

# Service Delivery and Community: Social Capital, Service Systems Integration, and Outcomes Among Homeless Persons with Severe Mental Illness

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**Objectives.** This study evaluated the influence of features of community social environment and service system integration on service use, housing, and clinical outcomes among homeless people with serious mental illness.

**Study Setting.** A one-year observational outcome study was conducted of homeless people with serious mental illness at 18 sites.

**Data Sources.** Measures of community social environment (e.g., social capital) were based on local surveys and voting records. Housing affordability was assessed with housing survey data. Service system integration was assessed through interviews with key informants at each site to document interorganizational transactions. Standardized clinical measures were used to assess clinical and housing outcomes in face-to-face interviews.

**Research Design.** Structural equation modeling was used to determine the relationship between (1) characteristics of the social environment (social capital, housing affordability); (2) the level of integration of the service system for persons who are homeless in each community; (3) access to and use of services by individual clients; and (4) successful exit from homelessness or clinical improvement.

**Principal Findings.** Social capital was associated with greater service systems integration, which was associated in turn with greater access to assistance from a public housing agency and to a greater probability of exiting from homelessness at 12 months. Housing affordability also predicted exit from homelessness. Neither environmental factors nor systems integration predicted outcomes for psychiatric problems, substance abuse, employment, physical health, or income support.

**Conclusion.** Community social capital and service system integration are related through a series of direct and indirect pathways with better housing outcomes but not with superior clinical outcomes for homeless people with mental illness. Implications for designing improved service systems are discussed.

**Key Words.** Homelessness, housing, mental health, social capital

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A recent study of services for homeless people with mental illness in 18 communities showed that greater service systems integration was associated with superior housing outcomes (Rosenheck, Morrissey, Lam, et al. 1998). The present study expands the framework of scrutiny of that study beyond service systems integration to (1) examine broader characteristics of the social environment that may be related to outcomes of treatment, and (2) consider whether the effect of such environmental factors is mediated by the presence of highly integrated service systems or through improved access to services.

In a groundbreaking empirical study of the implementation of governmental reform in Italy during the 1970s, Robert Putnam (1993) demonstrated that the effectiveness of governmental programs, and specifically social service and family welfare programs, is strongly associated with measures representing the presence of a strong civic culture or high levels of social capital in the surrounding community (Coleman 1990). As elaborated by Putnam, "Citizens in a civic community are active, public spirited, equal . . . helpful, respectful, and trustful towards one another, even when they differ on matters of substance . . . Social capital refers to features of social organization that can improve the efficiency of society by facilitating coordinated actions."

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Civic culture and social capital are thus interchangeable terms that refer to the spirit of cooperation and trust that we would expect from an integrated service system. Putnam's achievement in developing methods for measuring these concepts has stimulated research showing significant associations between social capital and general health indicators (Kawachi et al. 1997), successful urban revitalization efforts (Saegert and Winkel 1998), and neighborhood stability (Temkin and Rohe 1998); his work provides an important methodologic foundation for this study.

The Access to Community Care and Effective Services and Supports (ACCESS) program is a five-year, 18-site demonstration program sponsored by the Center for Mental Health Services and designed to evaluate strategies for improving service systems integration (Randolph, Blasinsky, Leginski, et al. 1997). Data from ACCESS provide a special opportunity to evaluate the influence of macrosocial characteristics on health outcomes because (1) complete information is available from a relatively large number of sites distributed across the entire United States ( $N = 18$ ), (2) relevant measures of social capital and housing affordability are available for each county in which the ACCESS program was implemented, (3) information on interorganizational relationships was systematically obtained at each site at two points in time corresponding to two cohorts, (4) direct mental health services were standardized across sites so as not to confound the assessment of broader social influences, and (5) detailed data on participant characteristics and longitudinal outcomes are available on a large number of individuals (averaging 140 per site).

This study addresses three questions. First, are characteristics of the broader social environment related to the level of integration of service systems for persons who are homeless? Second, are characteristics of the broader social environment or the level of service systems integration related to improved access to public housing agencies and other services for homeless people with mental illness? Third, which of these factors are most strongly related to successful exit from homelessness or clinical improvement? Answers to these questions are likely to prove helpful in understanding obstacles to and opportunities for improving the operation of service systems of diverse types.

