Perceptions of Neighborhood Disorder: The Role of Individual and Neighborhood Characteristics

Irma T. Elo
University of Pennsylvania

Laryssa Mykyta
University of Pennsylvania

Rachel Margolis
University of Pennsylvania

Jennifer F. Culhane
Children's Hospital of Philadelphia, Drexel School of Medicine

Abstract

Objectives—The study of neighborhood effects on health and wellbeing has regained prominence in recent years. Most authors have relied on Census data and other administrative data sources to assess neighborhood characteristics. Less commonly employed, but gaining in popularity, are measures from surveys which ask neighborhood residents about various aspects of their neighborhood environment. Such surveys are a potentially attractive alternative or augmentation to administrative data sources.

Methods—Using data from a study of neighborhood effects on pregnancy outcomes among low income, inner city women in Philadelphia, PA (N=3,988), we examined psychometric and ecometric properties of scales used to assess perceptions of crime and safety, physical disorder and social disorder, and estimated effects of individual and neighborhood level predictors on perceptions.

Results—The three perceived neighborhood disorder scales had high internal consistency and good neighborhood level reliability. Several individual attributes of the women predicted perceptions of neighborhood disorder controlling for neighborhood level characteristics (within census tract, *fixed-effect* estimates). In addition, our objective indicators of neighborhood crime, physical and social disorder were highly significant predictors of women's perceptions, explaining over 70% of the between neighborhood variation in perceptions.

Conclusions—When data on objective neighborhood characteristics are unavailable the inclusion of questions about residents' perceptions of neighborhood conditions in surveys of inner city residents provides a useful alternative to characterize neighborhood conditions.

INTRODUCTION

In recent years there has been a resurgence in studies examining associations between residential context and health and wellbeing in the United States (Brooks-Gunn, Duncan, and Aber, 1997; Kawachi and Berkman, 2003; Rajaratnam, Burke and O'Campo, 2006). These studies have investigated associations between neighborhood conditions and birth

outcomes (e.g., Morenoff, 2003; O'Campo et al., 2008), adult health and mortality (e.g., Diez-Roux et al., 1997; Ross and Mirowsky, 2008; Yen and Kaplan, 1999; Anderson et al., 1997); health behaviors (e.g., Duncan, Jones, and Moon, 1999; Shenassa, Leibhaber, and Ezeamama, 2006); educational attainment (e.g., Garner and Raudenbush, 1991; Ainsworth, 2002); crime and delinquency (e.g., Sampson, Raudenbush, and Earls, 1997; Morenoff, Sampson and Raudenbush, 2001); and child and adolescent development (e.g., Brooks-Gunn et al., 1993; Duncan and Raudenbush, 1999; Aneshensel and Sucoff, 1996). Most studies have documented modest "neighborhood effects."

Several features of residential context are hypothesized to affect health and wellbeing, including the local service environment (e.g., availability of health services, recreational facilities, day care services, grocery stores), social environment (e.g., social networks, peer influences, crime and violence), and physical characteristics (e.g., quality of the housing stock, and physical disorder) (Ellen and Turner, 1997; Robert, 1999; Morenoff and Lynch, 2004; Sampson, Morenoff, and Gannon-Rowley, 2002; Culhane and Elo, 2005). Several types of data have been used to assess neighborhood conditions, including Census data and other administrative data sources (e.g., Morenoff, 2003), survey data assessing residents' perceptions of neighborhood characteristics (e.g., Mujahid et al., 2007) and trained raters' evaluations of physical and social disorder (Raudenbush and Sampson, 1999).

Of these sources, Census data, owing to its widespread availability, have been most commonly employed to characterize neighborhood level socioeconomic status (SES) (e.g., Anderson et al., 1997; Robert, 1998; O'Campo et al., 2008; Smith et al., 1998), race/ethnic composition (e.g., Morenoff, 2003), family structure (e.g., LeClere, Rogers and Peters, 1997, 1998), and residential stability (e.g., Subramanian et al., 2006; Sampson, Morenoff and Earls, 1999). To supplement these measures, researchers have used other administrative data sources and commercial databases to construct neighborhood level crime rates (e.g., Morenoff, 2003; Sundquist et al., 2006), measure availability of recreational facilities and stores (Cummins, et al., 2005; Giles-Corti and Donovan, 2002; Yen and Kaplan, 1999) and assess exposure to environmental hazards (e.g., Maisonet et al., 2001). Surveys of residents' perceptions have assessed neighborhood level social interactions (e.g., Samspon, Morenoff and Earls, 1999; Mujahid et al., 2007), social and physical disorder (e.g., Christie-Mizell, Steelman and Stewart, 2003), crime and safety (e.g., Echeverria, Diez-Roux and Link, 2004), walking environment and opportunities for physical activities (e.g., Boslaugh et al., 2004), and availability of healthy foods (e.g., Echeverria, Diez-Roux and Link, 2004; Mujahid et al., 2007). The perceptions data have been used both to predict individual outcomes (e.g., Balfour and Kaplan, 2002; Cho, Park and Echevarria-Cruz, 2005; Moren-Cross et al., 2006) and to construct aggregate ecological measures of neighborhood environments (Buka et al., 2003; Mujahid et al., 2007).

Survey respondents' perceptions of neighborhood conditions offer a potentially attractive alternative to administrative data sources, providing researchers greater flexibility in studying features of neighborhoods that are related to causal mechanisms through which neighborhoods are hypothesized to affect health and wellbeing. However, individuals' perceptions may result in flawed inferences about associations between neighborhood characteristics and individual outcomes due to reporting bias. Prior research, for example, has shown that several individual level attributes predict residents' perceptions of neighborhood conditions and/or neighborhood satisfaction with and without controls for neighborhood level characteristics, including individual level SES (St. John and Clark, 1984; Geis and Ross, 1998; Sampson and Raudenbush, 2004; Boslaugh et al., 2004), length of residency (Cook, 1988; Parkes, Kearns and Atkinson, 2002), home ownership (Sampson and Raudenbush, 2004), race/ethnicity (Sampson and Raudenbush, 2004; Geis and Ross, 1998; St. John, 1987; Quillian and Pager, 2001; Boslaugh et al., 2004), and age (St. John,

1987; Geis and Ross, 1998; Sampson and Raudenbush, 2004; Quillian and Pager, 2001; Cantwell and Jenkins, 1998). These findings suggest that individuals from varying backgrounds may use different standards to evaluate neighborhood quality.

Nevertheless, residents' perceptions have also been shown to reflect objective reality. In a study of disorder in Chicago neighborhoods, Sampson and Raudenbush (2004) found objective indices of social and physical disorder derived from systematic social observation to be significant predictors of residents' perceptions of disorder. Similarly, neighborhood level crime measures were significant predictors of individuals' perceptions of crime and safety in Chicago, Baltimore and Seattle (Quillan and Pager, 2001). Others have shown neighborhood level availability of amenities and services (e.g., grocery stores) to be associated with residents' perceptions of neighborhood quality and satisfaction (Cantwell and Jenkins, 1998). At the same time, neighborhood level SES and race/ethnic composition have predicted perceptions of neighborhood conditions such that higher poverty rates and a higher percentage of black residents were associated with a higher level of perceived crime and disorder (Sampson and Raudenbush, 2004; Quillan and Pager, 2001).

