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Length of residence and social integration: The contingent effects of neighborhood poverty

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Abstract

Given the well-established benefits of social integration for physical and mental health, studies have begun to explore how access to social ties and social support may be shaped by the residential context in which people live. As a critical health exposure, social integration may be one important mechanism by which places affect health. This paper brings together research on two previously studied contextual determinants of social integration. Specifically, we use multi-level data from the Chicago Community Adult Health Survey to investigate the relationships between an individual's length of residence and measures of social integration. We then investigate the extent to which these relationships are moderated by neighborhood poverty. We find that the relationship between length of residence and some measures of social integration are stronger in poor neighborhoods than in more affluent ones.

Keywords

Residential stability; Social support; Neighborhood poverty; Urban policy

1. Introduction

An extensive body of literature documents the importance of social integration for health and well-being. Access to social ties and social support are associated with a wide range of favorable mental and physical health outcomes including lower mortality (Berkman and Syme, 1979; House et al., 1982; Seeman, 1996), improved immune functioning (Cohen et al., 2003), better cardiovascular outcomes (Seeman, 1996) and lower rates of depression (Mulvaney and Kendrick, 2005; Mair et al., 2008). Given the potential health benefits of social integration, researchers have begun to investigate conditions that are conducive to developing social ties and social support including the residential context in which people live (Tigges et al., 1998; Schieman, 2005; Guest et al., 2006; Small, 2007; Turney and Harknett, 2009). The ability of neighborhoods to support social integration might be one important manner in which neighborhoods affect health.

Given that it can take time to build supportive social ties, length of neighborhood residence may be an important determinant of social integration. Indeed, existing research suggests that high rates of residential turnover in a neighborhood weaken interpersonal ties and disrupt social infrastructures that support the formation of new ties (Kasarda and Janowitz, 1974; Sampson et al., 1999). Additionally, studies find that longer residential length, assessed at the individual level, is associated with more social support, local friendships and participation in local organizations (Kasarda and Janowitz, 1974; Sampson, 1988; Schulz et al., 2006; Turney and Harknett, 2009).

There is reason to suspect, however, that the benefits of long-term residence for social integration may vary by neighborhood characteristics. In particular, it is possible that the benefits of long-term residence are greater in higher poverty areas where there may be more barriers to social integration (Briggs, 1998; Schieman, 2005). A number of studies suggest that high levels of neighborhood poverty can act as a barrier to the formation of supportive social relationships (Geis and Ross, 1998; Small, 2007). Lengthier residence may help residents overcome distrust, fear, and self-imposed social isolation that some studies suggest are associated with urban poverty (Klinenberg, 2001; Ross et al., 2001; Clampet-Lundquist, 2010). Some ethnographic research suggests that residents of low-income neighborhoods, who are often struggling to make ends meet, can be cautious about entering into relationships that are likely to involve reciprocal obligations and risks (Stack, 1974; Fitchen, 1995; Dominguez and Watkins, 2003). Research also suggests that this perceived riskiness of forming new ties is likely to be more pronounced among newly arrived residents who are unfamiliar with the social terrain (Keene et al., 2010). Thus, not only may longer-term residence be more strongly related to social integration in high-poverty neighborhoods, but longer residence may also buffer the negative relationship between neighborhood poverty and social integration that has been observed in some studies (Geis and Ross, 1998; Small, 2007). Indeed, Schieman (2005) finds that the negative relationships between neighborhood poverty and social support observed in a larger sample of Chicago residents are reversed among older black women who reside in residentially stable neighborhoods.

Social support that develops through long-term ties to a neighborhood may also be particularly significant to the health and well-being of low-income urban residents. While some studies suggest that the social ties of the poor may not be as beneficial to well-being as the more resource rich social networks found in more affluent communities (Caughy et al., 2003), others find that social integration provides critical resources that low-income individuals draw on in order to mitigate disadvantage (Mullings and Wali, 1999; Geronimus, 2000). Research suggests that social networks in poor neighborhoods provide material and logistical support that is often critical for day-to-day survival (Stack, 1974; Briggs, 1998). Other research suggests that local social networks provide psychosocial resources that can buffer stresses associated with poverty and marginalization, particularly in low-income minority communities (James, 1993; Geronimus, 2000). Thus, in high-poverty neighborhoods, the social integration that may ensue from longer-term residence may be an important buffer against the social and health consequences of neighborhood poverty.

Some studies have questioned the health benefits of long-term residence in high-poverty areas, suggesting that limited mobility might contribute to adverse environmental exposures and social stressors among those who reside in subpar environments (Ross et al., 2000; Drukker et al., 2005). However, to the extent that social integration is associated with long-term residence in poor neighborhoods, there may also be significant health costs associated with frequent mobility.

