Social Capital, Neighborhood Perceptions and Self-Rated Health: Evidence from the Los Angeles Family and Neighborhood Survey (LAFANS)

Michael E. Shin
William A. V. Clark
Regan Maas

Social capital, neighborhood perceptions and self-rated health: Evidence from the Los Angeles Family and Neighborhood Survey (LAFANS)

October 2006

Michael E. Shin, William A.V. Clark and Regan Maas
University of California at Los Angeles
Department of Geography
1255 Bunche Hall
Box 951524
Los Angeles, California 90095-1524
shinm@geog.ucla.edu
t. 001.310.980.4535
f. 001.310.206.5976

INTRODUCTION
Neighborhood environments are increasingly recognized to be important contexts where health outcomes are shaped and where interventions can be directed. From the negative health impacts associated with living in areas with high levels of air pollution (1, 2) to the possible health benefits of local social networks(3), a growing body of research suggests that where one lives can indeed influence one's health. Identifying and evaluating which particular neighborhood qualities and characteristics are important to health is central to understanding better the connection between health and place and can inform future health intervention strategies.

Neighborhoods comprise both physical and social environments that overlap and that are not mutually exclusive. We recognize and appreciate both the physical and social dimensions of neighborhoods, but our interest is focused upon the social aspects of the neighborhood environment. With regard to such social aspects, many conceptions and definitions of neighborhoods presume that residents of a particular neighborhood share certain traits and interact with each other. Some of the features of such interactions, such as levels of trust and reciprocity between individuals, fall under the rubric of social capital which is considered by many to be an essential component of productive communities and cohesive neighborhoods(4).

Unlike financial or human capital that is typically considered an individual trait, social capital refers to the nature and quality of social relationships between individuals. Interpersonal trust, norms of reciprocity or mutual aid and civic engagement are qualities that are frequently associated with social capital (5-7). Higher levels of such qualities arguably foster the development of communities and neighborhoods that coalesce and cooperate. Social capital has also been positively linked to a range of societal phenomena including youth development(8, 9), educational attainment(10), economic growth(11), environmental preservation(12) government performance(5), and more recently, health(13, 14).

With regard to the relationship between social capital and health, several possible linkages can be drawn. For instance, individual health may benefit from one neighbor helping another in a time of need or community health may benefit from the collective action of residents protesting the health risks of toxic waste coming from a nearby industrial facility. Aggregate- and individual-level analyses in the United States and elsewhere indicate that social capital is positively related to self-rated health(14) and child obesity risk(15), and inversely related to mortality(16). Despite such findings, questions remain about how social capital is conceptualized and measured and the causal pathways between it and individual health(7, 17, 18).

One overlooked question concerns variations in social capital, and in particular, local-level variations in the relationship between social capital and health. Though macro-level studies indicate that social capital indeed varies geographically, for instance, across the United States(16) or the administrative regions of Italy(5), there is relatively little research on how social capital varies locally or between different population groups(19). In an attempt to assess and illustrate the overall influence and significance of social capital upon health or some other specified outcome, it is often presumed that social capital operates similarly for different groups or from one place to another.

We use the fact that societies are organized geographically to examine how different types of neighborhoods may mediate the association between social capital and health. Though social capital is construed and understood as a societal attribute, societies at large comprise myriad groups and diverse interests. Moreover, such groups and interests, and the

social relationships that constitute them, are situated within particular places. Social capital may reflect this geography. We explored how the relationship between social capital and health varied between different types of neighborhoods. Specifically, we examined how the association between social capital and self-rated health varied between very poor, poor and non-poor neighborhoods across Los Angeles County.

METHODS
Data source
This analysis used data from the first wave of the Los Angeles Family and Neighborhood Survey (LAFANS), a longitudinal study of families in Los Angeles County, the most populous county in the United States (2005 est. pop. 9.94 million)(20). The survey included questions about employment history, education, residential mobility and health. Data used in this analysis are drawn from the adult household composition, neighborhood perception and health outcomes modules. The first wave of interviews with approximately 6,000 residents in 3,500 households was completed in January 2002. The survey includes 65 different neighborhoods (census tracts) across Los Angeles County, and targeted approximately 40 to 50 households from each neighborhood. Hence, the data set includes a diverse sample from the 88 cities within Los Angeles County.

