

Migration from Mexico to the United States and Subsequent Risk for Depressive and Anxiety Disorders

A Cross-National Study

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Context: Migration is suspected to increase risk for depressive and anxiety disorders.

Objective: To test the hypothesized increase in risk for depressive and anxiety disorders after arrival in the United States among Mexican migrants.

Design: We combined data from surveys conducted separately in Mexico and the United States that used the same diagnostic interview. Discrete time survival models were specified to estimate the relative odds of first onset of depressive disorders (major depressive episode and dysthymia) and anxiety disorders (generalized anxiety disorder, social phobia, panic disorder, and posttraumatic stress disorder) among migrants after their arrival in the United States compared with nonmigrant Mexicans who have a migrant in their immediate family.

Setting: Population surveys in the United States and Mexico.

Participants: Two thousand five hundred nineteen nonmigrant family members of migrants in Mexico and 554 Mexican migrants in the United States.

Main Outcome Measures: First onset of any depressive or anxiety disorder.

Results: After arrival in the United States, migrants had a significantly higher risk for first onset of any depressive or anxiety disorder than did nonmigrant family members of migrants in Mexico (odds ratio, 1.42; 95% confidence interval, 1.04-1.94). Associations between migration and disorder varied across birth cohorts. Elevated risk among migrants relative to nonmigrants was restricted to the 2 younger cohorts (those aged 18-25 or 26-35 years at interview). In the most recent birth cohort, the association between migration and first onset of any depressive or anxiety disorder was particularly strong (odds ratio, 3.89; 95% confidence interval, 2.74-5.53).

Conclusions: This is, to our knowledge, the first study to compare risk for first onset of psychiatric disorder between representative samples of migrants in the United States and nonmigrants in Mexico. The findings are consistent with the hypothesized adverse effect of migration from Mexico to the United States on the mental health of migrants, but only among migrants in recent birth cohorts.

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ABOUT 12 MILLION PEOPLE living in the United States in 2007 were born in Mexico,¹ constituting approximately 30% of the US foreign-born population, 25% of the US Hispanic population, and 10% of the Mexican-born population on both sides of the Mexico-US border. Mental health researchers have hypothesized that adverse social experiences inherent in the migration process have a negative effect on mental health in this population.^{2,3} Two findings from studies conducted in the United States are consistent with this hypothesis. First, among Mexican Americans (ie, people of Mexican descent born in Mexico or the United States), as among the US Hispanic

population more broadly, greater acculturation (ie, adoption of American patterns of behavior) is associated with worse mental health status, including higher rates of psychiatric and substance use disorders.⁴⁻⁷ Second, among Mexican-born immigrants in the United States, those who have been in the United States for longer periods have worse mental health than more recent arrivals.⁸ However, because these studies are limited to comparisons within the US population, neither of these findings isolates the potential effect of migration on the migrants themselves.^{9,10}

Only 1 pilot study¹¹ has directly estimated the effect of migration by comparing the mental health of Mexican-born immigrants in the United States with that of

nonmigrants in the Mexican general population. That study found that immigrants were at higher risk for mood and anxiety disorders after migrating to the United States compared with persons who remained in Mexico, but its generalizability is limited by a very small sample of immigrants ($n=75$), all of whom were interviewed in English. These pilot findings indicated the need for a larger study and a stronger methodological approach.

In this study, we compared a sample of Mexican-born migrants (554 individuals; 259 men and 295 women) after their arrival in the United States with a sample of nonmigrants in Mexico (2519 individuals; 904 men and 1615 women) on their risk for first onset of a depressive or an anxiety disorder. The samples come from epidemiological surveys in which respondents were interviewed with the same fully structured diagnostic interview. Respondents in the United States had the choice of conducting the interview in English or Spanish. In addition, in this study we used an alternative analysis strategy to better control for potential confounding of the effect of migration on depressive and anxiety disorders that can arise from family-level influences (eg, region or family socioeconomic status). In the pilot study,¹¹ family socioeconomic status was adjusted for by including a covariate for parental educational level in the statistical model predicting onset of disorder. In the present study, we controlled for a broader range of these family-level premigration factors by restricting the comparison sample to people in Mexico who have family members in the United States but have not themselves migrated. In contrast to statistically adjusting for confounding by including measured covariates in a multivariable model, restriction can reduce confounding from all family-level confounders, whether measured or not, making it perhaps the most effective method when a large number of observations are available in the restricted sample.¹²

