# Role of Social Support in the Relationship between Acculturative Stress and Discrimination among Latino Immigrants in the USA

**Jung Hye Sung, Jae Eun Lee, Ji-Young Lee**

School of Public Health, Jackson State University. Mississippi, USA
RTRN DTCC, Jackson State University. Mississippi, USA
Department of Public Health Sciences, University of Miami Miller School of Medicine, Florida, USA

**ABSTRACT:** This study aimed to determine both the association between perceived racial discrimination and acculturative stress, and the role of social support in the relationship between discrimination and acculturative stress among three Latino immigrant subgroups.
Mexican immigrants had higher acculturative stress (p=0.0007), Puerto Rican immigrants had higher perceived dissemination (p<.0001), and Cuban immigrants had higher social network (p=0.0009) and higher family cohesion (p<0.0001) than their sub-groups counterparts. While family cohesion was negatively associated with acculturative stress among Cuban and Puerto Rican immigrants (p=0.0088 and p=0.0007, respectively), social network was not related to acculturative stress (p=0.3170 and p=0.0971, respectively). However, among Mexican immigrants, social network was negatively associated with acculturative stress (p=0.0285) and family cohesion was not related to acculturative stress (p=0.0833). Among Cuban and Mexican immigrants, while family cohesion moderated the association between discrimination and acculturative stress (p=0.0316 and p=0.0076, respectively), social network did not play a moderating role (p=0.4509 and p=0.1482, respectively). Conversely, social network moderated the relationship between discrimination and acculturative stress among Puerto Rican immigrants (p=0.0086). However, family cohesion did not play a moderating role among Puerto Rican immigrants (p=0.5818).
Findings suggest that family cohesion was found to be a moderating factor in reducing acculturative stress associated with discrimination among Latino immigrants. Interventions enhancing social support may reduce acculturative stress among Latino immigrants experiencing high discrimination.

**KEYWORDS**: Acculturative stress, family cohesion, discrimination, social network, Latino immigrants

## I.INTRODUCTION

Immigrants continue to remain a sizeable component of the U.S. population, comprising of nearly 44 million, or 13.5% of the total population in 2016 (U.S. Census Bureau's 2016 American Community Survey). Latinos represent the largest segment among all immigrant groups in the U.S, accounting for 45% of all immigrants, or 19.6 million individuals. Compared to other immigrant groups, the proportion of Latino immigrants constituted the greatest overall increase between 2000-2010. More specifically, the major Latino sub-groups in the U.S. include Mexican Americans (63.0%), Puerto Ricans (9.2%), and Cubans (3.7%) (Pew Research Center). Understanding the differences in Latino sub-groups in the U.S. has critical public health implications in determining any between-group variations that may exist on health outcomes.

Despite their substantial demographic composition in the U.S., racial discrimination against Latinos persists in society, with the prevalence of perceived discrimination among Latinos reported at 32%. Moreover, nearly four in ten (38%) of young Latinos have indicated that they or someone they know have experienced racial or ethnic discrimination in the past five years (Pew Hispanic Center, 2009). Several studies have documented the negative impact that exposure of racial discrimination has on both mental and physical health among immigrants, including stress, depression, eating

disorders, alcohol or other substance abuse, and hypertension (Chae et al., 2008; Gee et al., 2007; Iyer& Haslam, 2003; Okamoto, Ritt–Olson, Soto, Baezconde–Garbanati, & Unger, 2009; Umaña–Taylor &Updegraff, 2007 ;Blondoro et al. 2003).