The LAFANS is a stratified random sample designed to over-sample poor neighborhoods or those census tracts with a high proportion residents living below the poverty line. Twenty tracts (neighborhoods) were selected from the very poor group (top ten percent of the poverty distribution), twenty from the poor strata (60th to 89th percentiles) and the remaining 25 tracts comprise the non-poor (bottom 60 percent of the poverty distribution). We took advantage of the sample design and performed strata- or domain-specific logistic regression analyses and compared the results from very poor, poor and non-poor neighborhoods.

Key variables
Self-rated health
The dependent variable used in our analysis is self-rated health. Respondents were asked to rate their general health as either: excellent, very good, good, fair or poor. Answers of excellent/very good/good were coded 1 and fair/poor were coded 0.

Measures of social capital and neighborhood perceptions
The neighborhood perception module of LAFANS asked respondents to answer questions about various neighborhood characteristics and qualities. To gauge local levels of trust and social cohesion, both of which are considered components of social capital, respondents were asked whether they strongly agreed, agreed, were unsure, disagreed or strongly disagreed with the statements, "People in the neighborhood can be trusted," and "This is a close-knit neighborhood". Responses of strongly agree and agree were coded 1 and all other answers were coded 0.

To evaluate reciprocity respondents were asked, "How often do neighbors do favors for each other"? The answers of often and sometimes were coded 1 and answers of rarely or never were coded 0. We also use responses to the question about the number of neighbors with whom a respondent had conversations in the last thirty days to obtain an overall sense of community cohesion and engagement. Respondents who talked to three or

more people were coded 1 and those who talked with fewer than three neighbors were coded 0.

In addition to questions that measure neighborhood levels of social capital, we use answers from two general questions about a respondent's neighborhood. First, respondents were asked about how their neighborhood's safety. Answers of completely safe, safe and fairly safe were coded 1 and somewhat dangerous and extremely dangerous were coded 0. Second, respondents were asked, "How satisfied are you with your neighborhood?". Those very satisfied and satisfied were coded 1 and neutral, dissatisfied and very dissatisfied responses were coded 0.

Demographic characteristics

Standard demographic characteristics such as sex, age group, race/ethnicity, marital status and whether a respondent attended high school are also included in subsequent analyses as binary control variables. LAFANS also contains information about the legal status and citizenship of respondents. Undocumented respondents were coded 1 and those of legal status were coded 0.

Rather than use individual or imputed income, respondents were grouped according to the economic stratum of their neighborhood of residence (i.e., very poor, poor or non-poor). This approach holds income constant across each of the three neighborhood types. By estimating separate logistic regressions for very poor, poor and non-poor neighborhoods in Los Angeles, inter-neighborhood variations in the relationship between social capital and health are revealed. This approach also sheds light upon how different types of neighborhoods may contextualize or shape this and other relationships.

Analyses

Statistical analyses were carried out with SPSS version 12 running on Windows XP. Logistic regressions were used to explore the relationship between the dichotomized self-rated health variable and the measures of social capital, neighborhood satisfaction and safety, and the socioeconomic covariates in very poor, poor and non-poor neighborhoods. Separate backwards conditional regressions were estimated for each neighborhood and variable inclusion was determined on the basis of the likelihood ratio test. Similar stepwise techniques have been used to explore the association between neighborhoods and health elsewhere[21, 22]

RESULTS

The total number of respondents was reasonably similar across neighborhoods; 733 respondents were from very poor neighborhoods, 759 from poor neighborhoods and 957 from non-poor neighborhoods. In order to facilitate comparisons between different neighborhoods, proportions are reported in table 1.

