

FACTORIAL STRUCTURE OF THE PERCEIVED NEIGHBORHOOD SCALE (PNS): A TEST OF LONGITUDINAL INVARIANCE

M. Loreto Martinez

Pontificia Universidad Católica de Chile

Maureen Black

University of Maryland at Baltimore

Raymond H. Starr

University of Maryland at Baltimore County

This article analyzes the invariance of the factor structure of the Perceived Neighborhood Scale (PNS)—a measure of neighborhood perceptions for parents of young children—across two waves of data. Scale items were theoretically derived to represent four dimensions of neighborhood context: social embeddedness, sense of community, satisfaction with neighborhood, and fear of crime. The longitudinal invariance of the factor structure of the scale was confirmed by testing the goodness-of-fit of four nested models. Results from longitudinal confirmatory factor analytic models (a) provide support for the hypothesized scale structure, (b) demonstrate convergent validity, and (c) demonstrate nonmetric and strict metric invariance. In addition, correlation analyses examining the associations between neighborhood characteristics and scale scores indicated external validity. Both sense of community and satisfaction with neighborhood were significantly associated with parental sense of efficacy. Findings are discussed in light of the implications for longitudinal research with children and the effects of neighborhood characteristics on parenting and the development of preschool children. © 2002 John Wiley & Sons, Inc.

INTRODUCTION

With a few exceptions (Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Chase-Lansdale, Gordon, Brooks-Gunn, & Klebanov, 1997; Coulton, Korbin, Su, & Chow,

Correspondence to: M. Loreto Martinez, Escuela de Psicología, Pontificia Universidad Católica de Chile, Avenida Vicuña MacKenna 4860, Chile. E-mail: mlmartig@puc.cl

1995; Duncan, Brooks-Gunn, & Klebanov, 1994), most theory and research regarding neighborhood influences on child development concerns older children and adolescents. Less information is available on the features of the neighborhood context that are important for the development of preschool children.

In addition, lack of suitable measures of neighborhood environments pertaining to parents and young children has hindered research in this area. Despite recent interest on the effects of neighborhoods on children, methods for measuring neighborhood organization and culture are limited (Coulton, Korbin, & Su, 1996; Kupersmidt, Griesler, De Rosier, Patterson, & Davies, 1995), empirical measures of neighborhood context are underdeveloped (Bursik & Grasmick, 1993; Sampson, 1992), and theoretical issues regarding neighborhood conceptualizations are unresolved (Burton, Price-Spratlen & Spencer, 1997; Elliot et al., 1996).

For young children, many influences of the neighborhood seem to operate by affecting the family context (Klebanov, Brooks-Gunn, Chase-Lansdale, & Gordon, 1997). One of the processes by which neighborhood characteristics are thought to influence child development is parenting (Coulton et al., 1996; Coulton et al., 1995; Furstenberg & Hughes, 1997; Turner, Ellen, O'Leary, & Carnevale, 1997). Parents qualify and limit their children's experiences in the neighborhood.

This article presents a conceptual and analytical framework for the validation of the Perceived Neighborhood Scale (PNS; see Appendix), and discusses its implications for the study of parenting in context. The neighborhood dimensions included in the scale assess the social context of child-rearing that extends beyond the family roof, namely social embeddedness, sense of community, satisfaction with neighborhood, and perceived crime.

What Characteristics of the Neighborhood Matter for Parents?

Neighborhoods characterized by an extensive set of obligations, expectations, and interlocking social networks connecting adults provide opportunities and support for children's development as well as informal social control (Sampson, 1997). For example, when parents know the parents of their children's friends, they have the potential of observing and guiding children's actions in different circumstances, exchanging emotional and informational support with other parents, and establishing norms.

Belonging and interacting in the neighborhood are not only important in their own right but also because they facilitate the development and expansion of informal networks among residents. These networks appear important for the ability of parents to parent (Crittenden, 1985; Hashima & Amato, 1994; Jennings, Stagg, & Connors, 1991). According to the collective socialization hypothesis (Jencks & Mayer, 1990), social exchanges with neighbors constitute resources for ameliorating the stresses of poverty and/or enhancing the well-being of children and their families.

In addition to the extensiveness of social networks, social trust and perceived normative consensus on parenting, the availability of resources, and the perception of threats are dimensions that directly affect the support parents receive. The interfamily interaction around issues of child-rearing and the opportunities for intergenerational closure provide children with social capital of a collective nature (Sampson, 1997). Similarly, other aspects of neighborhood social organization such as the cultural expectations for informal social control, the ability of residents to guide the behavior of others toward prosocial norms, the mutual support for children, the density of local

friendship networks, and high levels of local participation in organizations have all been found to work against deviance (Sampson & Groves, 1989).

Perspectives on the Measurement of Neighborhood Characteristics

The study of neighborhood ecology can be approached from two perspectives: (a) subjective perceptions of the neighborhood by residents, and (b) objective ratings by external sources. As Burton et al. (1997) note, each approach has its strengths and limitations.

There is certainly an objective side to neighborhood—the availability of city services, the upkeep of houses and alleys, the congestion or openness of the area, the style of housing, and the way these structures and services influence neighborly exchanges. Neighborhood, as measured by geographical address, reflects such physical and demographic properties.

Several observations underscore the importance of the subjective perspective. First, most neighborhoods are neither formal governmental jurisdictions nor clearly demarcated territorial entities, supporting the need to incorporate residents' personal evaluations of their social milieu. Second, the very definition of the term "neighborhood" is often grounded in subjective perceptions. Different people living in the same place define "neighborhood" differently; definitions vary by individual social status and neighborhood context (Lee & Campbell, 1997). For example, Furstenberg (1993) found that family members had considerable difficulty agreeing upon the precise geographical boundaries of the neighborhood. Third, the concept of neighborhood changes according to use—that is, for some purposes the neighborhood is the block, for others it encompasses a wider physical area including shopping, schools, and community facilities (Galster, 1986). Thus, the definition of neighborhood depends upon the context and function being explored.

The study of neighborhood perceptions is a useful framework for assessing the relationship between neighborhood context and developmental outcomes. If we think of families and neighborhoods as reciprocally influencing one another, lack of attention to the subjective nature of neighborhoods may result in both the collection and interpretation of data that do not accurately represent the relationship between neighborhood influences and developmental outcomes. Further, subjective measures of neighborhood seem particularly suited to capture the social exchanges among neighbors and organizations. These exchanges provide resources for parents in the form of emotional and instrumental support, as well as information and access to organizational aid. These resources, as they reflect the quality of the social environment, might be proximal determinants of development during the preschool years, as neighborhood influences affect parenting (Turner et al., 1997). In brief, subjective measures of neighborhood are needed to examine the linkages among objective neighborhood characteristics, perceived neighborhood characteristics, parenting, and children's development.