Despite the growing interest in survey based measures of residents' perceptions of neighborhood conditions, relatively few studies have assessed the psychometric and ecometric properties of scales used to assess individuals' perceptions, including the extent to which individuals in the same neighborhood rate their neighborhoods similarly (Raudenbush and Sampson, 1999; Boslaugh et al., 2004; Mujahid et al., 2007). And no prior study we know of has specifically focused on a low income, inner city population. In this paper, we contribute to the neighborhood effects literature utilizing data from a study of pregnancy outcomes among low income, inner city women who were residents of Philadelphia, PA in 1999–2004. The paper has two principal objectives: (1) to assess the psychometric and ecometric properties of three scales designed to measure residents' perceptions of crime and safety, physical disorder, and social disorder; and (2) to examine how individual level attributes and corresponding objective neighborhood level indicators drawn from secondary data sources are related to the three scales.

DATA AND METHODS

Study Population

We used data from the baseline survey of a prospective cohort study designed to investigate the role of stress and neighborhood context on race/ethnic differences in pregnancy outcomes in Philadelphia, PA funded by the Centers for Disease Control and Prevention. English and Spanish speaking women seeking prenatal care at community-based health centers between February 1999 and September 2004 were recruited into the study at the time of their first prenatal care visit. These health centers serve low income residents throughout the city and provide primary care, including prenatal care, to adults and children regardless of the person's ability to pay. Community-based female interviewers with experience interviewing disadvantaged women conducted the interviews using standardized questionnaires. Information was obtained about women's socio-demographic characteristics, health behaviors, maternal health, psychosocial characteristics, social support, housing, and perceptions of neighborhood conditions (Culhane et al., 2002).

Of the 5,303 eligible women, 4,879 (92%) consented to participate in the study. Based on the women's home address at the time of the survey approximately 95% (4,653) of the women were successfully geocoded to their residential census tract and block group. Of these women, we excluded 391 women who were younger than age 18, 124 women who identified their race/ethnicity as other than Non-Hispanic (NH) white, NH black, or Hispanic, and 150 women due to missing information on variables of interest. The final

sample consisted of 3,988 women. When compared to all Philadelphia resident women who gave birth in 2001 based on vital statistics birth record data, women in our sample were younger, more likely to be NH black and more likely to be foreign born, to be less educated, and less likely to be married. Educational and marital status differences were most pronounced for NH whites (results not shown).

Perceptions of Neighborhood Conditions

We measured perceptions of neighborhood conditions in three domains: crime and safety, physical disorder, and social disorder. The survey questions on which these perceptions were based were drawn from the work of Coulton, Korbin, and Su (1996) and were similar to those used in prior research on perceptions of neighborhood disorder (Skogan, 1990; Taylor, 2001; Sampson and Raudenbush, 2004). Each domain was made up of several questions utilizing a 10-point Likert scale ranging from 1-Rarely/Not worried to 10 Frequently/Very worried (Table 1). For each scale the score was estimated as the sum of the items in the scale. Perceptions of crime and safety were measured by seven questions regarding how worried the respondent was about crime and drug activity in her neighborhood. The physical disorder scale was based on five questions measuring whether trash, graffiti, abandoned cars, vacant buildings and houses and yards not being kept up constituted "a problem" in the neighborhood. Perceptions of social disorder were assessed by four questions concerning the extent to which unemployed adults, public drunkenness, young adults hanging around, and gang activity were a "problem" in the neighborhood.

Constructed Neighborhood Characteristics

Our corresponding objective measures of neighborhood characteristics were based on administrative record data available from the Cartographic Modeling Laboratory (CML) of the University of Pennsylvania (http://cml.upenn.edu/), the 2000 Census of Population (U.S. Census 2000, Summary File 3), and Philadelphia resident birth certificates (Table 1). Neighborhood level crime was measured by 1999–2001 Philadelphia Police Department data on serious incidents against persons (aggravated assault and robbery), residential burglaries and narcotics arrests. Except for narcotics arrests, these indicators were based on reported incidents to which the police responded, whether or not an arrest was made. We used residential burglaries rather than property crimes (e.g., purse snatchings, pickpockets, bicycle theft) because they tend to be better reported (Sampson and Raudenbush, 1999). We standardized serious incidents against persons and narcotics arrests per 1,000 population and residential burglaries per 1,000 households based on the 2000 Census of Population (Sampson and Raudenbush, 1999;Rountree and Land, 1996).

Our four objective measures of physical disorder approximated facets of physical disorder captured by the survey questions. Two housing quality measures were based on 2000 data collected by Philadelphia's Department of Licenses and Inspections (L&I): percent vacant buildings and percent of properties with L&I violations. We calculated graffiti and vandalism incident rates per 1,000 properties using 1999–2001 Philadelphia Police Department data on reported incidents of graffiti and vandalism.

Measures of social disorder were more difficult to obtain from secondary data and relied on proxy measures similar to ones used in prior studies. These proxy measures came from the 2000 Census and 1999–2001 vital statistics birth record data: (1) percent of youth aged 16–19 not enrolled in school and not in the labor force; (2) percent of males aged 20–29 not in the labor force; (3) percent female-headed households with children, and (4) teen birth rate per 1,000. The first two items approximated loitering youth and disenfranchised men, and the last two have been previously used to capture adult supervision and weak forms of informal social control (Sampson, Raudenbush and Earls, 1997; Ross, 2000; Hipp, 2007).

We also controlled for race/ethnic (percent NH black and percent Hispanic) and SES composition of the neighborhood (percent poor) (Quillian and Pager, 2001; Sampson and Raudenbush, 2004; St. John, 1987). We measured residential stability by percent of persons residing in the same house in 2000 as in 1995. Stable neighborhoods have been hypothesized to foster the creation and maintenance of stable community structures and social organizations (Sampson, Morenoff, and Earls, 1999).

Definition of Neighborhood

Most studies of neighborhood effects in the United States have used census tracts (e.g., Kaufman et al., 2003; Mujahid et al., 2007; O'Campo et al., 1997; Quillian and Pager, 2001) or census block groups (e.g., Diez-Roux et al., 1997; Messer et al., 2006; Pearl, Braveman and Abrams 2001; Sampson and Raudenbush, 2004) to define neighborhood boundaries. Others have used boundaries delineated on the basis of homogenous neighborhood clusters (Buka et al., 2003; Morenoff, 2003; Mujahid et al., 2007; Sampson, Morenoff, and Earls, 1999), and investigated whether the way in which the neighborhood is defined has a substantive impact on findings with mixed results (e.g., Diez-Roux et al., 2001; Hipp 2007; Krieger et al., 2002; Mujahid et al., 2007; Sampson and Raudenbush, 2004). We present results from analyses that used census tracts to define neighborhood boundaries; the use of block groups did not alter our conclusions (results not reported).

