A Closer Look at the Epidemiological Paradox: Self-Rated Health, Perceived Social Resources, and Neighborhood Immigrant Context[1]

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Abstract. We use data from waves 1 and 2 of the Los Angeles Family and Neighborhood Survey to examine the effects of neighborhood immigrant concentration, race-ethnicity, nativity, and perceived cohesion on self-rated physical health. We limit our sample to adults whose addresses do not change between waves in order to explore neighborhood effects. Foreign-born Latinos were significantly less likely to report fair or poor health than African Americans and U.S.-born whites, but did not differ from U.S.-born Latinos. The main effect of immigrant concentration was not significant, but it interacted with nativity status to predict health: U.S.-born Latinos benefited more from neighborhood immigrant concentration than foreign-born Latinos. Perceived cohesion predicted health but immigrant concentration did not moderate the effect. Finally, U.S.-born Latinos differed from others in the way cohesion is associated with their health. Results are discussed within the framework of the epidemiological paradox.

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Introduction

The epidemiological or Latino paradox refers to evidence that Latinos experience better mortality outcomes than would be expected based on their socioeconomic status (Markides and Coreil 1986). A significant body of research has accumulated on this topic, and on balance, suggests that the paradox applies to Latinos, particularly Mexicans, that were born outside of the United States rather than U.S.-born Latinos, and that it applies to other immigrant groups as well (Markides and Eschbach 2011). On average, foreign-born Latinos experience lower socioeconomic status than whites, but have been shown to have mortality and health outcomes that are equal to or better than those of whites (Markides and Eschbach 2011). Most extant work focuses on mortality or infant mortality outcomes (Hummer et al. 2007; Palloni and Arias 2004; Patel et al. 2004; Turra and Goldman 2007). More recent research has focused on broader health outcomes such as healthy food consumption and physical activity (Osypuk et al. 2009). Surprisingly, though, less work has considered whether the paradox applies to self-rated health (SRH), despite assertions that this is a valid health outcome and is a known predictor of mortality (Drum, Horner-Johnson and Krahn 2008; Wilson and Kaplan 1995). As such, the evidence regarding the paradox and SRH is not conclusive (Viruell-Fuentes et al. 2011).

Explanations of the paradox center on data artifacts, including errors recording ethnicity and return migration (Arias et al. 2010; Palloni and Arias 2004; Patel et al. 2004), the health migrant effect, wherein immigrants are selected for better health (Palloni and Arias 2004), and the social resources or cultural explanation. Social and cultural explanations have focused on the theory that immigrants have strong family and community ties that engender social cohesion, serve as sources of health-related social control, and support healthy behaviors (Cagney, Browning and Wallace 2007; Markides and Eschbach 2011; Portes and Rumbaut 2006; Reyes-Ortiz et al. 2009), and in the case of immigrant enclaves, protect Latino immigrants from discrimination (Markides and Eschbach 2011; Osypuk et al. 2009).

Although a significant amount of work has emerged that examines the epidemiological paradox, several important questions remain about its relevance within a neighborhood context. Firstly, despite scholarship linking local immigrant concentration to the paradox, there is still uncertainty about how these associations play out for *self-rated health as an outcome*. Secondly,

levels of social cohesion are theorized to be higher in immigrant communities, but other negative structural characteristics (especially poverty and physical disorder) can impede cohesion. This theoretical ambiguity in *how cohesion is linked to the paradox* makes it imperative that scholars explore the nuanced associations among neighborhood characteristics, cohesion, and SRH. Thirdly, we know very little about whether the protective influences of immigrant concentration or cohesion on health *apply equally across nativity status or race/ethnicity*. Thus, we contribute to the literature on the paradox by exploring the potentially complex ways that structural and individual factors influence SRH. We focus specifically on neighborhood immigrant concentration and individually perceived cohesion, but fill an additional gap in the research by examining their association with SRH across race/ethnic status as well as nativity status.

Immigrant Enclaves and Self-Rated Health

The literature on the epidemiological paradox has focused largely on mortality, and finds that the mortality advantage among Hispanics is confined to immigrants and that this advantage is highest in old age (Markides and Eschbach 2011). However, recent findings are pointing to the need to focus on alternative health outcomes. For example, research in the last decade points to an additional paradox of higher rates of disability and generally poorer health among immigrants (Markides and Eschbach 2011; Sudano and Baker 2006) despite a mortality advantage. It is well established that SRH is a predictor of mortality across different samples (Drum et al. 2008) and research on ethnic disparities in health has highlighted the need to distinguish disparities in mortality from disparities in other outcomes, in particular SRH, because the risk factors for each outcome differ; as such, scholars encourage a "conceptual disentangling" of SRH from other outcomes (Sudano and Baker 2006). Ultimately, in order to truly understand the link between immigrant populations and mortality, we must first step back and examine the link between these groups and a key *predictor* of mortality: perceptual assessments of health.