TABLE 1: Percentages and frequencies of social capital measures, neighborhood perceptions and respondent characteristics from the Los Angeles Family and Neighborhood Survey, 2002 (n=2449)

	Very poor neighborhoods N = 733	*Poor neighborhoods* N = 759	*Non-poor neighborhoods* N = 957
	Percent (frequency)	Percent (frequency)	Percent (frequency)
Excellent/very good/ good health	67.5 (494)	73.7 (559)	88.6 (672)
Trust	45.6 (334)	60.6 (460)	82.3 (788)
Close-knit	43.8 (321)	49.8 (378)	64.9 (621)
Favors	56.8 (416)	61.8 (469)	71.2 (681)
Conversations	40.0 (293)	43.0 (326)	48.0 (459)
Neighborhood safety	40.0 (293)	64.7 (491)	88.8 (850)
Neighborhood satisfaction	59.1 (433)	78.0 (592)	91.3 (874)
Female	60.3 (442)	57.8 (439)	58.9 (564)
Married	35.1 (257)	50.1 (380)	60.2 (576)
No High School	57.2 (419)	44.8 (340)	11.5 (110)
Undocumented	29.2 (214)	15.9 (121)	3.6 (34)
Latino	78.7 (577)	72.3 (549)	28.0 (268)
Af. American	16.4 (120)	6.6 (50)	7.0 (67)
Asian-American	0.8 (6)	5.5 (42)	13.4 (128)
White	4.1 (30)	16.5 (125)	53.3 (510)
Age:			
18-24	15.1 (111)	15.5 (118)	8.0 (77)
25-34	39.2 (287)	28.1 (213)	22.7 (217)
35-44	22.2 (163)	30.4 (231)	34.7 (332)
45-54	11.3 (83)	12.8 (97)	17.8 (170)
55-64	6.8 (50)	5.9 (45)	8.6 (82)
$\geq$ 65	5.3 (39)	7.2 (55)	8.3 (79)

Overall, the tabulated results are consistent with previous research and our expectations. Very poor neighborhoods have the fewest respondents reporting excellent, very good or good health, followed by respondents in poor and non-poor neighborhoods, respectively. Several other variables exhibit similar inter-neighborhood variations. For instance, non-poor neighborhoods have the highest proportion of married respondents and the lowest proportion of undocumented workers. Conversely, the poorest neighborhoods of Los Angeles have the highest proportion of respondents who did not attend high school. Female respondents are over-sampled similarly across neighborhood types and each age category contains similar proportions of respondents.

Table 1 also reveals how the racial/ethnic mosaic of Los Angeles County is closely linked to the economic stratum of a neighborhood. Nearly 80 percent of respondents in very poor neighborhoods are Latino, but in non-poor neighborhoods this figure is 28 percent. Similarly, twice as many African-American respondents reside in very poor neighborhoods than in non-poor neighborhoods (16 percent v. 7 percent). This gradient is inversed for Asian Americans and whites, with higher proportions of each group found in non-poor neighborhoods. For comparison, the US Census Bureau reports that approximately 47 percent of all residents in Los Angeles County are Latino, 30 percent are white, 12 percent are of Asian descent and 9 percent are African American(23). The over-sampling of poor neighborhoods subsequently resulted in the over-sampling of Latinos and African American in very poor neighborhoods.

Unsurprisingly, respondent perceptions of neighborhood satisfaction, safety and social capital also vary between very poor, poor and non-poor neighborhoods. Respondents living in non-poor neighborhoods report the highest levels of neighborhood satisfaction (91 percent) and safety (89 percent). These figures are appreciably lower in very poor neighborhoods. With regard to the measures of social capital, respondents in very poor and poor neighborhoods report lower levels of trust, reciprocity and social engagement and cohesion. Of the four measures of social capital, perceived trust exhibits the greatest range between neighborhoods.

Significant odds ratios ($p < 0.05$) and 95 percent confidence intervals from the final step of the strata-specific logistic regressions are reported in table 2. Note that the initial step (not shown) of the backwards-stepwise logistic regressions for each neighborhood type was identical and included all variables identified in table 2. The criteria used to select variables in each of the final models were also identical for each neighborhood.

