



Published in final edited form as:

*J Immigr Minor Health*. 2013 June ; 15(3): 484–491. doi:10.1007/s10903-012-9678-3.

## Acculturative Stress and Diminishing Family Cohesion Among Recent Latino Immigrants

**Frank R. Dillon,**

Center for Research on U.S. Latino HIV/AIDS & Drug Abuse (CRUSADA), Florida International University, 11200 SW 8th St., PCA 369, Miami, FL 33199, USA

**Mario De La Rosa,** and

Center for Research on U.S. Latino HIV/AIDS & Drug Abuse (CRUSADA), Florida International University, 11200 SW 8th St., PCA 369, Miami, FL 33199, USA

**Gladys E. Ibañez**

Behavioral Science Research Institute, Coral Gables, FL, USA

Frank R. Dillon: fdillon@fiu.edu

### Abstract

This study investigates a theorized link between Latino immigrants' experience of acculturative stress during their two initial years in the United States (US) and declines in family cohesion from pre- to post-immigration contexts. This retrospective cohort study included 405 adult participants. Baseline assessment occurred during participants' first 12 months in the US. Follow-up assessment occurred during participants' second year in the US. General linear mixed models were used to estimate change in family cohesion and sociocultural correlates of this change. Inverse associations were determined between acculturative stress during initial years in the US and declines in family cohesion from pre-immigration to post-immigration contexts. Participants with undocumented immigration status, those with lower education levels, and those without family in the US generally indicated lower family cohesion. Participants who experienced more acculturative stress and those without family in the US evidenced a greater decline in family cohesion. Results are promising in terms of implications for health services for recent Latino immigrants.

### Keywords

Latino; Immigration; Acculturation; Acculturative stress; Family cohesion

### Background

Acculturative stress is the psychosocial strain experienced by immigrants in response to challenges encountered while adapting to cultural differences in a new country [1–3]. These stressors result from circumstances such as immigration status, language barriers, economic deficiencies, and discrimination [4]. The present study investigates a hypothesized link between Latino immigrants' acculturative stress during their initial years in the United States (US) and declines in family cohesion over time from the pre- to post-immigration context. Family cohesion is salient among US Latinos because it has been identified as a distinctive cultural protective factor against health disparities [5, 6].

## Acculturative Stress

Acculturative stress is linked to an array of negative health outcomes, including anxiety, depression, suicide, and alcohol abuse e.g., [7, 8]). Studies of Mexican–American immigrants (residing an average of 7 years in the US) found that acculturative stress was linked with (a) less years in the US, (b) less English language use, (c) lower incomes, and (d) separation from family due to immigration [9, 10]. Undocumented immigration status is another harsh correlate of acculturative stress given fears of deportation, separation from family, English language difficulties, and economic stressors often suffered by unauthorized immigrants [1, 11].

Despite decades of research, questions remain concerning how potentially health protective cultural resources possessed by immigrants in their country of origin interact with acculturative stressors after arrival to the US. Studies of acculturative stress typically involve Latino immigrants who have lived in the US for many years, or involve Latinos who are US born e.g., [1, 12–14]. Thus, little is known about the experience of acculturative stress during the initial 2 years post-immigration. This study extends earlier research by investigating acculturative stress within a sample of adult Latino immigrants who recently immigrated to Miami-Dade County, Florida. The sample is unique in that participants were recruited during their initial months in the US. It is also the first study, to our knowledge, to track a large cohort of Latino immigrants into their second year in the US.

## Family Cohesion

Family cohesion is often used as a global indicator of family functioning in studies of Latino families [15, 16]. Family cohesion is an expression of support, caring, belonging, and acceptance within a family [17]. Although the importance of family is found in many cultures [18], family cohesion in the Latino culture is particularly hallmarked by close relations with nuclear and extended family members throughout the lifespan, including pronounced levels of loyalty, reciprocity, and solidarity [19]. The stressors of the acculturation process [i.e., a process of change as immigrants adjust to their new environments and reconcile their heritage-cultural practices, values, and identifications with those of the receiving society [20] are theorized to disrupt traditional Latino values such as family cohesion [21]. This disruption is posited to limit the health protective effects of family cohesion against negative health outcomes [5, 22]. While research on the acculturation process has yielded critical information, relations between experiences of acculturative stress and decreases in family cohesion from pre- to post-immigration contexts remains unexamined.