Research on immigrant enclaves and SRH is, surprisingly, limited, and results are mixed. Some research reports that a higher percentage of Hispanic residents is associated with better SRH (Patel et al. 2003), but samples are restricted to older respondents. Research in Chicago shows that immigrant concentration is rarely associated with SRH (or has an effect that disappears once individual-level factors are considered) (Browning and Cagney 2002; Browning and Cagney 2003; Browning, Cagney and Wen 2003). Other research uses alternative measures of immigrant concentration, in particular language, and shows that bilingual residents have better

SRH (Mulvaney-Day, Alegría and Sribney 2007) and that levels of linguistic fragmentation lead to lower trust, which has implications for health (Franzini 2008). Due to the sparseness of such evidence, it is crucial to further consider *how and why* immigrant concentration is related to SRH; in particular, do immigrant groups across nativity and race/ethnic status report similar levels of health, or does their immigrant classification contextualize the influence of social cohesion on health?

Social Cohesion in Immigrant Enclaves

A key proposed mechanism for the epidemiological paradox is that immigrant communities incur health benefits because of higher levels of cohesion (Markides and Coreil 1986; Palloni and Arias 2004). Perceived social cohesion has been linked to health across groups because it is theorized to help individuals obtain health-promoting psychosocial and material resources (Bjornstrom, Ralston and Kuhl 2013). At the individual level, perceived social cohesion represents an individual's sense of trust, shared norms, and connectedness within her or his community. It arguably influences residents' ability to draw psychosocial benefits from their community and may serve as a buffer to stress. Immigrant communities are theorized to have stronger networks and thus be more cohesive (Almeida et al. 2009b), which should result in better SRH. Thus, cohesion should mediate the association between immigrant concentration and SRH. However, immigrant communities are also more impoverished, which is associated with a higher prevalence of physical disorder (Ross and Mirowsky 2001). These characteristics may serve as stressors because of their link to fear of crime, and thus, inhibit social cohesion (Bjornstrom 2013). Thus, there is theoretical ambiguity in the expected association between immigrant concentration, cohesion, and SRH. Moreover, Almeida and colleagues found, using data from Chicago, that residents of Mexican enclaves report lower levels of cohesion, not higher levels (Almeida et al. 2009a). Thus, ethnic enclaves are not inherently cohesive. Further, research using Latino samples does not always find support for the contention that social cohesion is related to SRH (Mulvaney-Day et al. 2007). This research has not tested the mediating effect of cohesion on SRH, however, and so it remains a question whether immigrant enclaves experience a health benefit due to higher levels of cohesion. Further, it is also possible that cohesion moderates the influence of immigrant concentration on SRH. For instance, it could be that immigrant concentration is related to better SRH, but only among those who perceive their neighborhoods as more/less cohesive. It could be that cohesion produces higher ratings of

health, and this effect is amplified for those who live in especially high-immigrant communities. Alternatively, lower levels of cohesion might produce worse rated health, but this association could be buffered by high concentrations of immigrants.

Healthier for Whom?

The next question that arises is: For whom are immigrant enclaves beneficial? Some work suggests that immigrants benefit more than non-immigrants from living in places with large percentages of co-ethnics. For example, foreign-born Latinos have a health advantage in neighborhoods with greater immigrant concentration with regard to asthma (Cagney et al. 2007). Other work suggests the relationship between residence in immigrant/ethnic enclaves and individual characteristics is quite complex. A study by Shaw and Pickett found that the protective effects of living in a Latino community was conferred to non-Latinos for smoking and infant mortality (Shaw and Pickett 2013). Similarly, research on violence in Chicago found that all youths, regardless of race/ethnicity, benefit from living in neighborhoods with large percentages of immigrants (Sampson, Morenoff and Raudenbush 2005). Other work found that non-Spanish speakers had *lower* rates of depression in immigrant communities (Shell, Peek and Eschbach 2013). Research on nativity status also offers support for moderation: individual-level analyses using the Health and Retirement Study reveal that immigrants receive a greater health benefit from language diversity than native-born residents (Angel, Buckley and Finch 2001). Thus, it is necessary to examine whether immigrant concentration influences SRH similarly for native vs. non-native groups, as well as for race/ethnic subgroups. Most of the research cited above applies to non-SRH outcomes; it is thus critical to explore whether *perceived* health benefits of immigrant enclaves are universal: do they apply equally to foreign-born as U.S.-born residents, or equally for whites, blacks, and Latinos?