METHODS

In 2001 to 2003, epidemiological surveys of psychiatric disorders were conducted in nationally representative samples of the adult populations of Mexico¹³ and the United States¹⁴ using the same fully structured diagnostic instrument, the World Mental Health Survey Initiative Version of the World Health Organization Composite International Diagnostic Interview (WMH-CIDI).¹⁵ Data from these surveys were combined to create a transnational sample of Mexican-born individuals residing in Mexico or in the United States. Questions regarding the migration experience of respondents and their family members included in the Mexico survey were used to identify a representative sample of individuals with a member of their immediate family living in the United States (family members of migrants). Questions regarding country of birth and age at migration included in the US survey were used to identify a representative sample of Mexican-born immigrants and specify the periods before and after their arrival in the United States. Data from both surveys regarding age at onset of psychiatric disorders were used to compare the risk for first onset among immigrants after their arrival in the United States with that of family members of migrants residing in Mexico. Comparisons were conducted for first onset of depressive disorders (major depressive episode and dysthymia) and anxiety disorders (social phobia, panic disorder or agoraphobia, generalized anxiety disorder [GAD], and posttraumatic stress disorder).

Data on the Mexican population came from the Mexico National Comorbidity Survey,¹³ a survey based on a stratified multistage area probability sample of household residents in Mexico aged 18 to 65 years who lived in communities of at least 2500 people. Interviews were conducted with 1 randomly chosen member of each selected household from September 2001 through May 2002. The response rate was 76.6%, with 5782 respondents interviewed. Data on the 2519 nonmigrants who had a migrant in their immediate family were used in the present study. The nonmigrant family members of migrants were sampled independently from the US migrant sample (ie, they were not relatives of the US migrants interviewed for this study). The sample is representative of individuals in families of current Mexican-born immigrants in the United States.

Data on the Mexican-American population in the United States came from 2 component surveys of the Collaborative Psychiatric Epidemiology Surveys,¹⁶ the National Comorbidity Survey Replication (NCS-R)¹⁷ and the National Latino and Asian American Survey (NLAAS).¹⁸ The NCS-R was based on a stratified multistage area probability sample of the English-speaking household population of the continental United States.¹⁹ Interviews were conducted from February 2001 to April 2003 with a 70.9% response rate. The NLAAS was based on the same sampling frame as the NCS-R, with special supplements to increase representation of the survey's target ethnic groups.¹⁶ The NLAAS interviews were conducted from May 2002 to December 2003 with a 75.5% response rate for the Latino sample. Integrated survey sampling weights were based on the common Collaborative Psychiatric Epidemiology Surveys sampling frame²⁰ to properly adjust the combined sample to represent the ethnic composition of the US population. Data on the 554 Mexican-born respondents to the NCS-R or the NLAAS were used in this study.

Study procedures were approved by the institutional review boards of Harvard Medical School; the University of Michigan, Ann Arbor; and the National Institute of Psychiatry Ramon de la Fuente.

ASSESSMENTS

The DSM-IV criteria for major depressive episode, dysthymia, GAD, panic disorder, agoraphobia, social phobia, and posttraumatic stress disorder were assessed with the WMH-CIDI, a fully structured face-to-face diagnostic interview administered in respondents' homes by a trained nonclinician interviewer using a laptop computer. Clinical reappraisal studies in the NCS-R²¹ and the WMH Surveys,²² in which the WMH-CIDI diagnoses were compared with structured clinical interviews administered by mental health professionals, showed good concordance for mood and anxiety disorders. The Spanish-language version of the WMH-CIDI, used in the Mexico National Comorbidity Survey and the NLAAS, was developed following World Health Organization instrument translation guidelines, with field testing before the start of data collection.²³