A better understanding of how the relationships between residential stability and social integration operate in poor communities is particularly important given recent policies and

programs that have threatened the stability of many poor urban neighborhoods (Goetz, 2003; Newman and Wyly, 2006; Keene and Geronimus, 2011). Over the last few decades, an increasing policy focus on ‘poverty deconcentration’ has promoted relocation of low-income households (Goetz, 2001). Evaluating the potential success of these policies and programs requires disentangling the potential benefits of long-term residence in poor neighborhoods from negative consequences associated with neighborhood poverty. While these initiatives may offer access to improved social and physical environments, they may also disrupt social ties that have developed over time (Greenbaum, 2008; Keene et al., 2010). Additionally, in many urban areas, urban redevelopment has contributed to the displacement of low-income households (Bennett, 2006; Newman and Wyly, 2006). Furthermore, recession-related job loss and home foreclosures have increased residential instability, particularly in low-income and working class communities (Saegert et al., 2011). If indeed length of residence is associated with access to social integration, then policies, programs and conditions that contribute to frequent mobility are likely to have a detrimental impact on the health of those who are affected by them.

In this study, we use multi-level data from the Chicago Community Adult Health Study (CCAHS), a stratified probability sample of adults in the city of Chicago, to investigate the interaction between neighborhood poverty and residential length in predicting four measures of social integration. Collectively, these measures capture perceptions of overall social support and also assess access to more geographically proximate social resources. We hypothesize that the relationship between residential length and these four measures of social integration will be stronger in higher poverty neighborhoods than in low-poverty neighborhoods.

2. Methods

2.1. Study setting and population

We use data from the Chicago Community Adult Health Study (CCAHS), a multistage stratified probability sample of 3105 adults living in Chicago, IL in 2002 (House et al., 2011). CCAHS participants were sampled from 343 neighborhood clusters that were previously defined by the Project on Human Development in Chicago.¹ These neighborhood clusters usually consist of two census tracts (approximately 8000 residents) and are based on meaningful social boundaries. One adult from each sampled household was randomly selected and surveyed with a response rate of 71.8%. Participants were oversampled from 80 focal neighborhood clusters that were chosen for their racial and ethnic heterogeneity. In all of our analyses, we employ sample weights in order to adjust for differential rates of selection by neighborhood cluster and to make the results more generalizable to the 2003 Chicago population.² Additionally, we exclude 16 participants who are missing data on length of residence.

2.2. Data collection and variables

CCAHS respondents provided detailed information about multiple dimensions of their physical, social and economic well-being. They also provided their assessments of the physical and social environments in which they lived. Our dependent variables include 4 measures of social integration that allow us to capture different dimensions of this broad concept. First, we use a general measure of perceived access to social support that asks individuals about how often they have someone to take them to the doctor, help with daily chores, borrow money from and confide in. Existing literature suggests that long-term

¹ For a complete description of how PHDCN and CCAHS neighborhoods are defined, see: Sampson et al., (1997).

² See Morenoff et al. (2007) for a complete description of sample weighting procedures.

residence in the same place may contribute to the development of strong relationships that facilitate the exchange of these types of social support resources (Kasarda and Janowitz, 1974). Qualitative and ethnographic studies on urban social networks describe the development of very close, family-like relationships that develop between neighbors over time and often through processes of reciprocal exchange, for example shared child-rearing (Stack, 1974; Bennett and Reed 1999; Mullings and Wali, 1999). We also use three measures that capture more geographically proximate social support resources. First, we use a measure of local social ties derived from a survey item which asks respondents to report the number of friends and family who live nearby. The size of one's local social network is likely to increase with the amount of time an individual spends in the neighborhood. Additionally, local social ties (as opposed to more geographically diffuse ones) may be particularly important to health and well-being given their relative accessibility and ability to provide day-to-day instrumental support (Israel, 1982). In addition, we include two measures that assess perceptions of the neighborhood social environment. The first, social cohesion, captures an individual's perception of the extent to which neighbors get along with and interact with each other. The second measure, reciprocal exchange, captures an individual's perception of the extent to which neighbors exchange material and psychosocial support. Table 1 provides detailed information about how each of these measures was constructed.

Our primary independent variable is individual length of residence which is derived from a question asking respondents to recall the date that they moved into their current address. Because length of residence is not normally distributed, we categorize this continuous measure into quartiles (0–1 years, 2–4 years, 5–12 years, and 13 plus years). We also ran additional models where we log transformed the continuous measures of length of residence and found a similar pattern of results. However, we decided to use the quartile measure in order to facilitate interpretation of interactions with other key variables.