## Theoretical/Conceptual Framework

The present study was guided by Bogenschneider's [23] ecological risk/protective model and Bronfenbrenner's [24] social-ecological theory of human development. The social-ecological perspective suggests that the family represents the primary contextual system for human development [25]. Relations with family members play a major role in shaping patterns of lifespan development [26]. This may be especially true for Latinos, for whom familial bonds remain extremely important throughout the lifespan [27]. In addition, the social-ecological perspective is inclusive of potential sociocultural influences such as acculturative stress on microsystems such as family [20]. This study aims to determine a relationship between experiences of acculturative stress and declines in family cohesion from pre-immigration to post-immigration in a community-based sample of Latino adults. We hypothesize that higher levels of acculturative stress during initial years in US will correlate with a steeper decline in family cohesion from pre-immigration to post-immigration contexts, while accounting for potentially confounding sociocultural factors identified in previously cited literature. (e.g., gender, age, documentation status, education,

income, marital status, presence of family members in the US, primary language used in neighborhood, English language proficiency, and time in the US).

## Methods

### Data Collection

The present study was conducted using data from a longitudinal investigation of sociocultural determinants of health among adult Latino immigrants. The study was approved by the institutional review board of a large university in Miami, Florida. Inclusion criteria included (a) self-identifying as a Latino/a, (b) having recently immigrated (i.e., within 1 year prior to baseline assessment) to the US from a Latin American country, and (c) intending to stay in the US for least 3 years—to facilitate data collection.

Consenting procedures and baseline assessment interviews were conducted in Spanish during participants' first year in the US ( $M = 6.74$  months living in US at baseline,  $SD = 3.11$ ). Follow-up assessment interviews were conducted approximately 12 months after the initial baseline interview ( $M = 19.95$  months in US at follow-up,  $SD = 3.19$ ). Participant interviews were conducted by bilingual Latino interviewers of South American or Caribbean origin.

Participants were recruited through respondent-driven sampling (RDS). RDS is a strategy to recruit participants from hidden or difficult-to-reach population [28]; such as recent immigrants, particularly those with undocumented immigration status. The RDS approach involved asking each recruited participant (*the seed*) to refer three individuals in their social network who met the eligibility criteria for the study and consented to be interviewed. Those participants were then asked to refer three additional individuals. The procedure was followed for seven legs for each initial participant (seed), at which point a new seed would begin. The limiting rule is undertaken in the effort to avoid skewing the respondent sample.

Seed participants were recruited through announcements posted at community-based agencies providing services to refugees, asylum seekers, and other documented and undocumented Latino immigrants in Miami. Information also was disseminated at Latino community health fairs and neighborhood activity locales (eg., domino parks in the Little Havana section of Miami). Additionally, announcements were posted around Latino communities and electronic bulletin boards such as *craigslist.org* and an employment website that Latinos access to search for work in Miami-Dade County.

### Participants

Five hundred and twenty-seven Latino adults enrolled in the study at baseline assessment (occurring during their first 12 months in the US). Four hundred and five participants were retained for follow-up assessment (79 % retention rate)—which occurred approximately 12 months after participants' baseline assessment. Data from retained participants ( $n = 405$ ) were analyzed to test study hypotheses.

The sample of 405 participants was 51 % female and 49 % male. The average age was 28.53 years ( $SD = 4.91$ , range of 19–36 years). Participants included Latino immigrants from Cuba (50 %), Colombia (19 %), Honduras (8 %), and Nicaragua (7 %). Venezuelans comprised the next largest subgroup at 3 % of the sample. Participants from other Caribbean and South and Central American countries comprised 2 % or less of the sample. Approximately 77 % of participants had legally immigrated, whereas the remaining 23 % arrived to the US without documentation. Twenty-one percent of participants had college degrees, 38 % had attended some college, 27 % had a high school or equivalent degree, and 14 % had not completed high school. The sample also consisted of relatively low-income participants. The

median total annual household income was \$21,604 for the 12 months prior to follow-up assessment.