Several studies have also documented that along with experiences of racial discrimination, Latino immigrants additionally face acculturative stress and psychological stress. Acculturative stress refers to stress reactions experienced by immigrants culturally adapting and adjusting to a new society, confronted with an unfamiliar culture and different social norms. Stress reactions can arise from the struggle to reconcile their culture of origin with the host culture (Berry, 1994). Acculturative stressors include limited understanding of a new language, the pressures of acquiring a new language, perceived cultural incompatibilities, and cultural self-consciousness (Gil, Vega, & Dimas, 1994; Padilla, Cervantes, Maldonado, & Garcia, 1988, Rodriguez, Myers, Mira, Flores, & Garcia-Hernandez, 2002). There is substantial evidence of a significant direct relationship between acculturative stress and negative mental health outcomes among Latino immigrants (Crockett et al., 2007; Hovey & King, 1997; Hovey, 2000; Moyerman& Forman, 1992; Williams & Berry, 1991). Further, a growing body of literature has indicated an association between racial discrimination and acculturative stress. For instance, Araujo Dawson and Panchanadeswaran (2010) found that both experiences of daily discrimination and other major racist events were significantly associated with acculturative stress among Dominican women. Additionally, Torres and colleagues (2012) found a significant association between perceived discrimination and acculturative stress among Latino adults in Midwestern cities. This synergistic impact of both racial discrimination and acculturative stress may lead to an increase in severity of psychological health problems among Latino immigrants.

Prior evidence suggests the moderating effect that social support has on Latino immigrants' mental health outcomes, such as depression, stress, anxiety, or feelings of distress (Turner and Marino 1994, Ajrouch, et al. 2010, Renner et al. 2012, Salgado et al. 2012, Singh et al. 2015). Social support is commonly referred to the perception and actuality that one receives supportive resources from others in his/her social network, including emotional, financial, or informational support, or companionship. Despite the growing evidence of the association between racial discrimination and acculturative stress, limited attempt has been made to investigate the Latino sub-group differences in the moderating effect of social support on reducing acculturative stress associated with racial discrimination. Thus, this study aimed to determine the association between perceived racial discrimination and acculturative stress, and ethnic sub-group differences in the moderating effect of social support on reducing acculturative stress associated with discrimination among three Latino sub-groups using data from 1,205 immigrants from the National Latino Asian American Study (NLAAS).

## II. METHODS

### A. Data Source

Data from this study was derived from the National Latino Asian American Study (NLAAS), the first nationally representative community household survey of Latinos and Asian Americans conducted between May 2002 and December 2003 (Heeringa et al., 2004). Based on a stratified area probability sample design, the NLAAS survey population included all Latino and Asian American adults (i.e., 18 years and older) throughout the U.S. and assessed the prevalence of mental disorders and rates of mental health service utilization by Latinos and Asian Americans in the U.S. Details on sampling and procedures are described elsewhere (Alegria et al., 2004a; Heeringa et al., 2004). For our study, participants who were born in the U.S. or not identified were excluded and resulted in a total of 1,205 Latino immigrants included in the analyses. Specifically, 501 Cubans, 217 Puerto Ricans, and 487 Mexicans were included in the analyses.

### B. Measures

Perceived discrimination was measured by a "9-item day-to-day experiences" tool assessing how often the respondent experienced discrimination in the last year (e.g., treated with less courtesy, was called names or insulted, was threatened or harassed, etc.). Each item was measured on a 6-point scale ranging from 1 (almost every day) to 6 (never), and each item score was coded reversely in order such that higher values represented higher levels of perceived

discrimination. The average of the nine items was calculated and used in this study. The perceived discrimination scale score had a Cronbach's alpha (α) of 0.9.

Acculturative stress was assessed by the sum of nine items designed to measure the perceived stress felt as a result of adapting one's own culture with the host culture (e.g., treated badly due to poor or accented English, difficulty finding work due to Latino or Asian descent, questioned about legal status, etc.). Each item had dichotomous responses of "yes" (1) or "no" (0). Higher summed values represented higher acculturative stress (α=0.7).

Family cohesion was assessed by a 10-statement scale describing emotional support, belonging, loyalty, respect, etc. within the family (e.g., family trusts and confides in each other, family likes to spend free time with each other, etc.) (α =0.93). Each item was measured on a 4-point scale ranging from 1 (strongly agree) to 4 (strongly disagree), and each item score was reversely coded such that higher values represented higher levels of family cohesion. The average of the 10 items was calculated and used in this study.

