PSOC in Community Context: Multi-Level Correlates Of a Measure of Psychological Sense of Community in Low-Income, Urban Neighborhoods

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Abstract:

Recent years have seen a steady increase in attention to communities as a source of both risk and protective factors for various individual outcomes. Psychological sense of community (PSOC) is one concept which can be important in describing the ways in which real and perceived aspects of community might mediate both individual and community outcomes. To understand the setting-specific interaction of individual and community, it is necessary to examine how individual and community level factors are simultaneously associated with psychological sense of community. As part of a larger study of community influence on health, we conducted a random household survey in three geographically defined low-income communities in Baltimore City. Nine hundred fourteen individuals were surveyed with a questionnaire that included a measure of psychological sense of community. This article describes the variability of PSOC in these communities and identifies individual- and community-level characteristics associated with varying levels of PSOC. Statistical methods of multi-level analysis were employed. Individuals in low-income communities showed heterogeneity for PSOC that is partially explained by variation in individual- and community-level characteristics. We suggest that this variability, as well as the promotion of positive PSOC within low-income communities, has implications for the development and implementation of community-based interventions.

Article:

The current study examined the association of individual and community level factors with individual level psychological sense of community (PSOC) for residents of low-income, inner-city communities. Because PSOC is a setting-dependent outcome, we sought to describe associated factors at both the individual and community level. This required the use of appropriate multi-level statistical techniques, which allow for the concurrent modeling of nested data (persons within neighborhoods). The setting for our study is also of particular interest because urban, low-income neighborhoods are often perceived as uniformly unhealthy for, and unprotective of, their residents. These neighborhoods are also often described as unorganized settings where residents feel alienation and lack of community. We hypothesized instead, that there is a full range of PSOC even in low-income neighborhoods. Because past research has found healthy community ties, operationalized as a positive PSOC, can benefit both individuals and communities (Chavis & Newbrough, 1985), we were interested in describing its natural occurrence in a setting perceived to be a risk for low PSOC.

Recent years have seen a steady increase in attention to communities as a source of both risk and protective factors for various individual outcomes (Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Lorion, Brodsky, Flaherty, & Cole-Holland, 1995; O'Campo, Gielen, Faden, Xue, Kass, & Wang, 1995; O'Campo, Xue, Wang, & Caughy, 1997; Roberts, 1997). In the psychological literature in particular, community psychology is just one of the many specializations now attending to the role that community level resources and stresses play in the prevention, development, maintenance, and treatment of various mental and physical public health concerns. On

the preventive side of this role, Chavis and Newbrough (1985) conclude from their review of 50 years of community research:

> A healthy community system is one that can resist social, psychological and physiological problems, in addition to enabling individuals and their collectivity to grow to their maximum potential. . . . The community system and its subsystems are dependent on individuals. Conversely, the quality of life of individual community members is dependent on the strength of its community systems. (p. 338)

Of course, unhealthy community systems exist as well. Hunter and Riger (1986) point out that perceived loss of community has been a particular concern since the onset of urban industrialism and the concurrent birth of sociology. The decline of bowling leagues, rise of separatists militias, and shrinking of PTA/PTOs have all been cited as recent examples of the decline of communities. Poor, urban neighborhoods are also often perceived as having a weak community system. This weakened or nonexistent community system cannot serve as a resource for its residents. In more extreme cases, urban neighborhoods can be systems that are detrimental and pose a direct threat to residents. In either case, individual isolation and alienation may result as residents withdraw from the community. In Iscoe's (1974) terms an unhealthy community may be one which is incompetent in caring for the needs of its residents and which may also undermine the development of both the community and its residents.

A concept which is useful in exploring individual perceptions of community competence is psychological sense of community (PSOC), defined as ". . . a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together." (McMillan & Chavis, 1986, p. 9). The concept of PSOC attempts to capture an individual's sense of identity and belonging with a group, and their interaction with others in that group. PSOC can describe the impact of both positive and negative relationships between individuals and communities, that is a range of relationships from isolation and alienation to active commitment and involvement. (Brodsky, 1996; Hill, 1996; McMillan & Chavis, 1986; Sarason, 1974). Chavis and Newbrough, among others, have found that a positive sense of community is associated with positive individual- and community-level outcomes (Chavis & Newbrough, 1985; Chavis & Wandersman, 1990; Davidson & Cotter, 1991; Pretty, Andrewes, & Collett, 1994). Because PSOC is conceptualized to capture the relationships individuals perceive between themselves and a social setting, an individual's PSOC is likely to be influenced by characteristics of the individual as well as characteristics of the social setting or context. Therefore, attempts to explain an individual's PSOC may be best approached by examining the simultaneous association of individual and setting level factors.

There exists a dilemma inherent in developing a positive PSOC in a community that may be low in organized resources and commitment to provide for its residents. Brodsky (1996), for example, found that some *resilient* single mothers in physically dangerous, low-income neighborhoods found it protective to have a *negative* PSOC. These women saw the costs of identifying with and depending on their community to be too high, and perceived isolating themselves from the community to be a protective strategy for themselves and their families. This may not be the coping strategy of all residents of all poor communities, but one can see how committing resources to a community which has little to give back can be a chancy and costly action. Hunter and Riger (1986) talk about the dilemma this poses in terms of "community liability." Brodsky (1996) suggested that when individuals with the potential to add to community resources find it necessary to withdraw from their surroundings, a negative-feedback loop occurs whereby the necessary critical mass of individuals who could support and protect one another cannot coalesce and individuals struggle in isolation without community-level support. This is a particularly important problem in a resource-poor[1] community where a positive sense of community could be an affordable and feasible resource. There are two ways in which this type of roadblock to developing a positive sense of community within resource poor communities has typically been overcome. Both depend on what Hunter and Riger (1986) describe as the "irony" of the "shared fate" (p. 66). In the first case, a disaster brings people together in interdependence and results in a positive sense of community (Long, 1986). The other type of shared fate occurs when an outside community organizer (or community psychologist) enters

and convinces residents that individual risks may result in a long-term collective gain whereby the community will support them, rather than the other way around. Both of these "shared fates" place the individual at risk in an effort to benefit the community.