## METHODS

### *The ACCESS Program*

In September 1993 nine states were awarded approximately \$17 million in cooperative agreement grants for 18 communities (two in each state) to

test strategies intended to foster cooperation among agencies and reduce service system fragmentation (Randolph, Blasinsky, Leginski, et al. 1997). All sites received a similar amount of designated funds to provide assertive outreach and case management services to 100 enrollees annually. The 18 communities were located in two large (population > one million) and two small (population < 200,000) rust belt cities (Chicago, Philadelphia, and New Haven and Bridgeport CT); three mid-sized (population between 200,000 and one million) and one small southern city (Charlotte, NC, Raleigh, NC, and Richmond, VA; and Hampton-Newport News, VA); two mid-sized cities in Texas (Austin and Fort Worth); four mid-sized midwestern communities (St. Louis and Kansas City, MO; and Topeka and Wichita, KS); and a mid-sized Pacific coast city (Seattle).

#### *Eligibility Criteria and Sources of Data*

Participants were eligible for case management if they were homeless, suffered from serious mental illness, and were not involved in ongoing community treatment. Operational entry criteria for homelessness and mental illness have been described elsewhere along with validating data (Rosenheck and Lam 1997).

Those who met program eligibility criteria and gave written informed consent were evaluated with a comprehensive baseline interview. They were reinterviewed three and 12 months postbaseline. Each site was required to recruit 100 enrollees per year into case management. The first cohort was recruited between May 1994 and July 1995 and the second cohort between May 1995 and July 1996.

#### *Measures I: Enrollee Characteristics and Outcomes*

Measured personal characteristics included age, gender, race, income, social support, duration of the current episode of homelessness, and housing status during the 60 days prior to each interview as described elsewhere (Rosenheck and Lam 1997).

Psychiatric status was assessed by self-reported symptoms of depression (Robins, Helzer, and Croughan 1981), psychosis (Dohrenwend 1982), as well as interviewer ratings of psychotic behavior on standardized scales. Psychiatric status and alcohol and drug use were assessed using the composite problem scores from the Addiction Severity Index (McLellan et al. 1980). Diagnoses were based on the working clinical diagnoses of the admitting clinicians on the case management teams.

Service use was assessed with a series of 23 questions concerning use of various types of health and social services during the 60 days prior to the interview. A second series of questions addressed receipt of public support payments and services from public housing agencies.

Two measures of service use were developed through a two-stage process. First, dichotomous (yes/no) variables reflecting use of each of six domains of service that are particularly germane to fostering improvements in the well-being of homeless persons were developed: (1) assistance from a public housing agency, (2) mental health services, (3) general health care, (4) substance abuse services, (5) income support (at least \$100/month), and (6) vocational rehabilitation. Next, because the outcome examined in greatest detail in this article is exiting from homelessness, a dichotomous measure reflecting contact with or use of the services of a public housing agency was included by itself in the analytic model. Because the target population suffers from numerous other problems, each of which may impede achievement of independent housing, the diversity of other services received (e.g., mental health, substance abuse, public support, etc.) was also measured, as the number of domains in which services were received (range zero to six).

Participants were considered to be stably housed at the 12-month interview if they had been living in their own apartment, room, or house (either alone or with someone else) for 30 consecutive days.

### *Measures II: Service Systems Integration*

The degree of integration of the service system in each city was assessed by in-person surveys that measured the number and strength of interorganizational relationships between agencies that provide services to homeless persons with mental illness. These data were collected between August and November 1994 shortly after the enrollment of the first cohort began and again from February through June 1996 toward the end of enrollment of the second cohort. Interorganizational measurement methods have been described in detail elsewhere (Morrissey et al. 1997) and are summarized briefly below.