To assess for sampling bias introduced by attrition, we tested whether retained participants differed from non-retained participants on pre-immigration demographic variables (immigration status at arrival to US, gender, annual income, education level) and pre-immigration family cohesion. A larger number of non-retained participants were undocumented upon arrival to US (42.5 % non-retained, undocumented participants versus 14.3 % non-retained, documented participants),  $\chi^2(1, N = 527) = 49.86, p < .001, \eta^2 = .10$ . Non-retained participants also tended to be men [ $\chi^2(1, N = 527) = 25.47, p < .001, \eta^2 = .05$ ], and reported lower educational attainment,  $F(1, 526) = 27.25, p < .001, \eta^2 = .05$ . Finally, non-retained participants also reported lower pre-immigration family cohesion scores,  $F(1, 526) = 14.68, p < .001, \eta^2 = .03$ .

## Measures

**Sociocultural Variables**—A demographics form was administered at baseline and follow-up assessments. The form assessed participants' gender; age; marital status at follow-up assessment; country of origin; length of time in the US (in months); educational achievement at follow-up assessment, annual household income (post-immigration), and number of individuals dependent on annual household income.

The primary language used in participants' post-immigration residential community was documented by a single item rated on a 5-point Likert scale response format (1 = *only English* to 5 = *only Spanish*). Participants' English language proficiency was assessed by an item asking *How well do you speak English?* at follow-up assessment, which participants rated on a 5-point Likert scale response format (1 = *don't speak/understand* to 5 = *speak it very well*).

Participants reported their immigration status in the US at baseline assessment via a total of 14 categories, including temporary or permanent resident; tourist, student, & temporary work visa; undocumented; and expired visa, asylum, and temporary protected immigrant. To facilitate analyses, categories were recoded into a dichotomous variable indicating *documented* (1) or *undocumented* (0) immigration status.

At follow-up assessment, participants were asked (a) *whether family members had immigrated with them to the US?*, (b) *whether they had any family members in the US prior to immigrating?*, and (c) *did family members join them in the US after they immigrated here?* To create a single item documenting family member presence, responses across these items were coded "0" if family member(s) were not present in the US and "1" if family member(s) had immigrated or resided in the US before or after participants' immigration.

**Family Cohesion**—The *Family Cohesion* and *Disengagement* subscales from the *Family Functioning Scale (FFS)* [29] were selected to assess pre- and post-immigration family cohesion. When responding to items at baseline assessment, participants were instructed to consider their relationship with their family throughout their lifetime before coming to the US. At follow-up assessment, participants were asked to rate their relationship with their family only during the 12 month time period before their assessment (i.e., during their second year in the US). Adequate internal consistency was evidenced by Cronbach's alpha coefficients of 0.79 (baseline) and 0.82 (follow-up) for the *Family Cohesion* subscale, and 0.66 (baseline) and 0.65 (follow-up) for the *Family Disengagement* subscale. An overall family cohesion score was calculated by subtracting *Family Disengagement* from *Cohesion* scores.

**Acculturative Stress**—Acculturative stress was measured by the *Immigration Stress* subscale of the *Hispanic Stress Inventory Scale–Immigrant Version* [30] at the time of follow-up assessment. This scale is a measure of chronic difficulties and acute stressors that are unique to Latino immigrants. First, the participant reports whether or not they experienced a particular stressor (0 = *no*, 1 = *yes*) during the 12 months prior to assessment. These items constitute the immigration stress frequency subscale. If the stressor was experienced, then a subsequent follow-up question is asked to appraise how stressful that particular event was to the respondent using a 5-point Likert scale response format (1 = *not at all* to 5 = *extremely*). These items comprise the immigration stress appraisal subscale. As directed by Cervantes et al. [30], frequency stress items that were reported as not occurring by subjects were coded as “1” (*not at all stressful*) for data analyses. Internal consistency of the appraisal scale was evidenced by a Cronbach’s alpha coefficient of 0.75. An overall acculturative stress total score was calculated by multiplying the immigration stress frequency and immigration stress appraisal scores.

### Statistical Analyses

For preliminary analyses, data distributions were assessed to determine if any continuous variables violated the assumption of normality. We also calculated descriptive statistics for, and bivariate correlations among all study variables (i.e., Pearson Product Moment for continuous variables and Spearman Rank-Order for ordinal variables) to assess strength of bivariate relations between all study variables and to detect evidence of multicollinearity (i.e., correlation coefficients greater than 0.70 between explanatory variables) [31] (see Table 1).