Individual Characteristics

We included several individual level characteristics that have been found to predict perceptions of neighborhood quality (Quillian and Pager, 2001; Sampson and Raudenbush, 2004; St. John, 1987). Maternal age was dichotomized into two categories (< 30 years and 30+ years), because preliminary analysis found no differences in perceptions among women less than 30 years. We coded race/ethnicity as NH white, NH black, and Hispanic. We distinguished among foreign and native born women, and among single, married/cohabiting, and a small group of women who were separated, divorced, or widowed.

We included several measures of SES. Educational attainment distinguished among women with less than high school education, high school degree or a GED, and at least some college. We measured access to financial resources by whether the respondent had access to a working credit card or a checking account and by a measure of material hardship based on how often the respondent reported not having enough money for basic housing needs, including bills, food, clothing, medical care and leisure activities, which was coded into four categories ranging from low to high material hardship.[1] In this study population, the above measures better captured variation in economic resources than household income. We also included a categorical measure of housing stress based on the sum of negative housing indicators reported by the respondent[2], history of homelessness or frequent moves, crowding, residence in public housing, and utility cutoffs. Housing stress was coded as no housing stress (no negative housing indicators), low housing stress (one negative indicator), moderate housing stress (two negative indicators), and high housing stress (three or more negative indicators).

---

[1]Respondents were asked how often they were unable to: (1) make monthly payments on bills; (2) afford the kind of food you should have; (3) afford the leisure activities you want; (4) afford the type of medical care you should have; and (5) afford the kind of clothing you should have. Responses to each question ranged from 1 (Never) to 5 (Very often). These responses are summed and the hardship scale is coded as 1 (Sum=4–6); 2 (Sum=7–10); 3 (Sum=11–15) and 4 (Sum>=16).

[2]Respondents were asked whether their housing had: (1) peeling paint; (2) a lot of bugs; (3) broken windows; (4) broken or missing window screens; (5) broken or dangerous steps; (6) broken or missing locks on the doors; (7) graffiti in public spaces; (8) stopped up or overflowing toilets; (9) other busted plumbing; (10) leaking roof; (11) a lot of rats and mice; (12) other serious problems with your housing. Two or more affirmative responses to these questions indicated poor housing quality.

We constructed a dichotomous measure of social support from the following questions: "Do you know someone who: (1) would take you to the doctor; (2) would loan you $100; (3) would help you with daily chores if you were sick; (4) you could talk to about problems; and (5) would watch your children. A high level of instrumental support indicates a "yes" response to all five questions. We also adjusted for the length of time the woman had resided in her neighborhood to control for the possibility that neighborhood perceptions were influenced by length of residence.

Several studies have linked poor health status and depressive symptomatology to perceptions of neighborhood conditions hypothesizing that adverse neighborhood conditions contribute to poor mental and physical health (Cho, Park, and Echevarria-Cruz, 2005; Geis and Ross, 1998). However, individuals' emotional and physical health status may also influence perceptions of neighborhood conditions and in a cross-sectional survey it is impossible to establish the direction of causality. We tested whether respondents' self-reported health status (fair/poor versus good/very good/excellent) and depressive symptomatology, measured by the Center for Epidemiologic Studies Depression Scale (CES-D-score ≥ 16), confounded the association between individual and neighborhood level predictors and women's perceptions.

Statistical Analysis

We assessed the psychometric properties of the three disorder scales using Cronbach's alpha coefficient. To estimate effects of individual and neighborhood level variables we employed models that accounted for the nested structure of the data and the dependence of residents' responses within census tracts. These models can be thought of as within neighborhood and between neighborhood equations and are designed to assess the ecometric properties of neighborhood scales (Mujahid et al., 2007; Sampson and Raudenbush, 2004).

The level-1 linear model (persons within neighborhoods) can be written as follows:

$$Y_{ij} = \beta_{0j} + \sum_z \beta_z X_{zij} + e_{ij}$$

(1)

where Y_{ij} represents neighborhood perceptions of individual i in neighborhood j, β_{0j} is the neighborhood specific intercept, X_{zij} is the value of individual level explanatory variable z, $\beta_z's$ are a vector of coefficients associated with z; and e_{ij} is the individual error term which is assumed to be normally distributed with a mean 0 and variance σ^2.

In the level-2 model (neighborhoods) the intercept from level-1 varies randomly across neighborhoods.

$$\beta_{0j} = \delta_{00} + \sum_k \delta_{ok} N_{kj} + \mu_{oj}$$

(2)

where δ_{oo} represents the average perception score across all neighborhoods, δ_{0k} are neighborhood level regression coefficients, N_{kj} are neighborhood level characteristics, and μ_{0j} is the between neighborhood variance with a mean 0 and variance θ^2, representing the variability in neighborhood mean scores across neighborhoods. The two models were estimated simultaneously via maximum likelihood.

To examine the percentage of the variability in the scale scores, we calculated the intra-neighborhood correlation coefficient (ICC) with and without controls for individual and

neighborhood level covariates as follows: $ICC = \frac{\theta^2}{\theta^2 + \sigma^2}$; where θ^2 is between neighborhood variance and σ^2 is within neighborhood variance. The ICC ranges from 0 to 1; a value closer 1 indicates greater agreement of women residing in the same neighborhood (Merlo et al., 2005; Mujahid et al., 2007; Raudenbush and Sampson, 1999).

We assessed the neighborhood level reliability of the scales as follows: Reliability $= \Sigma \, [\theta^2 / (\theta^2 + \sigma^2 / N_j)] / J$, representing the average of the neighborhood-specific reliability scores across J neighborhoods and N_j represents the number of women in the jth tract (J=314). This measure is a function of both the sample size *(N)* in each census tract j and the proportion of the total variance that is between neighborhoods (Sampson, Morenoff, and Earls, 1999:641).

We also estimated within neighborhood effects of individual level explanatory variables to assess whether individual level characteristics had an independent influence on women's perceptions controlling for all observed and unobserved neighborhood characteristics that may influence perceptions, and which are common to women residing in the same census tract (*fixed-effects* model). In these models, the outcome and the explanatory variables were centered on their neighborhood means (Rabe-Hesketh and Skrondal, 2005). For continuous outcomes they are also equivalent to a linear regression model with a dummy variable for each neighborhood (Hsiao, 1986; Greene, 1997). All models were estimates using xtreg or xtmixed commands in STATA 9 (Stata Corporation, 2005).

RESULTS

As seen in Table 2, the study sample was relatively young with over 80% below age 30. Nearly 70% of the women were NH black, about 23% Hispanic and less than 10% NH white. Although the sample was socioeconomically disadvantaged, there was variation in educational attainment, material hardship and adverse housing conditions, as well as health status, depressive symptomotology, and neighborhood tenure.

Descriptive statistics for the perceived neighborhood disorder scales are shown in Table 3. The items within each domain were highly correlated with Cronbach's α ranging from 0.86 to 0.90. The neighborhood level reliabilities ranged from 0.57 for crime and safety to 0.65 for physical and social disorder, values that were similar or slightly lower than those found in other studies (Sampson, Morenoff and Earls, 1999;Mujahid et al., 2007). The ICCs went from 0.15 for crime and safety to 0.22 for physical and social disorder, meaning that 15% to 22 % of the variance was between neighborhoods and the remainder was attributed to individual level variation and random error. The between neighborhood variance fell within the range in prior studies (Sampson, Morenoff and Earls, 1997;Sampson and Raudenbush, 2004;Mujahid et al., 2007).