Do Social Resources Matter for the Health of Immigrants than they do for other Groups?

Just as the influence of immigrant concentration on health might vary by nativity or race/ethnic status, so too might the influence of social cohesion. The relationship between perceived cohesion and SRH has been questioned for Latinos not born in the United States (Mulvaney-Day et al. 2007). Recent work also suggests that foreign-born Latinos have less diverse and smaller networks than U.S.-born Latinos (Viruell-Fuentes et al. 2013). Yet the relationship between neighborhood immigrant concentration and social integration and network size was stronger for U.S.-born Latinos than for immigrants: U.S.-born Latinos had a social

advantage in terms of integration, network diversity, and network size. Whether this advantage confers different health benefits is still unclear, though. Thus, it seems necessary to examine the association of perceived cohesion with SRH by nativity status.

A related question is whether the association between cohesion and SRH is similar for race/ethnic subgroups. Does cohesion increase SRH for everyone, or just minorities? Research shows that there are race differences in the size and membership, and embeddedness of networks, which are sometimes shown to be related to well-being (Ajrouch, Antonucci and Janevic 2001; Barnes et al. 2004; Snowden 2001). Health scholars have argued that there could be different effects of cohesion by subgroups due to the prevalence of segregation, as well as differential access to resources that might offset adverse environments (Echeverría et al. 2008). Thus, cohesion could benefit SRH to a greater/lesser degree for some groups than others.

Study Aims

In this research we focus on the epidemiological paradox as it applies to self-rated health in community context. We examine the following specific research questions.

1. *How does SRH among immigrant Latinos compare to that of U.S.-born Latinos, African Americans and U.S.-born whites?*
2. *Does neighborhood immigrant concentration serve as a protective factor against below-average health?*
3. *Does perceived neighborhood social cohesion mediate the relationship between immigrant concentration and SRH?*
4. *Does neighborhood immigrant concentration moderate the effects of neighborhood social cohesion, nativity status, or race-ethnicity on SRH?*
5. *Does social cohesion benefit the health of immigrant Latinos more than members of other groups?*

There are several strengths to this study. First, it is set in Los Angeles County, an established receiving community. Second, we are able to compare processes across race-ethnic groups: African Americans, foreign-born Latinos, U.S.-born Latinos and U.S.-born whites. Third, we use longitudinal data on a sample of non-movers that is better able to isolate neighborhood effects. Fourth, we examine the way that perceived social cohesion in neighborhood context is associated with the paradox. Related to this, we control for both structural and perceived social characteristics related to crime and fear of crime that are not

commonly considered in extant work, yet are relevant to the way neighborhood context offers a social explanation of the Latino paradox.

Data and Methods

Data

We use three sources of data in this research. First, the primary data are from Wave 1 and Wave 2 of the Los Angeles Family and Neighborhood survey (LAFANS). LAFANS uses census tracts as the neighborhood unit and was specifically designed for multilevel analyses. Wave 1 was completed between April 2000 to January 2002 and Wave 2 was completed between August 2006 and December 2008. Los Angeles County census tracts were separated in to three strata based on the proportion of residents that were in poverty in 1999. Tracts classified as very poor fell in the top ten percent within the county; poor tracts were classified as being between the 60th-89th percentiles; and non-poor tracts fell below the 60th poverty percentile. A total of 65 neighborhoods were included in the sample. Within tracts, blocks and households were sampled and households with children were oversampled. We use data from the sample of randomly selected adults. For further information about the sampling design refer to Peterson et al. (2004) and Peterson et al. (2011).

The Los Angeles Neighborhood Services and Characteristics database (LANSC) contains demographic information from the 2000 decennial census that has been converted to 1990 census tract definitions (Peterson, Pebley and Sastry 2007). The LAFANS Neighborhood Observations database (LAFANS NO) contains systematic social observations of block faces within sampled blocks with tracts (based on Raudenbush and Sampson 1999) that capture the presence and extent of disorder in sampled neighborhood block faces. Data were collected in conjunction with Wave 1 of LAFANS. More detailed information about the data collection is described in the user documentation (Peterson, Sastry and Pebley 2007).