Next, we fitted general linear mixed models (GLMM) using SPSS statistical software version 19 [32] to test our main research questions: (a) *Do declines in family cohesion occur over time from pre- to post-immigration context?*, and (b) *Are experiences of acculturative stress during initial years in US related to declines in family cohesion from pre- to post-immigration contexts, after adjusting for sociocultural covariates [gender, age, documentation status, education, income, marital status, presence of family member(s) in the US, primary language in community, English language proficiency, and time in the US]?* Two mixed models were tested. Model 1 tested differences in levels of pre- versus post-immigration family cohesion. Model 1 also calculated cross-sectional associations between pre- and post-immigration family cohesion and acculturative stress while including sociocultural covariates. In Model 2, interaction terms were added to assess the association between acculturative stress, sociocultural covariates, and the slope (or change) of family cohesion scores from pre- to post-immigration.

## Results

### Preliminary Analyses

Annual household income was positively skewed. It was transformed using a square root data transformation for analyses. Correlations yielded significant ( $p < .05$ ) cross-sectional relations between and among study variables, albeit strengths of relations varied (see Table 1).

**Correlates of Family Cohesion**—Higher levels of pre- and post-immigration family cohesion were related to documented status and higher educational attainment. Also, participants with family in the US (92 % of sample) reported higher pre- and post-immigration family cohesion than those without family in the US. Post immigration family cohesion was linked with more English language proficiency.

**Correlates of Acculturative Stress**—Participants who had family members in the US, and those reporting more pre- and post-immigration family cohesion indicated less acculturative stress.

Older participants, undocumented participants, those with less educational attainment, and participants with less English language proficiency reported more acculturative stress.

### Linear Mixed Models

Table 2 presents mixed model estimates of the longitudinal relationship between acculturative stress at follow-up assessment and change in family cohesion scores from pre- to post-immigration.

In Model 1, estimates indicated a reduction in family cohesion over time (time effect) ( $b = 0.16$ ,  $SE = 0.06$ ,  $p < .01$ ), and a cross-sectional association between acculturative stress (at both time points) and immigration status ( $b = -0.34$ ,  $SE = 0.13$ ;  $p < .01$ ) as well as educational achievement ( $b = .018$ ,  $SE = 0.05$ ,  $p < .001$ ). Undocumented participants and those with lower education levels reported lower family cohesion scores at baseline and follow-up assessments.

In Model 2, there was a longitudinal association between acculturative stress-by-time interactions on change in family cohesion scores, after controlling for sociocultural covariates ( $b = -.01$ ,  $SE = < .01$ ,  $p = .03$ ). Participants indicating more acculturative stress had a significantly greater decline in family cohesion scores from pre- to post-immigration. Additionally, participants without family in the US experienced more significant declines in family cohesion in comparison to those with family in the US ( $b = .47$ ,  $SE = .21$ ,  $p = .03$ ).

### Discussion

Feelings of family cohesion among Latino immigrants declined over time as participants transitioned from pre-immigration to post-immigration contexts. Declines in family cohesion were linked with acculturative stress experienced during initial 2 years in the US. These findings support two notions concerning the interaction between traditional Latino cultural values (e.g., family cohesion) and acculturative stress. First, acculturation related stressors have been posited to reduce levels of traditional Latino cultural values that have been theorized as health protective [21, 22]. This reduction has been suggested to be particularly relevant for Latino immigrants who *assimilate* to US mainstream culture. That is those who adopt the receiving (US) cultural practices and values while discarding those from their culture of origin [20, 33]. Future longitudinal research should include measurement of both acculturation process indicators *and* acculturative stress (this study only focused on the latter) to test whether and how the acculturation process and acculturative stress erode potentially health protective cultural values. Furthermore, because this study utilized a single assessment time point of acculturative stress, our findings are correlational and do not establish a causal link between increases of acculturative stress and declines in family cohesion. Future longitudinal research is needed to demonstrate causality.