First, a comprehensive list of agencies offering services of relevance to the care of homeless people with mental illness at each site was developed (range 32 to 82 per site). In-person interviews lasting 60 to 90 minutes in which key informants from each agency rated the strength of their agency's relationship with each of the other agencies on the network list were then conducted by trained interviewers. From these data a measure of network strength was calculated: the proportion of potential dyadic interagency relationships between all agencies [ $N \cdot (N - 1)$ ] that are multiplex in nature, that is,

involve two or more transactions. A multiplex relationship thus exists when two of the six possible exchanges (i.e., involving sending or receiving clients, information, or funds) were present. This measure thus is the proportion of all potential ties that were multiplex and has values from zero to one. The average measure of network strength across sites (the proportion of multiplex ties out of all potential interagency ties) was .28 (s.d. = .06) at the first wave of data collection and .27 (s.d. = .06) at the second wave, a nonsignificant difference. Network strength at wave one was significantly correlated with network strength at wave two ( $r = .69$ ,  $df = 1$ ,  $p < .01$ ).

### *Measures III: Fidelity of Case Management to the Assertive Community Treatment Model*

Case management services provided through the ACCESS program were standardized to conform with the Assertive Community Treatment (ACT) model of case management. Each team was evaluated using a 27-item rating scale developed by Teague, Bond, and Drake (1998) with an average item score ranging from 0 to 5, in which five represents the highest level of fidelity to the ACT model. The average score across the 18 ACCESS case management teams on this measure was 3.30 (s.d. = .24), confirming a relatively high and consistent fidelity to the ACT model (Teague, Bond, and Drake 1998).

### *Measures IV: Social Environment—Social Capital, Housing Affordability*

Social capital or civic culture is measured at the county level in two ways following the concepts and methods developed by Putnam (1993). First, using measures he has recently developed for measuring social capital in the United States (Putnam 2000) we use survey data from 6,187 representative respondents to the DDB Needham Market Facts survey residing in the counties in which ACCESS was implemented. The Market Facts survey is a national lifestyle and social behavior survey for which annual data are available from 1975 to 1997. Putnam has selected four items that reflect his concept of social capital: (1) the number of club meetings attended in the last year, (2) the number of community projects worked on in the last year, (3) the number of participations in volunteer work in the last year, and (4) general belief that other people are honest. These measures were converted to standardized scores ( $z$ -scores) and averaged to generate a county-level, survey-based measure of social capital (Putnam 2000).

A second measure of civic participation also based Putnam's approach and used by others as well (Temkin and Rohe 1998) is the proportion of adults in each county who voted in the 1994 and 1996 elections (Scammon and McGillivray 1995; Scammon and McGillivray 1998). Voting is a key indicator of civic culture, and a special advantage of this measure is that voting rates in 1994 correspond to the treatment period for the first cohort and the first wave of systems integration data collection, while voting rates in 1996 correspond to the treatment period for the second cohort and the second wave of data collection. Because the 1996 election involved a presidential election, the level of voting participation across all ACCESS counties was 38 percent (s.d. = 3.5 percent) in that year, substantially higher than the voting rate for 1994 (30.6 percent, s.d. = 4.5 percent). As a result voting rates were also converted to standardized scores ( $z$ -scores) within each year.

Voting participation rates across counties in the two years were highly correlated with each other ( $r = .77$ ,  $p < .001$ ) and were also positively correlated with the survey-based measure of social capital ( $r = .36$ ,  $p < .05$  for 1994 voter participation;  $r = .56$ ,  $p < .01$  for 1996 voter participation). An aggregate measure of social capital was created to average voting data for each specific year with survey data, giving equal weight to each source of data. The standardized measure of social capital across all sites and including both survey and election records averaged  $-.13$  (s.d. =  $.77$ , range  $-1.25$  to  $1.63$ ).

Data were obtained from the 1990 census on housing affordability in each county (defined as the proportion of households paying less than 30 percent of their income for housing). It is notable that overall affordability of housing in the general population was strongly correlated with housing affordability among people with incomes less than \$20,000 ( $r = .54$ ,  $p < .05$ ). The measure of overall housing affordability was chosen for use in our primary analyses because it reflects housing conditions in the entire community. Brendon O'Flaherty (1996) has suggested that the accessibility of housing for poor people often depends on the overall state of the housing market because low-income housing typically becomes available when higher income groups can afford to move on to new neighborhoods. Across counties the average value of the housing affordability measure was 59 percent (s.d. = 8 percent) for all households and 26 percent (s.d. = 5 percent) for households with incomes of less than \$20,000.