Exploration of both individual and community level correlates of positive PSOC offers another way to boost sense of community and the availability of resources without depending on a disaster or asking the individual to bear the initial risk. By looking at the multilevel correlates of positive PSOC in low-income, urban communities, we may be able to learn about naturally occurring correlates of positive PSOC and thus identify potential points of intervention. Such interventions might create the necessary conditions for individuals to develop a positive PSOC even in a community with liabilities. That is, if we are to assume that a positive PSOC is beneficial, then those who have it are exemplars of what we'd like to create. These natural correlates might suggest which individual- and community-level conditions might best aid in the creation of those external conditions that enhance or encourage development of the resource of positive PSOC in an otherwise resource-poor community. Further, attempts at community organizing can then be more effective, because some of the barriers to engagement (e.g., negative PSOC) have been diminished. As Hill (1996) further suggests:

> If we can learn what aspects of communities foster a strong psychological sense of community, and can learn to increase those aspects, perhaps we will not have to concern ourselves with specific [individual] problems and the interventions to deal with them. We could concentrate on forming healthy communities and rely on the communities to form the healthy individuals. Then we could truly become community psychologists. (p. 437)

Despite this call for community-level variables, even in community psychology our variables are rarely other than individual level and until relatively recently, there has been a lack of readily available statistical methods to support the necessary multi-level analyses.

Although attention to community-level factors has not been a common approach in research on PSOC, or in the study of similar types of community attachments[2] (for notable exceptions see Buckner, 1988; Sagy, Stern, & Krakover, 1996; Sampson, Raudenbush, & Earls, 1997), the extant literature gives some guidance for both the individual- and community-level factors that might be associated with positive PSOC.

INDIVIDUAL-LEVEL VARIABLES

Crime has often been measured in the sense of community literature as an individual variable operationalized as "fear of crime." Riger, LeBailley, and Gordon (1981, as cited in McMillan & Chavis, 1986) found that community bondedness was inversely related to fear of crime, while community involvement was not significantly related to fear of crime. Perkins and Taylor (1996) cite multiple research examples that link safety-related concerns and sense of community. They suggest that community-level crime is also an important variable to explore because fear of crime and actual crime may not actually be closely linked. Perkins and Taylor (1996) also suggest that longitudinal neighborhood change is an important intervening variable for fear of crime and related sense of community. They describe a downward spiral in which increasing community level, social, and/or physical disorders decrease citizen expectation and sense of community, and increase fear of crime. Following these suggestions, the current study looked not only at respondents' current reports of safety, but also at their current and retrospective concerns about the social and physical environment. We also examined community-level crime, discussed below.

An individual's level of involvement in his or her community has direct ties to sense of community. McMillan and Chavis (1986), for example, reviewed numerous studies which had found a connection between a positive sense of community and active, purposeful involvement in problem-solving (e.g., Bachrach & Zautra, 1985; Chavis, 1983; Florin & Wandersman, 1984; Wandersman & Giamartino, 1980 as cited in McMillan & Chavis, 1986). Related to involvement, Pretty, Andrewes, & Collett (1994) found social networks to be strongly related to PSOC. We looked at five measures of involvement: involvement in neighborhood organizations, church/

synagogue/ mosque attendance, voter registration, knowing successful parents in the neighborhood, and social networks.

As Hill (1996) has noted in her overview of the field, many factors related to the construct of PSOC are not entirely agreed upon. This once again suggests the importance of context in studies of PSOC. Hill (1996) found that age, length of residency, income, presence of children in the home, education, race, and gender have, with varying agreement, been found to be associated with positive PSOC in past studies. Length of residency and rootedness has been a recurrent theme in studies of sense of community (McMillan & Chavis, 1986). Skjaeveland, Garling, and Maeland (1996), for example, found that living 10 years or more in a neighborhood, having children, and being a woman was associated with more positive reports of neighboring. The current study examined all of these factors as well.

COMMUNITY-LEVEL VARIABLES

Perkins and Taylor's (1996) work, discussed above in terms of individual level variables, also suggests that community level factors are associated with fear of crime and related sense of community. We looked at physical characteristics of the community such as crowding, as well as total crime and crime density in the current study.

Hill (1996) argues that PSOC must be explored as more than the product of individual characteristics and involvements, and must take into account the characteristics of other community members as well as the characteristics of the neighborhood setting itself. Coulton, Korbin, and Su (1996) describe two types of data that contribute to descriptions of the community context. One type of data results from aggregating individual responses, such as average household income, or average network size. They describe these as comprising compositional, social properties in which the combined responses of individuals in a setting contribute to the overall character of the community. The second type of data measured is independent of individual residents (e.g., number of abandoned buildings, crime rate). We used both types of community-level variables in this study.

In one other example of the use of community level variables, Sagy, Stern, and Krakover (1996) used stepwise regression to look at individual- as well as community-level variables related to the PSOC of Israeli veterans and new immigrant populations. Supporting the importance of setting characteristics in explaining PSOC, they found population size and density to have explanatory power. In this study we also examined population density.

The current study used both individual- and community-level data to predict PSOC, with individuals nested within the neighborhoods. Until recently, the analysis of models with more than one level of data have presented researchers with a challenge. Previous analyses of this type have often aggregated individuals up to the community level and performed regressions on this aggregated data. Alternatively, some have appended community data to the individual-level records and performed regressions on the individuals while ignoring the violation of regression assumptions (i.e., lack of independence of observations). Both methods have been shown to be problematic for the estimation of parameters (Bryk & Rudenbush, 1992). In our study, we employed methods of multilevel modeling also known as hierarchical linear modeling. These techniques are specifically designed to deal with the use of multiple levels of data and nested models (Bryk & Rudenbush, 1992; O'Campo et al., 1995; Perkins & Taylor, 1996; Roundtree & Land, 1996, Woodhouse, 1996).

METHODS

Survey Setting and Data Collection

A random household survey was conducted in three Baltimore City communities (clusters of census tracts). The three regions represent demographically similar, low-income areas of the city where infant-mortality rates are highest. This survey was part of the local evaluation for a nationwide, community-based infant-mortality reduction demonstration project called Healthy Start. Baltimore City was one of 15 U.S. sites chosen for this 5-year demonstration project, which began in late 1991. Because Healthy Start is a community-based project, one

objective of the local evaluation effort was to assess changes in community-health status and attitudinal and behavioral norms that might result from program activities. The survey, designed to measure perceptions of community strengths, community problems, and health outcomes, was one part of the local evaluation.

The survey was conducted between May and July 1996. The target sample size was 300 respondents for each of the three communities. Households were sampled using a procedure in which hundred blocks3 in each community were chosen using a random-number generator. The goal was to interview four households on each block, allowing for a 20% nonresponse rate (e.g., not home or refusal). Chosen blocks that were subsequently found to be nonresidential (e.g., business sites, vacant lots, parks) were replaced with randomly chosen new blocks. Interviews were conducted by community residents trained specifically for this survey administration. Within each block, a random number between 1 and 10 was again chosen and interviewers began at the first house on the block with an address ending in that number. Interviewers would then approach every third house on that block until four interviews were completed. Interviewers were allowed to return to the block three times to complete the four interviews. Respondents between the ages of 18 and 65 were chosen from among the adults at home by each day's preset criterion (e.g., oldest adult home, second to the youngest adult).