Alternatively, the link between declines in family cohesion and higher acculturative stress could be attributed to family resiliency theory [5]. The assumption from the resiliency perspective is that some immigrant families possess protective social networks (intangible emotional support, cohesion; tangible financial support, resources) which increase or boost the families' ability to cope with acculturation stress [5, 34]. Having less family cohesion may have rendered immigrants more vulnerable to acculturative stress. Since the current study was limited by a correlational design, additional longitudinal research is needed to continue to track family cohesion from pre- to post-immigration contexts as well as varying



levels of acculturative stress over several years to determine the potential reciprocal, causal relationship between both sociocultural determinants of health. Such a design could link concomitant changes in acculturative stress and family cohesion.

### Limitations

The findings should be interpreted in light of limitations. The first limitation is the use of respondent driven sampling. Although respondent driven sampling is successful in recruiting hidden populations, such as undocumented immigrants who constitute 22 % of the US Latino population [35], it does not ensure representative sampling. Second, although efforts were undertaken to include participants from all Latino subgroups, some groups (e.g., Mexican–American) were not well represented due to their underrepresentation in the Miami-Dade County area in general. Furthermore, the participant retention rate was 77 %. While this rate is above the rate (70 %) that is generally accepted as adequate [36], the loss of 23 % of the sample to attrition may have impacted external validity of results because non-retained participants tended to be undocumented men with lower educational attainment and lower pre-immigration family cohesion.

### Recommendations for Clinical Research and Practice

Findings provide clinicians with sociocultural markers to attend to when working with recent Latino immigrants who may be particularly vulnerable to acculturative stress and related declines in family cohesion. Clinicians should consider working beyond the patient-provider relationship to address potential sources of acculturative stress in clients' lives (e.g., incongruence of cultural norms between their country of origin and the receiving country; language barriers; perceived feelings of inferiority; discrimination) [4]. These cultural determinants may erode family cohesion and other traditional Latino cultural value. For example, *Familia Adelante* is an effective behavioral health intervention that attempts, in part, to reduce familial stress and other problems by reducing acculturative stress [37]. This multi-risk prevention intervention for Latino families with at-risk children could be applied with more recent Latino immigrant families. By focusing on ways to cope with acculturative stress, its curriculum seeks to enhance psychosocial coping and life skills in both youth and their parents to enhance family and peer communication, prevent/reduce substance abuse, increase HIV knowledge and perceptions of harm about high-risk behavior, and improve school bonding and behavior.

Community-based interventions should be also considered by clinicians to address sources of acculturative stress and to promote family cohesion. Such interventions may exert a greater therapeutic or preventive influence against emotional distress and related health disparities experienced by Latino immigrants [38]. To promote awareness of acculturative stress and its impact on family cohesion, clinicians can serve as consultants to provide technical assistance to local organizations and agencies (e.g., community health centers) [39, 40]. Finally, like the present study, future clinical research and interventions are needed to attend to pre-immigration factors that are likely to impact immigrants' differential responses to the acculturation process and its inherent challenges and impacts on health.

### New Contribution to the Literature

Overall, this study contributes to the limited knowledge on changes from pre- to post-immigration in Latino family cohesion; and relations with acculturative stress as well as other sociocultural determinants just after arrival to the United States. Future studies of sociocultural determinants of change in pre- and post-immigration health protective cultural values may provide valuable information to clinicians to promote competent health care of recent Latino immigrants. Such research is of critical importance, as it will inform efforts to

address acculturative stress and related negative health outcomes among the largest and fastest growing ethnic minority group in the US.

## Acknowledgments

This study was supported by award number P20MD002288 from the National Institute for Minority Health and Health Disparities. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute on Minority Health and Health Disparities or the National Institutes of Health.