Measurement

Dependent Variable

To capture self-rated health at Wave 2 we use the item "Would you say your health in general is excellent, very good, good, fair or poor?" We recode it as a dichotomous in which fair or poor health is coded one and excellent, very good and good health are coded zero. Self-rated health is frequently used to capture overall health status and is considered to be a valid measure (Wilson and Kaplan 1995).

Independent Variables

Neighborhood *immigrant concentration* is measured as the percent of the tract that was born outside of the United States. Dichotomous variables for African American, foreign-born Latino, U.S.-born Latinos and U.S.-born white are included to measure *race-ethnicity* (U.S. born white is the reference category). We excluded foreign-born blacks and whites and both-foreign and U.S.-born Asians and other race-ethnicities due to data limitations. *Perceived cohesion* is based on work by Sampson, Raudenbush, and Earls (1997) and is the average, across Wave 1 and Wave 2, of the following five items coded 0-4 on a Likert scale: (1) "This is a close-knit neighborhood," (2) "People around here are willing to help their neighbors," (3) "People in this neighborhood generally don't get along with each other," (4) "People in this neighborhood do not share the same values," and (5) "People in this neighborhood can be trusted." Items are recoded where necessary so that higher values are associated with higher perceived cohesion (alpha wave 1 = .69; wave 2 = .71).

Control Variables

Neighborhood *physical disorder* is measured with empirical Bayes (EB) residuals. Here EB residuals capture the extent to which a neighborhood varies on a latent characteristic from the grand mean across sampled neighborhoods (Carpiano 2007; Raudenbush and Sampson 1999). Guided by prior research (Jones, Pebley and Sastry 2011; Raudenbush and Sampson 1999), at level 1 we utilized items from the L.A. FANS NO that captured the extent of (1) abandoned cars, (2) garbage or litter, (3) drug paraphernalia or condoms, (4) empty beer or liquor containers, (5) cigarettes, (6) graffiti and (7) painted over graffiti on sampled block faces (level 1). Consistent with Raudenbush and Sampson (1999), items were coded dichotomously in order to more accurately account for the presence or absence of each characteristic. Items are grand-mean centered. At the block level (level 2), we controlled for the context surrounding the observation with variables that captured whether the observation was completed during a weekend day, weekday day, weekday night or weekend night, the season, the interviewer's level of familiarity with the area, and the time spent on the observation. At level 3, the tract level, a random effect is included. Thus, the model measures the log odds of the presence of a typical item i in block j in neighborhood k (Raudenbush and Bryk 2002). The neighborhood physical disorder variable is the standardized EB residual of each tract from the grand mean across all sampled neighborhoods (reliability=.98).

At the individual level we include *age* in years (logged), *gender* (males are the reference group), and *relationship status* (currently married and living with spouse or cohabitating are coded one, all else are coded zero). We measure *educational attainment* at Wave 1 with dummy variables for high school completion and a bachelor's degree or higher, while retaining less than high school attainment as the reference category. *Family income* contains imputed values and is included as a categorical variable coded 0-9 for the following categories: 0-9,999; 10,000-19,999; 20,000-29,999; 30,000-44,999; 45,000-59,999; 60,000-74,999; 75,000-99,999; 100,000-149,999; 150,000-199,999 and 200,000 and up. We control for whether respondents are *currently working* because it may be correlated with time spent in the neighborhood and with health. *Spanish speaker* is a dummy variable coded one if the respondent completed their interview in Spanish and zero if they completed it in English. *Health characteristics* include (1) self-rated health at Wave 1, coded identically to the dependent variable, (2) smoking status at Wave 2 (current smoker is coded one) and (3) whether the respondent has a place to go when they are sick or not. *Perceived danger* is coded as a series of dichotomous variables based on respondents' reports of perceptions of danger in their neighborhood at Wave 1 and Wave 2 of the survey. They are: (1) persistent danger, coded one if the respondent replied that they feel it is somewhat or extremely dangerous (as opposed to completely or fairly safe) to walk around alone in their neighborhood at night at both Wave 1 and Wave 2; (2) current danger, coded one if they responded similarly at Wave 2 but not at Wave 1; (3) past danger, coded one if respondents reported that their neighborhood was somewhat or extremely dangerous to walk around alone in their neighborhood at night at Wave 1, but felt it was safe at Wave 2; and (4) persistent safety, coded one if respondents reported that their neighborhood was completely or fairly safe to walk in at night at both Wave 1 and Wave 2. Persistent safety serves as the reference category. *Household victimization* is based on the item "While you have lived in this neighborhood, have you or anyone in your household had anything stolen or damaged inside or outside your home, including your cars or vehicles parked on the street?" and is coded one if the respondent responded yes and zero if they responded no.

