

## Depressive Symptomology and Hostile Affect among Latinos Using Housing Rental Assistance: the AHOME Study

Earle C. Chambers, Damaris Fuster, Shakira F. Suglia, and Emily Rosenbaum

---

**ABSTRACT** *Studies show that those residing in households subsidized with federal housing vouchers exhibit fewer mental health problems than residents of public housing. The role of housing conditions and neighborhood quality in this relationship is unclear. This study investigated the relationship between rental assistance, housing and neighborhood conditions, and the risk of depressive symptomology and hostile affect among low-income Latino adults living in the Bronx, NY. Latino adults participating in the Affordable Housing as an Obesity Mediating Environment (AHOME) study were used for analysis. All AHOME participants were eligible for federal low-income housing rental assistance (n=385) and living in the Bronx, New York (2010–2012). Housing (crowding and structural deficiencies) and neighborhood (physical disorder and social cohesion) were measured by questionnaire during in-home interview. Depressive symptomology was measured using the Center for Epidemiologic Studies Depression Scale Short Form, CES-D 10 (score  $\geq 10$ ). Hostile affect was measured using items from the Cook-Medley Hostility Scale (score  $\geq 4$ ). Results suggest residents of Section 8 housing have similar levels of depressive symptomology and hostility compared to residents in public housing or those receiving no federal housing assistance. However, depressive symptomology was significantly associated with maintenance deficiencies [OR=1.17; CI 1.02, 1.35] and social cohesion [OR=0.71; CI 0.55, 0.93]. Hostility was significantly associated with perceived crowding [OR=1.18; CI 1.16, 2.85], neighborhood physical disorder [OR=1.94; CI 1.12, 3.40], and social cohesion [OR=0.70; CI 0.50, 0.98]. Low-income housing assistance did not have an independent effect on mental health outcomes. However, characteristics of the housing and neighborhood environments were associated with depressive symptomology and hostility.*

**KEYWORDS** *Housing assistance, Latinos, Hostility, Depression, Psychological stress*

---

Chambers is with the Department of Family and Social Medicine, Albert Einstein College of Medicine, Jack & Pearl Resnick Campus, 1300 Morris Park Avenue, Harold and Muriel Block Building, Room 408, Bronx, NY 10461, USA; Fuster is with the Department of Molecular Imaging and Neuropathology, New York State Psychiatric Institute Columbia University, 1051 Riverside Drive Unit 42, New York, NY 10032, USA; Suglia is with the Department of Epidemiology, Columbia University Mailman School of Public Health, 722 West 168th St., Rm 508, New York, NY 10032, USA; Rosenbaum is with the Department of Sociology and Anthropology, Fordham University, Dealy Hall 402C, Bronx, NY 10458, USA.

Correspondence: Earle C. Chambers, Department of Family and Social Medicine, Albert Einstein College of Medicine, Jack & Pearl Resnick Campus, 1300 Morris Park Avenue, Harold and Muriel Block Building, Room 408, Bronx, NY 10461, USA. (E-mail: earle.chambers@einstein.yu.edu)

## INTRODUCTION

Federal rental assistance programs for low-income residents were designed to provide stable housing options by reducing the economic rental burden. Absent from program design, however, is an assurance that all subsidized households will be able to access the kinds of neighborhoods and housing units that feature social and physical qualities that are associated with good mental and physical health. In particular, of the two main rental subsidy programs for the lowest-income households, the history of the traditional public housing program has often resulted in concentrated poverty environments that tend to lack the resources to support healthy behaviors.<sup>1</sup> In contrast, federal housing vouchers (i.e., those from the Housing Choice Voucher Program [HCVP], formerly known as Section 8), allow low-income residents the option of relocating to housing options in the private market and thus are not necessarily restricted to a given physical location. Whether relocating to neighborhoods with more resources benefits the health outcomes of low-income residents is an understudied area. However, studies show significant health benefits among residents using Section 8 housing vouchers compared to residents of public housing.<sup>2–5</sup> In particular, the Moving to Opportunity (MTO) demonstration published evidence that residents relocating from distressed low-income public housing to housing in areas with lower rates of poverty via a housing voucher report less mental distress and overall better psychological well-being.<sup>6</sup> It has been hypothesized that poor housing conditions in concert with adverse neighborhood environments are associated with the poor mental health outcomes observed in this study; however, the MTO was limited in its ability to examine such mechanisms.