TABLE 2. Significant odds ratios (and 95% confidence intervals) from logistic regressions in very poor, poor and non-poor neighborhoods in Los Angeles.

	Very poor neighborhoods N=733	*Poor Neighborhoods N=759*	*Non-poor neighborhoods N=957*
Neighborhood variables:			
Trust			
Close-Knit	1.54 (1.08, 2.19)		
Favors			
Conversations			
Safety		1.89 (1.31, 2.72)	
Satisfaction	1.49 (1.04, 2.12)		
Socio-economic control variables			
Female	0.68 (0.48, 0.96)	0.51 (0.35, 0.75)	0.41 (0.25, 0.67)
Married			2.07 (1.33, 3.22)
No high school	0.53 (0.37, 0.75)	0.47 (0.32, 0.68)	0.22 (0.13, 0.38)
Undocumented			0.26 (0.11, 0.62)
Latino			
Asian-American			
African-American			
White		2.96 (1.54, 5.69)	
age 18-24	5.97 (3.25, 10.97)	3.29 (1.75, 6.17)	9.63 (3.51, 26.40)
age 25-34	4.55 (2.89, 7.17)	2.66 (1.56, 5.54)	7.72 (3.56, 16.75)
age 35-44	2.10 (1.32, 3.33)	2.26 (1.37, 3.72)	4.08 (2.15, 7.77)
age 45-54			3.30 (1.62, 6.73)
age 55-65		0.25 (0.12-0.54)	3.05 (1.25, 7.41)

Only the female, high school attendance and lowest-three age group variables are significantly related to self-rated health across all Los Angeles neighborhoods. Females are less likely than males to report good health, as are respondents who did not attend high school. With regard to the latter, respondents who live in non-poor neighborhoods are half as likely to report good health compared to their counterparts in very poor and poor neighborhoods. Married respondents were twice as likely to report good health compared to non-married respondents, but this relationship was only significant in non-poor neighborhoods. Undocumented respondents were less likely to report good health, but again in only non-poor neighborhoods. The variation of this and other results between neighborhoods suggests that personal judgments about health are contingent upon where a respondent lives.

The likelihood of reporting good health decreases as age increases in all neighborhoods, up to age 44 in very poor and poor neighborhoods and up to age 65 in non-poor neighborhoods. Respondents living in non-poor neighborhoods however are far more likely to report good health than are respondents in similar age brackets in very poor and poor neighborhoods. Note also that respondents in the 55 to 64 age bracket living in poor neighborhoods are less likely to report good health than other age groups, but respondents in the same age bracket living in non-poor neighborhoods are three times more likely to report good health.

With the exception of whites in poor neighborhoods, associations between race/ethnicity and self-reported health were largely insignificant across very poor, poor and non-poor neighborhoods in Los Angeles. This result can be explained by our strategy of estimating separate models for very poor, poor and non-poor neighborhoods, and the over-sampling of Latinos. Given the close link between income and race/ethnicity that is present in Los Angeles and other US cities(24), much of the variation in race/ethnicity was probably accounted for when the neighborhoods of Los Angeles County were categorized according to income. Though race/ethnicity has been linked to disparities in health and health outcomes (25-27), this result illustrates that when income differences are considered, racial/ethnic differences in health are much less critical as explanations (28).

Associations between the measures of social capital and self-rated health were also largely insignificant across all neighborhoods in Los Angeles. The only significant relationships between neighborhood variables and self-rated health were found in the poorest neighborhoods of Los Angeles. Neighborhood satisfaction and neighborhood cohesion increased the likelihood of reporting excellent or good health in very poor neighborhoods, and neighborhood safety was linked to good health in only poor neighborhoods. No significant relationships between social capital, neighborhood satisfaction and safety and health exist in non-poor neighborhoods, or those areas which exhibited the highest levels of social capital, neighborhood safety and overall neighborhood satisfaction according to table 1.

