Transnational, Social, and Neighborhood Ties and Smoking Among Latino Immigrants: Does Gender Matter?

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Abstract

Objectives—We examined whether transnational ties, social ties, and neighborhood ties were independently associated with current smoking status among Latino immigrants. We also tested interactions to determine whether these associations were moderated by gender.

Methods—We conducted a series of weighted logistic regression analyses (i.e., economic remittances, number of return visits, friend support, family support, and neighborhood cohesion) using the Latino immigrant subsample (n|=|1629) of the National Latino and Asian American Study in 2002 and 2003.

Results—The number of past-year return visits to the country-of-origin was positively associated with current smoker status. Gender moderated the association between economic remittances, friend support, and smoking. Remittance behavior had a protective association with smoking, and this association was particularly pronounced for Latino immigrant women. Friendship support lowered the odds of smoking among men, but not women.

Conclusions—Our results underscore the growing importance of transnational networks for understanding Latino immigrant health and the gendered patterns of the associations between social ties, transnational ties, and health risk behaviors.

Keywords

Latino adults, in the aggregate, are less likely to smoke than their non-Latino White counterparts.[1,2] Research on nativity differences in Latino health, however, suggests that for Latino immigrants, these health advantages erode with increased exposure to the US mainland culture.[3] For example, the risk of being a current smoker among Latino immigrants increases sharply with duration of residence in the United States, and the heightened risk is most pronounced among Latino immigrant women.[4,5] This gendered pattern is believed to reflect the waning influence of cultural norms in Latin America that frown upon smoking among women,[6] as well as increased exposure to tobacco industry advertising targeted toward women in the United States.[7,8] Disrupted social networks and social isolation following migration are also factors often implicated in the rise in health risk behaviors among immigrants[9,10]; however, the specific role of different markers of individual and neighborhood social ties, and transnational ties in the increase in smoking among Latino immigrants and the differences in health risk behaviors by gender remain unclear.

Social ties, formed from individual- or neighborhood-level interactions, exert an influence on adult health behaviors and health through psychosocial mechanisms that either prevent or promote health risk behaviors.[11–15] On the positive side, social relationships can help to buffer stress through the exchange of instrumental, informational, and emotional supports, which might affect appraisals of stress and perceived capacity to cope.[14,16] Social connectedness can also generate positive psychological states that produce positive physiological responses that promote positive health behaviors.[14,17] On the negative side, social connections can serve as the conduit for the transmission of unhealthy behavioral norms.[11,14] For example, if everyone else within an individual's social group smokes, engaging in the group behavior can be functionally positive (e.g., strengthen social connections by smoking together during work breaks). Last, but not least, the type of social support exchanged in relationships can be negative, and produce net psychological stress and physiological reactions that generate health risk behaviors.[11,14,18]

Social ties developed from neighborhood-level interactions reflect the extent to which a person is integrated into or connected to his or her neighborhood.[19–21] Neighborhood social ties are often assessed at the individual or neighborhood level with measures of informal integration with neighbors (e.g., perceived cohesion, perceived trust) and measures of formal participation in neighborhood organizations. This research shows that stronger neighborhood social ties are associated with a host of positive health outcomes.[19–21] Neighborhood-level social ties may exert an effect on health through some of the same social mechanisms that individual-level social ties affect health, such as the promotion of health behaviors through collective action or diffusion of health information, access to resources, and development of mutual trust and respect among neighbors.[21–23]

Although gender is a social construction, it is evident that gender differences in social relationships exist. That is, men and women draw different benefits—economically,

emotionally, and socially—from their social ties.[24] Further, other scholars have noted that among Latino immigrants, different interests and culturally expected roles among men and women will "gender" their participation in these networks, such that women and men will engage in them in different ways.[25] For example, women have larger and more varied social networks, and more frequently talk to their friends about issues concerning their health,[26,27] whereas men have smaller networks, and are more likely to rely on their social relationships for instrumental support and participation in similarly preferred daily activities.[24] Moreover, the effect of gender on social ties and health is outcome dependent, or in other words, social relationships do not exert the same effect across all health outcomes for men and women.[28,29] For example, previous research finds women are more likely than men to experience greater mental and physical health benefits (and conversely, distress) from their social ties.[26,30,31] Overall, research suggests that the structure and function of social ties are patterned by gender, such that gender differences in health may emerge from the differential access, uses of, and responses to social relationships and social stresses, and thus, may have differential implications for health among Latino immigrant men and women.

To our knowledge, only 1 empirical paper, published in 2012 by Li and Delva,[32] examined the relationship between neighborhood and social ties and smoking among US-born and immigrant Latinos.[32] Li and Delva[32] found an inverse association between neighborhood social cohesion and smoking among Mexicans, and a positive association between familial conflict and smoking among Cubans. Gender was not a statistically significant moderator. Other research with a multiethnic sample that included a large sample of Latinos found that neighborhood cohesion was associated with a lower prevalence of smoking.[20] Thus, neighborhood cohesion appears to be protectively associated with smoking.

Few studies examined immigrants' interactions with their country of origin and their relevance for health risk behaviors.[33] For example, most studies failed to consider the extent to which immigrants maintained a connection to their home country through transnational ties (i.e., frequent and enduring social, economic, political, or cultural ties between 2 or more countries), and how maintenance of these transnational ties affected health behaviors.[34–36] Although Latino immigrants often send large quantities of remittances (i.e., money sent home to the country of origin) to help sustain household economies,[37] and often made annual trips to their country of origin to visit friends and family,[38] research on how these practices affected health behavior is virtually nonexistent. However, economic remittances and visits back home are clear behavioral indicators of existing distal and proximal connections to the home country. The number of annual visits back home, in particular, might serve as a proxy measure for exposure to cultural norms and practices in the home country. Remittance behavior and visit patterns emerge as important behavioral indicators of connectedness to the country of origin.