Several housing quality-related factors are associated with mental health among adults including measures of deterioration and overcrowding.<sup>7,8</sup> Poor quality homes characterized by potentially hazardous conditions such as peeling paint, excessive temperatures, and the presence of pests or mold may adversely influence the mental health of residents.<sup>7,9</sup> A series of early reports by Evans et al. examined crowding as a psychological stressor that adversely influences psychological well-being.<sup>10–12</sup> Since then, other studies have shown household crowding to be associated with psychological distress, social withdrawal, and aggression among inhabitants.<sup>8,13,14</sup>

The current study was designed to examine whether the type of housing assistance and the conditions of the home and neighborhood are associated with mental health outcomes of residents. This study was conducted among Latinos living in one of the poorest urban counties in the USA—the Bronx, New York. We hypothesized that low-income residents living in public housing and living in environments characterized by poor quality housing and poor neighborhood conditions would report greater levels of depressive symptomology and hostile affect than those using a federal housing voucher and living under less adverse housing and neighborhood conditions.

## METHODS

### Sample

Data used in this study were from the Affordable Housing as an Obesity Mediating Environment Study (AHOME). Detailed information pertaining to the sample and study design has been previously published.<sup>15</sup> Briefly, AHOME was a cross-sectional study of low-income Latino adults selected randomly from households in the South

and West Bronx, NY. Eligibility criteria included participants  $\geq 18$  years of age, Latino, and eligible for federal low-income housing assistance. All demographic, housing, and mental health information were collected by questionnaire during in-home interviews conducted by trained clinical interviewers. Recruitment and data collection occurred between January 2011 and August 2012. This study was approved by the Institutional Review Boards of the Albert Einstein College of Medicine and Fordham University. All participants gave written informed consent in either English or Spanish prior to engaging in any study-related activities.

### Study Design

The AHOME sample ( $n=385$ ) was drawn using a stratified design, with proportional systematic sampling, to achieve approximately equal numbers of interviews with respondents in each housing type. In this study, housing type was characterized as: public housing; rent subsidized by a (federal) Section 8 voucher; or unassisted (private market with no federal housing assistance). All participants, whether receiving federal rental assistance or not, were income eligible to receive such assistance. Income eligibility for federal assistance was measured using income limits, specific to household size, established by the federal government. For example, a family of 4 would have been eligible for public housing during the study period if its gross income had not exceeded \$61,450; that same family would have been eligible for a Section 8 voucher with a gross income of \$38,400 or less. Data on use of Section 8 vouchers were verified upon interview with the following question asked of participants: "Is any part of the monthly rent for this apartment paid by the Federal Section 8 certificate or voucher program (Housing Choice Voucher Program), either to a member of this household or directly to the landlord"? Use of public housing was initially identified by matching sample addresses to those of New York City Housing Authority (NYCHA) developments. Interviewers, upon arriving at the sampled unit, completed a "check" on the questionnaire that read, "Is sampled housing unit located in NYCHA public housing development?" More details on the data collection strategy are available in a previous publication.<sup>15</sup>

Table 1 shows how the AHOME cohort compares to a sample that was defined by criteria used for study eligibility (i.e., income eligible for federal housing assistance, Latino identity, renter, age  $\geq 18$ ) drawn from the 2011 New York City Housing and Vacancy Survey (NYCHVS).<sup>16</sup> The NYCHVS is a comprehensive survey of New York City's population and housing market conducted triennially by the U.S. Census Bureau under contract to New York City to comply with legislation regarding the continuation of rent control and rent stabilization. Overall, the descriptive characteristics of the AHOME sample compare similarly with those from the established criterion sample (Table 1) with two prominent exceptions: (1) housing type was evenly distributed in the AHOME by design and (2) AHOME sample received more non-federal housing assistance than households sampled for NYCHVS.