Analytic Strategy

Random-intercept logistic regression models were utilized using HLM 6.06 (Raudenbush, Bryk and Congdon 2008). We first ran an unconditional model and found that the variance at level 2 was significant at 19.42 percent. All dichotomous variables are uncentered in the analysis and

other variables are grand-mean centered. Sampling weights were utilized that adjust for oversampling of poor and very poor neighborhoods and households with children as well as panel attrition and out-migration.

Results

Table 1 displays descriptive statistics for all variables. About 22 percent of respondents reported fair or poor SRH at Wave 2. On average, foreign born individuals comprise 40.22 percent of the population in sampled neighborhoods. The sample is 62 percent female, 9 percent African American, 44 percent foreign-born Latino, 14 percent U.S.-born Latino and 33 percent white. On average, across Waves 1 and 2, respondents' have a perceived cohesion score of 2.49 on a five point scale that ranges from zero to four.

Table 2 presents odds ratios from weighted random intercept logistic regressions of SRH on neighborhood and individual characteristics. Model 1 includes race-ethnicity and demographic and health related control variables. African Americans are more likely and foreign- and U.S.-born Latinos less likely, to report fair or poor SRH than whites (the reference group), but these differences are not significant. Both foreign- and U.S.-born Latinos were significantly less likely to report fair or poor SRH than African Americans. Specifically, foreign-born Latinos were 31.4 percent less likely to report below average health than were African Americans (OR=.686; result not shown) and U.S.-born Latinos were 54.2 percent less likely to do so (OR=.458; result not shown). Model 2 adds variables that capture perceived danger and household victimization. Their inclusion revealed a significant difference in reporting below average health between whites and foreign-born Latinos such that the odds of foreign-born Latinos doing so are 70.5 percent lower than those of whites (OR=.295). The difference between African Americans and foreign-born Latinos remained significant but the difference between African Americans and U.S.-born Latinos was negated, suggesting that the psychosocial characteristics of community-based fear and victimization explain the difference in SRH between these groups. Model 3 adds immigrant concentration and physical disorder at the neighborhood level. There was not a significant relationship between the percent of the tract population that is foreign-born and SRH. Here we note that one standard deviation increase in disorder was associated with a 140 percent increase in the odds of reporting fair or poor health (OR=2.403). Inclusion of these neighborhood characteristics did not change the significant difference in SRH between foreign-born Latinos and whites but explained the difference between

foreign-born Latinos and African Americans, suggesting that local structural conditions account for the difference. Finally, in model 4 we add perceived cohesion. The relationship between perceived cohesion is negative such that a one unit increase in perceived cohesion is associated with approximately 50 percent reduction in the odds of reporting fair or poor SRH (OR=.497). The inclusion of this variable did not affect the existing significant difference between foreign-born Latinos and U.S.-born whites but the difference between African Americans and foreign-born Latinos re-emerges.

Table 3 presents results of interactive effects of neighborhood and individual characteristics on SRH. Each model controls for neighborhood disorder, age, gender, relationship status, educational attainment, family income, employment status, Spanish speaker, SRH at Wave 1, smoking status, access to basic care, perceived neighborhood danger and household victimization. Model 1 examines whether immigrant concentration is associated with health differently across race-ethnicity. One significant difference was found between foreign-born and U.S.-born Latinos. This relationship is depicted in Figure 1. Here all other variables are held at their means. As immigrant concentration increases, the likelihood of reporting fair or poor health declines for each group, but the effect is less pronounced for foreign-born Latinos. The difference in the effect is significant only between U.S. (b = -.089; OR = .915) and foreign-born Latinos (b = -.010; OR = .990) (these effects are based on models in which U.S.-born whites are the reference group). Notably, the beneficial effect of immigrant concentration was greatest for African Americans (b = -.096; OR = .908), but differences did not achieve significance due to sample size. Although the effect of immigrant concentration is stronger for U.S.-born than foreign-born Latinos, foreign-born Latinos are less likely than U.S.-born Latinos to report fair or poor health in all neighborhoods except those with very high immigrant concentration.