We include as covariates, a range of demographic variables that may confound the relationship between social integration and length of residence including race/ethnicity, immigrant status, sex, age, marital status, presence of children in the household, educational attainment and household income. We assess race/ethnicity as four mutually exclusive categories: non-Hispanic white, non-Hispanic black, Hispanic and non-Hispanic other. Length of education is categorized as less than 12 years, 12–15 years and 16+ years. Annual household income is categorized as less than \$10,000, \$10,000–\$30,000, \$30,000–\$50,000, over \$50,000 and missing. Marital status is assessed in four categories: married or living with a long term partner, separated or divorced, widowed and never married. Age appears to be linearly related to three of our four outcomes and in our analyses we use a continuous measure. However, we also ran alternative models using 10 year age categories and our results were unchanged. Finally, we include a measure that asks whether participants own their own homes since homeownership is associated with both length of residence and neighborhood-based social support in other studies (Guest et al., 2006).

We use tract-level data from the 2000 US Census in order to assess characteristics of the neighborhood clusters in which participants reside. In order to understand the relationships between individual length of residence independent of neighborhood level residential stability, we include a scaled measure of neighborhood residential stability. This scale combines information from two items: the percent of residents who have been in their house for at least five years and the percent of owner occupied housing units. We operationalize neighborhood poverty as the percent of residents whose reported income falls below the poverty threshold in the year 2000 (\$17,050 for a family of four). We use a continuous measure of neighborhood poverty and test the assumption that this measure is linearly related to our four outcomes.

2.3. Data analysis

First, we examine the distribution of our covariates by quartile of individual residential length using weighted means. Next, we predict each measure of social integration using a multivariate linear regression model. We run separate models for each of our four measures of social integration. Next, we add neighborhood level variables and predict each measure of social integration using a two-level random-intercept hierarchical linear model of respondents nested within neighborhood clusters. Eq. (1) shows the model used to predict each outcome, Y_{ij} , for individual i living in neighborhood j

$$Y_{ij} = \gamma_{00} + \sum^Q \gamma_{q0} X_{qij} + \sum^R \gamma_{0r} W_{rj} + u_{0j} + e_{ij} \quad (1)$$

In the model, γ_{00} is the grand mean of social integration; γ_{q0} is the independent association for each of Q variables, X_{qij} , measured for individual i in neighborhood j ; and γ_{0r} is the independent association for each of R variables, W_{rj} , measured for neighborhood j ; u_{0j} is the unique deviation from the model attributable to neighborhood j and is assumed to be distributed normally across neighborhoods with a mean of zero and variance τ_j ; and e_{ij} is the unique deviation from the model attributable to individual i in neighborhood j and is assumed to be distributed normally across individuals with a mean of zero and variance σ_j that is further assumed to be equal across all neighborhoods.

In an initial model, we include our categories of residential length and a series of demographic covariates including race-ethnicity, immigrant status, gender, age, marital status, presence of children in the household, educational attainment, household income and home ownership. In subsequent models, we add our neighborhood residential stability scale. Next, we adjust for neighborhood poverty. Finally, in our last set of models, we include interactions between a continuous measure of neighborhood poverty and our categorical measure of residential length. To generate graphical representations of our results, we plot the predicted value of social integration measures for each of the four categories of residential longevity across levels of neighborhood poverty at the mean level of other continuous variables. We use HLM version 6.06 for all random effect models and Stata version 11.0 for descriptive statistics.

2.4. Sensitivity analyses

Because age and length of residence are correlated, it is possible that interactions between neighborhood poverty and residential length actually reflect relationships between age, and neighborhood poverty. In order to examine this possibility, we conduct sensitivity analyses to examine whether age moderates the relationship between neighborhood poverty and our measures of social integration. We use a two-level random intercept hierarchical linear model to predict each measure of social integration as a function of age and include the interaction between age and neighborhood poverty.

3. Results

Table 2 describes characteristics of our sample by categories of residential length. As expected, average age increases with increasing residential length and longer-term residents are more likely to be home-owners. Long-term residents are also more likely to be female, black, married, and have fewer years of education, while they are less likely to be Hispanic or of other ethnic origin. Mean levels of social support, nearby social ties, social cohesion and reciprocal exchange, are generally higher for longer-term residents. Longer-term residents also live in neighborhoods characterized as having less poverty and more residential stability.