Characterizing neighborhoods in ways that best link their properties (i.e., geographical, social, cultural) to the outcome of interest is generally challenging. Census tracts are imperfect proxies of neighborhoods and fail to capture the social organization and temporal variation (i.e., daily, seasonal) of neighborhood life. Moreover, census tracts may not correspond with the neighborhood of interaction or of self-location by residents. Thus, depending on the questions of interest, survey and

ethnographic approaches combined with direct observation will provide a more accurate assessment of the social interaction, resources available for children and families, and cultural patterns of the neighborhood.

The PNS builds on the subjective approach. To capture how neighborhood characteristics are perceived and interpreted by parents, the PNS assesses proximal characteristics of neighborhoods. Based on theory, it examines four neighborhood dimensions that are pertinent to parenting, such as a parent's experience of isolation, social exchanges with neighbors who are also parents, participation in neighborhood organizations, availability of resources such as playgrounds and playmates for children, and threat of crime.

Cross-sectional analysis of the scale (Martinez, 2000) on two waves of data revealed that the hypothesized four-factor structure was a plausible model for the observed data. The factor structure replicated from age 3 to age 5 and significant loadings of indicators on their respective latent factors were found. The current study extends the analyses of the PNS by (a) examining the longitudinal invariance of the factor structure of the scale over time, and (b) examining the construct validity of the scale by analyzing the correlations between scale factors and census ratings of the neighborhood area.

Invariance of the Factor Structure of the PNS Over Time

In defining invariance, Meredith (1993) distinguishes between nonmetric (or configural) and metric invariance. Configural invariance can be assumed when it can be demonstrated that the pattern of factor loadings is equivalent across time. Within the domain of metric invariance, three increasingly restrictive levels of invariance are described: weak, strong, and strict invariance. Evidence for weak invariance is found when the relationships between the indicators and the construct—represented by the magnitude of the factor loadings—are equivalent across time. This is the basic test of factorial invariance (Sayer & Cumsille, 2001).

More stringent forms of invariance involve consideration of the means on both the measured and the latent variables. In this study, the hypothesis of strong invariance will be tested by fitting models with constraints on the measurement intercepts—that is, the intercepts in the regression models that relate each indicator to the latent construct. Strict factorial invariance involves an additional constraint, namely that measurement uniqueness for each item (i.e., item residual variances) is equivalent across time.

To ascertain that the measurement properties of the construct of perceived neighborhood included in the PNS are stable over time, a longitudinal confirmatory model was fitted to the covariance matrix among the indicators. Based on Sayer and Cumsille (2001), this study tests various hypotheses regarding the measurement stability of the PNS scale across time by applying a series of equivalence constraints to the factor loadings, item uniqueness, and factor variances and covariances.

Census data were collected in 1990, the year in between the two waves of neighborhood perceptions available for this study. It was assumed that census demographics represent fairly stable attributes during the one-year interval, so concurrent validity of the scale was explored by examining the correlations between census ratings of the neighborhood and maternal perceptions of neighborhood, controlling for mobility.

The distinctiveness of the perceived neighborhood factors was explored by examining the correlations between the PNS factors and two psychological dimensions:

maternal depression and social support. Positive correlations were expected between perceived crime in the neighborhood and measures of maternal distress (i.e., maternal depression), between social embeddedness and measures of social support, and between sense of community and length of residence—operationalized as years living in the neighborhood.

METHOD

Sample

The study data were obtained from two sources: (a) self-report (i.e., mothers' reports of family characteristics) and (b) census ratings. The family-level data were drawn from an ongoing longitudinal investigation of child and family development. Data from families were collected at two points in time: when children were three and five years old. All data were collected prior to the passage of the Welfare Reform Act of 1996.

Participants were recruited from three pediatric clinics serving low-income, urban families. Eligibility criteria for the children included no history of major perinatal complications and the absence of congenital disorders or chronic illnesses. Approximately 26% of the children were recruited from a growth and nutrition clinic and had a history of non-organic failure to thrive; 29% were recruited from a clinic that serves children at high risk for HIV infection, primarily through maternal drug abuse; and 44% were recruited from a general pediatric primary care clinic. Families were matched for children's age, race, gender, and socioeconomic status.

The sample in this investigation included families with complete data at ages 3 and 5. Participants were 129 African-American families, the majority of whom were single-parent (92.2%), female-headed households residing in low-income neighborhoods of Baltimore. Most of these families received public assistance, including Medical Assistance (88.2%) and AFDC (83.5%). The majority of the mothers were neither married (74.4%) nor employed (76.4%). Participant mothers had a mean age of 27.64 years ($SD = 5.70$) when their children were 3 years of age, and had completed a mean of 11.49 ($SD = 1.41$) years of education. Table 1 depicts demographic characteristics of the sample.

Analyses of demographic differences among sample groups indicated no significant differences for maternal education, employment, and parenting status. However, a significant difference in maternal age ($df = 2$, $MS = 169.00$, $F = 5.57$, $p = .005$; $n = 129$) was found, indicating that mothers of children who had a history of failure-to-thrive were older. At the beginning of the study, children in the sample had a mean age of 37.0 months ($SD = 2.2$) and 55% were females.

Procedure

Mothers of children meeting eligibility criteria were invited to participate in a longitudinal clinical research project. Informed consent was obtained using procedures approved by the University of Maryland Institutional Review Board. The participation rate was 90%.

Laboratory visits were scheduled annually as close to the child's birthday as possible. For each annual visit, the laboratory evaluation included a developmental assessment, a videotaped observation of the mother and child playing, and a 60–90-min interview in which standardized questionnaires were administered including demo-

Table 1. Sample Characteristics at First Evaluation (N = 129)

	<i>Mean</i>	<i>SD</i>	<i>Range</i>
<i>Characteristics of Mothers</i>			
Age in years	27.6	5.7	15.9–41.6
Education (in years)	11.5	1.4	7.0–16.0
Marital status: single	74.4 ^a		
Public Assistance			
Medical assistance	88.2 ^a		
AFDC	83.5 ^a		
Single parent	92.2 ^a		
<i>Characteristics of Children</i>			
Age (in months)	37.0	2.2	34.0–45.0
Gender			
Males	45.0 ^a		
Females	55.0 ^a		
Race (African American)	100.0 ^a		

^aExpressed as percentage.

graphic information and parent and family functioning. Questionnaires were administered orally to control for varying literacy levels. Mothers were paid \$25 for their participation, time, and transportation.