Model 2 displays results of the interaction between race-ethnicity and perceived cohesion. Cohesion is associated with better health for African Americans, foreign-born Latinos and U.S.-born whites, but is actually detrimental for U.S.-born Latinos. This relationship is depicted in Figure 2. As levels of perceived cohesion increase, the probability of reporting fair or poor health declines for all groups *except* for U.S.-born Latinos, who experience the opposite pattern: U.S.-born Latinos have higher probabilities of reporting fair or poor health at *high* levels of cohesion, and low probabilities of reporting fair or poor health at low levels of cohesion. Thus, it seems that better SRH is generally associated with greater cohesion, but U.S.-born

Latinos report worse SRH at higher levels of cohesion. Model 3 displays the results of the interaction between immigrant concentration and perceived cohesion. It was not significant, which suggests that the beneficial effect of perceived cohesion is consistent across levels of neighborhood immigrant concentration.

Discussion

We examined the epidemiological paradox as it relates to self-rated health, a known predictor of mortality and rarely considered as an outcome in the paradox literature. We also looked at SRH within the broader context of neighborhoods within a well-established immigrant receiving community, L.A. County, and examined the influence of two key theoretically important factors, one at the structural level and one at the individual level: immigrant concentration and perceived cohesion. Finally, we explored the associations among immigrant concentration, cohesion, and SRH across nativity and race/ethnic status. Our results contribute to the literature by showing that, while immigrant concentration in neighborhoods has no direct effect on SRH among this sample, it has a more nuanced relationship with SRH when we consider moderations by nativity status. Further, perceived cohesion has an expected overall benefit for SRH, but this benefit does not apply to U.S.-born Latinos as it does for most other groups.

The pattern of findings is such that, at higher levels of immigrant concentration, respondents have a lower odds of reporting fair or poor health, yet for foreign-born Latinos, immigrant concentration produces a much less pronounced benefit than it does for U.S.-born Latinos. This finding of a non-universal effect of immigrant concentration by nativity status is new, and should be explored more thoroughly in future research. It could be that such homogeneity (immigrants living in communities with lots of other immigrants) produces much less benefit, because resources are the same across households; whereas in neighborhoods with more diversity (natives living in immigrant neighborhoods) there are variable resources on which to draw.

Our findings regarding cohesion are also interesting: cohesion reduces the odds of reporting fair or poor health overall, but it actually seems to be harmful to SRH among U.S.-born Latinos. This finding is unexpected, and as such needs further consideration. Perhaps perceived cohesion harms health for native-born Latinos because cohesion also implies high levels of control, which makes it less difficult for residents to draw on alternative sources of care. As

Portes (1998) has noted, social capital has its downsides, one of which is restricted freedom which comes with strongly enforced norms. It is still questionable that such control and restrictions on choice are more prevalent for U.S.-born Latinos than foreign-born Latinos, and so future research needs to consider alternative explanations for this puzzling pattern.

These findings uncover the complex ways that neighborhood structure and individual social resources influence SRH, and point to nativity and ethnic status as important modifiers of the association between immigrant concentration, cohesion, and health. They also offer evidence that health disparities exist among different minority groups—in this case, between Latinos and African Americans, rather than between Latinos and whites)—disparities that themselves are worthy of further consideration, as are comparisons by subgroups within the Latino community. A limitation here is that Latinos are treated as a panethnic group due to relative homogeneity within L.A. County.

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Table 1. Unweighted Descriptive Statistics for all Variables (n=558/65)

Variables	*Mean*	*Std. Dev.*
Outcome		
Self-rated health (wave 2)	.22	.41
Neighborhood-level predictors		
Immigrant concentration	40.22	15.35
Physical disorder	0	1
Individual-level key predictors		
African American	.09	.29
Foreign born Latino	.44	.50
U.S. born Latino	.14	.35
U.S. born White	.33	.47
Perceived cohesion	2.49	.57
Individual-level controls		
Age(logged)	3.86	.27
Female	.62	.49
Currently married/cohabitating	.65	.48
No high school diploma	.35	.48
High school diploma	.44	.50
Bachelor's degree	.21	.40
Family income(ten **categories)**	4.25	2.68
Currently working	.66	.47
Spanish speaker	.35	.48
Self-rated health (wave 1)	.21	.41
Current smoker	.14	.35
Access to care	.86	.35
Persistent safety	.60	.49
Prior danger	.11	.32
Current danger	.11	.31
Persistent danger	.17	.45
Household victimization	.54	.50

Table 2. Odds Ratios (OR) from Weighted Hierarchical Logistic Regression Models of Self-Rated Fair or Poor Health on Neighborhood and Individual Characteristics: Main Effects