Table 3 shows results from an initial model of the association between social integration measures and residential length. In this model, we adjust for age, gender, race/ethnicity, immigrant status, education, income, marital status, presence of children, and home ownership. In comparison to those who have lived at their current address for one year or less, longer residence is positively associated with reciprocal exchange, social support and social ties, although not social cohesion. Table 4 presents results from Model 1 and from additional models that contain neighborhood level covariates. In Model 2, we add our neighborhood residential stability scale. The estimates are essentially unchanged from Model 1. The inclusion of neighborhood poverty in Model 3 also has very little effect on the associations between residential length and measures of social integration. Neighborhood poverty is associated with a statistically significant decrease in perceptions of social cohesion. Neighborhood poverty is also associated with statistically significant increases in reciprocal exchange and the number of nearby social ties. Model 4 examines interactions between neighborhood poverty and categories of residential length. For social cohesion and social support, statistically significant and positive interactions suggest that the benefits of longer residence for these measures of social integration are greater in poorer neighborhoods Table 4.

In Fig. 1a and b, we graph social cohesion and social support as functions of individual length of residence, by percentile of neighborhood poverty. These figures are derived from models that include all covariates listed above and reflect a non-Hispanic white and married homeowner who is of average age, with income between \$30,000 and \$50,000, and 12–15 years of education, who has children in the home and who resides in a neighborhood of average stability. These figures illustrate that the increase in both social support and social cohesion by category of residential length is larger at higher levels of neighborhood poverty.

3.1. Sensitivity analyses

Residential length and age are related to each other such that higher categories of residential length represent an older population (see Table 2). Due to this relationship, it is possible that the interactions that we observe between neighborhood poverty and residential length in predicting social cohesion and social support actually reflect relationships between age, neighborhood poverty and social integration. In order to examine this possibility, we conducted sensitivity analyses to examine whether age moderated the relationship between neighborhood poverty and our measures of social integration (results not shown). We do not find a significant interaction ($p < .05$) between age and neighborhood poverty in predicting social cohesion and social support, suggesting that age is not driving the significant interactions that we observe for these two measures.

4. Discussion

Given the well-established importance of social integration for health and well-being (Berkman and Syme, 1979; House et al., 1988; Seeman, 1996) recent studies have sought to better understand the contextual determinants of social support resources. We find that residential length, independent of neighborhood level residential stability, homeownership and demographic characteristics, is associated with larger geographically proximate social networks, greater access to social support, and more favorable perceptions of the extent to which neighbors exchange material and psychosocial support (reciprocal exchange). Our interaction models indicate a statistically significant positive interaction between residential length and neighborhood poverty in predicting social cohesion and social support. These findings became poor. Longitudinal research that explores relationships between social integration and neighborhood change may be informative. Additionally, future research would benefit from data that allow us to differentiate between longer and shorter distance moves. Our measure of residential length does not allow us to distinguish between

individuals who are new to the neighborhood and those who have changed addresses within it.

4.2. Policy Implications

While high-poverty areas undoubtedly contain many insults to health that could accumulate with long-term residence (Diez Roux and Mair, 2010) social integration may serve as an important buffer against these exposures (Mullings and Wali, 1999). Additionally, these risks would not necessarily be overcome by shuffling between multiple high-poverty neighborhoods. In the context of limited employment opportunities and tight rental markets this shuffling is indeed the reality for many low-income households. Furthermore, in many poor neighborhoods, the erosion of policies and programs that promote stability has likely contributed to increasing mobility and displacement. For example, the shift from federally owned public housing to vouchers has meant that rent-assisted households are vulnerable to eviction, the effects of foreclosure, and market fluctuations (Goetz, 2001; Newman and Wyly, 2006). Our findings suggest that such loss of stability may reduce residents' access to social integration and negatively affect their health and well-being.

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Figure 1a. **Figure 1b.** **Fig. 1.**

(a). Length of residence predicting social cohesion by category of neighborhood poverty (predictions from multivariate models using CCHAS sample). Two-level random-intercept hierarchical linear model of respondents nested within neighborhood clusters. Model includes all covariates listed in Table 2. Age and residential stability are mean centered. The reference categories are white, non-immigrant, 12–15 years education, income \$30,000–50,000, married, homeowner with children at home. Refer to Table 1 for description of social cohesion measure. (b). Length of residence predicting social support by category of neighborhood poverty (predictions from multivariate models using CCHAS sample). Two-level random-intercept hierarchical linear model of respondents nested within neighborhood clusters. Model includes all covariates listed in Table 2. Age and residential stability are mean centered. The reference categories are white, non-immigrant, 12–15 years education, income \$30,000–50,000, married, homeowner with children at home. Refer to Table 1 for description of social support measure.

Table 1

Summary statistics for neighborhood social integration scales.