## References

1. Arbona C, Olvera N, Rodriguez N, Hagan J, Linares A, Wiesner M. Acculturative stress among documented and undocumented Latino immigrants in the United States. *Hisp J Behav Sci.* 2010; 32(3):362–384.
2. Berry, JW. Acculturative stress. In: Wong, PTP.; Wong, LCJ., editors. *Handbook of multicultural perspectives on stress and coping.* Dallas: Spring Publications; 2006. p. 287-298.
3. Rudmin FW. Catalogue of acculturation constructs: descriptions of 126 taxonomies, 1918–2003. *Online Readings in Psychology and Culture.* 2009; (Unit 8.) <http://scholarworks.gvsu.edu/orpc/vol8/iss1/8>.
4. Cabassa LJ. Measuring acculturation: where we are and where we need to go. *Hisp J Behav Sci.* 2003; 25(2):127–146.
5. Marsiglia FF, Parsai P, Kulis S. The Southwest Interdisciplinary Research Center. Effects of familism and family cohesion on problem behaviors among adolescents in Mexican immigrant families in the Southwest US. *J Ethnic Cultur Divers Soc Work.* 2009; 1:203–220.
6. Rivera FI, Guarnaccia PJ, Mulvaney-Day N, Lin JY, Torres M, Alegria M. Family cohesion and its relationship to psychological distress among Latino groups. *Hisp J Behav Sci.* 2008; 30:357–378. [PubMed: 19444326]
7. Crockett LJ, Iturbide MI, Torres Stone RA, McGinley M, Raffaelli M, Carlo G. Acculturative stress, social support, and coping: relations to psychological adjustment among Mexican American college students. *Cultur Divers Ethnic Minor Psychol.* 2007; 13:347–355. [PubMed: 17967103]
8. Lara M, Gamboa C, Kahramanian MI, Morales LS, Hayes Bautista DE. Acculturation and Latino health in the United States: a review of the literature and its sociopolitical context. *Annu Rev Public Health.* 2005; 26(1):367–397. [PubMed: 15760294]
9. Hovey JD, Magana CG. Psychosocial predictors of anxiety among immigrant Mexican migrant farmworkers: implications for prevention and treatment. *Cultur Divers Ethnic Minor Psychol.* 2002; 8:274–289. [PubMed: 12143104]
10. Miranda AO, Matheny KB. Socio-psychological predictors of acculturative stress among Latino adults. *J Mental Health Counseling.* 2000; 22(4):306–317.
11. Perez MC, Fortuna L. Psychosocial stressors, psychiatric diagnoses and utilization of mental health services. *J Immigr Refug Serv.* 2005; 3:107–124.
12. Torres L, Driscoll MW, Voell M. Discrimination, acculturation, acculturative stress, and Latino psychological distress: a moderated mediational model. *Cultur Divers Ethnic Minor Psychol.* 2012; 18(1):17–25. [PubMed: 22250895]
13. Cervantes R, Goldbach J, Santos SM. Familia adelante: a multirisk prevention intervention for Latino families. *J Prim Prev.* 2011; 32(3–4):225–234. [PubMed: 21822979]
14. Cervantes RC, Cordova D. Life experiences of Hispanic adolescents: developmental and language considerations in acculturation stress. *J Community Psychol.* 2011; 39:336–352.
15. Baer J. Is family cohesion a risk or protective factor during adolescent development? *J Marriage Families.* 2002; 64:668–675.
16. Miranda AO, Estrada D, Firpo-Jimenez M. Differences in family cohesion, adaptability, and environment among Latino families in dissimilar stages of acculturation. *Family J.* 2000; 8:341–350.