	Model 1		*Model 2*		*Model 3*		*Model 4*	
	OR	SE	OR	SE	OR	SE	OR	SE
Neighborhood-level variables								
Immigrant concentration	-	-	-	-	.977	.015	.977	.015
Physical disorder	-	-	-	--	2.403**	.289	2.315**	.295
Individual-level variables								
$Age_{(logged)}$	4.137**	.506	4.478**	.546	5.080**	.564	5.945**	.603
Female	.932	.492	.879	.464	.884	.465	.906	.452
Currently married/cohabitating	1.712	.418	1.947	.412	1.838	.395	1.920	.399
High school diploma	.535	.488	.588	.505	.566	.491	.533	.488
Bachelor's degree	.214	.837	.234	.766	.216	.791	.203*	.812
$Family\ income_{(logged)}$	.882	.122	.861	.116	.907	.116	.913	.119
Currently working	.584	.351	.721	.366	.643	.369	.639	.360
Spanish speaker	1.581	.778	1.440	.619	1.325	.588	1.534	.563
$Self\text{-}rated\ health_{(wave\ 1)}$	4.511***	.402	3.834***	.397	3.590**	.401	3.175**	.412
Current smoker	1.565	.380	1.410	.400	1.320	.405	1.331	.388
Access to care	2.212	.604	1.907	.588	2.152	.568	2.129	.556
Prior danger	-	-	3.473*	.607	2.357	.595	1.935	.606
Current danger	-	-	6.486***	.439	4.552***	.436	3.764**	.448
Persistent danger	-	-	4.166***	.402	2.599*	.436	1.739	.436
Household victimization	-	--	.514	.355	.500	.358	.450*	.365
Key individual-level variables								
African American	2.106[b,c]	.661	1.311[b]	.710	.638	.889	.614[b]	.845
Foreign born Latino	.421[a]	.648	.295*[a]	.615	.190*	.703	.166*[a]	.701
U.S. born Latino	.681[a]	.636	.430	.597	.299	.670	.264	.721
Perceived cohesion	-	-	-	-	-	-	.497*	.282
Intercept	.098*	.911	.101*	.885	.202	.944	.239	.931
$N_{(Level1/level\ 2)}$	558/65							

Note: * p<.05, ** p<.01, ***p<.001 (two-tailed)

White is the reference group for race-ethnicity. [a] p<.05 difference from African American; [b] p<.05 difference from foreign born Latino; [c] p<.05 difference from U.S. born Latino, two-tailed.

Table 3. Odds Ratios from Weighted Hierarchical Logistic Regression Models of Self-Rated Fair or Poor Health on Interactions between Neighborhood and Individual Characteristics[†]

	Model 1		*Model 2*		*Model 3*	
	OR	SE	OR	SE	OR	SE
Neighborhood-level variables						
Immigrant concentration	.980	.020	.977	.014	.978	.016
Individual-level variables						
African American	.285*	.630	12.650	3.931	.604	.831
Foreign-born Latino	.121***	.609	.082	1.442	.179*	.715
U.S.-born Latino	.171*	.716	.005**	1.831	.274	.731
Perceived cohesion	.494*	.284	.399	.496	.541*	.274
Interactions						
Immigrant concentration x African American	.927	.065				
Immigrant concentration x Foreign-born Latino	1.011[c]	.035				
Immigrant concentration x U.S.-born Latino	.934[b]	.042				
African American x Perceived cohesion			.265[c]	1.442		
Foreign-born Latino x Perceived cohesion			1.387[c]	.640		
U.S.-born Latino x Perceived cohesion			5.523[ab]	.688		
Immigrant concentration x perceived cohesion					1.020	.016
Intercept	.282	.975	2.390	1.705	.239	.923
$N_{(Level\ 1/level\ 2)}$	558/65					

[†] All models control for neighborhood disorder, age, gender, relationship status, educational attainment, family income, employment status, Spanish speaker, self-rated health at wave 1, smoking status, access to basic care, perceived neighborhood danger and household victimization. The reference group for race-ethnicity is U.S.-born white.

* p<.05 ** p<.01 ***p<.001 (two-tailed)

[a] p<.05 difference from African American; [b] p<.05 difference from foreign-born Latino; [c] p<.05 difference from U.S.- born Latino, two-tailed.