	Mean	SD
Social support ($\alpha=.78$)*	4.09	0.86
How often do you have ... (1= <i>none of the time</i> , 2= <i>a little of the time</i> , 3= <i>some of the time</i> , 4= <i>most of the time</i> , and 5= <i>all of the time</i>)**		
Someone to confide in or talk to about yourself or your problems.		
Someone to take you to the doctor if you had to go?		
Someone to help you with your daily chores if you were sick?		
Someone to loan you a small amount of money if you needed it?		
Social ties ($\alpha=.35$)	2.63	0.99
How many... (1= <i>none</i> , 2= <i>one or two</i> , 3= <i>three to five</i> , 4= <i>six to nine</i> , 5= <i>ten or more</i>)**		
Of your relatives or in-laws live in your neighborhood?		
Friends do you have who live in your neighborhood?		
Social cohesion ($\alpha=.80$)	3.05	0.52
Do you (1= <i>disagree strongly</i> , 2= <i>disagree somewhat</i> , 3= <i>agree somewhat</i> , 4= <i>agree strongly</i>)** that ...		
This is a close-knit neighborhood		
People around here are willing to help their neighbors		
People in this neighborhood generally get along with each other		
People in this neighborhood can be trusted		
People in this neighborhood share the same values		
Reciprocal exchange ($\alpha=.80$)	2.85	0.76
How often do you and your neighbors ... (1= <i>never</i> , 2= <i>rarely</i> , 3= <i>sometimes</i> , 4= <i>often</i>)**		
Do favors for each other?		
Watch over their property when a neighbor is not at home or on vacation?		
Ask each other advice about personal things?		
Have get-togethers where neighbors are invited?		
Visit in each other's homes or on the street?		

* Cronbach's alpha.

** All items were reverse-coded from original questionnaire coding prior to index construction.

Table 2

Characteristics of CCHAS sample by quartile of residential length (with 95% confidence intervals, N=3089) *.

	0-1 Year	95% CI	2-4 Years	95% CI	5-12 Years	95% CI	13+ Years	95% CI	Total	95% CI
<i>N</i>	777		758		743		811		3089	
Individual level variables										
Mean age	33.01	(32.05, 33.97)	37.47	(36.34, 38.60)	43.3	(41.95, 44.61)	55.4	(53.80, 57.01)	42.46	(41.70, 43.22)
% Female	49.18	(44.80, 53.57)	50.12	(45.73, 54.51)	55.84	(51.38, 60.30)	55.64	(51.39, 59.90)	52.68	(50.49, 54.87)
Race										
% Non-hispanic white	39.37	(34.99, 43.73)	36.45	(32.07, 40.820)	36.76	(32.35, 41.21)	40.98	(36.75, 45.20)	38.5	(36.33, 40.60)
% Non-hispanic black	26.70	(23.10, 30.29)	32.19	(28.20, 36.01)	31.02	(27.18, 34.85)	38.22	(34.20, 42.25)	32.10	(30.17, 34.03)
% Hispanic	27.84	(23.91, 31.76)	27.42	(23.60, 31.22)	28.82	(24.78, 32.85)	19.07	(15.70, 22.43)	25.60	(23.72, 27.50)
% Other	6.09	(3.61, 8.57)	3.94	(1.89, 5.98)	3.39	(1.54, 5.23)	1.71	(.559, 2.87)	3.78	(2.8, 4.75)
% First Gen immigrant	27.46	(23.48, 31.45)	30.71	(26.65, 34.77)	31.79	(27.60, 36.00)	18.32	(14.81, 21.84)	26.78	(24.80, 28.76)
% Second Gen immigrant	13.14	(9.98, 16.30)	10.49	(7.68, 13.29)	14.51	(11.16, 17.9)	16.15	(12.98, 19.32)	13.64	(12.07, 15.22)
Education										
<12 Years	19.72	(16.53, 22.89)	23.32	(19.80, 26.83)	24.31	(20.57, 28.05)	25.64	(21.86, 29.42)	23.23	(21.44, 25.06)
12-15 Years	44.62	(40.25, 48.98)	48.21	(43.83, 52.58)	50.27	(45.82, 54.72)	52.04	(47.79, 56.28)	48.77	(46.59, 50.95)
16+ Years	35.66	(31.33, 39.99)	28.46	(24.25, 32.68)	25.41	(21.40, 29.40)	22.31	(18.68, 25.94)	27.91	(25.93, 30.00)
Household income										
<\$ 10,000	13.04	(10.11, 15.96)	10.25	(7.70, 12.80)	9.36	(7.13, 11.59)	7.61	(5.53, 9.68)	10.11	(8.82, 11.30)
\$10,000-30,000	27.56	(23.66, 31.45)	24.19	(20.57, 27.80)	25.52	(21.59, 29.44)	27.50	(23.75, 31.23)	26.19	(24.36, 28.17)
\$30,000-50,000	18.74	(15.40, 22.07)	20.97	(17.36, 24.59)	14.30	(11.31, 17.29)	19.70	(16.32, 23.07)	18.42	(16.82, 20.18)
>\$50,000	24.57	(20.62, 28.53)	27.35	(23.36, 31.34)	31.79	(27.46, 36.11)	23.38	(19.77, 26.99)	26.48	(24.60, 28.57)
Missing income										
% Home owners	17.85	(14.44, 21.24)	31.37	(27.22, 35.52)	46.46	(42.00, 50.90)	67.93	(64.01, 71.84)	41.13	(38.98, 43.29)
% Married or partnered	45.20	(40.81, 49.60)	49.78	(45.39, 54.17)	53.44	(49.03, 57.85)	51.23	(47.01, 55.46)	49.82	(47.64, 52.00)
% Separated or divorced	12.56	(9.98, 15.13)	17.93	(14.75, 21.13)	15.13	(12.21, 18.04)	13.80	(11.05, 16.55)	14.76	(13.34, 16.20)
% Widowed	1.9	(1.00, 3.00)	3.7	(2.29, 5.12)	5.4	(3.52, 7.41)	15.19	(12.38, 18.01)	6.7	(5.75, 7.75)
% Never married	53.4	(49.03, 57.78)	37.3	(33.12, 41.52)	31.9	(27.83, 35.90)	23.8	(20.25, 35.90)	36.68	(34.56, 38.75)
% With children at home	41.84	(37.55, 46.11)	44.13	(39.83, 48.44)	48.41	(43.97, 52.86)	28.48	(24.71, 32.25)	40.31	(38.98, 43.31)
Mean social support ^a	4.05	(3.97, 4.11)	4.11	(4.03, 4.165)	4.09	(4.01, 4.16)	4.16	(4.09, 4.22)	4.10	(4.06, 4.13)