### Measures

*Depressive Symptomatology* The Center for Epidemiological Studies Depression Short Form 10 item scale (CES-D 10) was used to measure depressive symptomatology. This scale has been shown to have a high internal reliability when used to evaluate various groups including Latinos.<sup>17,18</sup> CES-D short form is scored

**TABLE 1** Sociodemographic characteristics of AHOME sample and NYC Housing and Vacancy Survey (HVS)

Characteristic	AHOME	HVS
Female	74.8	69.5
Mean age	46.3	47.2
Ethnicity		
Puerto Rican	49.9	40.2
Dominican	39.7	41.4
Cuban	1.8	1.2
Mexican	1.6	4.3
Central/South American	9.2	9.2
Born in US or Puerto Rico	56.6	46.4
Household income (last year)		
\$5000 or less	3.4	6.7
\$5001–\$10,000	20.3	22.1
\$10,001–\$15,000	21.0	13.5
\$15,001–\$20,000	11.4	14.9
\$20,001–\$25,000	9.6	8.1
More than \$25,000	22.3	34.7
Receives non-housing Government assistance <sup>a</sup>	79.7	45.3
Housing type		
Public housing	38.4	14.4
Section 8 voucher	30.4	26.7
Unassisted	31.4	58.9
Mean household size	3.21 (1.8)	2.84 (1.5)
Mean years since moved in	10.3 (9.7)	9.7 (9.4)
Median monthly rent	\$622	\$882
<i>n</i>	383	648

Sample consists of adult Latino renter householders, living in study area and income eligible for federal rental assistance in 2011. All figures are percentages except where noted. Standard deviations in parentheses

*EBT* Electronic Benefit Transfer, *SSI* Social Security Insurance, *TANF* Temporary Assistance for Needy Families, *WIC* Women, Infants, and Children

<sup>a</sup>Types of assistance in HVS are TANF, Safety Net, SSI, and “other” public assistance. In AHOME, assistance types are TANF, WIC, EBT, and SSI

by summing the responses across all 10 items of the scale (items scored 0 to 3).<sup>18</sup> For the AHOME sample, the computed CES-D 10 scale has a Cronbach’s alpha of .84. A score  $\geq 10$  was considered positive for depressive symptomology. This cutoff is consistent with other studies that have used the short form of the CES-D for the screening of depressive symptoms in various populations.<sup>19,20</sup>

*Hostility* Hostility was measured using items for the hostile affect subscale from the larger Cook-Medley Hostility Scale. The following true or false statements were used: (1) “people often disappoint me”; (2) “there are certain people whom I dislike so much that I am inwardly pleased when they are catching it for something they have done”; (3) “some of my family have habits that bother and annoy me very

much”; (4) “I am not easily angered”; and (5) “it makes me impatient to have people ask my advice or otherwise interrupt me when I am working on something important.” The hostility scale was created by first reverse coding the fourth item and then summing responses across all five items. The resulting scale (range 0 to 5) has an internal reliability measured using Cronbach’s alpha of .53; the mean score for the analytical sample is 2.05; s.d=1.39). In the current analysis, an individual was considered positive for hostility with a score of 4 or 5 (i.e., top 16 % of the distribution).

*Housing and Neighborhood Environment* The housing environment was assessed in two ways. The first was a measure of the participant’s perception of crowding within the home. Perceived household crowding was measured using 4 Likert-type items with responses ranging from 1=strongly disagree to 4=strongly agree. Items assessed how strongly participants agreed with the following statements: (1) “at home, there are too many people around”; (2) “in this house, I have almost no time alone”; (3) “In my home, people get in each other’s way”; and (4) “at home, I don’t have room to do things conveniently”. The perceived crowding measure was created by taking the mean of responses across the items. The resulting measure, with a range of values from 1 to 4, is highly reliable (Cronbach’s alpha=.87).