Survey Respondents

The survey was administered to 914 persons, evenly divided among the three survey areas. After deletion of records containing missing data, the final data set contained 749 records. The overwhelming majority of people surveyed (96%) described themselves as African American. Women made up 58.5% of the sample. Respondents' ages ranged from 18 to 65, with 45.6% between the ages of 20 and 40. Just under half of the respondents reported having part-time or full-time jobs. Among the 38% of respondents that were unemployed, 44% were not actively pursuing work (not on job market/not in labor force). Just under 36% of those surveyed did not graduate from high school. Thirty-seven percent of the respondents identified a high school degree or GED as their highest level of education. Twenty-seven percent of the respondents reported having some education beyond a high school degree (See Table 1).

Measures

Sources of neighborhood data. Data for the development of neighborhood-level variables (neighborhood indicators) used in this analysis came from three main sources: a) census or census-related commercial sources (Claritas-NPDC, Ithaca, NY); b) routinely collected administrative data sources; and c) community-survey data. We chose to use data at the census-block-group level as they have been shown to be more homogeneous than census tracts or larger groupings such as zip codes (Krieger, 1991). Census data comes aggregated at the level of the census-block group. Administrative data provided by state and local agencies, received in raw form, were geocoded prior to aggregation at the census-block group. After geocoding for block group, aggregate neighborhood-level indicators were developed. For most neighborhood-level indicators, average values or proportions were created. Another set of neighborhood indicators was developed based upon aggregating individual responses to our community surveys. Within each census block group, we aggregated responses to either single items (e.g., Are you registered to vote?) or clusters of items (e.g., neighborhood concerns/change) by obtaining averages or sums. A summary of community-level variables is found in Table 1. We employed O'Brien's (1990) "generalizability coefficient," as used by Coulton et al. (1996) for assessing and ensuring the reliability of these neighborhood indicators.

Variables From Survey Instrument

Individual-level characteristics. The survey[4] collected information regarding respondents age, gender, education completed, race/ethnicity, employment status, health status, years of residence in the neighborhood, whether they had children in their house, whether they regularly attended church/ synagogue /mosque, whether they were actively involved in any community organizations, and whether they were registered to vote. In addition, respondents were asked to evaluate their community through three sets of questions. The first question was whether respondents knew any neighborhood parent they considered as "good" or "successful" parents. The second set of questions was the neighborhood concern/change scale, covering such issues as sanitation, jobs, policing, playgrounds, crime and safety, which asked residents about the physical and service

characteristics of their community, including whether they saw these characteristics as getting better, staying the same, or getting worse. These questions were summed for a neighborhood concern/change score (Chronbach's Alpha = 0.81). 3) The third set of questions concerned psychological sense of community (PSOC).

Table 1. Individual and Community-Level Variables

Variables *Individual Variables* *(n = 749 Respondents)*		*Neighborhood Variables*[a] *(n = 79 Neighborhoods)*	
Gender:		Per capita income	$8,672
Women	58.5%	(Range 3,452–27,938)	
Men	41.5%	Average household size	2.91
Age		(Range 1.75–4.23)	
< 20	5.1%	Population density	25.90
20–40	45.6%	(Range 0.67–64.5)	
40–60	37.1%	% African American	96.0%
> 60	12.3%	(Range 31%–100%)	
Education		% Owner occupied	26.7%
<High school	35.6%	(Range 0%–70%)	
High school diploma	37.4%	Unemployment rate	15.8%
>High school	27.0%	(Range 0%–37%)	
Race/ethnicity		Not in labor force rate	45.7%
African American	96.0%	(Range 17%–68%)	
White	1.9%	Crime-density rate	4.06
Other	2.1%	(Range 0.19–11.45)	
Employment		% involved in Neighborhhod Organization	45.9%
Part-Time	19.5%	(Range 0%–100%)	
Full-Time	29.9%	% church attendance	53.1%
Retired	12.7%	(Range 12.5%–90%)	
Unemployed (on job market)	21.2%	% registered to vote	86.1%
Unemployed (not on market)	16.7%	(Range 50%–100%)	
Years of residence		Average concern/change	66.37
< 2 years	17.7%	(Range 48.33–77.00)	
2–5	22.3%	Social network size	2.91
5–10	18.7%	(Range 2.0–4.6)	
> 10 years	41.4%		
Health status			
Poor	4.0%		
Fair	19.2%		
Good	22.8%		
Very Good	34.7%		
Excellent	19.2%		
% with children in the home	51.3%		
% who know successful parent	76.1%		
% who attend church regularly	54.1%		
% registered to vote	85.4%		
% involved in neighborhood orgs.	22.3%		
Mean network size	2.98 (Range 1–6)		
Mean env. concern/change score	65.62 (Range 25–84)		
Mean PSOC score	3.59 (Range 1–5)		

[a]All neighborhood level numbers are means, averaged across block groups.

PSOC. While PSOC has been operationalized and measured in multiple ways (Hill, 1996), McMillan & Chavis' (1986) definition underlies much of the conceptualization of PSOC to date. In this study, PSOC was measure using an iteratively revised form of Chavis, Florin, Rich, and Wandersman's scale (1987, as cited in Linney & Wandersman, 1991). This Likert-scaled, 12-item measure was reduced to a 10-item scale through the feedback of community-based interviewers who reported, after field testing, that they and respondents had difficulty reaching a shared meaning and value for two questions (It is important for me to live in this neighborhood; I have influence over what happens in this neighborhood)[5].

Community-level indicators. Five individual level variables were aggregated to create neighborhood-level indicators. These were mean social-network size, percentage involved in neighborhood organizations,

percentage of regular church/ synagogue/ mosque attendees, percentage registered to vote, and mean concern/change score.

Variables From Census and Administrative Aggregate Data

Community-level indicators. Seven community-level variables came from census data: per capita income; average household size; population density; percentage of African Americans; percentage of owner-occupied homes; unemployment rate, and percentage not in the labor force. Crime density (the total count of crimes by census-block area (in square miles) divided by 1000) was calculated from 1994 Baltimore City Police Department crime reports.

Analyses

Uni- and multi-variate analyses. Principal axis factoring with varimax rotation was used to factor analyze the 10-item PSOC scale used in this survey resulting in an 8-item solution discussed below. Bivariate correlations were conducted for the hypothesized independent variables prior to designing multi-level models.