Measures

Development of the Scale. Based on extensive review of the literature, four neighborhood dimensions were included in the scale because of their relevance to parenting: (a) *social embeddedness* in neighborhood networks—formal and informal linkages that residents develop and frequency of social interaction among neighbors (Cochran & Brassard, 1979; Crittenden, 1985; Garbarino & Crouter, 1978; Gaudin, Polansky, Kilpatrick, & Shilton, 1993; Jennings et al., 1991; Levitt, Weber, & Clark, 1986; Polansky, Gaudin, Ammons, & Davies, 1985; Unger & Wandersman, 1982, 1985; Warren, 1980); (b) *sense of community*—feelings of membership and belongingness, trust and mutual influence, and shared socioemotional ties with others in the neighborhood (Chavis, Hogge, McMillan, & Wandersman, 1986; McMillan & Chavis, 1986; Unger & Wandersman, 1985); (c) *satisfaction with neighborhood*—a cognitive-affective dimension that examines parents' evaluations of the physical environment (e.g., quality of neighborhood as a place to raise children) as meeting their childbearing needs and goals and their use of available local resources (Coulton et al., 1996; Garbarino & Sherman, 1980; Polansky et al., 1985; Ringel & Finkelstein, 1991); and (d) *perceived crime*—threat and occurrences of crime and perceptions of social disorder in the residential environment (Coulton et al., 1996; Lewis & Maxfield, 1980; Perkins, Florin, Rich, Wandersman, & Chavis, 1990; Taylor, Gottfredson, & Brower, 1985).

Scale items were constructed a priori to reflect each of these constructs. Items were then reviewed by a panel of experts to check their face validity and clarity, and piloted before data collection. Respondents expressed their level of agreement using a 5-point Likert-type scale. Item responses were recoded as needed so that higher scores represented an increasing degree of the dimension assessed. For the social

embeddedness, sense of community, and satisfaction dimensions, higher values represent positive attributes, whereas for the perceived crime dimension low scores represent positive attributes of the neighborhood.

Item Analysis. Two items with a three-option format (i.e., presence of adult relatives and close friends in the neighborhood) were transformed to a five-option metric to have the same metric for all scale items.

Item analysis examined the theoretical definition of the constructs and the corresponding contents of each scale by evaluating the correlation between each item and all other items. Items insufficiently related to their scales were dropped (i.e., two items in the satisfaction scale and four items in the crime scale). Thus, the final scale consisted of 34 items: 11 items for social embeddedness, 7 items for sense of community, 7 items for satisfaction with neighborhood, and 9 items for perceived crime.

The scale was administered to mothers at two points in time, when their children were 3 and 5 years of age. The factor structure, reliability, and validity of the scale were discussed in a previous report (Martinez, 2000). Confirmatory factor analysis (CFA) was used to fit cross-sectional models at each point in time—age 3 and age 5. Four underlying factors emerged from the scale in cross-sectional models fitted at ages 3 and 5. Unstandardized values for all loadings were above the critical ratio of 1.96 (see Table 2 for standardized loadings).

Neighborhood structure was assessed by geocode variables construed by matching family addresses to a 1990 Census neighborhood identifier (files containing data at the tract level). The census tract was used as the unit of analysis because it was the smallest geographic area for which data were available.

Sample participants were distributed across 66 census tracts in Baltimore city. Descriptive analysis of the census variables indicated that the majority (72.1%) of the families were concentrated in 39 tracts. Approximately 40% of the sample ($n = 52$) resides in West Baltimore, a large city area comprising 18 census tracts, and another 10% ($n = 14$) resides in East Baltimore, an area comprising nine census tracts. The population of these two communities is predominantly African American (i.e., 83.8% in West Baltimore and 91.6% in East Baltimore), and a substantive number of households are headed by females (i.e., 26.0% in West Baltimore and 32.8% in East Baltimore) and receive public assistance (i.e., 43.6% in West Baltimore and 53.8% in East Baltimore) (Baltimore City Planning Department, 1990).

The following census tract variables were used to represent neighborhood structure: percentage of persons below poverty, percentage of households receiving public assistance, percentage of female-headed families with children, percentage of unemployed persons ≥ 16 years of age, male unemployment rate, percentage of people not living in the same household as 5 years ago (residential mobility), and percentage of rental housing units.

Maternal depression was assessed using an adapted version of the depression section of the Diagnostic Interview Schedule (DISIIR) of the National Institute of Mental Health (Robins, Helzer, Crougham, & Ratcliff, 1981). The total score was based on items from 23 symptoms that assessed depression, such as feeling worthless, listless, trouble thinking, and lack of interest. The sum of overall depressive symptoms was used.

Social support was assessed by the Family Support Scale, an 18-item scale in which respondents rate the degree of support from various sources on a 6-point scale (from “not at all helpful” to “extremely helpful”). The authors report adequate levels of

test-retest reliability ($r = .91$) over a 1-month period. In addition, the scale had adequate levels of factorial, content, and criterion validity (Dunst, Jenkins, & Trivette, 1984).

Parental competence was measured by the Parent Sense of Competence Scale (Gibaud-Wallston & Wandersman, 1978; Johnson & Mash, 1989). This 16-item scale includes two subscales (Parenting Satisfaction and Parent Self-efficacy). Each item is answered on a 6-point scale ranging from *strongly disagree* (6) to *strongly agree* (1). Scores are summed and averaged, with higher scores representing greater satisfaction or self-efficacy.

RESULTS

Re-expression of Variables

To reduce the number of parameters to be estimated in the measurement model, and in search of more stable estimates, given the small sample size (Anderson & Gerbing, 1988; Hoyle, 1995) and the number of items in each scale, item parcels were developed to reflect each factor of the PNS. Item parcels are a commonly used method of re-expression of variables, by summing or taking the mean of several items that purportedly measure the same construct. Parcels typically exhibit distributions that more closely approach a normal distribution than the original items (West, Finch, & Curran, 1995).

Parcels were construed by taking the mean of two or three related items. Scale items were grouped into parcels based on the correlations among them. Thus, parcels were expected to reduce redundancy in the models and to add parsimony to the parameter estimates.

Latent Constructs

Maternal perceptions of neighborhood were reflected in 11 indicators (see Table 2) to represent four latent constructs: social embeddedness (three 3-item parcels), sense of community (one 4-item and one 3-item parcel), satisfaction with neighborhood (three 3-item parcels), and fear of crime (three 3-item parcels).

To set a metric for latent factors the first loading of each factor was fixed at .7. The models were fitted with the following specifications: (a) item parcels were allowed to load on only one of the four latent factors; (b) factors were allowed to be correlated; and (c) errors were assumed to be uncorrelated.

Confirmatory Factor Analysis

CFA was used to evaluate the longitudinal invariance of factor structure of the PNS from ages 3 to 5. Only parents who reported living in their neighborhood for at least one month were included in these analyses.

As a preliminary step in the analysis, the assumption of multivariate normality required for Maximum Likelihood statistics was checked. Skewness and kurtosis estimates for each scale dimension (i.e., social embeddedness, sense of community, satisfaction with neighborhood, and perceived crime) found only minimal deviations from expected values at each point in time; thus the assumption of normally distributed variables required for subsequent analyses was confirmed.