STATISTICAL ANALYSIS

Mexican-born migrants in the United States were compared with nonmigrant family members of migrants in Mexico. The Mexican comparison group was selected to control for family-level differences between migrants and nonmigrants that might affect risk for mood and anxiety disorders after migration to the United States, such as differences in childhood socioeconomic status. When a sufficiently large sample is available, restriction of the comparison group is preferable to statistical adjustment in a multivariable model because it adjusts for measured and unmeasured family-level confounders while requiring fewer modeling assumptions. Discrete time survival models with time-varying

Table 1. Age and Sex Distribution of Family Members of Migrants Interviewed in Mexico and Mexican-Born Immigrants Interviewed in the United States^a

Characteristic	No. (%) of Interviewees	
	Family Members of Migrants (n=2519)	Migrants (n=554)
Age, y		
18-25	620 (28.08)	105 (19.99)
26-35	759 (30.22)	231 (38.70)
36-45	572 (20.61)	117 (23.10)
≥46	568 (21.09)	101 (18.21)
Sex		
Male	904 (44.52)	259 (54.24)
Female	1615 (55.48)	295 (45.76)

^aSample sizes are unweighted and percentages are weighted. The sample of family members of migrants comes from the Mexico National Comorbidity Survey; the sample of migrants comes from the National Latino and Asian American Survey¹⁸ and the National Comorbidity Survey Replication.¹⁷

covariates^{24,25} were used to estimate risk for onset of disorders associated with being in the United States and to adjust for age at interview and sex. Time was defined by chronological age. Being a migrant in the United States was treated as a time-varying covariate. An advantage of survival analysis with time-varying covariates is that it allows consideration of independent variables for which the value for any given person may change over time. A person's migration status (the independent variable) can change from not being a migrant (ie, living in Mexico) to being a migrant in the United States at any time until the onset of the psychiatric disorder of interest or the age at interview (whichever comes first). To construct a conservative test of the effect of migration, disorders with onset in the same year that a person migrated were coded as having onset before migration.

Additional specifications were used to examine potential variations in the risk associated with being in the United States by sex, birth cohort, and chronological age. Sociological research has demonstrated that migration is associated with dramatic shifts in gender roles²⁶ that might influence risk for disorder. In addition, evidence suggests that differences in mental health associated with migration are larger for women than for men²⁷ and tend to decrease with age.²⁸ Multiple imputation was used to include the small number of immigrants with missing data on age at migration. All analyses were conducted using SUDAAN software²⁹ to adjust standard errors for the complex sample designs of the surveys. Coefficients from multivariable logistic regression equations are presented in exponentiated form as covariate-adjusted odds ratios (ORs).

RESULTS

The sample included 2519 nonmigrant family members of migrants in Mexico and 554 Mexican migrants in the United States. Migrants were more likely to be male and in the middle age groups (26-35 and 36-45 years) than were family members of migrants (**Table 1**).

We compared the lifetime prevalence of disorders between the Mexican migrants in the United States and the reference group (**Table 2**). Compared with nonmigrant family members of migrants in Mexico, Mexican migrants in the United States had a significantly higher lifetime prevalence of any depressive or anxiety disorder (17.4% vs 11.7%), for depressive disorders as a group (11.0% vs 8.2%), and for anxiety disorders as a group (10.1% vs 6.2%).

Among the 4 specific anxiety disorders assessed, migrants had a higher prevalence for every type of disorder, and this difference reached statistical significance for GAD (2.9% vs 1.4%) and social phobia (5.2% vs 3.2%).

Results of the discrete time survival analysis show that, during the years after arrival in the United States, migrants were at significantly higher risk for first onset of any depressive or anxiety disorder than were nonmigrant family members of migrants (OR, 1.42; 95% confidence interval [CI], 1.04-1.94) after adjustment for age and sex (**Table 3**). After adjustment for previous mood and anxiety disorders, ORs associated with all disorder categories were greater than 1.00, indicating a higher risk after immigration, and reached statistical significance for any anxiety disorder (OR, 1.78; 95% CI, 1.12-2.83), GAD (2.39; 1.36-4.21), and social phobia (2.16; 1.27-3.68).

Variation in the association between migration and risk for any depressive or anxiety disorder across subgroups was examined by testing statistical interactions in the discrete time survival models, adjusting for covariates. Statistical interactions between migration and sex, birth cohort (age at interview, 18-25, 26-35, 36-45, or ≥46 years) and age at migration (<13 vs ≥13 years) were tested. Of these, only the interaction between birth cohort and migration reached statistical significance.