Multi-level modeling. Multi-level regression modeling was utilized to identify individual-level and neighborhood-level determinants of PSOC. This type of modeling, sometimes referred to as Hierarchical Linear Modeling (Bryk & Rudenbush, 1992), appropriately analyzes data that are nested (e.g., individuals within neighborhoods) and is able to handle more than one source of random error (Woodhouse, 1996). We used Mln software for our analyses (Woodhouse, 1996). Because our outcome is continuous, we employed linear regression in Mln. The resulting parameter estimates can be interpreted in much the same way as betas resulting from conventional linear regression analyses.

In conducting our multi-level regression analyses, we employed model-building techniques. Specifically, we first fit a model in which only the individual-level independent variables were included (See Table 2). This allowed us to watch for any changes in the parameter estimates and corresponding standard errors when the neighborhood-level variables were added in subsequent models. Here, we present two individual-level only models: one where all variables are in the regression model and one where only variables statistically significant at the alpha = .05 level are retained (the best-fit model in Table 2). The computation method used by Mln for the individual-level models estimated the effect of individual-level variables on PSOC while taking into account the fact that respondents in the same block group may be more similar than respondents in different block groups and thus, may not have independent errors or equal error variances.

We then added all the neighborhood-level variables to the best-fit individual model. Finally, we eliminated all neighborhood level variables that were not statistically significant (see best-fit level-2 model in Table 2). Models were analyzed using backward elimination, in which all hypothesized independent variables were entered and then insignificant or highly correlated variables were excluded one at a time until a stable model with the highest possible two-square likelihood was obtained.

RESULTS

Factors Analysis and Reliability Analysis of PSOC

Principal axis factoring with varimax rotations of the 10-item PSOC resulted in extraction of two factors. The first factor, which was made up of eight variables (I think my neighborhood is a good place for me to live; People in my neighborhood share beliefs; My neighbors and I want the same things from this neighborhood; I feel at home in this neighborhood; I care what my neighbors think of my actions; If there is a problem in this neighborhood people who live here can get together and solve it; People in this neighborhood get along with each other; I expect to live in this neighborhood for a long time) was retained for further analyses. The second factor was not retained because it had a two-variable solution (I can recognize most of the people who live in my neighborhood; Very few of my neighbors know me) and had an eigenvalue nearly one fourth the first factor, both of which suggest that it is not a valid nor reliable factor (Pedhauzer, & Schmelkin, 1981.) Reliability analysis on the entire 10-item scale yielded an alpha of .78, while reliability analysis performed on the first factor yielded a higher alpha of .84. Greater than 5% of respondents had at least one missing response for the 10

PSOC items. To minimize the sample-size reduction the PSOC score used in all further analyses was created by taking the mean of the factor 1 responses while allowing for up to two missing answers. The mean score was 3.59 with a range of 1–5 (See Table 1).

Table 2. Multi-Level Linear Regression for PSOC. Individual and Community-Level Independent Variables (N = 749 individuals, 79 neighborhoods)

	Individual-Level Variables Only		*Two-Level Model*	
Variable	*All Variables b (seb)*	*Best-Fit Model b (seb) R^2 = .211*	*All Variables b (seb)*	*Best-Fit Model b (seb) R^2 = .250*
Individual variables				
Intercept	4.42 (0.351)	4.419 (0.223)	4.192 (0.803)	4.454 (0.489)
Gender	−0.052 (0.067)			
Age (categorical)	0.073 (0.016)	0.072 (0.014)	0.071 (0.014)	0.076 (0.014)
Education	−0.047 (0.030)			
Ethnicity	−0.095 (0.055)			
Employment	−0.025 (0.026)			
Children in home	−0.135 (0.068)	−0.146 (0.068)	−0.140 (0.066)	−0.128 (0.066)
Neighborhood residence length	0.038 (0.028)			
Health status	0.043 (0.034)			
Network size	−0.019 (0.025)			
Know successful parent	0.370 (0.079)	0.394 (0.077)	0.386 (0.076)	0.384 (0.076)
Neighborhood concerns	−0.024 (0.002)	−0.024 (0.003)	−0.022 (0.003)	−0.021 (0.003)
Regularly attend church/synagogue/mosque	0.260 (0.069)	0.239 (0.068)	0.219 (0.070)	−0.216 (0.067)
Registered to vote	0.198 (0.097)	0.177 (0.095)	0.116 (0.097)	
Neighborhood organization involvement	0.224 (0.090)	0.229 (0.097)	0.180 (0.089)	0.180 (0.089)
Neighborhood-level variables				
Registered voters[a]	—	—	0.100 (0.030)	0.090 (0.030)
Average neighborhood concerns	—	—	0.013 (0.009)	
Church/synagogue/mosque attenders[a]	—	—	−0.020 (0.030)	
Neighborhood org. involvement[a]	—	—	0.050 (0.020)	0.040 (0.010)
Crime density	—	—	0.004 (0.024)	
Not in labor force[a]	—	—	−0.150 (0.050)	−0.120 (0.040)
Unemployment[a]	—	—	0.080 (0.050)	
Home-owner occupancy[a]	—	—	0.090 (0.040)	0.070 (0.030)
African American households[a]	—	—	−0.020 (0.040)	
Population density	—	—	−0.010 (0.004)	−0.008 (0.004)
Average network size	—	—	−0.031 (0.098)	
Per capita income (thousands)	—	—	−0.037 (0.013)	−0.034 (0.011)
Average household size	—	—	−0.239 (0.092)	−0.160 (0.079)

[a]The b represents a change in ten percentage points for this variable (e.g., a change from 10% to 20% registered voters in the neighborhood).

While McMillan and Chavis' definition and measure is multidimensional, a review of the literature on PSOC by Hill (1996) found several examples of multidimensional measures of PSOC, which when factor analyzed, resulted in more convincing one-dimensional conclusions (see Buckner, 1988; Davidson & Cotter, 1986). Pretty (1990) also reported a one-factor solution to the 1986 Chavis, Hogge, McMillan, and Wanders-man scale.

Independent Variable Characteristics

After bivariate correlations were conducted to test for redundancies in the model at the individual and community level, only variables with correlations less than .65 were entered into the model. These included individual- and community-level characteristics which are presented in Table 1.

Mln Regression Analysis

Individual variables (level 1 model). When all 14 individual variables are entered into the model, 7 factors are statistically significant predictors of PSOC at the $p = .05$ level: age; children in the home; knowing a successful neighborhood parent; neighborhood concern/change; church/ synagogue/ mosque attendance; being registered to vote, and being involved in neighborhood organizations (See Table 2, column 1). In this model, the parameter estimates (betas) for the significant variables, holding all other variables constant, can be interpreted as follows.