Standardized factor loadings for manifest indicators (i.e., parcels) of the latent constructs are presented in Table 2. Results of the *t* tests of the null hypothesis (i.e., that the factor loadings are equal to zero) range from 10.55 to 14.94 indicating that all factor loadings are significantly different from zero ($p < .005$).

Analysis of Longitudinal Invariance

The longitudinal invariance of the factor structure of the PNS was analyzed by fitting the two waves of data (i.e., ages 3 and 5) simultaneously in a longitudinal model (see Fig. 1) that tested increasing levels of factor invariance over time. Hypotheses concerning increasingly stringent forms of invariance were tested by comparing the goodness-of-fit statistics of four nested models (Sayer & Cumsille, 2001). At each successive step, evidence for longitudinal invariance was examined by comparing the overall fit of the models and testing for the significance of differences in the chi-square values. These models and their corresponding fit statistics are displayed in Table 3 in order from the least to most restrictive.

The sample for this analysis consisted of families with complete data both at ages 3 and 5. Model I represents a test of configural invariance. The aim of this first model was to assess whether each indicator loaded on its corresponding latent factor at each time of measurement. This hypothesis was tested by fitting an unconstrained model with the following specifications: (a) the four latent variables at each time were allowed to correlate freely and (b) loadings for each indicator (i.e., lambda coefficients) at ages 3 and 5 were estimated independently. Results of this model yielded a χ^2 (181, $N = 111$) = 297.03 ($p = .00$). Two incremental fit indices (i.e., NNFI and CFI) are above .9. All indicators loaded significantly on their corresponding latent factors and the magnitude of loadings was balanced among indicators (see Table 2).

Models II, III, and IV provide further tests of the invariance hypotheses. To test whether the relationships of the items to their respective parcels remained invariant (i.e., weak metric invariance) a model was fit in which loadings for indicators common across time were constrained to take on identical values. Lambda coefficients for corresponding indicators at ages 3 and 5 were forced to be equal. The expectation was that if the condition specified was met—that loadings were equal across time—the chi-square value would not increase significantly relative to the goodness-of-fit of Model I.

In an absolute sense, the goodness-of-fit of Model II is good—the chi-square statistic is small relative to its degrees of freedom, and the values of some of the incremental fit indices (see Table 3) are above .9. The test of invariance is carried out by means of a chi-square difference test between Model II and the less restrictive Model I. There is a change of 4.70 in chi-square relative to a gain of 7 degrees of

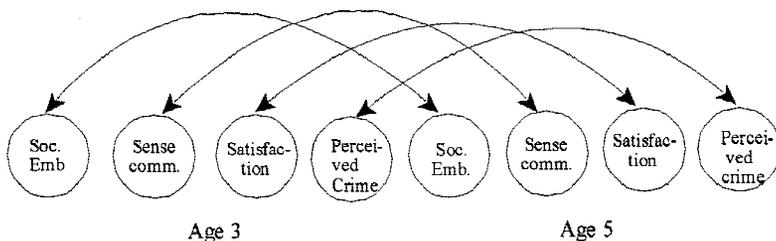


Figure 1. Hypothesized factor structure of the PNS. Factors within waves are allowed to be correlated.

Table 3. Summary Goodness-of-Fit Indices for Model Comparisons

Model Description	Goodness-of-Fit Statistics					
	χ^2	df	GFI	NNFI	CFI	RMSEA
I. Factor loadings, intercepts, and error variances unequal across time freely estimated	297.03	181	.82	.91	.93	.07
II. Factor loadings invariant across time	301.73	188	.82	.91	.93	.06
III. Factor loadings and intercepts invariant across time	313.20	199	.82	.92	.93	.06
IV. Factor loadings, intercepts, and error variances invariant across time	320.46	206	.81	.92	.93	.06

GFI, Goodness-of-Fit Index; NNFI, Non-Normed Fit Index; CFI, Comparative Fit Index; RMSEA, Root Mean Square Error of Approximation.

freedom. The chi-square difference between the constrained and unconstrained model was not significant ($\Delta\chi^2 = 4.70$, $df = 7$, $p = .696$), providing support for weak metric invariance of the factor structure over time.

Model III presents a test of strong metric invariance, which holds that the entire linear model relating each indicator to each parcel must be invariant. In addition to the restriction on indicator's loadings, this model adds the condition that the intercepts (i.e., means of measured variables) common across times are constrained to be invariant from age 3 to age 5. The goodness-of-fit of this model was good (see Table 3). In comparison to Model II, the increase in chi-square relatively to a gain of 11 degrees of freedom was not significant ($\Delta\chi^2 = 11.47$, $df = 11$, $p = .529$). The NNFI and CFI were above .9 indicating that this is a better fitting model. Thus, support for strict metric invariance of the factor structure over time was provided.

Model IV tested the most stringent invariance hypothesis, that of equal measurement error variances over time. This model retained the equality constraints on the factor loadings and intercepts, and added the constraint of error variances of indicators to be equal. In comparison to Model III, the increase in chi-square relatively to a gain of 7 degrees of freedom was not significant ($\Delta\chi^2 = 7.25$, $df = 7$, $p = .429$), indicating that Model IV is a more parsimonious model. Thus, support for the invariance hypothesis of equivalent measurement error variances over time was obtained. This means that the indicators measured the construct with the same precision at age 3 and age 5.

Interfactor Correlations

As Table 4 shows, significant positive correlations between social embeddedness and sense of community were found for both waves of data. Embeddedness in social exchanges in the neighborhood is not related to perceptions of crime at either point in time. As expected, perceptions of crime are negatively related to sense of community and to mothers' satisfaction with their neighborhood.

Evidence for Construct Validity

Evidence for construct validity was examined through correlational analyses between census ratings of neighborhood and PNS factors. There was a significant negative

Table 4. PNS Interfactor Correlations

Latent Construct	S. Embedd.	S. Commun.	Satisfaction	P. Crime	S. Embedd.	S. Commun.	Satisfaction
	Age 3	Age 3	Age 3	Age 3	Age 5	Age 5	Age 5
S. Embedd. Age 3							
S. Comm. Age 3	.80***						
Satisfac. Age 3	.26**	.66***					
P. Crime Age 3	-.07	-.45**	.79***				
S. Embedd. Age 5	.58***	.50***	.37**	-.08			
S. Comm. Age 5	.53***	.52***	.33**	-.33**	.64***		
Satisfac. Age 5	-.09	.11	.29**	-.49***	.03	.54***	
P. Crime Age 5	-.20	.07	-.14	.51***	-.03	-.37**	-.84***

** $p < .01$. *** $p < .001$.

correlation between neighborhood poverty and satisfaction with neighborhood both at age 3 ($r = -.35$, $p < .0002$; $N = 115$) and age 5 ($r = -.44$, $p < .0001$; $N = 125$). Similarly, neighborhood poverty was significantly correlated with perceptions of crime both at age 3 ($r = .31$, $p < .007$; $N = 115$) and age 5 ($r = .39$, $p < .00$; $N = 125$) indicating that objective signs of neighborhood poverty are associated with perceptions of community disorder. Overall, these correlations are in the expected direction.