As shown in **Table 4**, the elevated risk among migrants occurred almost entirely in the 2 most recent birth cohorts (those aged 18-25 and 26-35 years at the time of interview). Risk for depressive and anxiety disorders after migration was highest (relative to nonmigrant family members of migrants) among members of the most recent cohort (those aged 18-25 years). In that group, the OR for any depressive disorder was 4.37 (compared with 1.16 overall), and the OR for anxiety disorder was 3.40 (compared with 1.78 overall). Of the 6 ORs in the older cohorts (those aged 36-45 and ≥46 years), none reached statistical significance and 4 were less than 1.00.

COMMENT

This study is unique among studies of migration and risk for psychiatric disorders in the use of cross-national data to compare morbidity in a representative sample of migrants with that in their source population. Respondents on both sides of the border were interviewed within the same time frame using the same diagnostic interview. Although the early pilot study¹¹ included only a small sample of English-speaking migrants, the present study includes a larger sample of migrants interviewed in their choice of English or Spanish. In addition, the comparison group in this study—members of families in Mexico with a migrant in the United States—provides a robust adjustment for migrant selection. The finding that migrants are at higher risk for onset of depressive and anxiety disorders after migration compared with family members of migrants who remained in Mexico provides the first direct evidence that experiences as a migrant might lead to the onset of clinically significant mental health problems in this population. In particular, migrants were at higher risk for depressive disorders, inclusive of major depression and dysthymia, GAD, and social phobia. In addition, when the

Table 2. Lifetime Prevalence of Depressive and Anxiety Disorders in Family Members of Migrants Interviewed in Mexico and Mexican-Born Migrants Interviewed in the United States^a

Disorder Category	No. (%) of Interviewees		χ^2 Value	P Value
	Family Members of Migrants	Migrants		
Any depressive or anxiety disorder	315 (11.7)	114 (17.4)	10.51	.001
Any depressive disorder	227 (8.2)	74 (11.0)	5.64	.02
Any anxiety disorder	159 (6.2)	65 (10.1)	5.48	.02
Generalized anxiety disorder	37 (1.4)	22 (2.9)	5.83	.02
Panic disorder	27 (1.2)	11 (1.9)	0.93	.34
Social phobia	90 (3.2)	34 (5.2)	4.56	.03
Posttraumatic stress disorder	35 (1.9)	15 (2.6)	0.48	.49

^aCounts of cases are unweighted and percentages are weighted. Significance tests are design adjusted.

relatively small increase in risk across the entire immigrant population (OR, 1.42) was broken down by birth cohorts, a much larger effect was revealed among a restricted segment of the population, those in the most recent birth cohorts, with the strongest association found in those aged 18 to 25 years (OR, 3.89).

This evidence is particularly important because findings from previous studies^{6,9,30,31} that have been cited as evidence of an adverse effect of migration on mental health are open to alternative explanations. First, previous studies reported associations between poor mental health and acculturation, that is, the extent to which immigrants or members of ethnic minority populations have adopted behaviors typical of mainstream Americans or gained proficiency in English, when both are assessed contemporaneously.^{6,30} This association is purported to reflect, in part, the impact of negative experiences faced by immigrants in the process of assimilation (ie, acculturative stressors). However, these findings can be explained by high levels of risk for psychiatric disorder among the US-born members of ethnic minority populations, who have high risk for psychiatric disorders and high levels of acculturation relative to immigrants.^{9,31}

Second, a previous study⁸ found that immigrants who have lived in the United States for longer periods have a higher risk for psychiatric disorder than do immigrants who have recently arrived. That finding seems to indicate that a longer period of exposure to the United States leads to a decline in mental health. However, the association between duration of residence and onset of disorder is confounded by age at migration; by holding age constant, immigrants who have lived in the United States longer migrated at younger ages. Recent studies³² have found that immigrants who arrive in the United States before 13 years of age have a much higher risk for mood and anxiety disorders than do immigrants who arrive as adolescents or adults. The apparent effect of longer duration of residence in the United States may reflect the high levels of risk among immigrants who arrived as children, who, compared with other immigrants of the same age, are likely to have lived in the United States longer. The difference might be in age at migration rather than duration of residence in the United States.