Five of the seven significant variables were positively related to positive PSOC. Each one-unit change in categorical age (e.g., from < 20 to 20–40) was associated with a 0.07-point increase in mean PSOC. This means

that the average difference in mean PSOC between a person under 20 and someone above 60 would be 0.21 points. Knowing a successful parent was associated with a 0.37 higher mean PSOC compared to not knowing a successful parent. This is consistent with Crane's theory regarding the role of positive-role models in the community (Crane, 1991). The association between neighborhood involvement and PSOC was supported by three individual-level findings. Regular church/ synagogue/ mosque attendance was associated with a 0.26 higher mean PSOC than non-regular attendees. Registered voters had mean PSOC scores 0.19 points higher than those who are not registered. Finally, those involved in neighborhood groups had mean PSOC scores 0.22 points higher compared to noninvolved respondents.

The two individual-level variables that were significantly inversely related to PSOC were having children in the home and neighborhood concern/change score. Having children in the home was associated with an average mean PSOC score 0.13 lower that those without children in the home. This is in keeping with Brodsky's (1996) findings that mothers in low-income, urban neighborhoods may develop a negative PSOC to protect their children from neighborhood risks. In keeping with past findings (Chavis & Wandersman, 1990), having higher neighborhood concerns and seeing things getting worse was also associated with a 0.024 decrease in mean PSOC. This means that the mean PSOC score drops 0.37 when the concern/change score increases from 25 to 40.

Level 1 "best fit model." When the model is rerun entering only significant variables, the betas and significant levels remain fairly stable with an $R^2 = 0.211$. The most influential variables in predicting PSOC, based on the magnitudes of the beta parameter, are knowing a successful parent, followed by attending church/ synagogue/mosque and the community concern and involvement variables (involved in neighborhood organizations, registered to vote, and neighborhood change/ concern). Finally, having children in the household and age have significant, but relatively small effects on PSOC (See Table 2, column 2).

Levels 1 and 2: "Best fit level 1 model" and all community variables. When the 13 community variables are added to the level 1 model, the parameter estimates are, for the most part, relatively unchanged (<0.05). Two exceptions are being registered to vote, which changes by 35% and becomes nonsignificant at the 0.05 level, and being involved in neighborhood groups which changes by 25% but remains significant. In all cases of parameter change, the effects are diminished by the addition of community variables.

Seven community level variables are significant when the level-2 variables are added to the best-fit level 1 model (See Table 2, columns 3 and 4). Similar to level-1 findings, three of these variables are related to neighborhood involvement and are positively related to PSOC. The percentage of registered voters in the neighborhood, percentage involved in neighborhood organizations, and proportion of owner-occupied homes are all positively related to PSOC. Specifically, a 10% rise in voter registration is associated with a 0.1 increase in mean PSOC, a 10% increase in neighborhood involvement is associated with a 0.05 increase in mean PSOC, and a 10% increase in owner-occupied homes increases mean PSOC by 0.09 on average. Four community-level variables related to socioeconomic issues are inversely associated with PSOC. A 10% increase in persons not in the labor force is associated with a 0.15 decrease in mean PSOC. A 10-point increase in population density decreases mean PSOC by 0.01 points. Each $2,000.00 increase in per capita income decreases mean PSOC by 0.06 points. And for every one-person increase in household size, mean PSOC decreases by 0.16 points.

In order of magnitude, it appears that percentage of neighborhood residents not in the labor force and average household size are the two community-level variables with the largest effect on PSOC. These are followed by proportion of registered voters, population density, proportion of owner-occupied homes, per capita income, and proportion involved in neighborhood organizations.

"Best fit" level 2 model. The "best-fit" level 2 model had a $R^2 = 0.250$. While it appears that few personal (e.g., demographic or health) variables are important for PSOC when both community- and individual-level variables are entered into the model, the overall magnitude of the betas does point to a number of individual-level measures of community involvement which have a relatively strong effect on PSOC. In order of magnitude,

knowing a successful parent, an individual-level variable, has the strongest effect on PSOC, followed by individual church/ synagogue/ mosque attendance, and individual group involvement. Neighborhood average-household size, having children in the home, and neighborhood percentage not in the labor market had a medium effect on PSOC. Remaining were neighborhood-level voter registration, followed by age, percentage of owner-occupied houses, neighborhood-level group involvement, per capita income, individuals' neighborhood concern/change scores, and finally, population density. There were no significant interactions in this, or any other model.

DISCUSSION

The current study draws on a number of strengths in exploring positive PSOC in low-income neighborhoods. The simultaneous use of individual- and community-level data broadens the scope of our understanding of the factors related to PSOC and applies the knowledge and theory of community psychology in conceptualizing behavior as a function of both person and environment (Lewin, 1935). The data cover a broad spectrum of factors that might theoretically influence PSOC and further, appropriate statistical methods for this type of nested data were used in this study. In addition, through attention to betas as well as significance levels, we took maximum advantage of our data to identify how and to what extent significant associations were related to PSOC.

Our findings suggest that an individual's psychological sense of community is associated with not only individual-level characteristics, but also with characteristics of the community itself. Respondents in this study lived in neighborhoods which were generally characterized by high-crime, high-risk of violence, low-employment, low-income, and lack of resources. Within this high-risk context, findings for the individual characteristics associated with PSOC might be expected to differ, as they did, from some past studies of PSOC which were done in communities with less liabilities (Hunter & Riger, 1986; e.g., Sagy, Stern, & Krakover, 1996). Importantly, this study found that community-level characteristics differed by block group or neighborhood, and that this heterogeneity in neighborhood characteristics affected residents' PSOC. This finding supports other work (e.g., Brooks-Gunn et al., 1993) which has shown that poor communities are not homogeneous, and that their heterogeneity has important implications for both outcomes and the design of interventions.

At the individual level, two variables were predictive of PSOC: age and having children in the home. The positive association of age with PSOC supports past research findings (Hill, 1996; Skjaeveland, Garling, & Maeland, 1996). Unlike the current study, however, Skjaeveland, Garling, and Maeland also found length of residence to be related to a positive sense of community. They hypothesized that age and length of residence were both cases in which people had chosen to stay in neighborhoods they liked. While their samples were similar to ours (e.g., residents of poor communities with low-employment rates), they differed in that they lived in public housing in a medium-sized Norwegian city and had a higher mean-length of residence in the community. Perhaps, in Norway as in some parts of the U.S., public housing is preferable to other options for poor families, and thus, an incentive to stay in the neighborhood. For our respondents, on the other hand, residency was not always a matter of choice and thus, was not associated with positive feelings toward the community. Both studies, however, found that older adults, regardless of length of residency, appear to have stronger feelings of commitment to their neighborhoods and so may be an important source of community action and involvement.