	0-1 Year	95% CI	2-4 Years	95% CI	5-12 Years	95% CI	13+ Years	95% CI	Total	95% CI
Mean social ties ^a	2.50	(2.42, 2.58)	2.53	(2.45, 2.61)	2.64	(2.55, 2.73)	2.84	(2.76, 2.92)	2.63	(2.59, 2.67)
Mean social cohesion ^a	2.98	(2.94, 3.02)	2.96	(2.94, 3.02)	3.09	(3.05, 3.13)	3.17	(3.13, 3.21)	3.05	(3.03, 3.07)
Mean reciprocal exchange ^a	2.64	(2.58, 2.70)	2.76	(2.70, 2.83)	2.97	(2.90, 3.03)	3.02	(2.97, 3.08)	2.85	(2.82, 2.88)
Neighborhood level variables										
Mean % poor ^a	17.96	(17.04, 18.88)	19.78	(18.66, 20.89)	18.02	(16.89, 19.15)	17.71	(16.72, 18.70)	18.34	(17.82, 18.85)
Mean residential stability index ^a	-.33	(-.41, -.22)	-.20	(-.29, -.12)	.009	(-.07, .08)	.322	(.245, .399)	-.047	(-.089, -.005)

* Sample weights are used to adjust for differential selection by neighborhood cluster.

^a Refer to Table 1 for full description of social integration measures and refer to text for full description of neighborhood level variables.

Table 3

Multivariate model predicting social integration measures in the CCAHS sample ($N=3089$)^{*}.