The present study provides evidence of an adverse effect of migration on mental health among Mexican migrants to the United States that overcomes important limitations

Table 3. Risk for Onset of Depressive and Anxiety Disorders Among Migrants After Arrival in the United States Relative to Family Members of Migrants in Mexico

Disorder Category	AOR ^a (95% CI)
Any depressive or anxiety disorder	1.42 (1.04-1.94)
Any depressive disorder	1.16 (0.75-1.77)
Any anxiety disorder	1.78 (1.12-2.83)
Generalized anxiety disorder	2.39 (1.36-4.21)
Panic disorder	1.19 (0.34-4.18)
Social phobia	2.16 (1.27-3.68)
Posttraumatic stress disorder	1.37 (0.49-3.79)

Abbreviations: AOR, adjusted odds ratio; CI, confidence interval.

^aEstimated in discrete time survival models with adjustment for age and sex. Each disorder category was examined in a separate model. Models for categories other than any depressive or anxiety disorder included a time-varying indicator for prior onset of disorders not included in the category examined. Values in boldface are statistically significant at the $P = .05$ level.

of previous studies of this population. First, the sample was limited to first-generation immigrants, to distinguish mental health problems among immigrants from mental health problems of US-born offspring of immigrants. This sample offered more direct evidence about the mental health effects of experiences in the years after migration to the United States. Second, the use of survival models ensured that disorders occurring before migration were not counted as potential effects of migration. Third, we improved the adjustment for migrant selection by comparing migrants in the United States with a sample of family members of migrants in Mexico. The use of family members of migrants as a comparison group adjusted for between-family migrant selection, that is, differences between Mexican families with and without migrants that might influence the risk for depressive and anxiety disorders. Sociological research suggests that family characteristics, such as economic security, which enables the initial investment required for migration, are important determinants of migration.³³⁻³⁵

A remaining limitation of this study is the possibility of residual confounding (of the effect of migration on mental health) by premigration differences between migrants and nonmigrants within families (ie, within-family selection). The pilot study¹¹ suggested that there is negative health selection in this population, that is, that indicators of risk for psychiatric disorder are associated with a higher likelihood of migration. Confounding might

Table 4. Birth Cohort Variation in Risk for Onset of Depressive or Anxiety Disorders Among Migrants Following Arrival in the United States Relative to Family Members of Migrants in Mexico^a

Type of Disorder	Birth Cohort, AOR (95% CI)			
	18-25 y	26-35 y	36-45 y	≥46 y
Any depressive or anxiety disorder	3.89 (2.74-5.53)	1.83 (1.15-2.91)	0.57 (0.25-1.33)	1.10 (0.62-1.95)
Any depressive disorder	4.37 (2.37-8.04)	1.50 (0.85-2.66)	0.61 (0.25-1.50)	0.87 (0.49-1.54)
Any anxiety disorder	3.40 (1.73-6.70)	1.86 (0.86-4.01)	0.77 (0.30-2.00)	1.77 (0.85-3.70)

Abbreviations: AOR, adjusted odds ratio; CI, confidence interval.

^aAdjusted odds ratios are estimated in discrete time survival models with adjustment for age and sex. Each disorder category was examined in a separate model. Models for categories other than any depressive or anxiety disorder included a time-varying indicator for prior onset of disorders not included in the category being examined. Birth cohorts are defined by age at interview. Values in boldface are statistically significant at the $P = .05$ level.

occur at the family level (ie, by differences between families with and without migrants) or at the individual level (ie, by differences between migrants and nonmigrants within families). Restriction of the control group to nonmigrant members of families of migrants in Mexico was intended to account for confounding at the family level. Differences between migrants and nonmigrants within families were accounted for in this study by treating the exposure (migration) as a time-varying covariate; disorders that preceded migration, including those occurring in the year of migration, were counted toward the baseline risk among nonmigrants. In addition, estimates were adjusted for previous comorbid psychiatric disorders, which might have occurred before or after migration. Nonetheless, the possibility of residual confounding cannot be ruled out entirely. In supplementary analyses of this subsample conducted to address the question of migrant selection, migration remained associated with higher risk for onset of depressive and anxiety disorders after adjustment for childhood adversity profiles.