Table 4 provides descriptive statistics for neighborhood characteristics based on the 2000 Census and administrative data sources, and their correlations with corresponding perceived neighborhood scales. These correlations were moderate ranging from 0.20 to 0.35 for crime and safety, from −0.23 to 0.46 for physical disorder, and from 0.22 to 0.38 for social disorder. We suspect that the negative correlations for graffiti and vandalism measures reflected variation across neighborhoods in reporting of such incidents. Neighborhood level race/ethnicity, poverty and residential stability exhibited positive correlations with all three scales, except for percent Hispanic, in which case the correlation was negative (Table 4), suggesting that a higher percentage of Hispanic residents in a census tract was associated with lower perceived neighborhood disorder.

Our second objective was to investigate whether individual attributes influenced respondents' perceptions. As seen in Table 5, several characteristics of the respondents were significant predictors of perceptions even when adjusting for all neighborhood level conditions shared by women living in the same census tract (within tract *fixed-effect* estimates). Older women were less concerned about crime and safety and reported lower levels of perceived physical and social disorder than younger women. Hispanic women were more concerned about crime and safety than NH black women, but reported significantly less perceived physical disorder. Foreign born women also reported significantly less perceived physical and social disorder than native-born women. We also found that more disadvantaged women, whether measured by material hardship or housing stress, were significantly more likely to be concerned about crime and safety in their neighborhoods and to report significantly higher levels of perceived physical and social disorder than more advantaged respondents. Similarly more educated women reported less worry about crime and safety and perceived less neighborhood disorder, although the effect was significant only in the case of perceived social disorder. Finally, women with a longer duration of stay in their neighborhood and those who reported a low level of instrumental support were significantly more likely to be worried about crime and safety and to report higher levels of perceived physical and social disorder than women with a shorter tenure or with a high level of support. Adjustment for depressive symptomotology and health status did not alter the findings shown in Table 5.

The results in Table 6 address the question of whether neighborhood level characteristics influenced perceptions of neighborhood disorder. The results provide unambiguous evidence that both serious incidents against persons and narcotics arrests were highly significant predictors of perceptions of crime and safety, controlling for individual level characteristics (Table 6, Model 1). Their addition, together with residential burglaries, explained 79% of the between neighborhood variance (θ^2=35.02, adjusting for measured individual-level characteristics only, versus 7.51). In addition, higher percent NH black residents, higher levels of neighborhood poverty, and greater residential stability exhibited a significant positive association with perceptions of crime and safety. Adjustment for these characteristics reduced the association between perceptions of crime and safety and serious incidents against persons by 60% and narcotics arrests by 63%.

Two measures of physical disorder (percent vacant buildings and L&I violations) were significant positive predictors of perceived level of physical disorder, while reported incidents of graffiti and vandalism continued to exhibit a negative association (Table 6). These neighborhood level measures explained 76% of the between neighborhood variance in perceptions of physical disorder (θ^2=26.50, adjusting for individual-level characteristics, versus 6.39). As with perceptions of crime and safety, higher neighborhood level poverty and residential stability predicted a higher perceived level of physical disorder and their addition to the model reduced the size of the coefficients for vacant buildings and L&I violations by about 40%.

The results for perceived social disorder exhibited a similar pattern. Neighborhood level measures of social disorder explained 71% of the between neighborhood variance in perceptions (θ^2=18.03, adjusting for individual level characteristics, versus 5.22), and the addition of other neighborhood level characteristics attenuated the effects of these social disorder measures, except in the case of idle youth. Two of the objective measures – teen birth rate and idle youth – remained statistically significant predictors of perceived social disorder in Model 2 (Table 6).

DISCUSSION

This paper contributes to the growing literature on the measurement of neighborhood conditions by examining the psychometric and ecometric properties of three scales designed to assess residents' perceptions of crime and safety, physical disorder and social disorder and by investigating whether individual level attributes within neighborhoods predicted perceptions and whether objective neighborhood level characteristics were associated with residents' perceptions. Our neighborhood disorder scales had high internal consistency and reasonably high neighborhood level reliabilities. These results were similar to those in prior studies (e.g., Raudenbush and Sampson 1999; Muhajid et al. 2007).

We also found that several individual level characteristics predicted perceptions (within census tract, *fixed-effect* estimates), including age, Hispanic ethnicity, nativity, poor housing conditions, material hardship, low level of instrumental support, and neighborhood tenure. Older women were significantly less worried about crime and safety and reported lower levels of perceived physical and social disorder than younger women, results that were consistent with prior studies (Sampson and Raudenbush, 2004; Muhajid et al., 2007). Older women may have wider social networks that span neighborhood boundaries and thus they may use different standards to evaluate neighborhood quality. In contrast to prior results, we did not find significant differences in perceptions between NH black and NH white women. One possible explanation for this finding is that the NH white women in this study were remarkably similar on several SES measures to the NH black women. For example, 35% of the NH white women had not completed high school compared to 28% of the NH black women and 50% of the NH whites reported high or very high material hardship compared to 40% of the NH blacks (results not shown). At the same time, Hispanic women perceived significantly less physical disorder than NH black women, but they were significantly more likely to be worried about crime and safety than NH blacks. An interaction between nativity and Hispanic ethnicity indicated that only foreign born Hispanic women were more worried about crime and safety than NH blacks. The interaction between Hispanic ethnicity and nativity was not significant in the model predicting perceptions of physical disorder. In addition, women who experienced higher levels of housing stress and material hardship and those who reported a low level of social support were significantly more worried about crime and safety and reported higher levels of perceived physical and social disorder. Thus economic deprivation and lack of social resources also appear to shape how individuals perceive their immediate residential environment.

Despite these individual differences in perceptions, our objective indicators of neighborhood crime, physical and social disorder were highly significant predictors of women's perceptions. Our objective neighborhood level measures explained over 70% of the between neighborhood level variance in perceived crime and safety and perceived neighborhood level physical and social disorder, controlling for individual level attributes. At the same time, women's perceptions were conditioned by neighborhood level SES and race/ethnic composition. A higher prevalence of NH blacks and a higher poverty rate in the census tract were associated with greater worry about crime and safety and higher levels of perceived social disorder. These findings may reflect deeply held stereotypical views of poor areas and NH blacks relative to other minority groups (Quillian and Pager, 2001; Sampson and Raudenbush, 2004; Skogan, 1995). At the same time, it may be that a higher poverty rate or a higher percentage of NH blacks in a census tract captured neighborhood characteristics that were not well summarized by our objective neighborhood level indicators. In particular, police department records may understate the actual level of crime, especially if police are less likely to respond to or report incidents in disadvantaged neighborhoods. Crime may also be underreported by citizens in neighborhoods where there is a distrust of police, cynicism about their effectiveness in restoring order, or fear of retaliation from gangs (Venkatesh,

1997). Similarly, our measures of social disorder may not adequately capture features of neighborhoods that residents associate with social disorganization.