Social network was measured by averaging across eight items assessing the individual's social network among his/her family and friends (e.g., extent of relying on relatives/friends for serious problems, frequency of talking on the phone with relatives/friends, etc.). Four items were measured on a 4-point scale ranging from 1 (strongly agree) to 4 (strongly disagree), and the other four items were measured on a 5-point scale ranging from 1 (always) to 5 (never). Each item score was reversely coded such that higher values indicated greater social network with family and friends (α =0.72).

Age, gender, marital status, employment status, years living in the U.S., and education were included as demographic variables in the analyses.

### C. Analysis Plan

Descriptive statistics for demographic characteristics were measured by using a weighting factor in the NLASS and by using PROC SURVEYFREQ in SAS. Rao–Scott χ2 tests, which adjusted for the complex sampling design by using PROC SURVERYFREQ, were conducted to assess any differences in demographic characteristics by ethnic subgroups. Multiple regression analyses were conducted to estimate the differences in major indices between ethnic subgroups upon controlling for age, gender, employment status, marital status, and education. Multiple regression analyses were also conducted to assess the association between acculturative stress related to discrimination and social support, as well as to assess moderating effects of social support on the relationship between discrimination and acculturative stress by ethnic subgroups. Moderating effects were determined by the statistical interaction of discrimination and family cohesion/social network within the regression model after controlling for demographic variables. Standard errors of the multiple regression analyses were estimated using Taylor series linearization (TSL) to incorporate complex sampling design and post-standardization. All analyses were conducted using SAS version 9.4 (SAS Institute, Inc).

### III.RESULTS

Table 1 provides the descriptive statistics for demographic characteristics for the three Latino subgroups in this study sample. Cuban immigrants were more likely to be older (p<.0001) and highly educated (p<.0001) than the two other Latino subgroups. Mexican immigrants were likely to be less educated (p<.0001), younger (p<.0001), and more likely to be married/cohabitated (p<.0001) than the other two Latino subgroups. Gender and employment status were not statistically different among the three sub-groups.

Table 2 presents the differences in the major indices among the three Latino sub-group-immigrants. With regard to acculturative stress, Mexican immigrants had the highest acculturative stress whereas Cuban immigrants had the lowest (p<.0001). Puerto Rican immigrants had the highest perceived discrimination whereas Cuban immigrants had the lowest (p<.0001). Cuban immigrants had the highest social network and the highest family cohesion whereas Puerto Rican immigrants had the lowest social network and the lowest family cohesion (p=0.0009 and p<0.0001, respectively) than their sub-group counterparts. Means and standard deviations accounted for sampling design and weights.

Table 1. Demographic characteristics of Latino sub-group-immigrants

|  | Cuban (n=501) | Puerto Rican (n=217) | Mexican (n=487) | p-value |
|---|---|---|---|---|
| Age |  |  |  | <.0001 |
|    Age 18-30 | 13.2 | 14.4 | 37.0 |  |
|    Age 31-40 | 14.9 | 22.9 | 33.9 |  |
|    Age 41-50 | 18.1 | 19.8 | 17.5 |  |
|    Age 51-60 | 18.8 | 23.5 | 6.3 |  |
|    Age 60+ | 35.0 | 19.4 | 5.3 |  |
| Gender |  |  |  | 0.7129 |
|    Female | 48.2 | 47.5 | 45.5 |  |
|    Male | 51.8 | 52.5 | 54.5 |  |
| Education status |  |  |  | <.0001 |
|    Years of education 0-11 | 33.7 | 44.3 | 68.4 |  |
|    Years of education 12 | 25.9 | 22.6 | 18.9 |  |
|    Years of education 13-15 | 18.7 | 20.3 | 8.4 |  |
|    Years of education 16+ | 21.7 | 12.8 | 4.3 |  |
| Employment status |  |  |  | 0.0771 |
|    Not employed | 42.7 | 47.0 | 35.6 |  |
|    Employed | 57.3 | 53.0 | 64.4 |  |
| Marital status |  |  |  | <.0001 |
|    Not married/single | 35.0 | 40.9 | 24.1 |  |
|    Married/cohabitated | 65.0 | 59.1 | 75.9 |  |
| Years in US |  |  |  | <.0001 |
|    <5 yrs | 19.2 | 5.3 | 17.8 |  |
|    5-10 yrs | 14.9 | 7.9 | 16.5 |  |
|    11-20 yrs | 9.9 | 21.0 | 33.6 |  |
|    >20 yrs | 56.0 | 65.8 | 32.0 |  |