The second indicator of the housing environment was the number of maintenance/structural deficiencies, the resolution of which lies beyond the respondent’s control, that the respondent reports as occurring or as present during the preceding 3 months. The items used to measure maintenance/structural deficiencies were taken from the NYCHVS and include (1) presence of mice or rats; (2) broken plaster >8.5x11 inches; (3) cracks on the walls; (4) leaks from the outside; (5) any toilet breakdowns; (6) any breakdowns of heating equipment (with a reference period of the preceding winter, defined as November through February); and (7) holes in the floor or walls. Affirmative responses were summed across the seven items for a count of deficiencies. This index has been used widely in housing research and has been shown to be a risk factor for adverse health outcomes<sup>21,22</sup>

The neighborhood environment was measured using two constructs: physical disorder and social cohesion. Both constructs were created from well-validated items taken from questionnaires used as part of the Project on Human Development in Chicago’s Neighborhoods (PHDCN).<sup>23</sup> Participants who were asked “how big a problem” were 12 conditions in their neighborhood, and an exploratory factor analysis identified five loading on the construct of physical disorder. These five conditions are: (1) vacant lots with trash or junk; (2) litter, broken glass, or trash on the sidewalks and streets; (3) vacant or deserted housing or storefronts; (4) vandalism, like people breaking windows or windshields, or spray painting buildings; and (5) graffiti on buildings and walls. Response options were coded on a 3-point scale where 1=not a problem, 2=somewhat of a problem, and 3=big problem. The mean score was taken on these five items. The resulting scale of neighborhood physical disorder has very high internal reliability (Cronbach’s alpha=.80). Social cohesion was measured by determining the degree to which respondents agreed with the following: (1) “people around here are willing to help their neighbors”; (2) “this is a close-knit or unified neighborhood”; (3) “people in this neighborhood can be trusted”; (4) “people in this neighborhood do not share the same values”; and (5) “people in this neighborhood generally don’t get along with each other”. Response options were Likert scaled from “strongly agree” to “strongly disagree” (coded 1 to 4). An exploratory factor

analysis indicated that the first three items were highly intercorrelated; thus, a scale tapping into social cohesion was created by taking the mean of responses to these items (Cronbach's  $\alpha=.81$ ).

*Additional Covariates* The following variables were adjusted for in the analysis: interview language (1=Spanish; 0=English); education level (less than high school degree, high school, greater than high school degree); sex (1=female; 0=male); age (in continuous years); and number of comorbidities. A self-reported history of comorbidities (i.e., heart attack, high blood pressure, wheezing/asthma, stroke, diabetes/high blood sugar, cancer) was assessed using the Charlson comorbidity index.<sup>24</sup> A simple summary index was created by counting the number of affirmative responses.

### Statistical Analysis

After a list-wise deletion of cases without valid values ( $n=14$ ) on all variables was completed, the resulting number of participants in the analytic sample was 371. Associations between housing type and the outcomes, and between housing type and all predictors, were assessed with ANOVA, and statistically significant differences between categories of housing type were identified with the Tukey post hoc test. Logistic regression was used to examine the association of housing type and housing and neighborhood environments on depressive symptomology and hostility. Statistically significant results were accepted at  $p<.05$ . All analyses were conducted using SPSS 22.

## RESULTS

Table 2 shows the descriptive statistics for all study variables for the entire AHOME sample by housing type. Residents of public housing have a higher prevalence of depressive symptomatology (45 %) than voucher users (39 %) or unassisted residents (32 %). These differences, however, did not achieve statistical significance. Residents of the three housing types were statistically indistinguishable in terms of age, the percent female, and the indicators of the housing environment. In contrast, Tukey post hoc tests indicated that participants without any federal housing assistance were more likely than public housing residents to have completed the interview in Spanish (62 vs. 47 %) and to have less than a high school degree (53 vs. 37 %). Public housing residents reported more health comorbidities and observed more neighborhood physical disorder than residents without federal housing assistance.