Although the nature of our sample limits our ability to generalize our findings, our results were remarkably consistent with previous studies that examined the psychometric and ecometric properties of neighborhood scales based on surveys of neighborhood residents. We further demonstrated that low income women's perceptions of neighborhood level crime and safety and physical and social disorder had good neighborhood level reliabilities and that objective neighborhood level characteristics explained a large fraction of between neighborhood level variation in corresponding perceived neighborhood disorder scales. Thus our results suggest that when data on objective neighborhood characteristics are not available the inclusion of questions about residents' perceptions of neighborhood conditions in survey instruments provides a useful alternative for constructing area level measures of neighborhood conditions.

Acknowledgments

REFERENCES

Ainsworth, James W. Why Does It Take a Village? The Mediation of Neighborhood Effects on Educational Achievement. Social Forces. 2002; 81:117–52.

Anderson, Roger T.; Sorlie, Paul; Backlund, Eric; Johnson, Norman; Kaplan, George A. Mortality Effects of Community Socioeconomic Status. Epidemiology. 1997; 8:42–7. [PubMed: 9116094]

Aneshensel, Carol S.; Sucoff, Carol A. The Neighborhood Context of Adolescent Mental Health. Journal of Health and Social Behavior. 1996; 37:293–310. [PubMed: 8997886]

Balfour, Jennifer L.; Kaplan, George A. Neighborhood Environment and Loss of Physical Function in Older Adults: Evidence from the Alameda County Study. American Journal of Epidemiology. 2002; 155:507–15. [PubMed: 11882524]

Boslaugh, Sarah E.; Luke, Douglas A.; Brownson, Ross C.; Naleid, Kimberly S.; Kreuter, Matthew W. Perceptions of Neighborhood Environment for Physical Activity: Is it Who You Are or Where You Live? Journal of Urban Health. 2004; 81:671–81. [PubMed: 15466848]

Brooks-Gunn, Jeanne; Duncan, Greg J.; Aber, Lawrence, editors. Neighborhood Poverty: Context and Consequences for Children. Russell Sage Foundation; New York: 1997.

Brooks-Gunn, Jeanne; Duncan, Greg J.; Klebanov, Pamela K.; Sealand, Naomi. Do Neighborhoods Influence Child and Adolescent Development? American Journal of Sociology. 1993; 99:353–95.

Buka, Stephen L.; Brennan, Robert T.; Rich-Edwards, Janet W.; Raudenbush, Stephen W.; Earls, Felton. Neighborhood Support and the Birthweight of Urban Infants. American Journal of Epidemiology. 2003; 157:1–8. [PubMed: 12505884]

Cantwell, Marilyn L.; Jenkins, Dorothy I. Housing and Neighborhood Satisfaction of Single-Parent Mothers and Grandmothers. In: Hamilton-Thompson, A.; Futrell, JA., editors. Resiliency in African-American Families. Sage; Thousand Oaks, CA: 1998. p. 99-115.

Cho, Youngtae; Park, Gil-Sung; Echevarria-Cruz, Samuel. Perceived Neighborhood Characteristics and the Health of Adult Koreans. Social Science and Medicine. 2005; 60:1285–97. [PubMed: 15626524]

Christie-Mizell, C. Andre; Steelman, Lala Carr; Stewart, Jennifer. Seeing their Surroundings: The Effects of Neighborhood Setting and Race on Maternal Distress. Social Science Research. 2003; 32:402–28.

Cook, Christine C. Components of Neighborhood Satisfaction: Responses from Urban and Suburban Single-Parent Women. Environment and Behavior. 1988; 20:115–49.

Coulton, Claudia J.; Korbin, Jill E.; Su, Marilyn. Measuring Neighborhood Context for Young Children in an Urban Area. American Journal of Community Psychology. 1996; 24:5–32.

Culhane, Jennifer F.; Rauh, Virginia A.; McCollum, Kelly; Elo, Irma T.; Hogan, Virginia. Exposure to Chronic Stress and Ethnic Differences in Rates of Bacterial Vaginosis among Pregnant Women. American Journal of Obstetrics and Gynecology. 2002; 187:1272–6. [PubMed: 12439519]

Culhane, Jennifer F.; Elo, Irma T. Neighbourhood Context and Reproductive Health. American Journal of Obstetrics and Gynecology. 2005; 192(Supplement 1):S22–S29. [PubMed: 15891708]

Cummins, Steven; Macintyre, Sally; Davidson, Sharon; Ellaway, Anne. Measuring Neighbourhood Social and Material Context: Generation and Interpretation Using Routine and Non-Routine Data. Health & Place. 2005; 11:249–60. [PubMed: 15774331]

Diez-Roux, Ana V.; Kiefe, CI.; Jacobs, DR., Jr.; Haan, M.; Jackson, SA.; Nieto, FJ.; Paton, CC.; Schulz, R. Area Characteristics and Individual Level Socioeconomic Position Indicators in Three Population-Based Epidemiologic Studies. Annals of Epidemiology. 2001; 11:395–405. [PubMed: 11454499]

Diez-Roux, Ana V.; Javier Nieto, F.; Muntaner, Carles; Tyroler, Herman A.; Comstock, George W.; Shahar, Eyal; Cooper, Lawton S.; Watson, Robert L.; Szklo, Moyses. Neighborhood Environments and Coronary Heart Disease: A Multilevel Analysis. American Journal of Epidemiology. 1997; 146:48–63. [PubMed: 9215223]

Duncan, Craig; Jones, Kelvyn; Moon, Graham. Smoking and Deprivation: Are There Neighborhood Effects? Social Science and Medicine. 1999; 48:497–505. [PubMed: 10075175]

Duncan, Greg J.; Raudenbush, Stephen W. Assessing the Effects of Context in Studies of Child and Youth Development. Educational Psychologist. 1999; 34:29–41.

Echevarria, Samuel E.; Diez-Roux, Ana V.; Link, Bruce G. Reliability of Self-Reported Neighborhood Characteristics. Journal of Urban Health. 2004; 81:682–701. [PubMed: 15466849]

Ellen, Ingrid Gould; Turner, Margery A. Does Neighborhood Matter? Assessing Recent Evidence. Housing Policy Debate. 1997; 8:833–66.

Garner, Catherine L.; Raudenbush, Stephen W. Neighborhood Effects on Educational Attainment: A Multilevel Approach. Sociology of Education. 1991; 64:251–62.

Geis, Karlyn J.; Ross, Catherine E. A New Look at Urban Alienation: The Effect of Neighborhood Disorder on Perceived Powerlessness. Social Psychology Quarterly. 1998; 61:232–46.

Giles-Corti, Billie; Donovan, Robert J. Relative Influences of Individual, Social Environmental and Physical Environmental Determinants of Physical Activity. Social Science and Medicine. 2002; 54:1793–1812. [PubMed: 12113436]

Greene, WH. Econometric Analysis. Third Edition. Prentice Hall; Upper Saddle River, NJ: 1997.