### *Plan of Analysis*

Analysis proceeded in several stages. First, we evaluated the significance of improvement from baseline to 12 months in six outcome domains of central

relevance to people who are homeless and have a mental illness: psychiatric problems, substance abuse problems, employment, public support income, general health status, and achievement of stable housing.

Second, we examined the bivariate relationship between the macrosocial measures and 12-month improvement in each of the six domains, controlling for baseline sociodemographic and clinical characteristics. Because of the nested relationship of subjects within sites hierarchical linear modeling was used to evaluate which outcomes were related to service systems integration or social capital. Because we examined seven measures (substance abuse is evaluated with two measures) a Bonferroni correction was used to adjust the alpha level required for statistical significance to  $.05/7 = .007$ . These analyses were used to evaluate the bivariate relationships between both systems integration and social capital and 12-month improvement, and between housing affordability and housing outcomes.

Third, outcomes for which significant bivariate associations were found were subject to structural equation modeling to determine their relationship to the full range of environmental factors, controlling for individual baseline characteristics. Structural equation modeling, (Hayduk 1987) an extension of multiple regression analysis, was used here to examine the relationships between four sets of variables: (1) individual characteristics measured at program entry (age, race, clinical status, etc.) and county-level measures of social capital and housing affordability; (2) service systems integration; (3) individual-level measures of services use during the first three months of program involvement; and (4) the achievement of stable independent housing after 12 months of program involvement. In this analysis each variable is viewed as having both direct effects on achieving independent housing as well as indirect effects through its influence on each of the subsequent variables (e.g., service systems integration, access to public housing agencies and other services), which in turn are also hypothesized to affect housing outcomes.

Because subjects from the 18 sites entered the study in two cohorts the data consist of 36 site-by-cohort clusters. As such, hierarchical linear modeling is needed to properly account and adjust for intraclass correlation in models that contain both individual-level and cluster-level variables. Recent extensions of structural equation models permit such multilevel nested analysis (Goldstein and McDonald 1988; Muthen 1990; Muthen and Satorra 1989).

Statistical software called MPlus was used to obtain the results of the multilevel structural equation model presented here. MPlus was developed by Muthen and Muthen (1998) to facilitate the specification of the within-

cluster and between-cluster covariance structures and the computation of model statistics.

## RESULTS

### *Sample*

Of a total of 3,293 enrollees with complete baseline data, follow-up data were available at both three and 12 months on 2,668 enrollees (83 percent). Logistic regression was used to compare individuals with complete data and those without complete data on baseline sociodemographic, health, and housing characteristics. Patients with complete data were more likely to be female and African American, less likely to be Hispanic, and had higher income levels at baseline. There were no significant differences in psychiatric symptoms, substance use, housing, social support, or employment.

On average enrollees were 38.5 (s.d. = 9.5) years of age; 64.4 percent were males, 45.3 percent were African American, and 5.6 percent were Hispanic. All of them received at least one clinical psychiatric diagnosis. In order of frequency, non-mutually exclusive diagnoses were major depression (48 percent), schizophrenia (37 percent), other psychoses (32 percent), personality disorder (24 percent), bipolar disorder (20 percent), and anxiety disorder (19 percent). Sixty-seven percent were diagnosed with a psychotic disorder (schizophrenia, other psychoses, or bipolar disorder). Substance abuse was also frequently diagnosed, with 44 percent having alcohol abuse or dependence and 38 percent having drug abuse or dependence.

At baseline participants had spent an average of 38.3 (s.d. = 20.9) of the past 60 days literally homeless, worked an average of 1.8 (s.d. = 5.0) of the past 30 days, and reported a monthly income of \$330 (s.d. = \$499) on average with \$233 (s.d. = \$401) in public support income.

At the three-month follow-up 75 percent of participants were receiving psychiatric services, 46 percent were receiving medical services, 18 percent were receiving substance abuse services, 64 percent were receiving public support payments, and 23 percent had sought help from a public housing agency. They received an average of 2.1 (1.0) of the five types of nonhousing services. At 12 months 41 percent were independently housed.

