 (0.04)	0.94 (0.04)	0.93+ (0.04)
Migration-related Stress			1.07*** (0.02)	1.06** (0.02)	1.06** (0.02)	1.06** (0.02)
Family Conflict				1.10*** (0.01)	1.11*** (0.01)	1.11*** (0.01)
Stress Mediators						
Family Cohesion					1.02 (0.01)	1.02 (0.01)
Social Support						
Friend support (scale, range 1-13)						1.00 (0.01)
Religious service attendance (Never, ref.)						
Less than once per month						0.95 (0.03)
At least once per month						0.96 (0.03)
Missing						1.00 (0.06)
Constant	10.50***	10.39***	10.46***	10.28***	10.32***	10.70***
Adjusted Wald statistic	27.89***	25.58***	20.86***	29.76***	25.6***	20.91***

Source: Authors calculations using National Latino and Asian American Survey, 2002-2003.

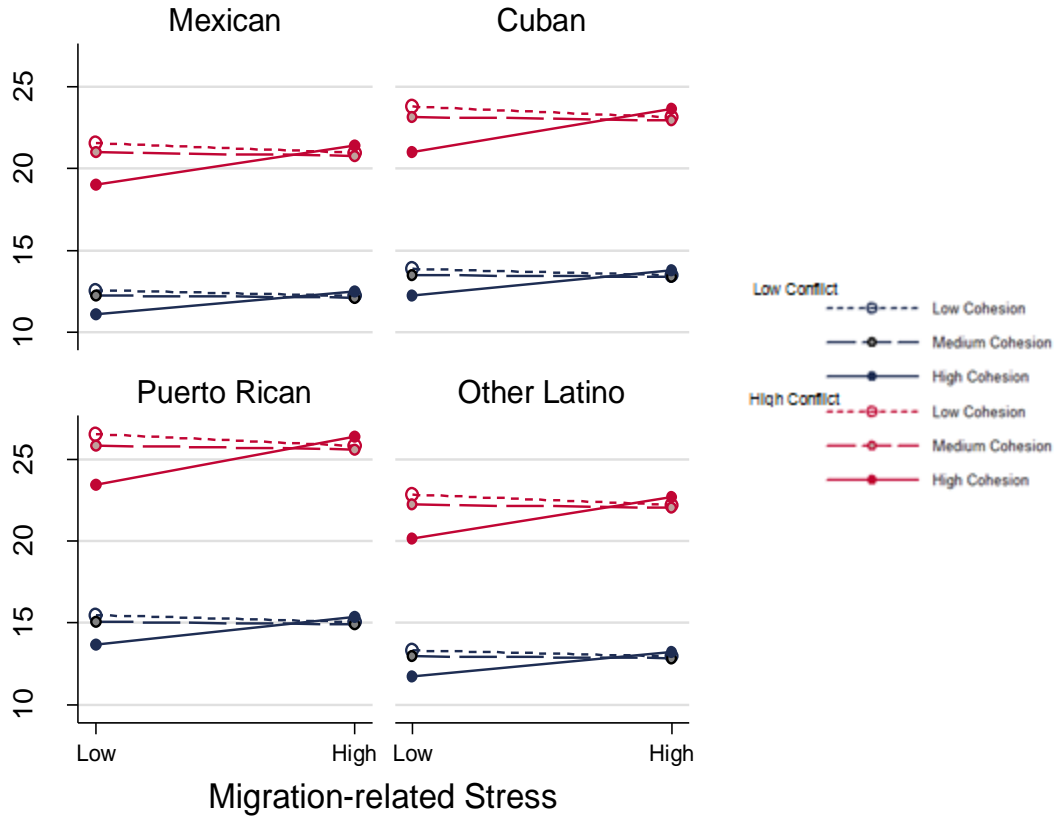
Notes: *** p<0.001, ** p<0.01, * p<0.05, + p<0.10 (two-tailed test). Standard errors in parentheses.

Table 3. Interaction between Family Cohesion and Migration Stress: Zero-truncated Poisson Regression Predicting Distress

Migration-related Stress (low stress, ref.)	
High stress	0.96 (0.05)
Family Cohesion (low cohesion, ref.)	
Medium cohesion	0.98 (0.06)
High cohesion	0.88* (0.05)
Interaction- Migration stress*family cohesion	
High stress, medium cohesion	1.02 (0.07)
High stress, high cohesion	1.16* (0.07)
Test of interaction (Adjusted Wald statistic)	5.12**
Constant	11.02***
Model fit (Adjusted Wald statistic)	23.10***

Source: Authors calculations using National Latino and Asian American Survey, 2002-2003.
 Notes: *** p<0.001, ** p<0.01, * p<0.05, + p<0.10 (two-tailed test). Standard errors in parentheses. Model includes all covariates: Latino sub-group, age, sex, marital status, education, employment, poverty, reason for migrating, age at immigration, English proficiency, language spoken with family, family conflict, friend support, religious service attendance.

Distress by Migration Stress, Family Cohesion and Family Conflict



Note: Predicted values calculated holding all covariates constant at their means within each sub-group.

Figure 1. Predicted Psychological Distress among Foreign-born Latino Groups by Migration-related Stress, Family Conflict, and Family Cohesion.

Notes: Authors' calculations based on National Latino and Asian American Survey.

Predicted values calculated holding the following covariates constant at their means within each sub-group: age, sex, marital status, education, employment, poverty, age at immigration, English proficiency, language spoken with family, family conflict, friend support, religious service attendance. High conflict and low conflict are the highest and lowest reported values on the standardized scale, respectively.

Appendix. Migration-related stress scale items: Weighted percent of foreign-born Latinos by sub-group who responded "yes"

	All Latinos		Mexican		Cuban		Puerto Rican		Other Latino		χ^2 (p-value)
	n	%	n	%	n	%	n	%	n	%	
Have you felt guilty for leaving family or friends in your country of origin	262	16.62	77	14.9	84	16.5	27	13.5	74	20.7	0.02
Do you feel that in the United States you have the same respect you had in your country of origin ^a	464	30.19	156	32.5	134	27.9	41	20.7	133	28.8	0.02
Do you feel that living out of your country of origin has limited your contact with family or friends	773	49.16	252	53.0	264	55.4	59	28.6	198	45.6	0.0005
Do you find it hard interacting with others because of difficulties you have with the English language	695	45.55	246	50.0	214	43.5	47	23.6	188	43.0	0.0001
Do people treat you badly because they think you do not speak English well or speak with an accent	331	23.6	118	24.7	78	15.3	43	25.0	92	23.1	0.22
Do you find it difficult to find the work you want because you are of Latino descent	410	30.27	160	33.1	87	18.1	45	26.9	118	28.7	0.01

Note: ^aReverse coded such that respondents who answered "no" to this question are shown here.

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