17. Manzi C, Vignoles VL, Regalia C, Scabini E. Cohesion and enmeshment revisited: differentiation, identity, and well-being in two European cultures. *J Marriage Family*. 2006; 68(3):673–689.
18. Schwartz SJ. The applicability of familism to diverse ethnic groups: a preliminary study. *J Soc Psychol*. 2007; 147:101–118. [PubMed: 17601075]
19. Hovey JD, King CA. Acculturative stress, depression, and suicidal ideation among immigrant and second-generation Latino adolescents. *J Am Acad Child Adolesc Psychiatry*. 1996; 35:1183–1192. [PubMed: 8824062]
20. Schwartz SJ, Unger JB, Zamboanga BL, Szapocznik J. Rethinking the concept of acculturation: implications for theory and research. *Am Psychol*. 2010; 65:237–251. [PubMed: 20455618]
21. Gallo LC, Penedo FJ, Espinosa de los Monteros K, Arguelles W. Resiliency in the face of disadvantage: do Hispanic cultural characteristics protect health outcomes? *J Pers*. 2009; 77:1467–1494. [PubMed: 19678877]
22. Warner LA, Valdez A, Vega WA, De La Rosa M, Turner RJ, Canino G. Hispanic drug abuse in an evolving cultural context: an agenda for research. *Drug Alcohol Dependence*. 2006; 84:S8–S16.
23. Bogenschneider K. An ecological risk/protective theory for building prevention programs, policies, and community capacity to support youth. *Fam Relat*. 1996; 45:127–138.
24. Bronfenbrenner U. Ecology of the family as a context for human development: research perspectives. *Developmental Psychol*. 1986; 22:723–742.
25. Szapocznik, J.; Coatsworth, JD. An ecodevelopmental framework for organizing risk and protection for drug abuse: a developmental model of risk and protection. In: Glantz, M.; Hartel, CR., editors. *Drug abuse: origins and interventions*. Washington, DC: American Psychological Association; 1999. p. 331–366.
26. Overbeek G, Stattin H, Vermulst A, Ha T, Engels RCME. Parentchild relationships, partner relationships, and emotional adjustment: a birth-to-maturity prospective study. *Developmental Psychol*. 2007; 43:429–437.
27. De La Rosa M, Dillon FR, Ganapati NE, Rojas P, Pinto E, Prado G. Mother-daughter attachment and drug abuse among Latinas in the United States. *J Drug Issues*. 2010; 40:379–404.
28. Salganik MJ, Heckathorn DD. Sampling and estimation in hidden populations using respondent driven sampling. *Sociol Methodol*. 2003; 34:193–240.
29. Bloom BL. A factor analysis of self-report measures of family functioning. *Fam Process*. 1985; 24:225–239. [PubMed: 4018243]
30. Cervantes RC, Padilla AM, Salgado de Snyder VN. The validity and reliability of the Hispanic Stress Inventory. *Hisp J Behav Sci*. 1990; 12:76–84.
31. Tabachnick, BG.; Fidell, LS. *Using multivariate statistics*. 5th ed.. Boston, MA: Allyn and Bacon; 2007.
32. IBM SPSS Statistics (SPSS). Version 19. United States: IBM; 2010. [computer program].
33. Berry JW. Immigration, acculturation, and adaptation. *Appl Psychol Int Rev*. 1997; 46:5–34.
34. De La Rosa M, White MS. A review of the role of social support systems in the drug use behavior of Hispanics. *J Psychoactive Drugs*. 2001; 33(3):233–240. [PubMed: 11718316]
35. Passel JS, Cohn D. *Unauthorized Immigrant Population: National and State Trends, 2010*. Pew Hispanic Center. 2011 <http://www.pewhispanic.org/files/reports/133pdf>.
36. McLellan, AT.; Woody, GE.; Metzger, D.; McKay, J.; Durell, J.; Alterman, AI., et al. Evaluating the effectiveness of addiction treatments: Reasonable expectations, appropriate comparisons. In: Egertson, JA.; Fox, DM.; Leshner, AI., editors. *Treating drug abusers effectively*. Malden, MA: Blackwell Publishers; 1997.
37. Cervantes R, Goldbach J, Santos SM. Familia Adelante: a multirisk prevention intervention for Latino families. *J Prim Prev*. 2011; 32:225–234. [PubMed: 21822979]
38. Paynter C, Estrada D. Multicultural training put into clinical practice: reflections from a Euro-American female counselor-in-training working with Mexican immigrants. *Family J*. 2009; 17(3): 213–219.
39. Buki LP. Reducing health disparities: the perfect fit for counseling psychology. *Counseling Psychologist*. 2007; 35:706–715.

40. Tucker CM, Ferdinand LA, Mirsu-Paun A, Herman K, Delgado-Romero E, van den Berg JJ, Jones JD. The roles of counseling psychologists in reducing health disparities. *Counseling Psychologist*. 2007; 35:650–675.

Table 1

Descriptive statistics and correlations among acculturative stress, pre and post immigration family cohesion, and covariates