Reliance on recall of the lifetime occurrence of psychiatric disorders is also a potential limitation of this study.³⁶ Inaccuracy in recall would bias the results if migrants were more likely than family members who remained in Mexico to recall past symptoms. The potential influence of recall bias should be considered in light of the observed intercohort variation in the association between migration and risk for disorder. We would expect recall bias to be more severe in older cohorts because they are asked to recall psychiatric symptoms over a longer period. However, in this study the association between migration and disorder was strongest in the youngest respondents, among whom the influence of recall bias is likely to be minimized.

Finally, the differences observed herein may also reflect differences in idiom of distress between migrants and their families of origin. These differences are minimized in this study by the use of the same fully structured diagnostic interview, which assesses specific symptoms rather than general complaints, and by the shared Mexican cultural background of the entire sample. Future studies of shifts in idiom of distress among migrants might further test whether the apparent impact of migration on mental health can be accounted for by methodological difficulties in assessing psychiatric disorders cross-culturally.

This study advances our knowledge of the transition in population levels of risk for depressive and anxiety disorders from the relatively low prevalence found in Mexico¹³ to the relatively high prevalence found in the population

of Mexican origin in the United States.³⁷ Evidence now suggests 3 distinct components of this transition. First, there is evidence of negative mental health selection, that is, that individuals who migrate have less favorable childhood mental health profiles than individuals who do not migrate.³⁸ Second, evidence from this study suggests that, after arrival in the United States, migrants are at higher risk than Mexicans who did not migrate, even after accounting for selection factors. Third, individuals of Mexican origin, whether born in Mexico or the United States, who spend their childhood in the United States are at roughly equally high levels of lifetime risk as the general US-born population.³²

Identifying these components of the transition in risk for psychiatric disorder associated with migration may help identify and test suspected etiological factors. Studies of migration and mental health have focused attention on discrimination as one likely cause of increased risk for psychiatric disorder. Studies of Caribbean-origin migrants in Europe suggest associations between discrimination and psychotic disorders.^{39,40} In the United States, there is evidence of an association between experiences of discrimination and depression among Hispanic migrants.^{41,42} Although suggestive, current evidence is limited to studies that compare migrants with descendants of immigrants born in the host country. In addition, associations between migration and mental health may not be generalizable across migrant groups, which differ dramatically in the factors influencing migration and the conditions in the receiving host country.

Potential explanations for the intercohort variation in the effect of migration may lie in change in the composition of migrants across birth cohorts or in changes in the social context of immigrant absorption in the United States. Historical studies of migration from Mexico to the United States have found that the demographic composition of the migrant population has been relatively stable during the periods covered in this study.⁴³ Therefore, it is unlikely that secular changes in the types of migrants account for the observed variation in the effect of migration. Changes in the context of immigrant absorption in the United States have also occurred during this period that would likely affect the experience of recent birth cohorts, most notably the immigration reforms of 1965 and 1986. The finding that elevation in risk for depressive and anxiety disorders occurs among recent birth cohorts of Mexican migrants may help guide future research by locating the effect of migration within the particular experiences of this subpopulation.