On the one hand, drawing from a social ties model of health behavior,[11] behavioral indicators of transnational ties, such as visits to the country of origin, might increase the interpersonal resources available to immigrants to manage stress, which might buffer them from maladaptive health behaviors. The number of visits to the country of origin might also increase immigrants' exposure to cultural norms regarding health. On the other hand, behavioral transnational ties, such as sending remittances, might constitute a source of

financial strain for immigrants, who tend to have limited socioeconomic resources.[39] The increased financial strain of remittances could, in turn, increase the propensity to engage in health risk behaviors. The direction and magnitude of the association to health behaviors might also depend on the specific type of transnational activity. For example, some studies found an inverse association between remittances, return visits, and psychological well-being,[40] whereas other studies documented mixed results.[41]

Gender might shape both transnational practices and the association with transnational ties and health behaviors. Immigration scholars have argued that there might be gendered patterns of transnational operations, particularly those associated with economic activities.[42–44] For example, although Latino men were more likely than Latino women to make return visits back home and to more frequently send remittances,[34,45] Latina immigrant women were more likely to report relying on their transnational social ties instead of their US-based social ties for social support.[46] Gender differences in the association of transnational ties and smoking might reflect differential exposure to or responses to cultural norms, resources, and strains promoted by transnational ties. Remittances might impart a stronger positive association to health risk behaviors, such as smoking among men, because men, more often than women, assume the role of breadwinner for relatives in the country of origin and might experience increased stress in the presence of financial burden.[47] Previous research showed economic stress is linked to smoking, particularly among men.[48] In contrast, return visits might be protectively associated with smoking, and the beneficial effect of return visits might be more salient for women than men because repeat visits back home might reinforce adherence to social norms prevalent in Latin America, which disapprove of smoking among women.

We contributed to the existing literature on Latino immigrants and health risk behaviors by (1) examining whether transnational ties (i.e., remittances, number of return visits), social ties (i.e., friend support, family support), and neighborhood-based ties (i.e., neighborhood cohesion), had independent associations with odds of smoking; and (2) testing whether these associations were moderated by gender. We hypothesized that (1) sending economic remittances would be associated with increased odds of smoking; (2) the number of return visits home would be associated with reduced odds of smoking; and (3) neighborhood cohesion would be protectively associated with smoking for both genders. We expected to find that family and friend support would have a stronger protective association with smoking for women than for men. As discussed previously, we also expected to find significant interactions between gender and remittances, and by return visits.

METHODS

We used data from the National Latino and Asian American Survey (NLAAS), a nationally representative household survey of Latino and Asian American adults 18 years and older residing in the United States (mean [SD]|=|38.61 [14.93]; range|=|18–97 years).[49] Data were collected between 2002 and 2003. The NLAAS used a 3-tiered stratified probability sample design to obtain a nationally representative sample of Latino subgroups regardless of geographic residential patterns, and included 3 components: (1) core sampling of primary and secondary sampling units of US metropolitan statistical areas and counties; (2) high-

density supplemental samplings of census block groups to cover sample geographic areas made up of more than 5% of the targeted ethnic group; and (3) secondary respondent sampling to recruit participants from households where a primary respondent had already been interviewed.[50] Respondents were interviewed in English or another language (e.g., Spanish). The final weighted response rate for the Latino sample was 77.6%. Herein, we focused on the subsample of Latino immigrants (n|=|1629).

Measures

Gender—Respondents' gender was defined as a dichotomous variable, indicating whether the participant self-identified as male (reference category) or female.

Current smoking status—We created a dichotomous variable indicating respondents' current smoking status. Respondents who reported being current smokers were classified as "current smokers." Those who indicated they "had never smoked," "only smoked a few times," or were an "ex-smoker" were collapsed into a single category and coded as "noncurrent smokers" (reference category).

Transnational ties—Two variables were used as behavioral indicators of transnational ties or connectedness to the country of origin. Remittances were measured with a single item asking respondents whether they currently send money to relatives in their country of origin. Number of return visits was measured using a single item asking respondents: "How many times have you returned to your country of origin in the last year?" (range|=|0–36). The NLAAS adapted these items from the Migration Status and History module of the Mexican Prevalence and Services Survey.[51,52]

Social ties—We assessed 2 types of social ties (i.e., family and friends) using validated measures of family and friend support. Family support was assessed with 2 items: "How much can you rely on relatives who do not live with you for help if you have a serious problem?" and "How much can you open up to relatives who do not live with you if you need to talk about your worries?" Responses to items ranged from 1 (a lot) to 4 (not at all). Items were reverse coded and summed, with higher scores reflecting greater family support (α|=|0.78; range|=|0–8). We assessed friend support with 2 items: "How much can you rely on friends who do not live with you for help if you have a serious problem?" and "How much can you open up to friends who do not live with you if you need to talk about your worries?" Responses to items ranged from 1 (a lot) to 4 (not at all). Items were reverse coded and summed, with higher scores reflecting greater friend support (α|=|0.85; range|=|0–8). Measures of friend and family support were adopted from the Family Adaptability and Cohesion Evaluation Scale.[53] These items were validated and were previously used with Latinos.

Neighborhood ties—We used a 4-item measure of social cohesion assessing the extent to which respondents felt their neighborhood was cohesive and that their neighbors could be trusted; these items were adopted from 3 well-established and validated questionnaires (see Alegria et al.[52] for more details). Items included, "People in this neighborhood generally get along with each other,"[54] "People in my neighborhood can be trusted,"[54] "I have neighbors

who would help me in an emergency,"[55] and "People in my neighborhood look out for each other."[56] Respondents indicated their level of agreement on a 4-point scale (1 [very true] to 4 [not at all true]). Responses were reverse coded and summed, with higher values indicating greater neighborhood social cohesion (α=0.81; range=1–16).

Covariates—We included the following sociodemographic variables as covariates: age, ethnicity (Cuban, Puerto Rican [reference], Mexican, Other Latino), education (≤11 years, 12–15 years, ≥16 years [reference]), work status (employed [reference] vs unemployed or out of labor force), annual household income, marital status (married or cohabitating [reference] vs otherwise), and years in the United States (less than 5 years [reference] vs 5 years or more). We also adjusted for acculturative stress, everyday discrimination, and perceived neighborhood safety, because they have been found to be associated with health behaviors.[32,51,52,57–59] Acculturative stress was measured with a 9-item scale adapted from the Mexican American Prevalence and Services Survey,[51] about unfair treatment, economic stress, interpersonal stress, and fear associated with immigrant status and language (α= 0.69). Everyday discrimination was measured using a 9-item scale adopted from the Detroit Area Study,[59] assessing routine unfair treatment (α=0.90) with confirmed validity among the NLAAS Latino sample. Perceived neighborhood safety was measured using 3 items assessing respondents' perceived level of neighborhood safety and neighborhood violence.[52]

Analytical Procedures

Missing values on our variables represented less than 1%, fewer than the recommended 5% for imputation[60]; thus, we allowed for listwise deletion in all analyses. We computed cross tabulations of sociodemographic factors for the overall sample and by gender. The Rao-Scott statistic for the Pearson χ^2 test for contingency tables was computed to test for gender differences on categorical variables, whereas adjusted Wald tests of differences were computed for continuous variables.