### *Clinical Outcomes and Systems Integration*

Significant improvement was observed in all clinical outcome domains over the year of treatment (see Table 1). Significant and moderately strong ( $r = .16$ )

**Table 1: Improvement in Major Outcome Domains from Entry into Case Management to 12-Month Follow-up Interview**

	Attainment of Program Goals			Association with Network Strength*			Association with Social Capital†		
	Baseline	12 Months	Change	t	p	r	p	r	p
Psychiatric problems (s.d.)‡	0.53 (.24)	0.38 (.25)	-0.15 (.90)	38.7	.0001	.048	.11	.015	.63
Alcohol problems (s.d.)‡	0.16 (.22)	0.11 (.17)	-0.05 (.20)	15.6	.0001	.003	.89	.046	.03
Drug problems (s.d.)‡	0.08 (.12)	0.05 (.10)	-0.03 (.62)	18.1	.0001	-.009	.72	.024	.32
Days worked for pay (past 30 days) (s.d.)	1.83 (5.0)	3.40 (7.3)	1.57 (8.0)	13.8	.0001	-.072	.04	.002	.96
Public support income (past 30 days) (s.d.)	232.49 (401)	335.11 (293)	102.62 (416)	17.4	.0001	.017	.60	.025	.75
General health (poor health) (s.d.)§	3.31 (1.2)	3.22 (1.2)	-0.09 (1.3)	33.3	.0001	.032	.20	.025	.33
Not homeless for past 30 days (s.d.)¶	6.2% (.24)	41.3% (.49)	35.1% (.52)	47.5	.0001	.162	.001	.167	.006

\*Association of network strength measure and 12-month outcomes adjusting for baseline sociodemographic and clinical characteristics (standardized regression coefficient from hierarchical linear model).

†Association of social capital measure and 12-month outcomes adjusting for baseline sociodemographic and clinical characteristics (standardized regression coefficient from hierarchical linear model).

‡Addiction severity composite index (range 0-1).

§Based on self-assessment from 5 (poor health) to 1 (excellent health).

¶Living in independent housing for past 30 days.

bivariate relationships were observed between only one outcome and both systems integration and social capital: being independently housed for 30 days at one year. Significant associations between housing affordability and exiting from homelessness were observed for both the measure of housing affordability across the entire population ( $r = .23, p < .0001$ ) and for housing affordability experienced by low-income households ( $r = .13, p < .0001$ ).

### *Social Capital and Systems Integration*

Bivariate evaluation of the county-level measures of social capital and systems integration revealed a significant and positive relationship ( $r = .42, p < .01$ ), suggesting that levels of systems integration reflect the state of civic culture in the community at large.

### *Structural Equation Model*

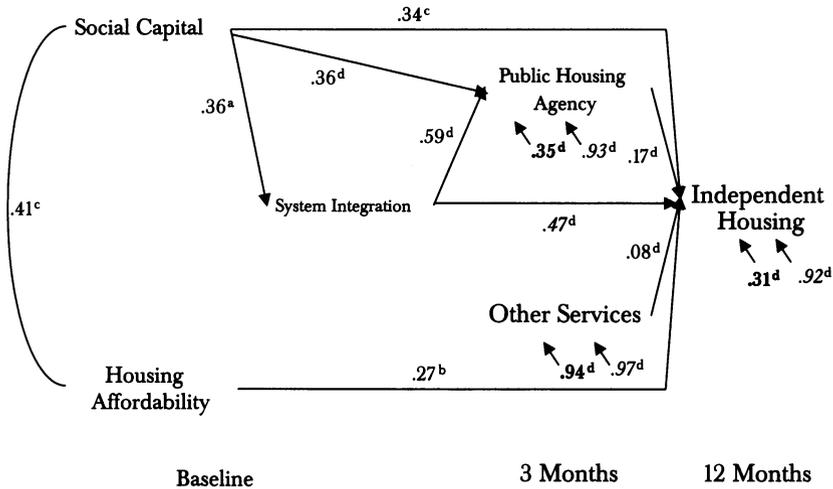
Figure 1 presents the results of the structural equation model. The chi-square test of model fit suggested that the fit was modest (chi-square = 134.1,  $df = 30, p < .0001$ ); however, the large sample size generates much power for this test.

Demographic and clinical baseline characteristics had intraclass correlations of .10 or less except for race, which had an intraclass correlation of .16 (standard error .03; see Table 2). Generally speaking, case loads across site-by-cohort subgroups were relatively similar on each characteristic, with the possible exception of the percentages of African Americans.