A significant positive correlation was found between mothers' desire to move out of the neighborhood and perception of crime both at age 3 ($r = .60$, $p < .0001$; $N = 115$) and age 5 ($r = .66$, $p < .0001$; $N = 125$). Similarly, significant positive correlations were found between perception of crime and neighborhood deterioration at age 3 ($r = .51$, $p < .0001$; $N = 115$) and age 5 ($r = .49$, $p < .0001$; $N = 125$).

Nonsignificant correlations between perception of crime and participation in neighborhood activities were found for age 3 ($r = .01$, $p < .90$; $N = 115$) and age 5 ($r = .08$, $p < .34$; $N = 125$) indicating that actual and perceived measures of crime do not necessarily reduce social involvement in the neighborhood.

There was no significant correlation between neighborhood mobility (i.e., percentage of people who move out of neighborhood, percentage of housing units vacant) and social embeddedness at age 3 ($r = -.16$, $p < .09$; $N = 115$) or age 5 ($r = -.08$, $p < .38$; $N = 115$). Similarly, no significant correlations were found between mobility and satisfaction with neighborhood ($r = -.10$, $p < .26$; $N = 115$ for age 3 and $r = -.11$, $p < .23$, $N = 125$ for age 5) and between mobility and perceived crime ($r = .07$, $p < .42$; $N = 115$ for age 3 and $r = -.02$, $p < .79$, $N = 125$ for age 5). As for mothers' perception of sense of community, a significant negative correlation was found with mobility at age 5 ($r = -.21$, $p < .02$; $N = 126$) but not at age 3 ($r = -.14$, $p < .13$; $N = 115$).

Correlations Among PNS Scales and Other Psychological Dimensions

Consistent with expectations, significant positive correlations between social support and social embeddedness in the neighborhood at ages 3 and 5 ($r = .25, p < .009; N = 111$, and $r = .29; p < .001; N = 123$, respectively) were found. Similarly, significant positive correlations between social support and sense of community were found for both ages 3 and 5 ($r = .26; p < .006; N = 111$, and $r = .32; p < .0003; N = 123$, respectively), and between social support and satisfaction with neighborhood at age 3 ($r = .19; p < .05; N = 111$). Looking at specific sources of social support, significant positive correlations between informal kinship support and social embeddedness ($r = .22; p < .03; N = 98$) and sense of community ($r = .35; p < .0004; N = 98$), and a significant negative correlation with perceived crime ($r = -.22; p < .03; N = 98$) were found at age 5.

Significant negative correlations were found between maternal depression and perceptions of sense of community ($r = -.19; p < .04; N = 115$) and, between maternal depression and satisfaction with neighborhood ($r = -.18; p < .05; N = 115$) at age 3. As expected, a significant positive correlation between maternal depression and perceived crime ($r = .21, p < .02; N = 115$) was found at age 3.

A significant negative correlation between social support and perceived crime ($r = -.21; p < .02; N = 111$) was found at age 3 but not at age 5 ($r = -.16; p < .08; N = 122$). At age 5 significant positive correlations between social support and social embeddedness ($r = .29, p < .001; N = 123$), sense of community ($r = .32; p < .0003; N = 123$), and satisfaction with neighborhood ($r = .28; p < .001; N = 122$) were found.

Reliability

The reliability of the PNS as a measure of individual perceptions was also examined. Chronbach's alpha coefficients were calculated to estimate the internal consistency of each factor, based on the composite score for the item parcels, at each point in time.

Table 3 provides the reliabilities of each manifest indicator (i.e., the square of the factor loadings), along with the composite reliability for each factor at ages 3 and 5. As can be seen, alpha coefficients are above .80 for all scales, ranging from .80 to .91 for the age 3 and from .83 to .85 for the age 5 scales. Within each scale, Cronbach's alpha coefficients are very similar across occasions. Overall, internal consistencies, as indicated by Cronbach's alpha, are consistent from ages 3 to 5 for each PNS factor.

Neighborhood Perceptions and Parental Sense of Competence

Correlational analysis between PNS scales and measures of parental competence revealed significant positive associations between satisfaction with neighborhood and parental sense of efficacy ($r = .18, p < .05; N = 113$) and satisfaction in the parental role ($r = .19, p < .049; N = 113$) at age 3. These significant associations were replicated at age 5 ($r = .18, p < .05; N = 123$ for parental sense of efficacy and $r = .29, p < .001; N = 123$ for satisfaction in the parental role). In addition, a significant positive association between parental sense of efficacy and neighborhood sense of community was found at age 5 ($r = .18, p < .04; N = 124$) but not at age 3 ($r = .13, p < .17; N = 113$).

The correlations between perceived crime and parental sense of competence were in the expected negative direction but not significant at age 3. However, at age 5, significant associations between perceived crime and parental sense of efficacy ($r = .18, p < .05; N = 123$) and satisfaction in the parental role ($r = -.22, p < .002; N = 123$) were found.

DISCUSSION

The aim of this study was to test the longitudinal invariance of the factor structure of the PNS and to examine the validity of the scale. Overall, findings support the hypothesized four-factor structure of the PNS (i.e., social embeddedness, sense of community, satisfaction with neighborhood, and fear of crime), confirming the four dimensions theoretically derived from the existing literature. In addition, the finding that each indicator's estimated pattern coefficient on its posited underlying construct is significant provides evidence for convergent validity over time (Anderson & Gerbing, 1988).

Further, results from the longitudinal models fitted provide evidence of both configural and strict metric invariance of the factor structure of the scale. Findings demonstrate the validity of the constructs chosen to represent perceived neighborhood for parents of young children, and suggest that, beyond individual variations in perceptions of neighborhood, the factor structure of the scale was consistent over time.

Demonstrating factorial invariance is crucial in developmental studies. Frequently, by using the same indicators over time we are assuming that both measurement (i.e., numerical values across waves are on the same scale) and conceptualization (i.e., the construct retains the same interpretation across time) are constant. However, when studying change over time, researchers need to be certain that it is the phenomenon that is changing rather than the psychometric properties of the scale used to measure the construct. In this study it has been demonstrated that indicators with the same wording and scaling relate to the underlying constructs in the same way over time.

Although these results are encouraging, cross validation of the factor structure of the PNS in additional samples is needed. The current sample is small in size and the residential neighborhood—as captured by census demographics—offers limited variability. Future research could extend the analyses of the scale in samples of parents living in affluent neighborhoods.