We performed a formal test of multicollinearity. The variance inflation factor for each of the predictors was well below 10 (range=1.05–3.13); thus, there were no extreme interrelations between predictor variables. First, we estimated bivariate associations between key predictors and odds of being a current smoker. Second, we modeled the odds of being a current smoker by building 5 sequential models. In models 1–3, we included each type of tie (i.e., transnational, social, neighborhood) separately, along with the main effect of gender. Model 4 included gender and each tie simultaneously. Model 5 further included 2-way interactions between gender and each tie. All models adjusted for aforementioned covariates. We tested for differences in slopes through regression coefficients associated with the product term. We used coefficients from model 5 to calculate predicted probabilities of current smoker status and plotted them to illustrate significant moderating effects. We analyzed data using Stata 12,[61] and incorporated the NLAAS weighting and design variables, and accounted for the complex sample design to estimate standard errors in the presence of stratification and clustering.

Furthermore, we acknowledged that the Latino category was composed of multiple subethnic groups across Latin America and the Caribbean, and that the association between

our exposures and outcomes might also be modified by subethnicity. Thus, as a sensitivity check, we ran models that first included 3-way interactions between gender × national origin × type of tie and then models with 2-way interactions for Latino subethnicity by each marker of social ties. The model with the 3-way interactions did not converge, whereas the model with the 2-way interactions did not substantially improve the fit of our model. In addition, to address potential issues associated with response bias, we compared nested logistic regression models that included and excluded social desirability as a covariate. These analyses revealed nonsignificant survey-adjusted F tests for the full model ($F[1, 50]|=|0.08$, $P|=|.78$), indicating no statistical difference between the full and reduced models. We therefore reported estimates from models that did not include subethnicity as a moderator and that did not adjust for social desirability.

RESULTS

Table 1[ID]TBL1[/ID] presents the weighted distribution of selected sociodemographic characteristics of the total sample and by gender. Immigrant men and women differed significantly from each other on many of the selected sociodemographic characteristics, although they did not differ on ethnic composition, level of education, or years in the United States. Table 1 also reports on weighted descriptive statistics for key predictors and smoking status. Of the total sample, nearly 15% reported being current smokers. Current smoking was more prevalent among immigrant men (21.17%) than among immigrant women (7.40%). A greater proportion of immigrant men (49.62%) reported that they sent money to relatives in their country of origin, compared with immigrant women (34.68%). No gender differences were found for number of returns in the past year, family support, friend support, or neighborhood social cohesion.

Bivariate and Multivariable Models

Table 2[ID]TBL2[/ID] presents results of unadjusted and adjusted logistic regression analyses. In the bivariate models, being female was associated with lower odds of being a current smoker (Odds Ratio [OR]|=|0.30; 95% confidence interval [CI]|=|0.19, 0.46). Greater frequency of returns to one's country-of-origin and greater perceived neighborhood social cohesion were also associated with decreased odds of being a current smoker (OR|=|0.98; 95% CI|=|0.96, 0.99 and OR|=|0.90; 95% CI|=|0.84, 0.97, respectively).

In multivariable logistic regression models, where each type of social tie was included separately along with gender, we found that female gender remained associated with lower odds of being a current smoker. Further, we did not find that any of the transnational ties (model 1) or social ties (model 2) were associated with smoking status after controlling for covariates. In contrast, model 3 showed that greater perceived neighborhood social cohesion remained associated with decreased odds of being a current smoker (OR|=|0.91; 95% CI|=|0.84, 0.98), independent of control variables. In model 4, where we simultaneously entered the main effects of gender, transnational, social, and neighborhood ties, as well as covariates, both female gender and higher levels of perceived neighborhood social cohesion remained as having protective effects.

Lastly, we tested whether associations between ties and smoking status were moderated by gender (model 5). Gender significantly moderated the relation between remittances and smoking and between friend support and smoking. Sending remittances to one's country of origin was associated with a decreased risk of smoking, but the effect of sending remittances on smoking was stronger for immigrant women compared with immigrant men, holding all other variables constant (Figure 1[ID]FIG1[/ID]). Moreover, gender had both buffering and exacerbating effects on the relation between friend support and smoking. That is, for immigrant women, increased friend support was associated with increased probability of being a current smoker, whereas the opposite was true for immigrant men, holding all other variables constant (Figure 2[ID]FIG2[/ID]).

DISCUSSION

To the best of our knowledge, we are the first to examine the associations between transnational, social, and neighborhood ties, and smoking, and to test for the moderating role of gender among a nationally representative sample of Latino immigrants. Our results suggested that transnational ties associated with travel to one's home country might serve as a risk factor for smoking. Neighborhood cohesion might be protective of smoking among both Latino immigrant men and women, but the effect was not consistent. Lastly, we found evidence that gender patterned the association between transnational economic ties, friend ties, and smoking among Latino immigrants.

Contrary to our hypotheses, higher number of return visits to the country of origin in the past year was associated with increased odds of being a current smoker, but gender did not moderate this relationship. The positive relationship between number of return visits and current smoker status might reflect financial and emotional stress associated with physically maintaining proximal transnational behavioral ties to the country of origin (e.g., travel to country of origin, traveling with goods to country of origin) as opposed to more distal transnational ties (e.g., intermittent phone contact with kin and relatives in country of origin). We conducted a supplemental analysis, and found that in our sample, the number of visits to the country of origin was positively associated with psychological distress (b|=|0.06, $P|<|.01$) for both men and women. We were unable to determine the reasons or context for the return visit(s) (e.g., death of a family member, leisure). Future research should examine the reasons for the return visit and associations with health risk behaviors.