Table 2. Differences in major indices among Latino sub-group-immigrants

| Variable | Cuban (n=501) | Puerto Rican (n=217) | Mexican (n=487) | p-value |
|---|---|---|---|---|
|  | mean(SD) | mean(SD) | mean(SD) |  |
| Acculturative Stress | 2.15(0.14) | 2.06(0.12) | 2.78(0.19) | 0.0007 |
| Discrimination | 0.48(0.04) | 0.87(0.09) | 0.64(0.04) | <0001 |
| Family Cohesion | 3.76(0.03) | 3.57(0.04) | 3.64(0.04) | 0.0005 |
| Social Network | 2.83(0.05) | 2.66(0.05) | 2.68(0.07) | <0001 |

* p-value from multiple regression analysis after controlling for age, gender, employment status, marital status, education, and years in US

Acculturative stress was positively related to perceived racial discrimination. More perceived racial discrimination was significantly related to higher acculturative stress in all three Latino subgroup-immigrants. While family cohesion was negatively associated with acculturative stress among Cuban and Puerto Rican immigrants (p=0.0088 and p=0.0007, respectively), social network was not significantly related to acculturative stress in either subgroup immigrants (p=0.3170 and p=0.0971, respectively). However, among Mexican immigrants, social network was negatively associated with acculturative stress (p=0.0285) and family cohesion was not significantly associated to acculturative stress (p=0.0833) (Table 3).

Table 3. Association of Acculturative Stress with Discrimination and Social Support

| | Cuban (n=501) | | Puerto Rican (n=217) | | Mexican (n=487) | |
|---|---|---|---|---|---|---|
| | β | p-value* | β | p-value* | β | p-value* |
| Discrimination | 0.98 | <.0001 | 0.61 | 0.0007 | 0.69 | <.0001 |
| Family Cohesion | -0.51 | 0.0088 | -0.72 | 0.0005 | -0.59 | 0.0833 |
| Social Network | -0.12 | 0.3170 | -0.28 | 0.0971 | -0.49 | 0.0285 |

\* p-value from multiple regression analysis after controlling for age, gender, employment status, marital status, education, and years in US

Table 4 presents the results of moderating effects of social network and family cohesion on the relationship between discrimination and acculturative stress stratified by three Latino sub-group-immigrants. Moderating effect was determined by interaction between discrimination and social support to see if the acculturative stress diminishes with increased level of social support among those who have a higher level of discrimination.

Among Cuban and Mexican Immigrants, while family cohesion moderated the association of discrimination and acculturative stress (p=0.0316 and p=0.0076, respectively), social network did not play a role as a moderating effect (p=0.4509 and p=0.1482, respectively). Meanwhile, social network moderated the relationship between discrimination and acculturative stress among Puerto Rican immigrants (p=0.0086). However, family cohesion did not play a role as a moderating effect among Puerto Rican immigrants (p=0.5818).

Table 4. Moderating Effects on Relationship between Discrimination and Acculturative Stress

| | Cuban (n=501) | | Puerto Rican (n=217) | | Mexican (n=487) | |
|---|---|---|---|---|---|---|
| | β | p-value* | β | p-value* | β | p-value* |
| Model 1 : Discrimination with Family Cohesion | | | | | | |
| Discrimination | -0.79 | 0.2742 | 0.84 | 0.2207 | -2.31 | 0.0335 |
| Family Cohesion | -0.62 | 0.0107 | -0.35 | 0.1935 | -0.97 | 0.0377 |
| Discrimination × Family Cohesion | 0.47 | 0.0316 | -0.11 | 0.5818 | 0.85 | 0.0076 |
| Model 2 : Discrimination with Social Network | | | | | | |
| Discrimination | 1.31 | 0.0123 | -0.31 | 0.2857 | 1.39 | 0.0067 |
| Social Network | 0.003 | 0.9719 | -0.39 | 0.0252 | -0.33 | 0.2771 |
| Discrimination× Social Network | -0.13 | 0.4509 | 0.40 | 0.0086 | -0.27 | 0.1482 |