The intercorrelations among scale factors indicate significant positive associations between social embeddedness and sense of community, and between sense of community and satisfaction with neighborhood. The significant positive associations between social embeddedness and sense of community are not surprising in light of previous operationalizations of the sense of community construct, and suggest that social interaction might be one dimension of it. For example, Glynn's (1981) definition of sense of community includes a social interaction component, Riger and Lavrakas (1981) describe social bonding (i.e., ability to identify neighbors and feeling part of the neighborhood) as a distinct factor of sense of community, and Weenig, Schmidt, and Midden (1990) found sense of community positively related to neighborhood cohesion.

Consistent with previous work on correlates of fear of crime (Perkins, Meeks, & Taylor, 1992; Skogan, 1990), the perceived crime factor had significant loadings of items indicating both threat of crime as well as signs of incivility. This finding provides

indirect support for the association between physical and social incivilities and perceptions of community disorder (Lewis & Maxfield, 1980).

As expected from the literature (Bursik & Grasmick, 1993), significant negative associations were found between perceived crime and sense of community, and between perceived crime and satisfaction with neighborhood. The latter may be explained by the fact that elevated perceptions of crime cut off social interaction of the type needed to develop and maintain supportive networks. Further, perceived crime problems may inhibit feelings of emotional investment in the neighborhood (Taylor et al., 1985) and therefore, prevent the development of a positive sense of community sentiment.

Based on findings reported by Coulton et al. (1996), greater consistency between perceived and actual ratings of neighborhood context was expected for the perceived crime and satisfaction with neighborhood scores than for the social embeddedness and sense of community scores. This is probably reflected in the findings that the associations between neighborhood poverty and perceptions of crime, neighborhood poverty and satisfaction with neighborhood, and mobility and satisfaction with neighborhood are consistent over time. In contrast, the correlations between neighborhood mobility and perception of social embeddedness at the individual level are in the expected negative direction (Sampson & Groves, 1989), but not significant for either wave of data.

Overall, this pattern of relationships may reflect differences in the extent to which the dimensions of neighborhood poverty and mobility are associated with more concrete, external referents of the neighborhood (e.g., such as physical characteristics), whereas the social and community dimensions may have more meaning at the family and individual level reflecting embeddedness in different networks of social exchange.

The pattern of correlations among PNS factors and other psychological dimensions indicates that most are in the expected direction, providing evidence for concurrent validity. Additional evidence for the validity of the scale is obtained from the positive associations between mothers' desire to move out of the neighborhood and perception of crime at two points in time, and between perception of crime and neighborhood deterioration at two points in time. The latter supports the contention that signs of disorder (e.g., physical deterioration of neighborhood) heighten the perception of the neighborhood as a dangerous place (Lewis & Maxfield, 1980; White, Kasl, Zahner, & Will, 1987).

Current findings indicate that maternal perceptions of crime are positively associated with a desire to move out of the neighborhood at each point in time. This relationship confirms findings previously reported by Taylor (1995). However, consistent with findings from previous studies (Brodsky, 1996; Taylor et al., 1985) perception of crime was not associated with less participation in neighborhood activities at either point in time. As Taylor (1995) explains, actual and perceived measures of crime do not necessarily reduce social involvement in the neighborhood, and in some cases may actually drive some residents to invest more in their neighborhood organizations. Since having children appears to facilitate the development of local ties, parents may continue to invest and participate in neighborhood activities if they perceive that involvement will benefit their children.

Although the subjective perspective appears suitable to capture the social dimensions of neighborhood life for parents, it is not sufficient by itself to capture the multilevel processes involved in neighborhood life (e.g., at the individual, family, and community level). Data on parental perceptions need to be supplemented with direct

observations of the terrain of neighborhood and documentation of the types of organizations and activities that go on within them (Burton, 1991; Earls & Buka, 1998). This context includes extended family as well as the nature of the neighborhood (i.e., who lives there, the physical arrangements that exist, the daily hassles and crises that affect social interactions, and the political and economic factors related to these events).

Implications for the Study of Parenting

Families are part of neighborhoods and larger communities that exert normative and cultural influences on them. The association between satisfaction with neighborhood and parental sense of competence supports the contention that features of the neighborhood affect parental competence (Furstenberg, 1993). Where parents live and the resources they perceive to be available appears to affect how parents manage their children—their means of shielding them from dangers and exposing them to opportunities (Jarrett, 1995).

However, parents and children are not passive recipients of community influences but actively interact with their residential environment. The positive association between sense of community and parental competence confirms findings from previous research. Furstenberg (1993) found that parents are likely to have more success when they reside in communities where the burden of raising children is seen as a collective responsibility and where strong institutions sustain the efforts of parents. This view is consistent with the hypothesis of collective socialization (Jencks & Mayer, 1990), in which neighborhood role models and monitoring are important ingredients in a child's socialization process. Similarly, a shared commitment among neighbors has been associated to positive youth development. Benson, Leffert, Scales, and Blyth (1998) found that healthy communities were relational places that emphasized support, opportunities, and a shared commitment to promoting developmental assets in children and youth.

The expectations that neighborhood residents can and will intervene on behalf of children depends on conditions of mutual trust and shared values among neighbors. Mutual trust and shared willingness to intervene for the common good define what Sampson, Raudenbusch, and Earls (1997) call "collective efficacy." This construct has been found to predict lower rates of violence under conditions of neighborhood disadvantage.

APPENDIX

Perceived Neighborhood Scale

I'd like you to think about the neighborhood you live in. I am going to read you some general statements about neighborhoods. Please tell me how each statement fits the way you feel about your neighborhood.

How long have you lived in your neighborhood? _____ years _____ months

Does your neighborhood have a name? If yes, _____

Social Embeddedness

1	2	3	4	5
Very Likely	Likely	Not Sure	Unlikely	Very Unlikely

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. How likely is it that you could ask a neighbor to loan you a few dollars or some food? 2. How likely is it that a neighbor could ask you to borrow a few dollars or some food? 3. How likely is it that you get help from a neighbor (e.g., watch your place if you're away, take care of your child when you're sick)? 4. How likely is it that you help a neighbor (e.g., watching their place if they're away, taking care of their child if they are sick)? | <p>1 2 3 4 5</p> |
|---|---|

1	2	3	4	5
Very Often (daily)	Often (1/week)	Sometimes (1/month)	Seldom (1/3 month)	Very Seldom

- | | |
|--|--|
| <ol style="list-style-type: none"> 5. How often do you greet your neighbors when you see them? 6. How often do you casually visit with neighbors, either going over to their place or their coming over to yours? 7. How often do you go to neighborhood activities (e.g., church fair, neighborhood meetings, sports events)? 8. How often do you exchange/share child care with a neighbor? 9. How often do you talk to neighbors who are also parents? | <p>1 2 3 4 5</p> |
|--|--|