Gender moderated the association of immigrant remittance behavior and smoker status, but not in the expected direction. In particular, sending remittances was associated with significantly lower odds of being a current smoker only for Latino immigrant women and not for their immigrant male counterparts, even after accounting for sociodemographic factors. This might reflect gendered differences in access to interpersonal resources as a function of remitter status. For example, sending remittances might be a proxy for greater ties or connectedness to the country of origin, and this sense of connectedness may reinforce country of origin gendered social norms regarding smoking. In supplemental analyses, we found that those who sent remittances had significantly higher mean levels of acculturative stress (mean [SD] 3.16 [2.26]) than those who did not send remittances (mean [SD] 2.00 [2.08]; $P|<|.001$). The higher levels of acculturative stress among remitters might reflect

difficulties adjusting to the US mainland because of nativity status and potentially greater connections to the home country. It is plausible then that Latino immigrant women who maintain transnational economic ties might be more likely to adhere to prevailing gender norms that discourage socially undesirable behaviors among women, and thus, might be less likely to smoke. In contrast, our findings for Latino immigrant men suggested that their probability of smoking was independent of their remitter status. Our measure of transnational economic ties assessed only whether remittances were sent, not the amount, or financial strain exerted from remittances. It is possible that measures of gender role strain,[62] which focus on men's reactions to traditional male gender norms, and actual financial strain associated with sending remittances, might be more relevant for smoking behavior. Future research should elucidate whether gender-related social norms and financial strains mediate the relationship between transnational practices and smoking.

In partial support of our hypothesis, the association between friend support and smoker status varied by gender; however, there was no independent or moderating effect for family support. Consistent with the findings of Li and Delva,[63] our adjusted analyses suggested that greater levels of friend support were associated with higher odds of current smoker status among Latino immigrant women, whereas greater levels of friend support were associated with lower odds of current smoker status for immigrant men. Previous research showed women were more likely than men to talk to their friends when distressed and to talk about issues concerning their health.[26] Furthermore, Latinos, in comparison with non-Latino Whites, were more likely to smoke in social rather than solitary contexts.[64] Perhaps in the context of using friend support systems as venues for addressing stressful life concerns, Latino immigrant women might be more likely to smoke while interacting with friends as a means to cope with life stress and remain socially connected. We also conjecture that greater use of friend support by immigrant women might be indicative of greater networks in the US mainland and possibly greater adherence to US-based behavioral norms that are less restrictive of smoking.[65] In this context, friendship support might be conflated with social pressure to adopt group-specific normative health behaviors,[11,14] such as smoking within interpersonal contexts. However, we did not have data on the specific ethnicity of the members in the support network, and so it was unclear if the networks were concentrated with coethnic peers.

Consistent with both previous work in this area and our hypotheses,[32] perceived neighborhood cohesion was associated with lower odds of being a current smoker, and this association was not dependent on gender. However, this association became nonsignificant once interactions were introduced into the statistical models. These findings might be attributed to the fact that large sample sizes are usually needed when testing for multiple interactions, particularly in logistic regressions models[66]; consequently, we might not have had sufficient power to detect many significant interactions within 1 model.[67]

Study Limitations

Although our article made significant contributions to the literature on gender and Latino immigrant health behaviors, there were a few limitations that warrant discussion. First, our data were cross-sectional and did not rule out causal or temporal relations between our

variables of interest. Future work on migration and health would benefit from examining changes in the structure and function of social ties as a function of migration, as well as trajectories of smoking behavior over the life course. Second, we could not rule out whether the relationship between remittances and lower smoking might be attributable to unobserved characteristics of remitters versus nonremitters or other psychosocial factors (e.g., perceived adequacy of support, size of social networks, health beliefs). For example, it was possible that those who saved money and sent remittances had higher ability to delay gratification, and hence, were less likely to spend money on themselves (i.e., purchase and use cigarettes) and were more likely to send remittances to the home country.

Third, we lacked information on the cigarette price differentials between the United States and sending countries. It was possible that cigarettes were taxed less, and thus, cheaper in some of the sending countries, and hence, people who return had more opportunities to purchase cheaper cigarettes at home and bring them back to the United States. Fourth, we were unable to control for smoking status before migration in our models, because the data did not lend itself to such controls. Fifth, we assessed transnational ties using behavioral indicators of connectedness to the home country, and thus, we did not assess perceived connectedness to the country of origin. Relatedly, our measure of social ties (family and friend support) did not differentiate location of social support (whether in US mainland or abroad). Sixth, we did not assess constructs embedded within the social category gender, including but not limited to, gender role beliefs, attitudes and norms, gender role strain, and gender identity, which would have provided more information about how gender shapes differences in health. Finally, we included a single-item measure of current smoking status. Comprehensive assessments of smoking behaviors (e.g., number of cigarettes smoked per day, duration of smoking, quit attempts) might provide more detailed information regarding types of smokers (e.g., nondaily, light and intermittent smokers, nicotine dependence) and variation in social ties profiles by smoker type. Future studies might also consider evaluating smoking status using measurement of biochemical markers, such as breath carbon monoxide level and plasma or saliva cotinine concentration.

Conclusions

Cigarette smoking is the leading cause of preventable morbidity and mortality in the United States across races/ethnicities and genders.[68] Smoking is also a major cause of cardiovascular disease and cancer, which are, in general, the 2 leading causes of death among Latinos.[2,69] Thus, drawing greater attention to the multiple psychosocial factors that may account for smoking among this population is indisputably needed. Our results highlight the complex, multifaceted, and gendered role of transnational and social ties on smoking behavior among Latino immigrant men and women who often live within transnational spaces.

Although nearly 40 million people in the United States are immigrants and actively maintain ties to their countries of origin,[70] routine assessment of the social and economic strains and resources associated with transnational ties, and the role these factors play in health behaviors is virtually nonexistent. Our results suggest that culturally competent approaches to clinical care should include the careful assessment of an immigrant's local and

transnational ties that might either buffer or promote exposure to negative health behaviors such as smoking. With regard to gender differences in smoking and friend support, special attention should be given to immigrant women and toward understanding how friend support might promote smoking in this subgroup.

Acknowledgments

References

1. Trinidad DR, Perez-Stable EJ, White MM, Emery SL, Messer K. A nationwide analysis of US racial/ethnic disparities in smoking behaviors, smoking cessation, and cessation-related factors. Am J Public Health. 2011; 101(4):699–706. [PubMed: 21330593]

2. National Center for Health Statistics. Health, United States, 2011: With Special Feature on Socioeconomic Status and Health. Hyattsville, MD: National Center for Health Statistics; 2012.