	Social cohesion ^d		Reciprocal exchange ^d		Social support ^d		Social ties ^d	
	b	95% CI	b	95% CI	b	95% CI	b	95% CI
Intercept	2.885 ^a	(2.796 2.97)	2.79 ^a	(2.660 2.930)	4.42 ^a	(4.266 4.571)	0.090 ^a	(2.517 2.873)
<i>Length of residence</i>								
0–1 Year (ref)								
2–4 Years	–0.043 ^c	(–0.09 0.004)	0.108 ^a	(0.036 0.179)	0.070	(–0.14 0.153)	0.024	(–0.072 0.119)
5–12 Years	0.028	(–0.021 0.078)	0.300 ^a	(0.221 0.370)	0.049	(–0.038 0.136)	0.178 ^a	(0.078 0.278)
13+ Years	0.032	(–0.022 0.086)	0.327 ^a	(0.244 0.409)	0.158 ^a	(0.062 0.253)	0.418 ^a	(0.307 0.528)
Age	0.004 ^a	(0.003 0.006)	–0.001	(–0.033 0.002)	–0.006 ^a	(–0.009 –0.003)	–0.005 ^b	(–0.007 0.000)
Female	0.010	(–0.024 0.004)	–0.064 ^b	(–0.116 –0.012)	0.041	(–0.019 0.101)	–0.167 ^a	(–0.236 –0.1)
<i>Race/ethnicity</i>								
Non-hispanic white (ref)								
Non-hispanic black	–0.079 ^a	(–0.130 –0.027)	–0.107 ^a	(–0.184 –0.031)	–0.107 ^b	(–0.193 –0.021)	–0.057	(–0.159 0.044)
Hispanic	0.065 ^b	(0.009 0.121)	–0.088 ^b	(–0.172 –0.003)	–0.048 ^c	(–0.146 0.049)	0.055	(–0.057 0.168)
Non-hispanic other	–0.024	(–0.119 0.069)	–0.108	(–0.252 0.035)	–0.168 ^b	(–0.334 –0.002)	–0.015	(–0.207 0.175)
<i>Immigration status</i>								
Immigrant (1st gen)	0.002	(–0.053 0.056)	–0.092 ^b	(–0.018 –0.009)	0.016	(–0.080 0.111)	–0.039	(–0.149 0.071)
Immigrant (2nd gen)	–0.004	(–0.061 0.052)	–0.024	(–0.110 0.062)	0.033	(–0.067 0.134)	0.096	(–0.018 0.212)
<i>Education</i>								
<12 Years education	–0.032	(–0.09 0.024)	–0.159 ^a	(–0.246 –0.072)	–0.146 ^a	(–0.247 –0.045)	–0.090	(–0.206 0.026)
12–15 Years	–0.048 ^b	(–0.092 –0.004)	–0.073 ^b	(–0.14 –0.006)	–0.058	(–0.136 0.019)	0.055	(–0.034 0.145)
16+ Years education (ref)								
<i>Income</i>								
<\$10,000	–0.071 ^b	(–0.141 –0.001)	0.124 ^b	(0.018 0.229)	–0.121 ^c	(–0.245 0.002)	0.034	(–0.034 0.176)
\$10,000–\$30,000	–0.059 ^b	(–0.011 –0.007)	0.068 ^c	(–0.012 0.147)	–0.100 ^b	(–0.192 –0.01)	0.037	(–0.068 0.143)
\$30,000–\$50,000	–0.065 ^b	(–0.117 –0.013)	–0.023	(–0.103 0.055)	–0.013	(–0.105 0.079)	0.036	(–0.07 0.141)
> \$50,000 (ref)								

	Social cohesion ^d			Reciprocal exchange ^d			Social support ^d			Social ties ^d		
	b	95% CI		b	95% CI		b	95% CI		b	95% CI	
Income missing	-0.072 ^a	(-0.125 -0.018)		-0.057	(-0.138 0.024)		-0.032	(-0.126 0.062)		0.004	(-0.103 0.112)	
Owns home	0.102 ^a	(0.060 0.144)		0.169 ^a	(0.105 0.233)		0.119 ^a	(0.046 0.194)		0.007	(-0.079 0.092)	
<i>Marital status</i>												
Married/partnered (ref)												
Separated/divorced	0.031	(-0.022 0.083)		-0.028	(-0.108 0.052)		-0.157 ^a	(-0.144 0.07)		-0.037	(-0.144 0.07)	
Widowed	0.004	(-0.073 0.08)		-0.073	(-0.189 0.043)		0.020	(-0.09 0.22)		0.065	(-0.09 0.22)	
Never married	-0.003	(-0.051 0.044)		-0.071 ^c	(-0.143 0.001)		-0.062	(-0.15 0.042)		-0.053	(-0.15 0.042)	
Any kids in the home	0.047	(0.007 0.086)		0.119 ^a	(0.059 0.179)		-0.001	(0.024 0.185)		0.104 ^b	(0.024 0.185)	

* Multivariate linear regression model. All included covariates are reported in the table.

^a $p < .01$.

^b $p < .05$.

^c $p < .10$.

^d See Table 1 for full description of social integration variables.

Table 4

Length of residence predicting social integration in the CCAHS sample, with neighborhood cluster level covariates ($N=3089$)^{*}.