Sense of Community

1	2	3	4	5
Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree

- | | |
|---|--|
| <ol style="list-style-type: none"> 10. There are people I can rely on among my neighbors 11. People trust each other in my neighborhood 12. I feel I belong in my neighborhood 13. I care about what my neighbors think of my actions (e.g., how I dress, how I treat my child) 14. I feel close to some of my neighbors 15. People in my neighborhood are usually warm and friendly 16. We help each other out in my neighborhood | <p>1 2 3 4 5</p> |
|---|--|

Satisfaction with Neighborhood

1	2	3	4	5
Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree

- | | |
|--|-----------------------------------|
| <ol style="list-style-type: none"> 17. My neighborhood is a good place to live 18. My neighborhood has been getting worse recently | <p>1 2 3 4 5</p> <p>1 2 3 4 5</p> |
|--|-----------------------------------|

- 19. I have good access to public transportation in my neighborhood 1 2 3 4 5
- 20. The building and yards in my neighborhood are really run down 1 2 3 4 5
- 21. I would move out of my neighborhood if I could 1 2 3 4 5
- 22. I have easy access to a telephone (e.g., pay phone close by, neighbor with phone, etc.) 1 2 3 4 5
- 23. There is a good place (e.g., playground) for children to play in my neighborhood 1 2 3 4 5
- 24. My neighborhood is a good place to raise a family 1 2 3 4 5
- 25. It's safe for my child to play outside
If 4 or 5, ask why? 1 2 3 4 5

Perceived Crime

- | | 1 | 2 | 3 | 4 | 5 |
|--|-----------------------|--------------|-----------------|-----------------|--------------------------|
| | Strongly Agree | Agree | Not Sure | Disagree | Strongly Disagree |
| 26. There are troublemakers hanging around in my neighborhood | | | | | 1 2 3 4 5 |
| 27. There is public drinking in my neighborhood | | | | | 1 2 3 4 5 |
| 28. There is open drug abuse/dealing in my neighborhood | | | | | 1 2 3 4 5 |
| 29. It's safe to walk alone in my neighborhood at night | | | | | 1 2 3 4 5 |
| 30. Some friends and relatives don't visit me at home because they don't feel safe | | | | | 1 2 3 4 5 |
| 31. People are scared of being robbed in my neighborhood | | | | | 1 2 3 4 5 |
| 32. People are scared of being raped in my neighborhood | | | | | 1 2 3 4 5 |
| 33. People are scared of being mugged in my neighborhood | | | | | 1 2 3 4 5 |
| 34. People are scared of being murdered in my neighborhood | | | | | 1 2 3 4 5 |

REFERENCES

Anderson, J., & Gerbing, D. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103, 411-423.

Baltimore City Planning Department. (1990). *Community profile 1990*. Baltimore, MD: Author.

Benson, P., Leffert, N., Scales, P., & Blyth, D. (1998). Beyond the "village" rhetoric: Creating healthy communities for children and adolescents. *Applied Developmental Science*, 2, 138-159.

Brodsky, A. (1996). Resilient single mothers in risky neighborhoods: Negative psychological sense of community. *Journal of Community Psychology*, 24, 347-363.

Brooks-Gunn, J., Duncan, G., Klebanov, P., & Sealander, N. (1993). Do neighborhoods influence child and adolescent development? *American Journal of Sociology*, 99, 353-395.

Bursik, R.J., & Grasmick, H. (1993). *Neighborhoods and crime*. New York: Lexington Books.

- Burton, L. (1991). Caring for children in high-risk neighborhoods. *The American Enterprise*, May/June, 34–37.
- Burton, L., Price-Spratlen, T., & Spencer, M. (1997). On ways of thinking about measuring neighborhoods: Implications for studying context and development among minority children. In J. Brooks-Gunn, G. Duncan, & L. Aber (Eds.), *Neighborhood poverty: Context and consequences for children* (pp. 132–144). New York: Russell Sage.
- Chase-Lansdale, L., Gordon, R., Brooks-Gunn, J., & Klebanov, P. (1997). Neighborhood and family influences on the intellectual and behavioral competence of preschool and early school-age children. In J. Brooks-Gunn, G. Duncan, & L. Aber (Eds.), *Neighborhood poverty: Context and consequences for children* (pp. 79–118). New York: Russell Sage.
- Chavis, D., Hogge, J., McMillan, D., & Wandersman, A. (1986). Sense of community through Brunswik's lens: A first look. *Journal of Community Psychology*, 14, 24–40.
- Cochran, M., & Brassard, J. (1979). Child development and personal social networks. *Child Development*, 50, 601–615.
- Coulton, C., Korbin, J., & Su, M. (1996). Measuring neighborhood context for young children in an urban area. *American Journal of Community Psychology*, 24, 5–32.
- Coulton, C., Korbin, J., Su, M., & Chow, J. (1995). Community level factors and child maltreatment rates. *Child Development*, 66, 1262–1276.
- Crittenden, P. (1985). Social networks, quality of child rearing, and child development. *Child Development*, 56, 1299–1313.
- Duncan, G., Brooks-Gunn, J., & Klebanov, P. (1994). Economic deprivation and early child development. *Child Development*, 65, 296–318.
- Dunst, C.J., Jenkins, V., & Trivette, C.M. (1984). The family support scale: Reliability and validity. *Journal of Individual, Family, and Community Wellness*, 1, 45–52.
- Earls, F., & Buka, S. (1998). Measurement of community characteristics. In J. Meisels & J. Shonkoff (Eds.), *Handbook of early childhood interventions*. New York: Cambridge University Press.
- Elliot, D., Wilson, W., Huizinga, D., Sampson, R., Elliot, A., & Rankin, B. (1996). The effects of neighborhood disadvantage on child development. *Journal of Research in Crime and Delinquency*, 33, 389–426.
- Furstenberg, F. (1993). How families manage risk and opportunity in dangerous neighborhoods. In W.J. Wilson (Ed.), *Sociology and the public agenda* (pp. 231–258). Newbury Park, CA: Sage.
- Furstenberg, F., & Hughes, M. (1997). The influence of neighborhoods on children's development: A theoretical perspective and a research agenda. In J. Brooks-Gunn, G. Duncan, & L. Aber (Eds.), *Neighborhood poverty: Context and consequences for children* (pp. 23–47). New York: Russell Sage.
- Galster, G. (1986). What is neighborhood? An externality-space approach. *International Journal of Urban and Regional Research*, 10, 243–263.
- Garbarino, J., & Crouter, A. (1978). Defining the community context for parent child relations: The correlates of child maltreatment. *Child Development*, 49, 604–616.
- Garbarino, J., & Sherman, D. (1980). High-risk neighborhoods and high-risk families: The human ecology of child maltreatment. *Child Development*, 51, 188–198.
- Gaudin, J., Polansky, N., Kilpatrick, A., & Shilton, P. (1993). Loneliness, depression, stress, and social support in neglectful families. *American Journal of Orthopsychiatry*, 63, 597–605.
- Gibaud-Wallston, J., & Wandersman, L.P. (1978, August). Development and utility of the Parenting Sense of Competence Scale. Paper presented at the meeting of the American Psychological Association, Toronto.
- Glynn, T. (1981). Psychological sense of community: Measurement and application. *Human Relations*, 34, 780–818.