3. Tong E, Saito N, Tancredi DJ, et al. A transnational study of migration and smoking behavior in the Mexican-origin population. Am J Public Health. 2012; 102(11):2116–2122. [PubMed: 22994190]

4. Abraído-Lanza AF, Chao MT, Florez KR. Do healthy behaviors decline with greater acculturation? Implications for the Latino mortality paradox. Soc Sci Med. 2005; 61(6):1243–1255. [PubMed: 15970234]

5. Pérez-Stable EJ, Ramirez A, Villareal R, et al. Cigarette smoking behavior among US Latino men and women from different countries of origin. Am J Public Health. 2001; 91(9):1424–1430. [PubMed: 11527775]

6. Menezes AM, Lopez MV, Hallal PC, et al. Prevalence of smoking and incidence of initiation in the Latin American adult population: the PLATINO study. BMC Public Health. 2009; 9:151. [PubMed: 19463177]

7. Anderson SJ, Glantz SA, Ling PM. Emotions for sale: cigarette advertising and women's psychosocial needs. Tob Control. 2005; 14(2):127–135. [PubMed: 15791023]

8. United States Department of Health and Human Services. Women and Smoking: A Report of the Surgeon General. Washington, DC: Centers for Disease Control and Prevention; 2001.

9. Mulvaney-Day NE, Alegría M, Sribney W. Social cohesion, social support, and health among Latinos in the United States. Soc Sci Med. 2007; 64(2):477–495. [PubMed: 17049701]

10. Finch BK. Acculturation stress, social support, and self-rated health among Latinos in California. J Immigr Health. 2003; 5(3):109–117. [PubMed: 14512765]

11. Umberson D, Crosnoe R, Reczek C. Social relationships and health behavior across the life course. Annu Rev Sociol. 2010; 36:139–157. [PubMed: 21921974]

12. Taylor SE, Repetti RL, Seeman T. Health psychology: what is an unhealthy environment and how does it get under the skin? Annu Rev Psychol. 1997; 48:411–447. [PubMed: 9046565]

13. Antonucci, TC.; Fiori, KL.; Birditt, K.; Jackey, LMH. Convoys of social relations: integrating life-span and life-course perspectives. In: Lamb, ME.; Freund, AM.; Lerner, RM., editors. The Handbook of Life-Span Development, Vol 2: Social and Emotional Development. Hoboken, NJ: John Wiley & Sons Inc; 2010. p. 434-473.

14. Cohen S. Social relationships and health. Am Psychol. 2004; 59(8):676–684. [PubMed: 15554821]

15. Christakis NA, Fowler JH. The collective dynamics of smoking in a large social network. N Engl J Med. 2008; 358(21):2249–2258. [PubMed: 18499567]

16. Antonucci TC, Akiyama H. Social networks in adult life and a preliminary examination of the convoy model. J Gerontol. 1987; 42(5):519–527. [PubMed: 3624811]

17. Cohen S, Lemay EP. Why would social networks be linked to affect and health practices? Health Psychol. 2007; 26(4):410–417. [PubMed: 17605560]

18. Cohen S, Janicki-Deverts D, Miller GE. Psychological stress and disease. JAMA. 2007; 298(14): 1685–1687. [PubMed: 17925521]

19. Ross CE, Jang SJ. Neighborhood disorder, fear, and mistrust: the buffering role of social ties with neighbors. Am J Community Psychol. 2000; 28(4):401–420. [PubMed: 10965384]

20. Echeverría S, Diez-Roux AV, Shea S, Borrell LN, Jackson S. Associations of neighborhood problems and neighborhood social cohesion with mental health and health behaviors: the Multi-Ethnic Study of Atherosclerosis. Health Place. 2008; 14(4):853–865. [PubMed: 18328772]

21. Sampson RJ, Morenoff JD, Gannon-Rowley T. Assessing "neighborhood effects": social processes and new directions in research. Ann Rev Sociol. 2002; 28:443–478.

22. Kawachi, I.; Berkman, L. Social Epidemiology. New York: Oxford University Press; 2000. Social cohesion, social capital, and health; p. 174-190.

23. Sampson RJ. The neighborhood context of well-being. Perspect Biol Med. 2003; 46(3 suppl):S53–S64. [PubMed: 14563074]

24. Antonucci, TC. Social relations: an examination of social networks, social support, and sense of control. In: Birren, JE.; Schaie, KW., editors. Handbook of the Psychology of Aging. New York: Academic Press; 2001. p. 427-453.

25. Menjívar C. Liminal legality: Salvadoran and Guatemalan immigrants' lives in the United States. Am J Sociol. 2006; 111(4):999–1037.

26. Antonucci TC, Akiyama H. An examination of sex differences in social support among older men and women. Sex Roles. 1987; 17(11–12):737–749.

27. Antonucci TC, Akiyama H, Lansford JE. Negative effects of close social relations. Family Relations. 1998; 47(4):379–384.

28. McDonough P, Walters V. Gender and health: reassessing patterns and explanations. Soc Sci Med. 2001; 52(4):547–559. [PubMed: 11206652]

29. Umberson D, Chen MD, House JS, Hopkins K, Slaten E. The effect of social relationships on psychological well-being: are men and women really so different? Am Sociol Rev. 1996; 61(5):837–857.

30. Kessler RC, McLeod JD. Sex differences in vulnerability to undesirable life events. Am Sociol Rev. 1984; 49(5):620–631.

31. Denton M, Prus S, Walters V. Gender differences in health: a Canadian study of the psychosocial, structural and behavioural determinants of health. Soc Sci Med. 2004; 58(12):2585–2600. [PubMed: 15081207]

32. Li S, Horner P, Delva J. Social capital and cigarette smoking among Latinos in the United States. Subst Abuse Rehabil. 2012; 2012(3 suppl 1):83–92. [PubMed: 22706166]

33. Kandula NR, Kersey M, Lurie N. Assuring the health of immigrants: what the leading health indicators tell us. Annu Rev Public Health. 2004; 25:357–376. [PubMed: 15015925]

34. Itzigsohn J, Giorguli-Saucedo S. Incorporation, transnationalism, and gender: immigrant incorporation and transnational participation as gendered processes. Int Migr Rev. 2005; 39(4):895–920.

35. Portes A. Conclusion: theoretical convergencies and empirical evidence in the study of immigrant transnationalism. Int Migr Rev. 2003; 37(3):874–892.

36. Schiller NG, Basch L, Szanton Blanc C. From immigrant to transmigrant: theorizing transnational migration. Anthropol Q. 1995; 68(1):48–63.

37. World Bank. Migration and Remittances Fact Book, 2011. Washington, DC: World Bank; 2011.

38. United States Department of Commerce. Profile of U.S. Resident Travelers Visiting Overseas Destinations: 2010 Outbound. Washington, DC: US Department of Commerce; 2010.