Hipp, John R. Block, Tract and Levels of Aggregation: Neighborhood Structure and Crime and Disorder as a Case in Point. American Sociological Review. 2007; 72:659–680.

Hsiao, C. Analysis of Panel Data. Cambridge University Press; Cambridge: 1986.

Kaufman, Jay S.; Dole, Nancy; Savitz, David A.; Herring, Amy H. Modelling Community-level Effects on Preterm Birth. Annals of Epidemiology. 2003; 13:377–384. [PubMed: 12821277]

Kawachi, Ichiro; Berkman, Lisa F., editors. Neighborhoods and Health. Oxford University Press; New York: 2003.

Krieger, Nancy; Chen, Jarvis T.; Waterman, Pamela D.; Soobader, Mah-Jabeen; Subramanian, SV.; Carson, Rosa. Geocoding and Monitoring of US Socioeconomic Inequalities in Mortality and Cancer Incidence: Does the Choice of Area-Based Measure and Geographic Level Matter? American Journal of Epidemiology. 2002; 156:471–82. [PubMed: 12196317]

LeClere, Felicia B.; Rogers, Richard G.; Peters, Kimberley D. Ethnicity and Mortality in the United States: Individual and Community Correlates. Social Forces. 1997; 76:169–98.

LeClere, Felicia B.; Rogers, Richard G.; Peters, Kimberley D. Neighborhood Social Context and Racial Differences in Women's Heart Disease Mortality. Journal of Health and Social Behavior. 1998; 39:91–107. [PubMed: 9642901]

Maisonet, Mildred; Bush, Timothy J.; Correa, Adolfo; Jaakola, Jouni J.K. Relation Between Ambient Air Pollution and Low Birth Weight. Environmental Health Perspectives. 2001; 109:351–6. [PubMed: 11427384]

Merlo, Juan; Chaix, Basile; Yang, Min; Lynch, John; Rastam, Lennart. A Brief Conceptual Tutorial of Multilevel Analysis in Social Epidemiology: Linking the Statistical Concept of Clustering to the Idea of Contextual Phenomenon. Journal of Epidemiology and Community Health. 2005; 59:443–9. [PubMed: 15911637]

Messer, Lynne C.; Kaufman, Jay S.; Dole, Nancy; Savitz, David A.; Laraia, Barbara A. Neighborhood Crime, Deprivation and Preterm Birth. Annals of Epidemiology. 2006; 16:455–462. [PubMed: 16290179]

Moren-Cross, Jennifer L.; Wright, Darlene R.; LaGory, Mark; Lanzi, Robin Gaines. Perceived Neighborhood Characteristics and Problem Behavior Among Disadvantaged Children. Child Psychiatry and Human Development. 2006; 36:273–294. [PubMed: 16362241]

Morenoff, Jeffrey D. Neighborhood Mechanisms and the Spatial Dynamics of Birth Weight. American Journal of Sociology. 2003; 108:976–1017.

Morenoff, Jeffrey D.; Lynch, John. What Makes a Place Healthy? Neighborhood Influences on Racial/Ethnic Disparities in Health Over the Life Course. In: Anderson, NB.; Bulatao, RA.; Cohen, B., editors. Critical Perspectives on Racial and Ethnic Differences in Health in Late Life. National Academies Press; Washington, DC: 2004. p. 406-449.

Morenoff, Jeffrey D.; Sampson, Robert J.; Raudenbush, Stephen W. Neighborhood Inequality, Collective Efficacy, and the Spatial Dynamics of Urban Violence. Criminology. 2001; 39:517–59.

Mujahid, Mahasin S.; Diez-Roux, Ana V.; Morenoff, Jeffrey D.; Raghunathan, Trivellore. Assessing the Measurement Properties of Neighborhood Scales: From Psychometrics to Ecometrics. American Journal of Epidemiology. 2007; 165:858–67. [PubMed: 17329713]

O'Campo, Patricia; Xue, Xiaonan; Wang, Mei-Cheng; Caughy, Margaret O'Brien. Neighborhood Risk Factors for Low Birth Weight in Baltimore: A Multilevel Analysis. American Journal of Public Health. 1997; 87:1113–1118. [PubMed: 9240099]

O'Campo P, Burke JG, Culhane J, Elo IT, Eyster J, Holzman C, Messer LC, Kaufman JS, Laraia BA. Neighborhood Deprivation and Preterm Birth among Non-Hispanic Black and White Women in Eight Geographic Areas in the United States. American Journal of Epidemiology. 2008; 167:155–163. [PubMed: 17989062]

Parkes, Alison; Kearns, Ade; Atkinson, Rowland. What Makes People Dissatisfied with Their Neighborhoods? Urban Studies. 2002; 39:2413–38.

Pearl, Michele; Braveman, Paula; Abrams, Barbara. The Relationship of Neighborhood Socioeconomic Characteristics to Birthweight Among 5 Ethnic Groups in California. American Journal of Public Health. 2001; 91:1808–1824. [PubMed: 11684609]

Quillian, Lincoln; Pager, Devah. Black Neighbors, Higher Crime? The Role of Racial Stereotypes in Evaluations of Neighborhood Crime. American Journal of Sociology. 2001; 107:717–67.

Rabe-Hesketh, Sophia; Skrondal, Andres. Multilevel and Longitudinal Modeling Using Stata. Stata Press; College Station, Texas: 2005.

Rajaratnam, Julie K.; Burker, Jessica G.; O'Campo, Patricia. Maternal and Child Health and Neighborhood Context: The Selection and Construction of Area-level Variables. Health and Place. 2006; 12:547–556. [PubMed: 16188483]

Raudenbush, Stephen W.; Sampson, Robert J. Ecometrics: Toward a Science of Assessing Ecological Settings, with Application to the Systematic Social Observation of Neighborhoods. Sociological Methodology. 1999; 29:1–41.

Robert, Stephanie A. Community-Level Socioeconomic Status Effects on Adult Health. Journal of Health and Social Behavior. 1998; 39:18–37. [PubMed: 9575702]

Robert SA. Socioeconomic Position and Health: The Independent Contribution of Community Socioeconomic Context. Annual Review of Sociology. 1999; 25:489–516.

Ross, Catherine E. Neighborhood Disadvantage and Adult Depression. Journal of Health & Social Behavior. 2000; 41:177–187.

Ross, Catherine E.; Mirowsky, John. Neighborhood Socioeconomic Status and Health: Context or Composition? City and Community. 2008; 7:163–179.

Rountree, Pamela W.; Land, Kenneth C. Burglary Victimization, Perceptions of Crime Risk, and Routine Activities: A Multilevel Analysis Across Seattle Neighborhoods and Census Tracts. Journal of Research in Crime and Delinquency. 1996; 33:147–80.

Sampson, Robert J.; Raudenbush, Stephen W. Systematic Social Observation of Public Spaces: A New Look at Disorder in Urban Neighborhoods. American Journal of Sociology. 1999; 105:603–51.

Sampson, Robert J.; Raudenbush, Stephen W. Seeing Disorder: Neighborhood Stigma and the Social Construction of "Broken Windows". Social Psychology Quarterly. 2004; 67:319–42.