Housing type was not significantly associated with depressive symptomology or hostility, adjusting for other covariates (Table 3). However, perceived crowding and presence of maintenance deficiencies were associated with depressive symptomology [OR=1.17; CI 1.02, 1.35] and hostility [OR=1.182; CI 1.16, 2.85], respectively.) Physical disorder of the surrounding neighborhood was positively associated with high hostility [OR=1.94; CI 1.12, 3.40], while perceptions of social cohesion in the neighborhood were associated with lower levels of depressive symptomology [OR=0.71; CI 0.55, 0.93] and hostility [OR=0.70; CI 0.50, 0.98].

**TABLE 2** Descriptive statistics by housing type, AHOME ( $n=371$ )

Variable	Housing type				F-stat
	Public	Section 8			
	Housing	Voucher	Unassisted	All	
<b>Outcomes</b>					
Depressive symptomatology	45.0	39.3	32.8	39.4	2.02
Hostile affect	16.4	15.2	17.7	16.4	0.13
<b>Covariates</b>					
<b>Background</b>					
Age (mean)	46.78	47.20	44.54	46.19	1.12
Female	74.3	76.8	72.3	74.4	0.31
Spanish interview	47.1	50.0	62.2	52.8	3.21*
<b>Education</b>					
Less than high school	52.9	50.0	37.0	46.9	3.61*
High school degree	27.9	29.5	40.3	32.4	2.61
More than high school	19.3	20.5	22.7	20.8	0.23
No. of health comorbidities (mean, range 0–7)	1.36	1.22	0.86	1.16	6.46*
<b>Housing environment</b>					
Perceived crowding (mean, range 1–4)	1.98	2.01	2.07	2.02	0.61
No. maintenance deficiencies (mean, range 0–7)	2.76	2.53	2.61	2.64	0.63
<b>Neighborhood environment</b>					
Physical disorder (mean, range 1–3)	1.80	1.51	1.45	1.60	14.33*
Social cohesion (mean, range 1–5)	2.70	2.71	2.87	2.76	1.12
<i>n</i>	140	112	119	371	

All figures are percentages, except where noted

\* $p < .05$

## DISCUSSION

The kind of neighborhood one lives in can influence emotional well-being. The results of this study show that housing characteristics are important to consider when assessing the role of the built and social environments on mental health outcomes. Unlike the reports from MTO,<sup>25</sup> our study did not show a significant relationship between housing assistance and mental health outcomes in bivariate or multivariate analysis. However, we do find clear evidence of associations between mental health outcomes and the kinds of neighborhood characteristics—physical disorder and especially social cohesion—that varied across the neighborhoods chosen by the MTO voucher groups. Social cohesion is a construct that captures the trust and closeness of the social networks in a community. It is hypothesized that neighborhoods with high social cohesion reflect communities that are more supportive of overall well-being and characterized by lower crime rates, more civic participation, and better access to health care among others.<sup>26–30</sup>

This report contributes to the growing literature regarding how adverse neighborhoods may contribute to feelings of depression and hostility among



**TABLE 3 Results of logistic regression models (odds ratio and 95 % confidence interval) predicting depressive symptomatology and hostile affect, AHOME ( $n=371$ )**

Covariates	Depressive symptomatology		Hostile affect	
	OR	95 % CI	OR	95 % CI
Housing type				
Public housing (ref.)				
Section 8 voucher	0.865	(.50, 1.50)	1.201	(.57, 2.53)
Unassisted	0.857	(.48, 1.53)	1.738	(.80, 3.76)
Background				
Age	1.013	(.99, 1.03)	1.005	(.98, 1.03)
Female	1.410	(.83, 2.40)	0.986	(.50, 1.96)
Spanish interview	0.642	(.39, 1.05)	0.672	(.35, 1.31)
Education				
Less than high school (ref.)				
High school degree	1.035	(.61, 1.76)	0.955	(.48, 1.90)
More than high school	1.072	(.59, 1.95)	0.823	(.37, 1.83)
No. of health conditions	1.514	* (1.22, 1.88)	1.141	(.85, 1.53)
Housing environment				
Perceived crowding	1.182	(.83, 1.69)	1.821	* (1.16, 2.85)
No. of maintenance deficiencies	1.170	* (1.02, 1.35)	1.191	(1.00, 1.42)
Neighborhood environment				
Physical disorder	1.137	(.73, 1.76)	1.948	* (1.12, 3.40)
Social cohesion	0.717	* (.55, .93)	0.702	* (.50, .98)
Nagelkerke $R^2$	0.164		0.163	