39. The Hispanic Population: 2010. Washington, DC: US Department of Commerce; 2011.

40. Vaquera E, Aranda E. The multiple dimensions of transnationalism: examining their relevance to immigrants' subjective well-being. J Soc Res Policy. 2011; 2(2):47–72.

41. Murphy EJ, Mahalingam R. Transnational ties and mental health of Caribbean immigrants. J Immigr Health. 2004; 6(4):167–178. [PubMed: 16228699]

42. Murphy, EJ. Transnational ties and mental health. In: Mahalingam, R., editor. Cultural Psychology of Immigrants. Mahwah, NJ: Lawrence Erlbaum Associates, Inc; 2006. p. 79-92.

43. Pessar PR. Engendering migration studies: the case of new immigrants in the United States. Am Behav Sci. 1999; 42(4):577–600.

44. Mahalingam, R.; Balan, S.; Molina, KM. Transnational intersectionality: a critical framework for theorizing motherhood. In: Allen, KR.; Lloyd, SA.; Few, AL., editors. Handbook of Feminist Family Studies. Thousand Oaks, CA: Sage Publications; 2009. p. 69-80.

45. Tamaki E. Transnational home engagement among Latino and Asian Americans: resources and motivation. Int Migr Rev. 2011; 45(1):148–173. [PubMed: 21647239]

46. Viruell-Fuentes EA, Schulz AJ. Toward a dynamic conceptualization of social ties and context: implications for understanding immigrant and Latino health. Am J Public Health. 2009; 99(12): 2167–2175. [PubMed: 19833986]

47. Ornelas IJ, Eng E, Perreira KM. Perceived barriers to opportunity and their relation to substance use among Latino immigrant men. J Behav Med. 2011; 34(3):182–191. [PubMed: 20865312]

48. Grafova IB. Financial strain and smoking. J Fam Econ Issues. 2011; 32(2):327–340.

49. Alegria M, Takeuchi D, Canino G, et al. Considering context, place and culture: the national Latino and Asian American study. Int J Methods Psychiatr Res. 2004; 13(4):208–220. [PubMed: 15719529]

50. 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. [PubMed: 15719530]

51. 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. [PubMed: 9736002]

52. Alegria M, Vila D, Woo M, et al. Cultural relevance and equivalence in the NLAAS instrument: integrating etic and emic in the development of cross-cultural measures for a psychiatric epidemiology and services study of Latinos. Int J Methods Psychiatr Res. 2004; 13(4):270–288. [PubMed: 15719532]

53. Olson DH. Circumplex Model VII: validation studies and FACES III. Fam Process. 1986; 25(3): 337–351. [PubMed: 3758310]

54. Sampson RJ, Raudenbush SW, Earls F. Neighborhoods and violent crime: a multilevel study of collective efficacy. Science. 1997; 277(5328):918–924. [PubMed: 9252316]

55. National Institute of Mental Health. Cooperative Agreement for a Multi-Site Study of Mental Health Service Use, Need, Outcomes, and Costs in Child and Adolescent Populations (UNO-CAP). Catalog of Federal Domestic Assistance 93.242-Request for Applications. Rockville, MD: NIMH; 1994.

56. Bearman, J.; Hones, J.; Udry, R. The National Longitudinal Study of Adolescent Health. Chapel Hill, NC: Carolina Population Center; 1997.

57. Bethel JW, Schenker MB. Acculturation and smoking patterns among Hispanics: a review. Am J Prev Med. 2005; 29(2):143–148. [PubMed: 16005811]

58. Kandula NR, Wen M, Jacobs EA, Lauderdale DS. Association between neighborhood context and smoking prevalence among Asian Americans. Am J Public Health. 2009; 99(5):885–892. [PubMed: 19299683]

59. Williams DR, Yan Y, Jackson JS, Anderson NB. Racial differences in physical and mental health: socio-economic status, stress and discrimination. J Health Psychol. 1997; 2(3):335–351. [PubMed: 22013026]

60. Tabachnick, BG.; Fidell, LS. Using Multivariate Statistics. 5th ed.. Boston, MA: Allyn and Bacon; 2007.

61. Stata Corporation. Stata Statistical Software Release 12.0. College Station, TX: Stata Corporation; 2011.

62. Pleck, JH. The gender role strain paradigm: an update. In: Levant, RF.; Pollack, WS., editors. A New Psychology of Men. New York: Basic Books; 1995. p. 11-21.

63. Li S, Delva J. Does gender moderate associations between social capital and smoking? An Asian American study. J Health Behav Public Health. 2011; 1(1):41–49. [PubMed: 22706023]

64. Pérez-Stable EJ, Marin G, Posner SF. Ethnic comparison of attitudes and beliefs about cigarette smoking. J Gen Intern Med. 1998; 13(3):167–174. [PubMed: 9541373]

65. Abraído-Lanza AF, Armbrister AN, Florez KR, Aguirre AN. Toward a theory-driven model of acculturation in public health research. Am J Public Health. 2006; 96(8):1342–1346. [PubMed: 16809597]

66. Hsieh FY, Lavori PW, Cohen HJ, Feussner JR. An overview of variance inflation factors for sample-size calculation. Eval Health Prof. 2003; 26(3):239–257. [PubMed: 12971199]

67. Jaccard, J.; Turrisi, R. Interaction Effects in Multiple Regression. Thousand Oaks, CA: Sage Publications, Inc; 2003.

68. Garrett BE, Dube SR, Trosclair A, Caraballo RS, Pechacek TF. Cigarette smoking - United States, 1965–2008. MMWR Surveill Summ. 2011; 60(suppl):109–113. [PubMed: 21430635]

69. United States Cancer Statistics Working Group. United States Cancer Statistics:1999–2007 Incidence and Mortality Web-Based Report. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2010.