	Social cohesion ⁺			Reciprocal exchange ⁺			Social support ⁺			Social ties ⁺		
	<i>b</i>	95% CI		<i>b</i>	95% CI		<i>b</i>	95% CI		<i>b</i>	95% CI	
Model 1[*]												
2-4 Years	-0.043	(-0.09 0.004)		0.108 ^a	(0.036 0.179)		0.070	(-0.014 0.153)		0.024	(-0.072 0.119)	
5-12 Years	0.028 ^c	(-0.021 0.077)		0.295 ^a	(0.221 0.370)		0.049	(-0.038 0.136)		0.178 ^a	(0.078 0.278)	
13+ Years	0.032	(-0.022 0.086)		0.327 ^a	(0.244 0.409)		0.158 ^a	(0.062 0.254)		0.418 ^a	(0.307 0.528)	
Model 2^{**}												
2-4 Years	-0.046 ^c	(-0.092 0.001)		0.108 ^a	(0.036 0.179)		0.070	(-0.014 0.153)		0.024	(-0.072 0.12)	
5-12 Years	0.020	(-0.029 0.069)		0.294 ^a	(0.219 0.369)		0.043	(-0.045 0.130)		0.180 ^a	(0.080 0.28)	
13+ Years	0.014	(-0.04 0.069)		0.322 ^a	(0.238 0.405)		0.140 ^a	(0.043 0.236)		0.425 ^a	(0.314 0.536)	
Neigh. stability	0.097 ^a	(0.073 0.122)		0.020	(-0.018 0.058)		0.062 ^a	(0.022 0.102)		-0.027	(-0.077 0.023)	
Model 3^{**}												
2-4 Years	-0.04 ^c	(-0.086 0.007)		0.104 ^a	(0.032 0.176)		0.071 ^c	(-0.012 0.155)		0.017	(-0.079 0.113)	
5-12 Years	0.025	(-0.024 0.074)		0.291 ^a	(0.216 0.366)		0.044	(-0.044 0.131)		0.174 ^a	(0.074 0.274)	
13+ Years	0.025	(-0.03 0.079)		0.316 ^a	(0.233 0.400)		0.142 ^a	(0.044 0.239)		0.413 ^a	(0.302 0.524)	
Neigh. stability	0.067 ^c	(0.041 0.094)		0.037 ^a	(-0.004 0.079)		0.056 ^c	(0.011 0.101)		0.013	(-0.041 0.068)	
% Poor	-0.554 ^c	(-0.767 -0.34)		0.325 ^a	(-0.007 0.657)		-0.101	(-0.461 0.258)		0.738 ^a	(0.306 1.170)	
Model 4^{**}												
2-4 Years	0.006	(-0.079 0.091)		0.143 ^b	(0.012 0.274)		0.011	(-0.14 0.163)		-0.080	(-0.257 0.093)	
5-12 Years	-0.061	(-0.145 0.024)		0.263 ^a	(0.132 0.393)		-0.035	(-0.19 0.117)		0.198 ^b	(0.024 0.372)	
13+ Years	-0.087 ^c	(-0.176 0.002)		0.359 ^a	(0.221 0.496)		0.0129	(-0.15 0.172)		0.394 ^a	(0.211 0.577)	
Neigh. stability	0.073 ^a	(0.046 0.100)		0.037 ^c	(-0.005 0.079)		0.060 ^a	(0.015 0.105)		0.012	(-0.042 0.067)	
% Poor	-0.749 ^a	(-1.068 -0.430)		0.395	(-0.100 0.891)		-0.458	(-1.01 0.099)		0.603 ^c	(-0.048 1.254)	
% Poor [*] 2-4 years	-0.217	(-0.597 0.162)		-0.205	(-0.791 0.381)		0.334	(-0.34 1.013)		0.519	(-0.26 1.299)	
% Poor [*] 5-12 years	0.459 ^b	(0.08 0.838)		0.158	(-0.427 0.744)		0.422	(-0.26 1.103)		-0.13	(-0.908 0.651)	

	Social cohesion ⁺		Reciprocal exchange ⁺		Social support ⁺		Social ties ⁺	
	<i>b</i>	95% CI	<i>b</i>	95% CI	<i>b</i>	95% CI	<i>b</i>	95% CI
% Poor [*] 13+ years	0.594 ^c	(0.212 0.976)	-0.234	(-0.824 0.356)	0.692 ^b	(0.009 1.375)	0.112	(-0.673 0.896)

^{*} Multivariate linear regression model. Includes all covariates that are reported in Table 2. Refer to Table 1 for description of social integration measures.

^{**} Two-level random-intercept hierarchical linear model of respondents nested within neighborhood clusters. Model includes all covariates that are reported in Table 2. Refer to text for description of neighborhood stability scale.

^a $p < .01$.

^b $p < .05$.

^c $p < .10$.