DISCUSSION
This study explored whether and how the association between social capital, neighborhood perceptions and self-rated health varied across very poor, poor and non-poor neighborhoods in Los Angeles County. In very poor neighborhoods, higher self-rated health was related to neighborhood cohesion and to neighborhood satisfaction. In poor neighborhoods, safety was linked to higher levels of self-rated health. Finally, no significant relationships were

found between social capital, neighborhood satisfaction and safety, and self-rated health in non-poor neighborhoods.

After controlling for various socioeconomic covariates, we found only moderate associations between social capital, neighborhood perceptions and self-rated health. Moreover, these relationships were limited to poorer neighborhoods in Los Angeles County. Despite these rather modest statistical results, our analyses provide two valuable insights that can inform and guide future research on social capital and urban health.

First, we showed how the relationship between self-rated health, social capital and other covariates is contextualized or shaped differently depending upon whether one lives in a very poor, poor or non-poor neighborhood. For instance, marriage is good for one's health, but only if you live in a non-poor neighborhood. High school attendance is also important to one's health, but less so in poorer neighborhoods. One explanation for such variation between neighborhoods is that individuals make personal judgments and evaluations (e.g., about health) on the basis of their immediate surroundings (e.g., neighbors and neighborhoods). Therefore, "good health" is a relative concept and is a function of where you live, to whom you compare yourself and with whom you interact. Additional research is necessary to explore how these and other relationships vary when categorizing neighborhoods according to similar criteria in different cities or when using different criteria altogether.

Second, holding constant individual income within neighborhoods underscored the significance of financial capital to health outcomes, and highlighted the close link between race/ethnicity and income in Los Angeles County. In addition to accounting for racial/ethnic differences in self-rated health, the neighborhood stratification strategy also accounted for differences in social capital, neighborhood safety and neighborhood satisfaction. Though it is possible that social capital serves as a substitute for financial capital(29), our results do not support this particular claim.

There were some limitations to this study. Categorizing neighborhoods as very poor, poor or non-poor, in order to hold individual income constant, concealed intra-neighborhood variations that may have been notable. Similarly, the use of broad racial/ethnic categories such as Latino and Asian, especially in a large cosmopolitan area like Los Angeles County, conceals possibly significant variations between population sub-groups (e.g., Chinese v. Korean). Comparing the above results to other cities also may not be entirely appropriate given the diverse and unique racial/ethnic complexions of American cities. Finally, as with all cross-sectional analyses, accounting for change, for instance, in the social or economic character of a neighborhood, is not possible with these data.

Our analyses revealed notable differences in levels of social capital between very poor, poor and non-poor neighborhoods in Los Angeles. However, social capital was only marginally linked to self-rated health in only very poor neighborhoods. Though individual opportunities, choices and outcomes, ranging from housing to health, clearly hinge upon income and financial capital, more research is needed to examine how different population groups and cultures construct, use and possibly benefit from social capital. Research that explores such intra- and inter-city variations in social capital and health would be particularly informative(30), and may yield useful information when targeting health promotion policies and strategies in the future.

References

1.	Beate R, Yu F, Chapa G, Fruin S. Effect of Air Pollution on Preterm Birth Among Children Born in Southern California Between 1989 and 1993. . Epidemiology 2000;11(5):502-511.

2.	Parker J, Woodruff T, Basu R, Schoendorf K. Air Pollution and Birth Weight Among Term Infants in California. Pediatrics 2005;115:121-128.

3.	Bosworth H, Schaie K. The relationship of social environment, social networks, and health outcomes in the Seattle Longitudinal Study: two analytical approaches. Journals of Gerontology Series B: Psychological Sciences and Social Sciences 1997;52(5):P197-P205.