70. United States Census Bureau. The Foreign-Born Population in the United States: 2010. Washington, DC: US Department of Commerce; 2012.
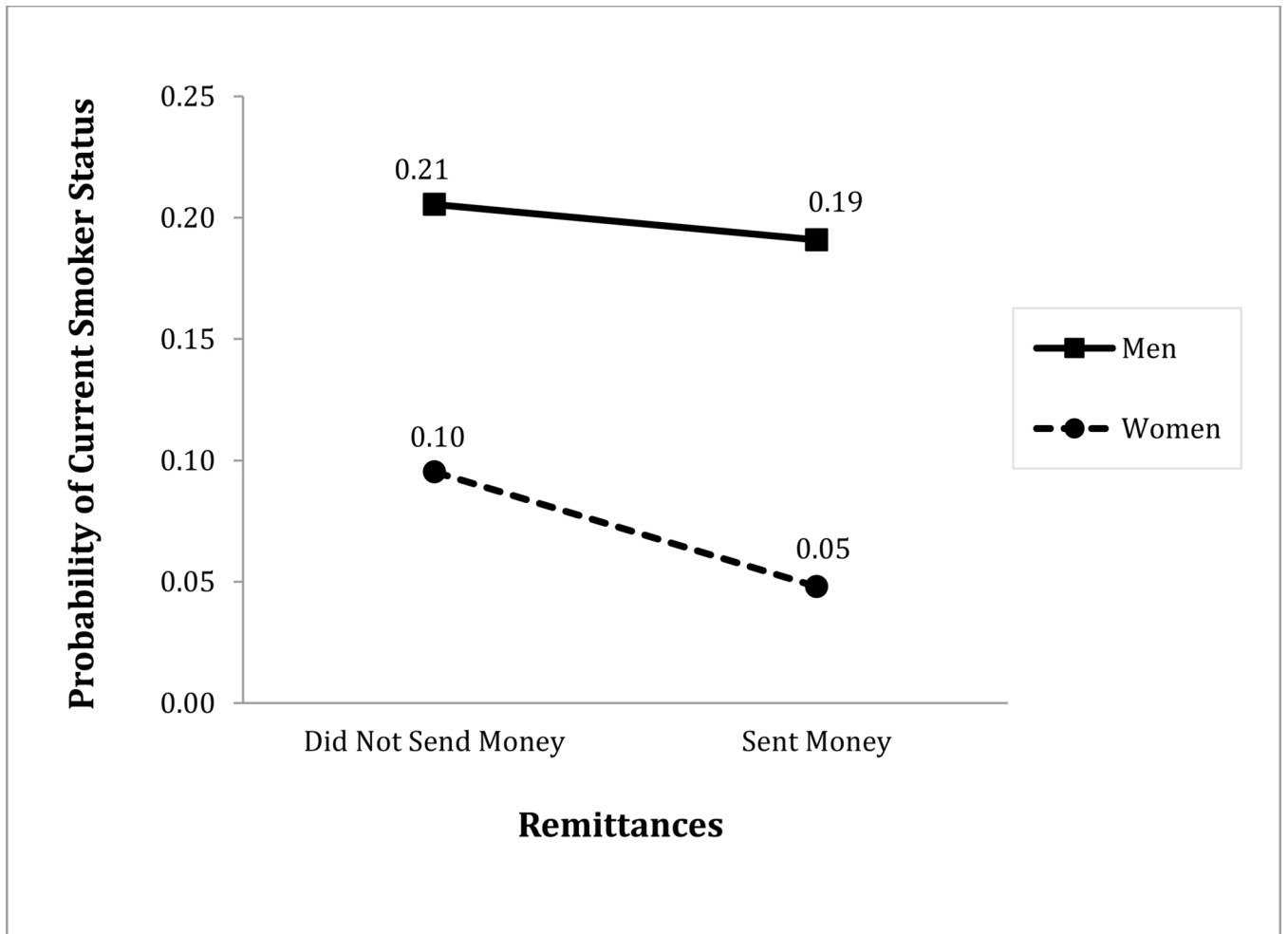
FIGURE 1.
Predicted probability of current smoker status as a function of gender and remittances:
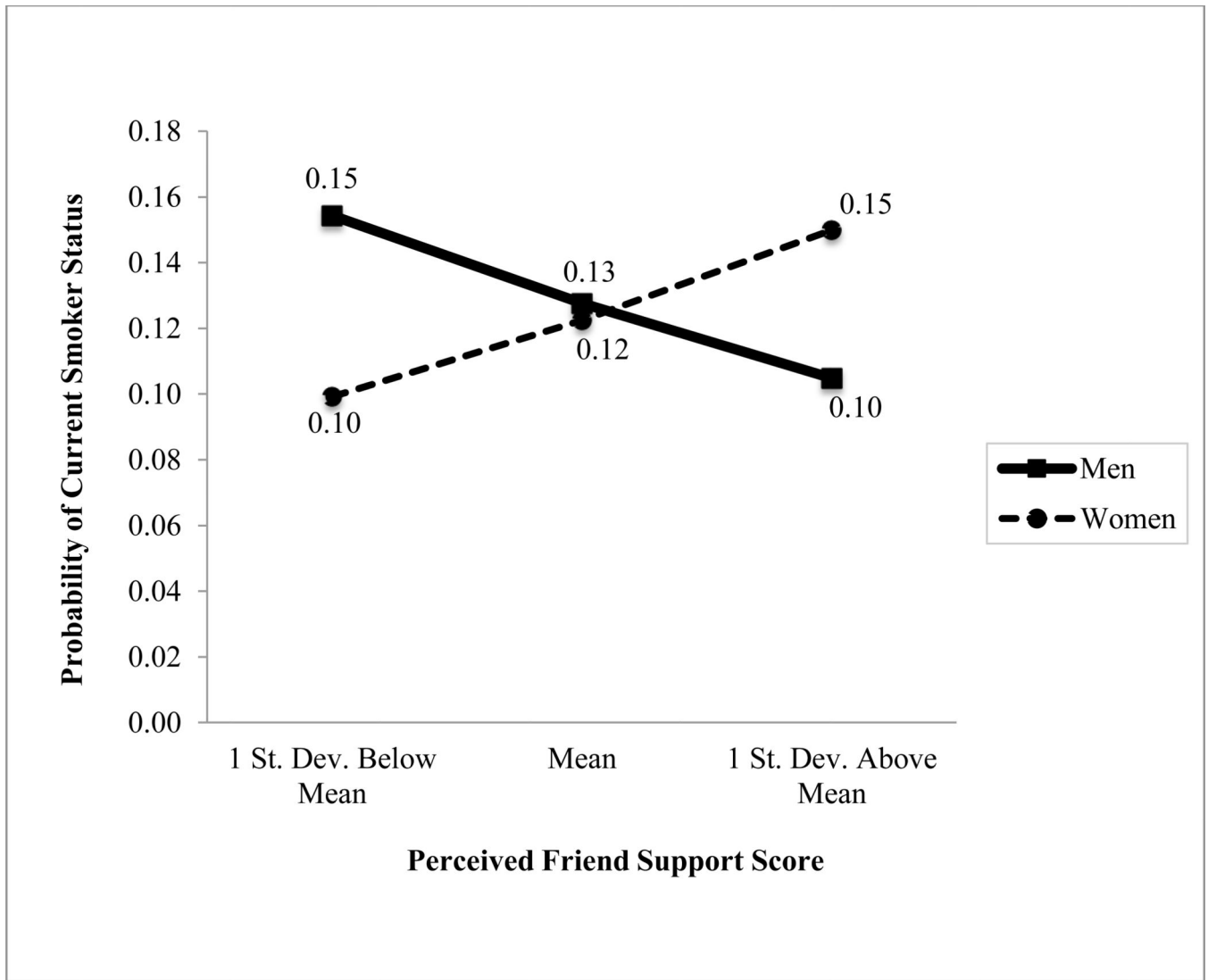Transnational, Social, and Neighborhood Ties and Smoking Among Latinos, 2002 and 2003.