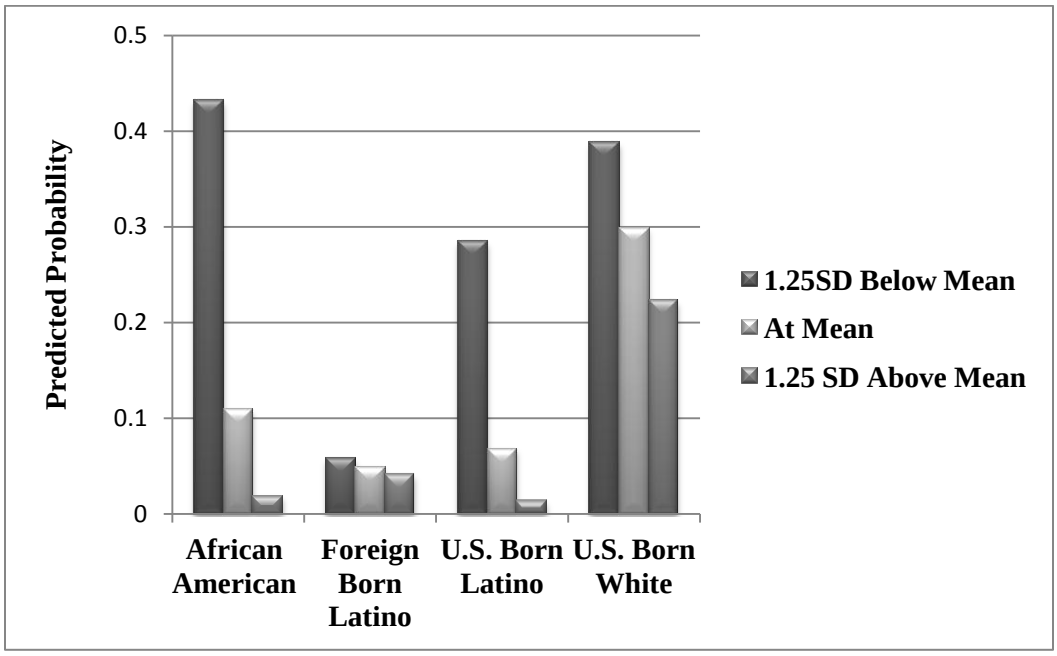

Figure 1. The relationship between neighborhood immigrant concentration and the predicted probability of reporting fair or poor self-rated-health across race-ethnicity and nativity.

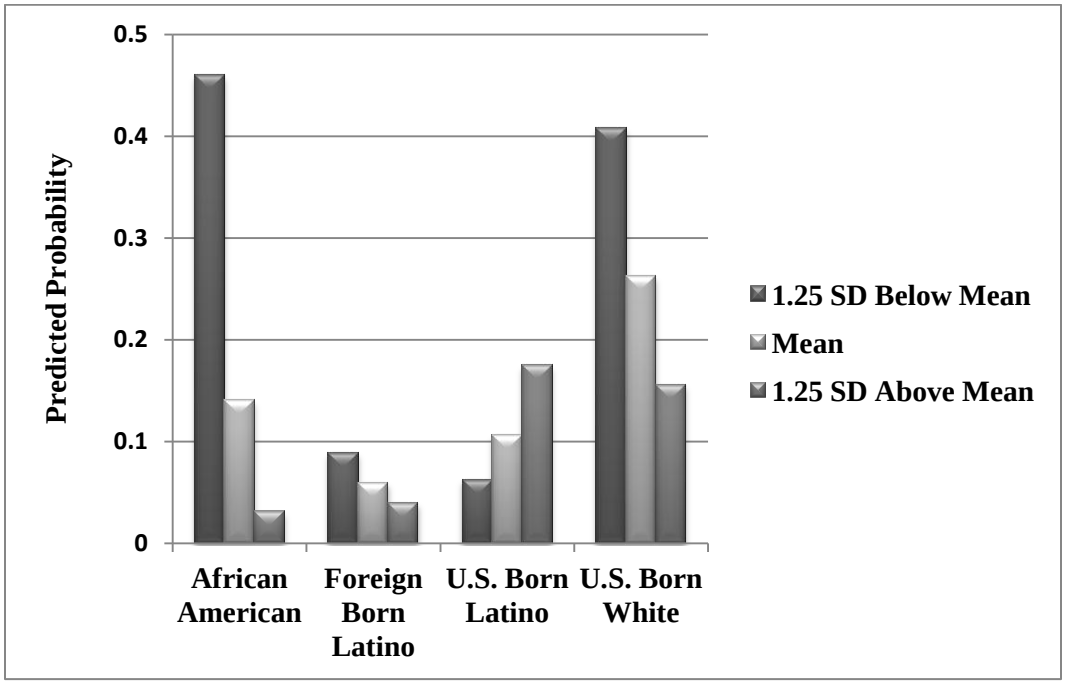

Figure 2. The relationship between perceived social cohesion and the predicted probability of reporting fair or poor self-rated-health across race-ethnicity and nativity.