- Hashima, P., & Amato, P. (1994). Poverty, social support, and parental behavior. *Child Development, 65*, 394–403.
- Hoyle, R. (1995). The structural equation modeling approach. In R. Hoyle (Ed.), *Structural equation modeling* (pp. 1–15). Thousand Oaks, CA: Sage.
- Jarrett, R. (1995). Growing-up poor: The family experiences of socially mobile youth in low income African American neighborhoods. *Journal of Adolescent Research, 10*(1), 111–135.
- Jencks, C., & Mayer, S. (1990). Residential segregation, job proximity, and black job opportunities. In L. Lynn & M. McGeary (Eds.), *Inner-city poverty in the United States* (pp. 187–222). Washington, DC: National Academy Press.
- Jennings, K., Stagg, V., & Connors, R. (1991). Social networks and mothers' interactions with their preschool children. *Child Development, 62*, 966–978.
- Johnson, C., & Mash, E. J. (1989). A measure of parenting satisfaction and efficacy. *Journal of Clinical Child Psychology, 18*, 167–175.
- Klebanov, P., Brooks-Gunn, J., Chase-Lansdale, L., & Gordon, R. (1997). Are neighborhood effects on young children mediated by features of the home environment? In J. Brooks-Gunn, G. Duncan, & L. Aber (Eds.), *Neighborhood poverty: Context and consequences for children* (pp. 119–145). New York: Russell Sage.
- Kupersmidt, J., Griesler, P., De Rosier, M., Patterson, C., & Davies, P. (1995). Childhood aggression and peer relations in the context of family and neighborhood factors. *Child Development, 66*, 360–375.
- Lee, B., & Campbell, K. (1997). Common ground? Urban neighborhoods as survey respondents see them. *Social Science Quarterly, 78*, 922–936.
- Levitt, M., Weber, R., & Clark, M. (1986). Social network relationships as sources of maternal support and well-being. *Developmental Psychology, 22*, 310–316.
- Lewis, D., & Maxfield, M. (1980). Fear in the neighborhoods: An investigation of the impact of crime. *Journal of Research on Crime and Delinquency, 17*, 160–189.
- Martínez, M.L. (2000). *Neighborhood context and the development of African American children*. New York: Garland Publishing, Inc.
- McMillan, D., & Chavis, D. (1986). Sense of community: A definition and theory. *Journal of Community Psychology, 14*, 6–23.
- Meredith, J. (1993). Measurement invariance, factor analysis, and factorial invariance. *Psychometrika, 58*, 107–122.
- Perkins, D., Meeks, J., & Taylor, R. (1992). The physical environment of street blocks and residents' perceptions of crime and disorder: Implications for theory and measurement. *Journal of Environmental Psychology, 12*, 21–34.
- Perkins, D., Florin, P., Rich, R., Wandersman, A., & Chavis, D. (1990). Participation and the social and physical environment of residential blocks: Crime and community context. *American Journal of Community Psychology, 18*, 83–114.
- Polansky, N., Gaudin, J., Ammons, P., & Davies, K. (1985). The psychological ecology of the neglectful mother. *Child Abuse and Neglect, 9*, 265–275.
- Riger, S., & Lavrakas, P. (1981). Community ties: Patterns of attachment and social interaction in urban neighborhoods. *American Journal of Community Psychology, 9*, 55–66.
- Ringel, N., & Finkelstein, J. (1991). Differentiating neighborhood satisfaction and neighborhood attachment among urban residents. *Basic and Applied Social Psychology, 12*, 177–193.
- Robins, L.N., Helzer, J.E., Croughan, J., & Ratcliff, K.S. (1981). National Institute of Mental Health Diagnostic Interview Schedule: Its history, characteristics, and validity. *Archives of General Psychiatry, 38*, 381–389.
- Sampson, R. (1992). Family management and child development: Insights from social disorganization theory. In J. McCord (Ed.), *Advances in criminological theory* (Vol. 2, pp. 63–93). New Brunswick, NJ: Transaction Publishers.

- Sampson, R. (1997). The embeddedness of child and adolescent development: A community-level perspective on urban violence. In J. McCord (Ed.), *Violence and childhood in the inner-city* (pp. 31–77). New York: Cambridge University Press.
- Sampson, R., & Groves, W. (1989). Community structure and crime: Testing social disorganization theory. *American Journal of Sociology*, 94, 775–802.
- Sampson, R., Raudenbusch, S., & Earls, F. (1997). Neighborhoods and violent crime: A multi-level study of collective efficacy. *Science*, 277, 918–924.
- Sayer, A.G., & Cumsille, P.E. (2001). Second-order latent growth models. In L.M. Collins & A.G. Sayer (Eds.), *New methods in the analysis of change*. Washington, DC: APA Publications.
- Skogan, W. (1990). *Disorder and decline: Crime and the spiral of decay in American neighborhoods*. New York: Free Press.
- Taylor, R. (1995). The impact of crime on communities. *Annals of the American Academy of PSS*, 539, 28–45.
- Taylor, R., Gottfredson, S., & Brower, S. (1985). Attachment to place: Discriminant validity, and impact of disorder and diversity. *American Journal of Community Psychology*, 13, 525–542.
- Turner, M., Ellen, I., O’Leary, S., & Carnevale, K. (1997). Location, location, location: How does neighborhood environment affect the well-being of families and children? Unpublished paper. The Urban Institute.
- Unger, D., & Wandersman, A. (1982). Neighboring in an urban environment. *American Journal of Community Psychology*, 10, 493–509.
- Unger, D., & Wandersman, A. (1985). The importance of neighbors: The social, cognitive, and affective components of neighboring. *American Journal of Community Psychology*, 13, 139–169.
- Warren, D. (1980). Support systems in different types of neighborhoods. In J. Garbarino, S. Stocking, & Associates (Eds.), *Protecting children from abuse and neglect* (pp. 61–93). San Francisco, CA: Jossey-Bass.
- Weenig, M., Schmidt, T., & Midden, C. (1990). Social dimensions of neighborhoods and the effectiveness of information programs. *Environment and Behavior*, 22, 27–54.
- West, S., Finch, J., & Curran, P. (1995). Structural equation models with nonnormal variables. In R. Hoyle (Ed.), *Structural equation modeling* (pp. 56–75). Thousand Oaks, CA: Sage.
- White, M., Kasl, S., Zahner, G., & Will, J. (1987). Perceived crime in the neighborhood and mental health of women and children. *Environment and Behavior*, 19, 588–613.

Copyright of Journal of Community Psychology is the property of John Wiley & Sons Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.