FIGURE 2.
Predicted probability of current smoker status as a function of gender and perceived friend support: Transnational, Social, and Neighborhood Ties and Smoking Among Latinos, 2002 and 2003.

TABLE 1

Selected Sociodemographic Characteristics and Descriptive Statistics for Total Sample and by Gender (Weighted): Transnational, Social, and Neighborhood Ties and Smoking Among Latinos, 2002 and 2003

Characteristic	Total Sample (N|=|1629)	Immigrant Men (n|=|723)	Immigrant Women (n|=|906)	*P*
	Mean or %	Mean or %	Mean or %	
Age	38.61	37.44	39.86	*
Latino subgroup				NS
[ems]Cuban	6.18%	6.22%	6.14%	
[ems]Puerto Rican	7.27%	7.63%	6.88%	
[ems]Mexican	55.78%	56.38%	55.14%	
[ems]Other Latino	30.77%	29.76%	31.84%	
Education, y				NS
[ems]0–11	54.88%	53.74%	56.08%	
[ems]12–15	36.14%	37.05%	35.17%	
[ems]16 and more	8.99%	9.21%	8.74%	
Work status				***
[ems]Employed	63.57%	78.84%	47.35%	
[ems]Unemployed/OLF	36.43%	21.16%	52.65%	
Marital status				**
[ems]Married/cohabitating	70.08%	74.59%	65.30%	
[ems]W/D/S or never married	29.92%	25.41%	34.70%	
Household income*a*	$37|437	$40|406	$34|282	**
Years in the US				NS
[ems]Less than 5 y	16.86%	16.30%	17.45%	
[ems]5 y or more	83.14%	83.70%	82.55%	
Key predictors				
Remittances				***
[ems]Yes	42.39%	49.62%	34.68%	
[ems]No	57.61%	50.38%	65.32%	
[ems]No. of returns in the past year	0.92 (3.69)	0.79 (2.60)	1.04 (4.76)	NS
[ems]Family support	6.18 (2.08)	6.15 (1.88)	6.21 (2.27)	NS
[ems]Friend support	5.09 (2.17)	4.98 (1.96)	5.24 (2.35)	NS
[ems]Neighborhood social cohesion	11.46 (3.38)	11.45 (3.07)	11.45 (3.69)	NS
Outcome				
[ems]Smoker status				***
[ems]Nonsmoker	85.51%	78.83%	92.60%	
[ems]Current smoker	14.49%	21.17%	7.40%	

Note. OLF|=|out of labor force; NS|=|nonsignificant; W/D/S|=|widowed/divorced/separated. Values in parentheses represent SDs. The Rao-Scott statistic for the Pearson χ^2 test for contingency tables was computed for categorical variables. Adjusted Wald tests of differences were computed for continuous variables.

*
$P|<|.05$;

**
$P|<|.01$;

***
$P|<|.001$.

TABLE 2

Results of Multivariable Analysis of Current Smoker Status Among Latino Immigrant Respondents in National Latino and Asian American Study: Transnational, Social, and Neighborhood Ties and Smoking Among Latinos, 2002 and 2003

Variable	Bivariate OR (95% CI)	Model 1 Adj. OR (95% CI)	Model 2 Adj. OR (95% CI)	Model 3 Adj. OR (95% CI)	Model 4 Adj. OR (95% CI)	Model 5 Adj. OR (95% CI)
Gender						
[ems]Male (ref)	1.00	1.00	1.00	1.00	1.00	1.00
[ems]Female	0.30*** (0.19, 0.46)	0.31*** (0.21, 0.46)	0.33*** (0.22, 0.50)	0.33*** (0.22, 0.50)	0.32*** (0.22, 0.47)	0.18*** (0.11, 0.32)
Transnational ties						
[ems]Sent remittances (ref)	1.00	1.00			1.00	1.00
[ems]Did not send remittances	1.11 (0.79, 1.56)	1.39 (0.95, 2.01)			1.30 (0.89, 1.88)	1.10 (0.71, 1.70)
[ems]No. of returns in the past year	0.98* (0.96, 0.99)	0.99 (0.96, 1.02)			1.00 (0.98, 1.02)	1.04* (1.00, 1.07)
Social ties						
[ems]Family support	0.94 (0.86, 1.04)		0.97 (0.88, 1.07)		0.98 (0.89, 1.08)	1.01 (0.90, 1.13)
[ems]Friend support	0.93 (0.84, 1.03)		0.94 (0.85, 1.04)		0.97 (0.88, 1.06)	0.90 (0.79, 1.03)
Neighborhood ties						
[ems]Neighborhood cohesion	0.90** (0.84, 0.97)			0.91* (0.84, 0.98)	0.91* (0.85, 0.99)	0.93 (0.83, 1.03)
Interactions						
[ems]Gender × remittances						1.94* (1.06, 3.56)
[ems]Gender × returns						0.83 (0.65, 1.06)
[ems]Gender × family support						0.94 (0.79, 1.10)
[ems]Gender × friend support						1.25* (1.02, 1.52)
[ems]Gender × neighborhood social cohesion						0.97 (0.85, 1.10)

Note. CI=confidence interval; OR=odds ratio. Models 1–5 adjusted for age, Latino ethnicity, education, household income, work status, marital status, years in the United States, acculturative stress, everyday discrimination, and perceived neighborhood safety. Continuous variables included in interaction terms were centered at their means.

*
$P|<|.05$;

**
$P|<|.01$;

***
$P|<|.001$.