\* $p < .05$ 

residents.<sup>8,13,31–33</sup> Galea et al. showed that poorer features of the built environment increased the risk of depression over a lifetime by 36–64 %.<sup>34</sup> Our study also contributes to the lesser examined relationship between the housing environment and mental health outcomes. We observed an increased risk for depression and hostility with increase in the number of maintenance deficiencies in the housing unit. This finding highlights the influence of problems that lie outside of the individual's control and is consistent with other reports showing that signs of building deterioration have a negative effect on mental health of residents.<sup>7,9,35,36</sup> In addition, overcrowding is more prevalent in urban environments and among low-income and foreign-born households.<sup>37</sup> Many of the early studies examining the role of the home environment on mental health including psychological distress looked closely at the effects of overcrowding.<sup>14,35,38–40</sup> Crowding is associated with social withdrawal and poor maintenance of supportive relationships.<sup>8,13,41</sup> It is also linked to feelings of helplessness.<sup>10,35</sup> In our study, we used a unique measure of perceived crowding that captures feelings of overcrowding as opposed to more commonly used objective measures of household density using people per room. People per room may not adequately capture the degree to which an inhabitant is stressed by the number of people occupying the home.<sup>38</sup> Studies have shown that perceptions of crowding, measured using items such as adequacy of space and privacy, are more strongly associated with mental health outcomes than measures of household density—i.e., people per room.<sup>8,42</sup> The measure we created in this study may be better able to identify those that are stressed by the density of their living arrangement to the point of undermining their psychological health.



Any interpretation of our study results should be done with the knowledge of a few limitations. The cross-sectional nature of the AHOME study limits the causal inferences that can be derived. It cannot be determined, for example, whether the increased risk of hostility associated with perceptions of neighborhood is the result of more poorly perceived neighborhoods contributing to higher levels of hostility if those with higher hostile affect perceive their neighborhoods more poorly. A longitudinal design would be necessary where the temporal relationship between perceptions of environment could be assessed prior to mental health outcomes. It is, also, possible that our estimates could be affected by endogeneity and sample selection bias. Endogeneity may arise from the fact that individuals must choose to apply for housing assistance; this decision may be correlated with unobserved variables that also influence the outcomes. We estimated separate models that stratified unassisted participants by whether or not they ever applied for federal housing assistance, a simple control for endogeneity in the case of a means-tested program that is not also an entitlement, but found similar results to those we report.

## CONCLUSION

A large proportion of Latinos live in low-income, low-resourced neighborhoods.<sup>43,44</sup> As the need for affordable housing options continues to increase, concern also grows regarding whether characteristics of low-income neighborhoods have deleterious effects on residents. This is particularly important among Latinos as they are an increasing demographic and an increasing percentage of the rental market in need of low-income housing options.

## ACKNOWLEDGMENTS

The authors would like to thank the participants of The AHOME study for their important contributions. We would also like to acknowledge the contribution of the AHOME clinical interviewers and student interns whose dedication made this study possible."

*Sources of Funding.* The AHOME Study is funded by a grant from the John D. and Catherine T. MacArthur Foundation's "How Housing Matters to Families and Communities" research program (grant no. 94005-0). Dr. Chambers was also supported, in part, by National Heart, Lung, and Blood Institute research grants N01HC65235 and K01HL125466.

## REFERENCES

1. Massey D, Denton N. *American apartheid: segregation and the making of the underclass*. Cambridge: Harvard University Press; 1993.
2. Dunn JR. Housing and inequalities in health: a study of socioeconomic dimensions of housing and self reported health from a survey of Vancouver residents. *J Epidemiol Community Health*. 2002; 56(9): 671-81.
3. Galea S, Ahern J, Nandi A, Tracy M, Beard J, Vlahov D. Urban neighborhood poverty and the incidence of depression in a population-based cohort study. *Ann Epidemiol*. 2007; 17(3): 171-9.