4.	Putnam RD. Bowling Alone: the collapse and revival of American community. New York: Simon And Schuster; 2000.

5.	Putnam RD. Making Democracy Work. Princeton: Princeton University Press; 1993.

6.	Paldam M. Social Capital: One or Many? Definition and Measurement. Journal of Economic Surveys 2000;14(5):629-653.

7.	Lochner K, Kawachi I, Kennedy B. Social capital: a guide to its measurement. Health & Place 1999;5:259-270.

8.	Furstenberg F, Hughes M. Social Capital and Successful Development Among At-Risk Youth. Journal of Marriage and the Family 1995;57:580-592.

9.	Runyan DK, Hunter WM, Socolar RRS, Amaya-Jackson L, English D, Landsverk J, et al. Children Who Prosper in Unfavorable Environments: The Relationship to Social Capital. Pediatrics 1998;101(1):12-18.

10.	John P. The Contribution of Volunteering, Trust and Networks to Educational Performance. The Policy Studies Journal 2005;33(4):635-656.

11.	Whiteley P. Economic Growth and Social Capital. Political Studies 2000;48:443-466.

12.	Pretty J, Ward H. Social Capital and the Environment. World Development 2001;29(2):209-227.

13.	Kawachi I. Social Capital and Community Effects on Population and Individual Health. Annals of the New York Academy of Sciences 1999;896:120-130.

14.	Kawachi I, Kennedy BP, Glass R. Social capital and self-rated health: a contextual analysis. Am J Public Health 1999;89(8):1187-1193.

15.	Gerald LB, Anderson A, Johnson GD, Hoff C, Trimm RF. Social class, social support and obesity risk in children. Child: Care, Health and Development 1994;20(3):145-163.

16.	Kawachi I, Kennedy B, Lochner K, Prothrow-Stith D. Social capital, income inequality and mortality. American Journal of Public Health 1997;87:1491-1498.

17.	Lomas J. Social capital and health: Implications for public health and epidemiology. Social Science and Medicine 1998;47(9):1181-1188.

18.	Pearce N, Davey Smith G. Is Social Capital the Key to Inequalities in Health? Am J Public Health 2003;93(1):122-129.

19.	Macinko J, Starfield B. The Utility of Social Capital Research on Health Determinants. The Milbank Quarterly 2001;79(3):387-427.

20.	Sastry N, Ghosh-Dastidar B, Adams J, Pebley A. The Design of a Multilvel Survey of Children, Families, and Communities: The Los Angeles Family and Neighborhood Survey. Los Angeles: RAND Working Paper DRU-2400/1-1-LAFANS; 2003.

21.	Wilson K, Elliot S, Law M, Eyles J, Jerrett M, Keller-Olaman S. Linking perceptions of neighborhood to health in Hamilton, Canada. Journal of Epidemiology and Community Health 2004;58:192-198.

22.	Yang MS, Shih CH, Kawachi I. Development and validation of an instrument to measure perceived neighborhood quality in Taiwan. Journal of Epidemiology and Community Health 2002;56:492-496.

23.	US C. American FactFinder. 2003.

24.	Clark WAV. The California Cauldron: Immigration and the Fortunes of Local Communities. New York: The Guilford Press; 1998.

25.	Vega W, Amaro H. Latino Outlook: Good Health, Uncertain Prognosis. Annual Review of Public Health 1994;15:39-67.

26.	Ward E, Jemal A, Cokkinides V, Singh GK, Cardinez C, Ghafoor A, et al. Cancer Disparities by Race/Ethnicity and Socioeconomic Status. CA Cancer J Clin 2004;54(2):78-93.

27.	Williams DR. Race, Socioeconomic Status, and Health The Added Effects of Racism and Discrimination. Ann NY Acad Sci 1999;896(1):173-188.

28.	Williams D, Collins C. U.S. Socioeconomic and Racial Differences in Health. Annual Review of Sociology 1995;21:349-386.

29.	Robison L, Schmid A, Siles M. Is Social Capital Really Capital? Review of Social Economy 2002;LX:1-21.

30.	Leviton L, Snell E, McGinnis M. Urban Issues in Health Promotion Strategies. American Journal of Public Health 2000;90:863-866.