\* p-value from multiple regression analysis after controlling for age, gender, employment status, marital status, education, and years in US

## IV. DISCUSSION

Our study provided evidence of differences in the moderating effect of social network and family cohesion on the relationship between perceived discrimination and acculturative stress among three Latino sub-group-immigrants in the U.S, implying that although they experienced a higher level of discrimination, less acculturative stress was perceived among those who had higher level of social support. Overall, our study found that Mexican immigrants had higher acculturative stress and Puerto Rican immigrants had higher perceived discrimination than their sub-groups counterparts. Conversely, Cuban immigrants had lower acculturative stress, lower perceived dissemination, higher social network, and higher family cohesion than their sub-groups counterparts. In all three Latino immigrant-subgroups, higher levels of perceived racial discrimination were significantly related to higher acculturative stress. While family

cohesion was negatively associated with acculturative stress among Cuban and Puerto Rican immigrants, social network was negatively associated with acculturative stress among Mexican immigrants. With regard to moderating effects, while family cohesion moderated the association between discrimination and acculturative stress among Cuban and Mexican immigrants, social network moderated the same association between discrimination and acculturative stress among Puerto Rican immigrants.

Cuban immigrants had lower acculturative stress and lower perceived racial discrimination than their sub-group counterparts, and their levels of family cohesion and social network were the highest among the three sub-groups. Our findings reflect that strong family cohesion can play a role as a moderating effect on reducing acculturative stress related to discrimination. However, although Cuban immigrants had the highest social network among three sub-groups, social network was neither related to acculturative stress nor contributed as a moderating effect on the relationship between discrimination and acculturative stress.

On the other hand, Puerto Rican immigrants had the highest levels of perceived racial discrimination, but also had the lowest levels of acculturative stress, family cohesion, and social network among the three sub-groups. Although negatively related to acculturative stress among Puerto Rican immigrants, family cohesion did not moderate the relationship between discrimination and acculturative stress. However, although Puerto Rican immigrants' levels of social network was the lowest and not related to acculturative stress, higher levels of social network moderated the relationship between discrimination and acculturative stress among Puerto Rican immigrants.

This phenomenon was reversely shown in Mexican immigrants. Mexican immigrants reported the highest acculturative stress among the three sub-groups. Previous studies have shown that acculturative stress was negatively related to education and duration of living in the US (Msengi, 2003; Mark W. Driscoll 2013). Our study found similar results with regards to this relationship between acculturative stress, education, and duration of living in the U.S. in supplementary analysis (not shown). Compared to the other subgroups, Mexican immigrants reported lower education level (less than high school: 68.4 %) and shorter duration of living in the U.S. which supports our finding that Mexican immigrants had the highest acculturative stress. With Mexican immigrants reporting the highest levels of acculturative stress among the subgroups, although family cohesion was not related to acculturative stress, it moderated the relationship between discrimination and acculturative stress. Further, while social network was associated with acculturative stress, it did not moderate the relationship between racial discrimination and acculturative stress.

Our study has several limitations related to data. First, the measures of study variables were based on self-reports and potentially might have biased the relationships between the major indices as well as some constructs. Additionally, because NLAAS was a cross-sectional survey, finding causal inferences was not possible.

Despite these limitations, this is the first study to examine Latino subgroup differences in the moderating effects of social support on reducing acculturative stress related to discrimination among Latino subgroup immigrants. Our findings suggested that family cohesion was found to have a moderating effect on reducing acculturative stress associated with discrimination among Latino immigrants. One implication of these findings is that social programs enhancing social support may reduce acculturative stress among Latino immigrants experiencing high discrimination. Future studies should qualitatively assess major indices (i.e., acculturative stress, perceived racial discrimination, family cohesion, social support) in contextual settings, as Latino immigrant subgroups may face different cultural experiences in acculturative stress, family cohesion, etc. Further delineation of these indices can help improve various scale measurements developed for Latino immigrant subgroups and may help elucidate subgroup differences in associations between various indices and health outcomes. Public health interventions may also use this delineation in cultural subgroup differences to develop a more tailored program using nuanced depictions of the various acculturative stressors, racial discrimination, family cohesion, and social support that different Latino subgroup immigrants face to ultimately improve health outcomes.