Sampson, Robert J.; Raudenbush, SW.; Earls, Felton. Neighborhoods and Violent Crime: A Multilevel Study of Collective Efficacy. Science. 1997; 277:918–24. [PubMed: 9252316]

Sampson, Robert J.; Morenoff, Jeffrey D.; Earls, Felton. Beyond Social Capital: Spatial Dynamics of Collective Efficacy for Children. American Sociological Review. 1999; 64:633–60.

Sampson, Robert J.; Morenoff, Jeffrey D.; Gannon-Rowley, Thomas. Assessing `Neighborhood Effects': Social Processes and New Directions in Research. Annual Review of Sociology. 2002; 28:443–78.

Shenassa, Edmond D.; Leibhaber, Allison; Ezeamama, Amara. Perceived Safety of Area of Residence and Exercise: A Pan-European Study. American Journal of Epidemiology. 2006; 163:1012–7. [PubMed: 16571742]

Skogan, Wesley. Crime and the Racial Fears of White Americans. The Annals of the American Academy of Political and Social Science. 1995; 539:59–71.

Skogan, Wesley. Disorder and Decline: Crime and the Spiral of Decay in American Neighborhoods. Free Press; New York: 1990.

Smith GD, Hart C, Watt G, Hole D, Hawthorne V. Individual Social Class, Area-based Deprivation, Cardiovascular Disease Risk Factors, and Mortality: the Renfrew and Paisley Study. Journal of Epidemiology and Community Health. 1998; 52:399–405. [PubMed: 9764262]

St. John, Craig. Racial Differences in Neighborhood Evaluation Standards. Urban Affairs Quarterly. 1987; 22:377–98.

St. John, Craig; Clark, Frieda. Race and Social Class Differences in the Characteristics Desired in Residential Neighborhoods. Social Science Quarterly. 1984; 65:803–13.

Stata Corporation. Stata. Vol. 9. College Station, TX: 2005.

Subramanian SV, Kubzansky Laura, Berkman Lisa, Fay Martha, Kawachi Ichiro. Neighborhood Effects on the Self-Rated Health of Elders: Uncovering the Relative Importance of Structural and Service-Related Neighborhood Environments. Journal of Gerontology: SOCIAL SCIENCES. 2006; 161B:S153–S160.

Sundquist, Kristina; Theobold, Holger; Yang, Min; Li, Xinjun; Johansson, Sven-Erik; Sundquist, Jan. Neighborhood Violent Crime and Unemployment Increase the Risk of Coronary Heart Disease: A Multilevel Study in an Urban Setting. Social Science and Medicine. 2006; 62:2061–71. [PubMed: 16203075]

Taylor, Ralph B. Breaking Away from Broken Windows: Baltimore Neighborhoods and the Fight Against Crime, Grime, Fear and Decline. Westview; Boulder, CO: 2001.

Venkatesh, Sudhir. The Social Organization of Street Gang Activity in the Urban Ghetto. American Journal of Sociology. 1997; 103:82–111.

Yen, Irene H.; Kaplan, George A. Neighborhood Social Environment and Risk of Death: Multilevel Evidence from the Alameda County Study. American Journal of Epidemiology. 1999; 149:898–907. [PubMed: 10342798]

Table 1

Survey questions for perceptions of neighborhood conditions and constructed measures of corresponding neighborhood characteristics

	Perceptions of neighborhood conditions (Based on responses to the following survey questions)	Constructed neighborhood conditions (Based on 2000 Census of Population and administrative record data)
Crime and Safety	How often these things are a problem or are found in your neighborhood?/How worried are you about the following things in your neighborhood:	Philadelphia Police Department Uniform Crime Statistics[a], 1999–2001
	Range: 1(Rarely/Not worried) to 10 (Frequently/Very worried)	
	(1) Drug Dealers or users hanging around	Narcotics arrests per 1,000 persons (narcotics)
	(2) Having property stolen	
	(3) Walking alone during the day	Residential burglaries per 1,000 households (burglaries)
	(4) Letting children go outside during the day	
	(5) Letting children go outside during the night	
	(6) Being robbed	Serious incidents against persons per 1,000 persons (serious incidents)
	(7) Being murdered	
Physical Disorder	How often these things are a problem or are found in your neighborhood?	Philadelphia Police Department Uniform Crime Statistics, 1999–2001, and City of Philadelphia Department of Licenses and Inspections administrative data[a], 2000
	Range: 1 (Rarely) to 10 (Frequently)	
	(1) Litter or trash on the sidewalks or streets	Vandalism per 1,000 properties (vandalism)
	(2) Graffiti on buildings and walls	Graffiti per 1,000 properties (graffiti)
	(3) Abandoned cars	% of vacant buildings (vacant buildings)
	(4) Vacant, abandoned or boarded up buildings	% of total properties with L&I violations (L & I violations)
	(5) Houses and yards not kept up	
Social Disorder	How often are these things a problem or are found in your neighborhood?	2000 Census of Population and Philadelphia vital statistics birth record data, 1999–2001
	Range: 1 (Rarely) to 10 (Frequently)	
	(1) Drunks hanging around	% of Males 20–29 years of age not in the labor force (young men not in LF)
	(2) Unemployed adults hanging around	
	(3) Young adults hanging around	% of Youth 16–19 years old not enrolled in school and not in the labor force (idle youth)
	(4) Gang activity	
		% Female-headed households with children (single mother hh)
		Teen birth rate (teen birth rate)

[a]Source: University of Pennsylvania Cartographic Modeling Laboratory (http://cml.upenn.edu/).

Table 2

Sample characteristics (n=3,988), 1999–2004 Philadelphia, PA

	Percent
Demographic Characteristics	
Age (30+ years)	17.8
Race/ethnicity	
Non-Hispanic Black	67.8
Non-Hispanic White	9.4
Hispanic	22.8
Foreign-born	22.4
Marital status	
Single	71.1
Married/cohabiting	25.9
Other[a]	3.0
Socioeconomic Characteristics	
Education	
Less than high school	33.2
High school graduate/GED	46.9
Some college or college graduate	20.0
Has credit card and/or checking account	33.8
Material hardship index[b]	
Low	31.2
Moderate	26.3
High	22.4
Very High	20.1
Neighborhood Tenure	
Years in the neighborhood	
Less than 2 years	43.3
2 to 4 years	19.3
5 or more years	37.5
Housing Conditions	
Housing stress[b]	
None	48.7
Low	32.2
Moderate	14.1
High	5.1
Psychosocial & Health	
Health status (Fair or Poor)	12.8
Depressed (CESD Score >= 16)	38.4
Low level of support	18.6

[a]Separated/divorced/widowed.

[b]See text for an explanation.