The inverse association of having children in the home and PSOC is in keeping with Brodsky (1996), and also differs from Skjaeveland, Garling, and Maeland's (1996) findings. While Skjaeveland, Garling, and Maeland hypothesized that children increased one's sense of community by bringing parents out of their homes and into contact with more of their neighbors, Brodsky (1996), like Furstenberg (1993), found mothers in American urban, poor neighborhoods, responded to perceived neighborhood risks by withdrawing from a sense of community belonging and involvement to protect their children. This finding points to an inherent stumbling block when school- and child-focused community organizations in poor, urban neighborhoods attempt to enlist the help of parenting adults. It may be that in addition to addressing other stresses that leave parenting adults

short on time for volunteer work, the inclination of parenting adults to withdraw from community involvement needs to be addressed before their participation can be successfully recruited, even to benefit the children in their care.

In keeping with past research, a number of variables related to community involvement, at both the individual and neighborhood level, were associated with PSOC (Chavis & Wandersman, 1990). Respondents who regularly attended church/synagogue/mosque, were involved in neighborhood organizations, lived in neighborhoods with higher voter registration, and lived in neighborhoods with higher rates of community-level neighborhood involvement all had higher PSOC. This supports hypotheses that an active involvement in community institutions promotes a higher sense of community, and relatedly that a stronger sense of community promotes positive, active involvement (McMillan & Chavis, 1986). It is interesting that in this study the effect of an individual's registration to vote was replaced by the effect of the neighborhood-level of voter registration. Perhaps, this is an example of what epidemiology terms "herd immunity" in which a certain level of inoculation in the community overall is enough to stop an epidemic and protect the entire population, even if every individual has not been inoculated (Lillienfeld & Stolley, 1994). In this case, enough of the community was concerned and politically active (at least in the functionary definition of voter registration, which never, unfortunately, represents actual voter turnout) to have an impact, regardless of the status of a particular individual. Although this type of partially successful voter registration drive might not satisfy the political candidate, it appears to be related to higher PSOC.

Another community involvement finding, supporting work by Chavis and Wandersman (1990), is that respondents who were more concerned about the worsening condition of neighborhood problems had lower PSOC. Thus, those most critical of the community, who saw things as not only bad, but getting worse, were less likely to feel that they could make a difference or gain from their association with the community. Thus conversely, as Chavis and Wandersman (1990) pointed out, a positive PSOC may cause residents to see the community in a more positive light. This has implications when attempting to rally a community against a neighborhood problem. If seeing the problem makes some residents less likely to get involved, PSOC must be increased by other means before neighborhood activism can take place.

A related variable, crime density, was surprisingly not associated with PSOC. Although concern about perceived crime was a neighborhood characteristic tapped by the individual-level concern/change scale, actual crime was not predictive of PSOC. This seems to support Perkins and Taylor's (1996) hypothesis that actual crime and fear of crime (or of perceived crime) are not the same thing. This also suggests that the "broken window theory" (Wilson & Kelling, 1982) of crime prevention, and the interventions that follow, may be successful as much for the way they change community perceptions and feelings toward the neighborhood, as for their actual effect in preventing more serious crime.

A number of community-level socioeconomic variables were also related to PSOC. Average household size, population density, percentage not in labor force, and surprisingly, per capita income were all negatively associated with PSOC. In terms of scarcity of resources, it seems logical that high-population density and high-average household size were negatively related to PSOC. The more populous a neighborhood and the more crowded the neighborhood homes, the greater the strain on the few resources available. It follows that one would not see other residents in these circumstances as having resources to share, and this, in turn, might decrease residents' feelings that they could gain through involvement and commitment to the neighborhood. This raises a possible intervention strategy. If a crowded neighborhood could provide its residents with resources in the form of space (e.g., safe recreation centers, safe after-school centers, safe gyms and playgrounds) might it be able to provide a respite from crowding and bring people together in a way that increases PSOC?

The negative association of PSOC with the percentage not in the labor force (unemployed but not on the job market) is noteworthy in light of the fact that neither individually reported unemployment (both on and not on the job market), nor census unemployment data (on the job market) were related to PSOC. This suggests that

unemployment has an impact beyond the unemployed individual and that this impact has a noneconomic effect on other community residents and on the community itself. This finding is also a reminder that the simple unemployment rate is not only an underestimate of the actual number of persons out of work (Castillo, 1998), but may not be the appropriate variable when focusing on issues which affect more than just individuals who are on the job market.

A surprising finding among socioeconomic variables was that per capita income was inversely related to PSOC. On the surface, one would assume that higher neighborhood income would benefit residents and increase feelings of commitment, involvement, and satisfaction in the neighborhood. It might be, however, that the perception of community liability (Hunter & Riger, 1986) and related community withdrawal increase with the demands that economic inequality places on those with higher economic resources in poor, urban neighborhoods. Poorer neighbors may also withdraw, judging they have nothing to gain economically, in social support, or motivationally from their better-off neighbors. In Baltimore, these pockets of higher income may result from urban-renewal strategies that use economic incentives to create more socioeconomically mixed communities. While these housing opportunities may bring in more prosperous residents, these findings suggest that residents in these pockets of gentrification may not develop nor contribute to a positive PSOC. In fact, many of these residents may be new to the area, fear the less-gentrified community surroundings, and work outside the community. Thus, their primary community connections, allegiances, and PSOC may be to other areas and people.

Interestingly, percentage of owner-occupied houses *was* positively related to PSOC. This seems to contradict the income findings discussed above, but may suggest that there are two types of homeowners, who differ in level of economic resources and commitment to the community. As the pockets of gentrification are still rather small, neighborhoods with larger percentages of owner-occupied homes may be made up of working class, long-time residents who have a commitment to the neighborhood based on home ownership. In this case, owning and living in a home may represent a commitment to a place and increase economic mutual dependence. In addition, living in a community where one's neighbors are involved, regardless of whether one owns a house or not, has an impact in the same way as does voter registration. Thus, the involvement of the people around you might vicariously increase PSOC, leading the uninvolved individual to begin to actively commit to his/her neighborhood. This supports Chavis and Wandersman's (1990) findings that PSOC acted as a catalyst to involvement.

The findings that neighborhood-level socioeconomic factors are associated with PSOC are important for a number of reasons. First, these findings show how macrolevel issues impact individual and community outcome in the form of PSOC. The impact is felt beyond economics, affecting the quality of life, relationships, commitment, and involvement at the neighborhood level. Second, these findings point to the heterogeneity of low-income, urban neighborhoods, even at the most basic socioeconomic levels, which are often assumed to be similar across so called "poor" communities. This heterogeneity is important to understand when assessing community needs and designing interventions. Based on these findings, one would want to know, for example, not just if an individual family has an employed member, but about employment rates in the whole neighborhood.