## REFERENCES

1. Ali, M. M., Rizzo, J. A., Amialchuk, A., &Heiland, F. (2014). Racial differences in the influence of female adolescents' body size on dating and sex. *Economics & Human Biology*, *12*, 140-152.
2. Becnel, J. N., Zeller, M. H., Noll, J. G., Sarwer, D. B., Reiter‑ Purtill, J., Michalsky, M., Biro, F. M. (2016). Romantic, sexual, and sexual risk behaviours of adolescent females with severe obesity. *Pediatric Obesity*, 1-10.

3.  Centers for Disease Control and Prevention. (2012). Vital signs: HIV infection, testing, and risk behaviors among youths-United States. *MMWR. Morbidity and Mortality Weekly Report*, *61*(47), 971.
4.  Centers for Disease Control and Prevention. 2015). Mississippi – 2015 State Health Profile. Retrieved from https://www.cdc.gov/nchhstp/stateprofiles/pdf/mississippi_profile.pdf.
5.  Cheng, Y. H. A., &Landale, N. S. (2010). Teen overweight, weight stigma, and intimate relationship development from adolescence to young adulthood. *Max Planck Institute for Demographic Research Working Paper*, 2010-008.
6.  Gordon, L. P., Diaz, A., Soghomonian, C., Nucci-Sack, A. T., Weiss, J. M., Strickler, H. D., &Ochner, C. N. (2016). Increased Body Mass Index Associated with Increased Risky Sexual Behaviors. *Journal of Pediatric and Adolescent Gynecology*, *29*(1), 42-47.
7.  Kalarchian, M. A., & Marcus, M. D. (2012). Psychiatric comorbidity of childhood obesity. *International Review of Psychiatry*, *24*(3), 241-246.
8.  Kann, L., Kinchen, S., Shanklin, S. L., Flint, K. H., Kawkins, J., Harris, W. A., ... & Whittle, L. (2014). Youth risk behavior surveillance—United States, 2013. *MMWR SurveillSumm*, *63*(Suppl 4), 1-168.
9.  Leech, T. G., & Dias, J. J. (2012). Risky sexual behavior: a race-specific social consequence of obesity. *Journal of Youth and Adolescence*, *41*(1), 41-52.
10. Lowry, R., Robin, L., Kann, L., &Galuska, D. A. (2014). Associations of body mass index with sexual risk-taking and injection drug use among US high school students. *Journal of Obesity*, *2014*, 1-10.
11. Ores, L. D. C., Quevedo, L. D. A., Jansen, K., Carvalho, A. B. D., Cardoso, T. A., Souza, L. D. D. M., ... & Silva, R. A. D. (2012). Suicide risk and health risk behavior among youth between the ages of 18 and 24 years: a descriptive study. *Cadernos de SaúdePública*, *28*(2), 305-312.
12. Ratcliff, M. B., Jenkins, T. M., Reiter-Purtill, J., Noll, J. G., & Zeller, M. H. (2011). Risk-taking behaviors of adolescents with extreme obesity: normative or not?. *Pediatrics*, *127*(5), 827-834.
13. Satterwhite, C. L., Torrone, E., Meites, E., Dunne, E. F., Mahajan, R., Ocfemia, M. C. B., .& Weinstock, H. (2013). Sexually transmitted infections among US women and men: prevalence and incidence estimates, 2008. *Sexually Transmitted Diseases*, *40*(3), 187-193.

## AUTHOR'S BIOGRAPHY

Dr. Jung Hye Sung is an Associate Professor in the Department of Epidemiology and Biostatistics, School of Public Health at the Jackson State University. She has been the PI of grant funded by MSDH for analyzing the MS Delta CHES, the PI of grant funded by JHCHC for developing a program tool to convert E.H.R. data to OMOP required tables. Dr. Sung serves as a corresponding author in this paper (email: jung.h.lee@jsums.edu).