4. Galea S, Ahern J, Vlahov D. Urban neighborhood socioeconomic status and incidence of depression in a population-based cohort study. *Am J Epidemiol.* 2005; 161(11): S124–S124.
5. Shaw M. Housing and public health. *Annu Rev Public Health.* 2004; 25: 397–418.
6. Leventhal T, Brooks-Gunn J. Moving to opportunity: an experimental study of neighborhood effects on mental health. *Am J Public Health.* 2003; 93(9): 1576–82.
7. Suglia SF, Duarte CS, Sandel MT. Housing quality, housing instability, and maternal mental health. *J Urban Health.* 2011; 88(6): 1105–16.
8. Regoeczi WC. Crowding in context: an examination of the differential responses of men and women to high-density living environments. *J Health Soc Behav.* 2008; 49(3): 254–68.
9. Shenassa ED, Daskalakis C, Liebhaber A, Braubach M, Brown M. Dampness and mold in the home and depression: an examination of mold-related illness and perceived control of one's home as possible depression pathways. *Am J Public Health.* 2007; 97(10): 1893–9.
10. Evans GW. Behavioral and physiological consequences of crowding in humans1. *J Appl Soc Psychol.* 1979; 9(1): 27–46.
11. Evans G, Lepore SJ, Schroder A. The role of interior design elements in human responses to crowding. *J Pers Soc Psychol.* 1996; 70(1): 41–6.
12. Evans GW, Lepore SJ, Allen KM. Cross-cultural differences in tolerance for crowding: fact or fiction? *J Pers Soc Psychol.* 2000; 79(2): 204–10.
13. Regoeczi WC. When context matters: a multilevel analysis of household and neighbourhood crowding on aggression and withdrawal. *J Environ Psychol.* 2003; 23(4): 457–70.
14. Gomez-Jacinto L, Hombradas-Mendieta I. Multiple effects of community and household crowding. *J Environ Psychol.* 2002; 22(3): 233–46.
15. Chambers EC, Rosenbaum E. Cardiovascular health outcomes of Latinos in the affordable housing as an obesity mediating environment (AHOME) study: a study of rental assistance use. *J Urban Health.* Nov 5 2013.
16. New York City Housing and Vacancy Survey (NYCHVS). <https://www.census.gov/housing/nychvs/>. Accessed Mar 3, 2014.
17. Grzywacz JG, Hovey JD, Seligman LD, Arcury TA, Quandt SA. Evaluating short-form versions of the CES-D for measuring depressive symptoms among immigrants from Mexico. *Hispanic J Behav Sci.* 2006; 28(3): 404–24.
18. Hann D, Winter K, Jacobsen P. Measurement of depressive symptoms in cancer patients: evaluation of the center for epidemiological studies depression scale (CES-D). *J Psychosom Res.* 1999; 46(5): 437–43.
19. Chang K-F, Weng L-J. Screening for depressive symptoms among older adults in Taiwan: cutoff of a short form of the center for epidemiologic studies depression scale. *Health.* 2013; 5: 588.
20. Andresen EM, Malmgren JA, Carter WB, Patrick DL. Screening for depression in well older adults: evaluation of a short form of the CES-D (Center for epidemiologic studies depression scale). *Am J Prev Med.* 1994; 10(2): 77–84.
21. Rosenbaum E. Racial/ethnic differences in asthma prevalence: the role of housing and neighborhood environments. *J Health Soc Behav.* 2008; 49(2): 131–45.
22. Rosenbaum E, Gaumer E. Racial/ethnic disparities in self-rated health: the mediating role of housing and neighborhood conditions. Paper presented at the International Urban Health Conference; New York, NY; 2010.
23. Raudenbush SW, Sampson RJ. Ecometrics: toward a science of assessing ecological settings, with application to the systematic social observation of neighborhoods. *Sociol Methodol.* 1999; 29: 1–41.
24. Charlson ME, Pompei P, Ales KL, MacKenzie CR. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. *J Chronic Dis.* 1987; 40(5): 373–83.