While this research points to a number of individual- and community-level correlates of positive PSOC, it cannot answer five important questions. The first concerns the causal direction of the relationships. Past research has suggested bidirectional causality in models of PSOC (Chavis & Wandersman, 1990) and while the current research can certainly point to theoretically defensible connections, longitudinal research is obviously necessary to continue to explore this question.

Second, while this study found a number of interesting and statistically significant individual- and community-level variables associated with PSOC, we were surprised at the small magnitude of the betas overall. Because little past research on PSOC has reported betas, a more stringent test of significance, it is not unexpected that the variables hypothesized to date do not explain all the variance in PSOC. It might be that despite the

heterogeneity within these low-income neighborhoods, including working-, middle-, and upper-middle-class neighborhoods would increase the variance and thus increase the betas. In addition, using a mean PSOC score may have reduced the PSOC variance. It is also possible that important variables, accounting for even more of the PSOC variance, are missing from our model. This study, as part of a larger program evaluation focused on health-related themes of importance to pregnant women, had to leave out a number of issues that should be explored in the future. These include a more detailed measure of perceived neighborhood safety, interactions with neighbors, and PSOC with alternative, non-neighborhood communities, to name a few.

A third question not addressed by this study is a question for the field at large and concerns the actual effect that a positive PSOC has on residents in low-income communities. The assumption has been that positive PSOC is a resource for individuals and communities, regardless of setting. It provides an important sense of belonging, membership, commitment, and support. Thus, being able to locate these feelings in a community low on resources is a type of resilience. This hypothesis, however, differs from findings that for some individuals in urban, low-income communities, it may be protective to have a negative PSOC (Brodsky, 1996). This difference, however, need not be contradictory. Rutter's (1987) conceptualization of the mechanisms of resilience explains that risk and protective factors are not at opposite poles. In this case, depending on how an individual viewed their context, either positive or negative PSOC may be protective. And either choice has a danger. A positive PSOC that ignores individual self-interest (e.g., one in which the individual gives to the community but receives nothing in return) would not be protective. Conversely, a negative PSOC, which kept an individual from receiving positive community supports and resources, may also ultimately do the individual more harm than good. The answer may lie in finding the tipping point between negative PSOC in a community with multiple liabilities and positive PSOC when resources can be identified. We need further research to answer questions such as: How many resources are enough? How much of a chance can an individual take? What decision-making process, if any, does an individual use in an ambiguous situation?

A fourth issue for PSOC research, previously mentioned by Hill (1996), is the need to explore the meaning of PSOC in communities which are defined by individual relationships rather than geographic locations. Residents in communities that offer few resources may feel a positive PSOC with non-geographic communities based on interest or identity. If so, these alternative communities may provide important protection to individuals and may also be a more meaningful intervention point than a community based on locale alone. Exploring these other community-level commitments may also show that people who appear alienated and isolated actually have rich, non-geographic, interpersonal networks.

A fifth question involves the role of history in the development of PSOC. Future approaches need to include not only context but history. Although this study moves in that direction by looking at community concerns and their change, much more needs to be known about the historical context of a community and an individual's relationship to that community. The meaning of a positive PSOC for the residents of Grand Forks, South Dakota after the floods of 1997 may be very different from the positive PSOC of a longtime resident of a neighborhood on the decline, the negative PSOC of another resident of this same declining community, or the positive PSOC of a resident in a stable, resource-rich community.

If we are to assume that the ultimate goal would be to have individuals with positive PSOC living in communities which have the resources to provide its residents with benefits in exchange for their commitment, then the question is how do we reach that goal. The easiest solution from the individual's perspective is to be lucky enough to live in a community with resources to share in exchange for commitment and involvement. Unfortunately, such communities are neither equally distributed nor affordable to all. Community resources seem to directly parallel the resources of the individuals who can afford to inhabit them. Making an already stressed individual take a leap of faith for a stressed community does not seem to be the best solution. Attention to the changeable community-level variables that could promote individual positive PSOC, however, may be a better direction.

While the current research cannot ultimately define the association between PSOC and community-level variables, it does suggest possible paths the association may take in the future. The correlation between community-level voter registration, employment rates, population density, and positive PSOC may be a key to increasing positive PSOC. In fact, increasing voter-registration rates, if it is truly a direct path to PSOC, rather than a proxy or bi-product, would be a simple, relatively easy community intervention. These findings also suggest that directing efforts at building PSOC to those already involved community activities and organizations is preaching to the converted. Efforts to reach and understand the needs of uninvolved, alienated residents while harder, seem to be necessary. McMillan and Chavis, in their 1986 article conclude that public policy which actively causes residents to act in ways that enhance a sense of community might be one way of meeting Dockecki's (1983, as cited in McMillan & Chavis, 1986) call for public policy designed to further the positive growth of individual and community. What we are suggesting is that rather than causing individuals to change and to absorb the responsibility and risk to make the community healthier, there are community-level variables that should be targeted. Interventions focused at the community level may be effective in changing the environment in ways that promote positive PSOC, thus bringing needed resources to both individuals and communities without placing the sole burden and risk on the individual.

CONCLUSION

There is an increasing recognition of the need to revitalize low-income urban communities in the U.S. Part of this revitalization effort might include the promotion of positive psychological sense of community. Our study, which simultaneously examined individual and neighborhood correlates of positive PSOC, identified some areas for intervention to increase PSOC. Our data suggest that PSOC may be improved by making changes at the community level, rather than placing the burden of change on individuals. Economic investment in communities, including improving employment opportunities, housing, and crowding may raise PSOC. Future studies, with longitudinal designs using two or more levels of data, should be conducted to confirm these findings and begin to identify additional determinants of positive and negative PSOC.

References:

Bachrach, K.M., & Zautra, A.J. (1985). Coping with a community stressor: The threat of a hazardous waste facility. Journal of Health and Social Behavior, 26, 127–141.

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

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

Bryk, A.S., & Raudenbush, S.W. (1992). Hierarchical linear models: Application and data analysis methods. Advanced quantitative techniques in the social sciences series. Newbury Park, CA: Sage Publications.

Buckner, J.C. (1988). The development of an instrument to measure neighborhood cohesion. American Journal of Community Psychology, 16, 771–791

Castillo, M.D. (1998, July). Persons outside the labor force who want a job. Monthly Labor Review, 34–42.

Chavis, D.M. (1983). Sense of community in the urban environment: Benefits for human and neighborhood development. Unpublished doctoral dissertation, George Peabody College of Vanderbilt University, Nashville, TN.

Chavis, D.M., Florin, P., Rich, R.C., Wandersman, A. (1987). The role of block associations in crime control and community development: The block booster project. Report of the Ford Foundation.

Chavis, D.M., & Newbrough, J.R. (1985). The meaning of "community" in community psychology. Journal of Community Psychology, 14, 335–339.