Table 3

Descriptive statistics for individual perceptions of neighborhood crime and safety, physical disorder and social disorder (n=3,988), 1999–2004, Philadelphia, PA

Scale	Number of items in the scale	range of scores	mean score	standard deviation	Cronbach's α	Neighborhood-level reliability
Crime & safety	7	7–70	28.2	17.8	0.88	0.57
Physical disorder	5	5–50	18.2	12.8	0.90	0.65
Social disorder	4	4–40	15.4	10.9	0.86	0.65

Table 4

Descriptive statistics of neighborhood characteristics based on 2000 Census of Population and administrative record data and spearman correlation coefficient with perceived disorder measures (n=3,988),[a] 1999–2004 Philadelphia, PA

			Spearman correlation coefficient	
	Mean (Standard Deviation)	**Crime**	**Physical disorder**	**Social disorder**
Crime & Safety [b]				
Serious incidents	17.6 (10.2)	0.35		
Narcotics	13.4 (23.2)	0.34		
Burglaries	19.6 (8.0)	0.20		
Physical Disorder [b]				
Vacant buildings	6.9 (5.3)		0.46	
L & I violations	23.5 (15.3)		0.44	
Vandalism	3.9 (2.9)		−0.08	
Graffiti	0.1 (0.2)		−0.23	
Social Disorder [b]				
Teen birth rate	41.3 (16.6)			0.38
Single mother households	17.9 (7.0)			0.30
Idle youth	11.4 (8.9)			0.22
Young men not in LF	29.2 (13.3)			0.23
Other Neighborhood Characteristics				
%NH Black	57.6 (35.7)	0.22	0.31	0.31
% Hispanic	14.0 (21.6)	−0.06	−0.14	−0.15
% below poverty	30.5 (13.9)	0.36	0.41	0.39
% in same house as in 1995	63.5 (9.1)	0.08	0.13	0.13
Number of census tracts	314			
Number of respondents per tract - mean	12.7			
Minimum and maximum	1; 82			

[a] The mean represents a weighted mean (weighted by number women in the tract).

[b] See text for an explanation.

Table 5

Coefficients from within neighborhood estimates (fixed-effect linear models) predicting perceptions of neighborhood crime and safety, physical disorder and social disorder (n=3,988), 1999–2004, Philadelphia, PA

	CRIME AND SAFETY	PHYSICAL DISORDER	SOCIAL DISORDER
INDIVIDUAL CHARACTERISTICS [a]			
Demographic Characteristics			
Age *(< 30 years)*	−2.43 (0.73)**	−2.80 (0.48)**	−2.03 (0.42)**
Race *(NH Black)*			
NH White	1.29 (1.15)	0.49 (0.75)	−0.18 (0.65)
Hispanic	2.33 (0.95)*	−2.10 (0.61)**	−0.81 (0.52)
Foreign-born *(native born)*	−0.06 (0.82)	−2.21 (0.51)**	−1.56 (0.44)**
Marital Status *(single)*			
Married or cohabiting	1.05 (0.67)	−0.13 (0.44)	−0.19 (0.38)
Other (separated/divorced/widowed)	2.77 (1.71)	0.09 (1.03)	0.27 (0.86)
Socioeconomic Characteristics			
Education *(less than high school)*			
High school graduate/GED	−0.35 (0.66)	−0.31 (0.45)	−0.66 (0.38)+
Some college or college graduate	−1.12 (0.82)	−0.33 (0.55)	−1.09 (0.46)*
Had credit card and/or checking account	−1.32 (0.59)*	−0.41 (0.41)	−0.59 (0.34)
Material hardship *(very low)*			
Low	2.99 (0.71)**	1.31 (0.48)**	1.27 (0.41)**
Moderate	3.88 (0.76)**	1.57 (0.51)**	0.89 (0.44)*
High	5.42 (0.84)**	2.42 (0.55)**	1.93 (0.48)**
Neighborhood Tenure and Housing Characteristics			
Years in the neighborhood *(less than 2 years)*			
2 to 4 years	0.97 (0.73)	1.83 (0.50)**	1.71 (0.44)**
5 years or more	2.54 (0.64)**	3.11 (0.45)**	2.71 (0.38)**
Housing Stress *(no housing stress))*			
Low	1.52 (0.62)*	1.70 (0.42)**	1.65 (0.36)**
Moderate	4.90 (0.89)**	3.98 (0.61)**	3.59 (0.51)**
High	7.27(1.42)**	7.12 (0.98)**	4.82 (0.85)**
High level of instrumental support *(yes)*	3.32 (0.75)**	0.98 (0.50)+	1.02 (0.43)*
Constant	22.45 (0.88)**	15.69(0.60)**	13.36 (0.52)**
Overall r-squared	0.07	0.11	0.11

(Standard errors in parentheses)

[a] Omitted categories are in parentheses

* $p < 0.05$

** $p < 0.01$

NIH-PA Author Manuscript NIH-PA Author Manuscript NIH-PA Author Manuscript

Table 6

Coefficients for neighborhood-level predictors of perceptions of crime, and safety, physical disorder, and social disorder (n = 3,988), 1999–2004, Philadelphia, PA

	CRIME AND SAFETY		PHYSICAL DISORDER		SOCIAL DISORDER	
	Model 1[a]	Model 2[b]	Model 1[a]	Model 2[b]	Model 1[a]	Model 2[b]
CRIME AND SAFETY						
Ln of serious incidents	4.65** (1.01)	1.84 $^+$ (0.99)				
Ln of narcotics	1.96** (0.37)	0.73$^+$ (0.38)				
Ln of burglaries	−0.54 (1.04)	−0.82 (1.01)				
PHYSICAL DISORDER						
Ln of % vacant buildings			1.21** (0.23)	0.69** (0.22)		
Ln of L & I violations			4.22** (0.44)	2.30** (0.53)		
Ln of graffiti incidents			−0.12 (0.16)	−0.01 (0.16)		
Ln of vandalism incidents			−2.19** (0.71)	−0.75 (0.76)		
SOCIAL DISORDER						
Teen birth rate					0.17** (0.02)	0.08** (0.02)
% single mother hh					0.07 (0.04)	−0.05 (0.04)
Ln of idle youth					0.17* (0.07)	0.16* (0.07)
% of young men not in LF					0.05** (0.02)	0.01 (0.02)
OTHER NEIGHBORHOOD CHARACTERISTICS						
% NH Black		0.05** (0.01)		0.01 (0.01)		0.03** (0.01)
% Hispanic		0.00 (0.02)		0.01 (0.02)		−0.03 (0.02)
% below poverty		0.27** (0.04)		0.18** (0.03)		0.21** (0.03)
% in same house in 1995		0.12** (0.04)		0.13** (0.03)		0.08** (0.02)
Constant	8.41** (2.50)	−0.43 (3.51)	3.88* (1.53)	−5.88*(2.75)	4.07** (0.82)	−1.66 (1.58)
Log Likelihood	−16,737	−16,708	−15,198	−15,180	−14,620	−14,593
Within neighborhood variance	255.76	254.25	116.02	115.72	86.07	85.89
Between neighborhood variance	7.51	2.58	6.39	3.83	5.22	2.50
Intra neighborhood correlation coefficient	0.03	0.01	0.05	0.03	0.06	0.03

Standard Errors in parentheses

[a] Adjusting for measured individual-level characteristics + neighborhood-level measures of crime and safety, or physical disorder, or social disorder.

[b] Model 1 + other neighborhood level characteristics.

+ p< 0.10

* p<0.05

** $p < 0.01$