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REFERENCES

1. Grieco E. *Race and Hispanic Origin of the Foreign-Born Population in the United States*. Washington, DC: Census Bureau; 2009.
2. Rogler LH, Cortes DE, Malgady RG. Acculturation and mental health status among Hispanics. *Am Psychol*. 1991;46(6):585-597.
3. Bhugra D. Migration and mental health. *Acta Psychiatr Scand*. 2004;109(4):243-258.
4. Ortega AN, Rosenheck R, Alegria M, Desai RA. Acculturation and the lifetime risk of psychiatric and substance use disorders among Hispanics. *J Nerv Ment Dis*. 2000;188(11):728-735.
5. Vega WA, Canino G, Cao Z, Alegria M. Prevalence and correlates of dual diagnoses in US Latinos. *Drug Alcohol Depend*. 2009;100(1-2):32-38.
6. Szapocznik J, Prado G, Burlew AK, Williams RA, Santisteban DA. Drug abuse in African American and Hispanic adolescents: culture, development, and behavior. *Annu Rev Clin Psychol*. 2007;3:77-105.
7. Organista PB, Organista KC, Kurasaki K. The relationship between acculturation and ethnic minority mental health. In: Chun KM, Organista PB, Marin G, eds. *Acculturation: Advances in Theory, Measurement, and Applied Research*. Washington, DC: American Psychological Association; 2002:139-162.
8. 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(9):771-778.
9. Escobar JI, Vega WA. Mental health and immigration's AAs: where are we and where do we go from here? *J Nerv Ment Dis*. 2000;188(11):736-740.
10. Escobar JI, Hoyos Nervi C, Gara MA. Immigration and mental health: Mexican Americans in the United States. *Harv Rev Psychiatry*. 2000;8(2):64-72.
11. Breslau J, Aguilar-Gaxiola S, Borges G, Castilla-Puentes RC, Kendler KS, Medina-Mora ME, Su M, Kessler RC. Mental disorders among English-speaking Mexican immigrants to the US compared to a national sample of Mexicans. *Psychiatry Res*. 2007;151(1-2):115-122.
12. Greenland S, Robins JM, Pearl J. Confounding and collapsibility in causal inference. *Stat Sci*. 1999;14(1):29-46.
13. Medina-Mora ME, Borges G, Benjet C, Lara C, Berglund P. Psychiatric disorders in Mexico. *Br J Psychiatry*. 2007;190:521-528.
14. Pennell BE, Bowers A, Carr D, Chardoul S, Cheung GQ, Dinkelmann K, Gebler N, Hansen SE, Pennell S, Torres M. 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):241-269.
15. Kessler RC, Ustun TB. The World Mental Health (WMH) Survey Initiative Version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI). *Int J Methods Psychiatr Res*. 2004;13(2):93-121.
16. 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):221-240.
17. Kessler RC, Merikangas KR. The National Comorbidity Survey Replication (NCS-R): background and aims. *Int J Methods Psychiatr Res*. 2004;13(2):60-68.
18. Alegria M, Takeuchi D, Canino G, Duan N, Shrout P, Meng XL, Vega W, Zane N, Vila D, Woo M, Vera M, Guarnaccia P, Aguilar-Gaxiola S, Sue S, Escobar J, Lin KM, Gong F. Considering context, place and culture: the National Latino and Asian American Study. *Int J Methods Psychiatr Res*. 2004;13(4):208-220.
19. Kessler RC, Berglund P, Chiu WT, Demler O, Heeringa S, Hiripi E, Jin R, Pennell BE, Walters EE, Zaslavsky A, Zheng H. The US National Comorbidity Survey Replication (NCS-R). *Int J Methods Psychiatr Res*. 2004;13(2):69-92.
20. Heeringa S, Berglund P. National Institute of Mental Health (NIMH) Collaborative Psychiatric Epidemiology Survey Program (CPES) data set. <http://www.icpsr.umich.edu/cocoon/cpes/using.xml?section=Weighting>. Accessed February 4, 2010.
21. Kessler RC, Abelson J, Demler O, Escobar JI, Gibbon M, Guyer ME, Howes MJ, Jin R, Vega WA, Walters EE, Wang P, Zaslavsky A, Zheng H. Clinical calibration of DSM-IV diagnoses in the World Mental Health (WMH) version of the World Health Organization (WHO) Composite International Diagnostic Interview (WMHCIDI). *Int J Methods Psychiatr Res*. 2004;13(2):122-139.