25. The moving to opportunity for fair housing demonstration program final impacts evaluation. [http://www.huduser.org/publications/pdf/HUD\\_MTOExecSummary\\_v4.pdf](http://www.huduser.org/publications/pdf/HUD_MTOExecSummary_v4.pdf). Accessed March 5, 2014.
26. Sampson RJ. The neighborhood context of well-being. *Perspect Biol Med*. 2003; 46(3): S53–64.
27. Berkman LF, Kawachi I. *Social epidemiology*. New York, NY: Oxford University Press, 2000
28. Galea S, Karpati A, Kennedy B. Social capital and violence in the United States, 1974–1993. *Soc Sci Med*. 2002; 55(8): 1373–83.
29. Hendryx MS, Ahern MM, Lovrich NP, McCurdy AH. Access to health care and community social capital. *Health Serv Res*. 2002; 37(1): 87–103.
30. Kawachi I. Social capital and community effects on population and individual health. *Ann N Y Acad Sci*. 1999; 896: 120–30.
31. Latkin CA, Curry AD. Stressful neighborhoods and depression: a prospective study of the impact of neighborhood disorder. *J Health Soc Behav*. 2003; 44(1): 34–44.
32. Gump BB, Matthews KA, Raikonen K. Modeling relationships among socioeconomic status, hostility, cardiovascular reactivity, and left ventricular mass in African American and white children. *Health Psychol Off J Div Health Psychol Am Psychol Assoc*. 1999; 18(2): 140–50.
33. Ewart CK, Suchday S. Discovering how urban poverty and violence affect health: development and validation of a Neighborhood Stress Index. *Health Psychol Off J Div Health Psychol Am Psychol Assoc*. 2002; 21(3): 254–62.
34. Galea S, Ahern J, Rudenstine S, Wallace Z, Vlahov D. Urban built environment and depression: a multilevel analysis. *J Epidemiol Community Health*. 2005; 59(10): 822–7.
35. Evans GW. The built environment and mental health. *J Urban Health*. 2003; 80(4): 536–55.
36. Weich S, Blanchard M, Prince M, Burton E, Erens B, Sproston K. Mental health and the built environment: cross-sectional survey of individual and contextual risk factors for depression. *Br J Psychiatry*. 2002; 180: 428–33.
37. Blake K, Kellerson R, Simic A. *Measuring overcrowding in housing*. Bethesda, MD: US Department of Housing and Urban Development
38. Vine I. Crowding and stress: 1. Review of variables and theories. *Curr Psychol Rev*. 1981; 1(3): 305–23.
39. Evans GW, Palsane MN, Lepore SJ, Martin J. Residential density and psychological health: the mediating effects of social support. *J Pers Soc Psychol*. 1989; 57(6): 994–9.
40. Gabe J, Williams P. Is space bad for your health? The relationship between crowding in the home and emotional distress in women. *Sociol Health Illn*. 1986; 8(4): 351–71.
41. Wells NM, Harris JD. Housing quality, psychological distress, and the mediating role of social withdrawal: a longitudinal study of low-income women. *J Environ Psychol*. 2007; 27(1): 69–78.
42. Gove W, Hughes M, Galle O. Overcrowding in the home: an empirical investigation of its possible pathological consequences. *Am Sociol Rev*. 1979; 44(February): 59–80.
43. Powell LM, Slater S, Mirtcheva D, Bao Y, Chaloupka FJ. Food store availability and neighborhood characteristics in the United States. *Prev Med*. 2007; 44(3): 189–95.
44. Dinwiddie GY, Gaskin DJ, Chan KS, Norrington J, McCleary R. Residential segregation, geographic proximity and type of services used: evidence for racial/ethnic disparities in mental health. *Soc Sci Med*. 2013; 80: 67–75.