Variable	M (SD), Mdn or %	1	2	3	4	5	6	7	8	9	10	11	12
1. Acculturative stress	18.53 (16.43)	1.00											
2. Pre-immigration family cohesion	6.57 (1.04)	-.19**	1.00										
3. Post-immigration family cohesion	6.40 (1.02)	-.10*	.39**	1.00									
4. Gender <sup>a</sup>	51 % female 49 % male	-.02	-.01	-.03	1.00								
5. Age	28.53 (4.91)	.12*	-.09	-.03	<.01	1.00							
6. Immigration status <sup>b</sup>	77 % documented 23 % undocumented	-.49**	.19**	.22**	-.28**	-.20**	1.00						
7. Education status <sup>c</sup>	2.65 (0.97)	-.13**	.17**	.23**	-.03	.10*	.29**	1.00					
8. Annual Household Income/# of dependents	Mdn = \$6600	.02	.05	-.06	.02	-.13**	-.01	-.09	1.00				
9. Marital status <sup>d</sup>	56 % not married 44 % married	-.02	.05	.06	-.07	.25**	.02	.02	-.06	1.00			
10. Immigration with family <sup>e</sup>	92 % with family 8 % without family	-.14**	.14**	.13*	-.28**	-.07	.23**	.06	-.05	.08	1.00		
11. Primary Language-Community <sup>f</sup>	4.59 (0.89)	.05	-.01	-.06	-.01	.11*	-.11*	-.26**	.08	.05	-.04	1.00	
12. English Language proficiency <sup>g</sup>	1.97 (0.81)	-.29**	.09	.12*	-.05	-.17**	.29**	.34**	<.01	-.11*	.17**	-.38**	1.00
13. Time in US in months	19.95 (3.19)	.08	-.02	-.05	.01	-.02	-.06	-.01	-.02	.04	-.13**	-.07	-.01

\*  $p < .05$ ;\*\*\*  $p < .01$ .<sup>a</sup> 0 = female, 1 = male.<sup>b</sup> 0 = undocumented, 1 = documented.<sup>c</sup> 1 = less than high school, 2 = high school, 3 = some training/college after high school, 4 = bachelor's degree, 5 = graduate/professional studies.<sup>d</sup> 0 = non-married/partnered, 1 = married/partnered.<sup>e</sup> 0 = no family in US post-immigration, 1 = family member(s) present in US post-immigration.

$f_1$  = only English to 5 = only Spanish.

$f_2$  = don't speak/understand to 5 = speak it very well

Table 2

General linear mixed models estimates of family cohesion as a function of acculturative stress

Explanatory variables	Model 1 estimates (SE)	Model 2 estimates (SE)
Intercept	6.22 (.53)**	6.67 (.64)**
Gender <sup>a</sup>	-0.03 (.08)	-0.02 (.10)
Age	-0.01 (.01)	-0.01 (.01)
Immigration status <sup>b</sup>	-0.34 (.13)**	-0.48 (.15)**
Education status <sup>c</sup>	0.18 (.05)**	0.18 (.06)**
Annual household income (adjusted for dependents)	<-0.01 (<.01)	<-0.01 (<.01)
Marital status <sup>d</sup>	-0.14 (.09)	-0.19 (.10)
Immigration with family <sup>e</sup>	0.27 (.15)	0.05 (.18)
Primary language in community <sup>f</sup>	0.04 (.05)	0.01 (.06)
English language proficiency <sup>g</sup>	<0.01 (.06)	0.03 (.07)
Months in US	-0.01 (.01)	-0.02 (.02)
Acculturative stress	<-0.01 (<.01)	<-0.01 (<.01)
Time	0.16 (.06)**	-0.76 (.74)
Gender × time		-0.002 (.11)
Age × time		-0.01 (.01)
Immigration status × time		0.28 (.18)
Education status × time		<0.01 (.07)
Annual household income (adjusted for dependents) × time		0.01 (<.01)
Marital status × time		0.10 (.12)
Immigration with family × time		0.47 (.21)*
Primary language in community × time		0.06 (.07)
English language proficiency × time		-0.06 (.08)
Time in US (in months) × time		0.02 (.02)
Acculturative stress × time		-0.01 (<.01)*

SE standard error.

\*  $p < .05$ ,

\*\*  $p < .01$ .

The explanatory variables with "X" represent the longitudinal effects of the explanatory variables on the rate of decline in family cohesion from pre to post immigration.

<sup>a</sup>0 = female, 1 = male.

<sup>b</sup>0 = undocumented, 1 = documented.

<sup>c</sup>1 = less than high school, 2 = high school, 3 = some training/college after high school, 4 = bachelor's degree, 5 = graduate/professional studies.

<sup>d</sup>0 = non-married/partnered, 1 = married/partnered.

<sup>e</sup>0 = no family in US post-immigration, 1 = family member(s) present in US postimmigration.

<sup>f</sup>1 = only English to 5 = only Spanish.

$g_1$  = *don't speak/understand to 5 = speak it very*