22. Haro JM, Arbabzadeh-Bouchez S, Brugha TS, de Girolamo G, Guyer ME, Jin R, Lepine JP, Mazzi F, Reneses B, Vilagut G, Sampson NA, Kessler RC. Concordance of the Composite International Diagnostic Interview version 3.0 (CIDI 3.0) with standardized clinical assessments in the WHO World Mental Health Surveys. *Int J Methods Psychiatr Res*. 2006;15(4):167-180.
23. Harkness J, Pennell BE, Villar A, Gebler N, Aguilar-Gaxiola S, Bilgen I. Translation procedures and translation assessment in the World Mental Health Survey Initiative. In: Kessler RC, Ustun TB, eds. *The WHO World Mental Health Surveys: Global Perspectives on the Epidemiology of Mental Disorders*. New York, NY: Cambridge University Press; 2008.
24. Efron B. Logistic regression, survival analysis and the Kaplan-Meier Curve. *J Am Stat Assoc*. 1988;83(402):414-425.
25. Allison PD. Discrete-time methods for the analysis of event histories. In: Leinhardt S, ed. *Sociological Methodology*. San Francisco, CA: Jossey-Bass; 1982:61-98.
26. Parrado EA, Flippen CA, McQuiston C. Migration and relationship power among Mexican women. *Demography*. 2005;42(2):347-372.
27. Markides KS, Ray LA, Stroup-Benham CA, Treviño F. Acculturation and alcohol consumption in the Mexican American population of the southwestern United States: findings from HHANES 1982-84. *Am J Public Health*. 1990;80(suppl):42-46.
28. Breslau J, Aguilar-Gaxiola S, Borges G, Kendler K, Su M, Kessler R. Risk for psychiatric disorder among immigrants and their US-born descendants. *J Nerv Ment Dis*. 2007;195(3):189-195.
29. *Software for Survey Data Analysis (SUDAAN)* [computer program]. Version 8.1. Research Triangle Park, NC: Research Triangle Institute; 2002.
30. Alegria M, Mulvaney-Day N, Torres M, Polo A, Cao Z, Canino G. Prevalence of psychiatric disorders across Latino subgroups in the United States. *Am J Public Health*. 2007;97(1):68-75.
31. Turner RJ, Lloyd DA, Taylor J. Stress burden, drug dependence and the nativity paradox among U.S. Hispanics. *Drug Alcohol Depend*. 2006;83(1):79-89.
32. Breslau J, Borges G, Hagar Y, Tancredi D, Gilman S. Immigration to the USA and risk for mood and anxiety disorders. *Psychol Med*. 2009;39(7):1117-1127.
33. Massey D, Espinosa K. What's driving Mexico-US migration? a theoretical, empirical and policy analysis. *Am J Sociol*. 1997;102(4):939-999.
34. Palloni A, Massey DS, Ceballos M, Espinosa K, Spittel M. Social capital and international migration. *Am J Sociol*. 2001;106(5):1262-1298.
35. Orrenius P. *The Role of Family Networks, Coyote Prices and the Rural Economy in Migration From Western Mexico: 1965-1994*. Dallas, TX: Federal Reserve Bank of Dallas; 1999.
36. Moffitt TE, Caspi A, Taylor A, Kokaua J, Milne BJ, Polanczyk G, Poulton R. How common are common mental disorders? *Psychol Med*. 2010;40(6):899-909.
37. Alegria M, Canino G, Shrout PE, Woo M, Duan N, Vila D, Torres M, Chen CN, Meng XL. Prevalence of mental illness in immigrant and non-immigrant US Latino groups. *Am J Psychiatry*. 2008;165(3):359-369.
38. Breslau J, Borges G, Tancredi DJ, Saito N, Anderson H, Kravitz R, Hinton L, Aguilar-Gaxiola S, Medina-Mora ME. Health selection among migrants from Mexico to the US: childhood predictors of adult physical and mental health. *Public Health Rep*. In press.
39. Vega WA, Lewis-Fernández R. Ethnicity and variability of psychotic symptoms. *Curr Psychiatry Rep*. 2008;10(3):223-228.
40. Fearon P, Morgan C. Environmental factors in schizophrenia: the role of migrant studies. *Schizophr Bull*. 2006;32(3):405-408.
41. Cook B, Alegria M, Lin JY, Guo J. Pathways and correlates connecting Latinos' mental health with exposure to the United States. *Am J Public Health*. 2009;99(12):2247-2254.
42. Finch BK, Kolody B, Vega WA. Perceived discrimination and depression among Mexican-origin adults in California. *J Health Soc Behav*. 2000;41(3):295-313.
43. Durand J, Massey DS, Zenteno RM. Mexican immigration to the United States: continuities and changes. *Lat Am Res Rev*. 2001;36(1):107-127.