Chavis, D.M., & Wandersman, A. (1990). Sense of community in the urban environment: A catalyst for participation and community development. American Journal of Community Psychology, 18, 55–81.

Coulton, C.J., Korbin, J.E., & Su, M. (1996). Measuring neighborhood context for young children in an urban area. American Journal of Community Psychology, 24, 5–32.

Crane, J. (1991). The epidemic theory of ghettos and neighborhood effects on dropping out and teenage childbearing. American Journal of Sociology, 96(5), 1226–1259.

Davidson, W.B., & Cotter, P.R. (1991). The relationship between sense of community and subjective well-being: A first look. Journal of Community Psychology, 19, 246–253.
Dokecki, P.R. (1983). The place of values in the world of psychology and public policy. Peabody Journal of Education, 60, 108–125.
Florin, P., & Wandersman, A. (1984). Cognitive social learning and participation in community development. American Journal of Community Psychology, 12, 689–708.
Furstenberg, F.F., Jr. (1993). How families manage risk and opportunity in dangerous neighborhoods. In W.J. Wilson (Ed.), Sociology and the public agenda, Newbury Park, CA: Sage Publications.
Hill, J.L. (1996). Psychological sense of community: Suggestions for future research. Journal of Community Psychology, 24, 431–438.
Hunter, A., & Riger, S. (1986). The meaning of community in community mental health. Journal of Community Psychology, 14, 55–71.
Iscoe, I. (1974). Community psychology and the competent community. American Psychologist, 29(8), 607–613.
Krieger, N. (1991). Women and social class: A methodological study comparing individual, household, and census measures as predictors of black/white differences in reproductive history. Journal of Epidemiology and Community Health, 45, 35–42.
Lewin, K. (1935). Principles of topological psychology. New York: McGraw-Hill.
Lillienfeld, D.E., & Stolley, P.D. (1994). Foundations of epidemiology (3rd ed.). New York: Oxford University Press.
Linney, J.A., & Wandersman, A. (1991). Prevention Plus III—Assessing alcohol and other drug prevention programs at the school and community level: A four-step guide to useful program assessment. (DHHS Publication No. ADM 91-1871). Washington, DC: U.S. Department of Health and Human Services.
Long, N.E. (1986). The city as a political community. Journal of Community Psychology, 14, 72–80.
Lorion, R.P., Brodsky, A.E., Flaherty, M .J., & Cole-Holland, C. (1995). Community factors and childhood disorders. In M. Hersen & R.T. Ammerman (Eds.), Advanced abnormal child psychology (pp. 213–230), Hillsdale, NJ: Erlbaum.
McMillan, D., & Chavis, D. (1986). Sense of community: A definition and theory. American Journal of Community Psychology, 14, 6–23.
O'Brien, R.M. (1990). Estimating the reliability of aggregate-level variables based on individual-level characteristics. Sociological Methods and Research, 18, 473–504.
O'Campo, P., Gielen, A.C., Faden, R.R., Xue, X., Kass, N., & Wang, M. (1995). Violence by male partners against women during the childbearing year: A contextual analysis. American Journal of Public Health, 85(8), 1092–1097.
O'Campo, P., Xue, X., Wang, M.C., & Caughy, M. (1997). Neighborhood risk factors for low birth weight in Baltimore: A multi-level analysis. American Journal of Public Health, 87, 1113–1118.
Pedhauzer, E .J., & Schmelkin, L.P. (1981). Measurement, design and analysis: An intergrated approach Hillsdale, NJ: Erlbaum.
Perkins, D.D., & Taylor, R.B. (1996). Ecological assessment of community disorder: Their relationship to fear of crime and theoretical implications. American Journal of Community Psychology, 24, 63–107.
Pretty, G.M.H. (1990). Relating psychological sense of community to social climate characteristics. Journal of Community Psychology, 18, 60–65.
Pretty, G.M.H., Andrewes, L., & Collett, C. (1994). Exploring adolescents' sense of community and its relationship to loneliness. Journal of Community Psychology, 22, 346–358.
Riger, S., LeBailly, R.K., & Gordon, M.T. (1981). Community ties and urbanites' fear of crime: An ecological investigation. American Journal of Community Psychology, 9, 653–665.
Roberts, E.M. (1997). Neighborhood social environments and the distribution of low birthweight in Chicago. American Journal of Public Health, 87(4), 597–603.
Roundtree, P.W., & Land, K.C. (1996). 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, 33(2), 147–180.

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. American Journal of Orthopsychiatry, 57(3), 316–331.
Sagy, S., Stern, E., & Krakover, S. (1996). Macro- and micro-level factors related to sense of community: The case of temporary neighborhoods in Israel. American Journal of Community Psychology, 24, 657–676.
Sampson, R.J., Raudenbush, S.W., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. Science, 277, 918–923.
Sarason, S. (1974). The psychological sense of community: Prospects for a community psychology. San Fransisco: Jossey-Bass.
Skjaeveland, O., Garling, T., & Maeland, J.G. (1996). A multidimensional measure of neighboring. American Journal of Community Psychology, 24, 413–435.
Wandersman, A., & Giamartino, G.A. (1980). Community and individual difference charactersitics as influences of an initial participation. American Journal of Community Psychology, 8, 217–228.
Wilson, J.Q., & Kelling, G. (1982, March). Broken windows. The Atlantic Monthly, 29–38.
Woodhouse, G. (Ed.). (1996). Multi-level modeling applications: A guide for users of Mln. M-1 Models Project. London: Institute of London, University of London.

Notes:

[1]"Resource-poor" is used to designate a community which might be a "liability" in Hunter and Riger's (1986) terms or "unhealthy" in Iscoe's (1974). A community may appear resource-poor when in actuality indigenous resources are available, but a lack of organizational structure, empowerment, or safety keeps the resources from being accessible. Resources include instrumental and psychological supports which protect and/or promote positive outcomes. These might include access to jobs, necessities, basic city services, political organizations, individual and organizational social supports.

[2]PSOC is used for those studies that specifically utilize McMillan and Chavis' (1986) concept of PSOC. References to other similar scales and concepts are referred to as sense of community studies. Mixed sense of community and PSOC studies are referred to generically as sense of community.

[3]Facing buildings on both sides of the street in a city block.

[4]A copy of the measure is available upon request from the authors.

[5]As an aside, this is a good example of the difficult compromises that can result from a commitment to collaborative community-based research in which the feedback and opinions of community experts sometimes clash with the scientific demands of a research design. Although factor analysis and reliability analysis discussed below indicate that this adjustment was a scientifically defensible one, it is interesting that one of the limitations of this community-based study may have resulted, ironically, from a commitment to respect, listen to, and share decision making with community members.