Standardized path coefficients were used to obtain the direct and indirect effects specified in Figure 1 and Table 2. Of the environmental factors, social capital is positively associated with systems integration, whereas housing affordability is not. Both social capital and systems integration have a direct positive association with the probability of contact with a public housing agency. A major proportion of the total effect of social capital on contact with public housing agencies is because of its indirect effect via systems integration. The two environmental measures and the measure of systems integration taken together account for 65 percent of the variance in the site-by-cohort rates of public housing agency contact. None of the three factors, however, have a statistically significant association with the number of other domains of service use.

As hypothesized, social capital was associated with greater service systems integration, which was associated in turn with greater access to public housing agencies and subsequently with exiting from homelessness at 12 months. The probability of stable housing at 12 months also has significant

Figure 1: Model of the Achievement of Independent Housing at 12 Months



Note: Values for the arrows connecting variables are standardized regression coefficients. Values for the small arrows attached to only one variable are disturbance terms indicating the proportion of variance of each of the variables that was not accounted for by the model (i.e., this figure represents the explained variance). Bold values reflect unexplained variance at the site level; italicized values reflect unexplained variance at the level of individual enrollees. <sup>a</sup>*p* < .05; <sup>b</sup>*p* < .01; <sup>c</sup>*p* < .001; <sup>d</sup>*p* < .0001.

direct positive associations with social capital, housing affordability, and systems integration. Again, a major proportion of the total structural effect of social capital on stable housing in this model is because of its indirect effect, primarily via systems integration and contact with a public housing agency. The three environmental measures account for 69 percent of the variance in site-by-cohort rates of stable housing at 12 months. Not surprisingly, both measures of service utilization (contact with a public housing agency and with other types of services) have statistically significant positive effects on housing outcome at the individual level, but the magnitudes of these associations are not as large as the for environmental factors.

Baseline sociodemographic and clinical characteristics demonstrated small but significant associations with housing outcome (see Table 2). It is noteworthy that males were less likely than females to achieve stable housing at 12 months. Independent of the various environmental effects on 12-month housing rates, client-level baseline characteristics and service use account for only 8 percent of the variance in housing outcomes.

Table 2: Direct and Indirect Effects for Multilevel Structural Equation Model ( $N = 2,668$ )

<i>Endogenous Variable</i>	<i>Predictor Variable</i>	<i>Direct Effect (z, p-value)</i>	<i>Indirect Effect</i>	<i>Cluster-Level R<sup>2</sup></i>	<i>Client-Level R<sup>2</sup></i>
System integration	Social capital	0.36 (2.51, $p < .01$ )			
	Housing affordability	-0.07 (-93, $p = .35$ )			
Public housing agency contact				0.65	0.01
	Social capital	0.36 (5.32, $p < .0001$ )	0.21		
	Housing affordability	-0.07 (-.94, $p < .011$ )	-0.04		
	System integration	0.59 (14.4, $p < .0001$ )			
Other services				0.06	0.03
	Social capital	0.15 (.65, $p = .51$ )			
	Housing affordability	-0.26 (-.94, $p = .34$ )			
	System integration	0.12 (.91, $p = .36$ )			
Stable housing at 12 months				0.69	0.08
	Social capital	0.34 (3.8, $p < .0002$ )	0.28		
	Housing affordability	0.27 (2.6, $p < .0002$ )	-0.04		
	System integration	0.47 (6.8, $p < .0001$ )	0.11		
	Days housed at intake	0.07 (2.8, $p < .01$ )	-0.01*		
	Days homeless previous episode	-0.02 (-.84, $p < .40$ )	0.01*		
	Time homeless at baseline	0.04 (2.84-.004)	0.01*		
	African American	-0.05 (3.21, $p < .001$ )	0.01*		
	Self-report psychosis sx.	-0.05 (-4.47, $p < .0001$ )	<0.01*		
	Self-report depression	0.04 (1.98, $p < .05$ )	0.01*		
	Male	-0.13 (-8.7, $p < .0001$ )	0.01*		

\*Indirect effects are via direct associations with both utilization measures, not shown.

## DISCUSSION

This study presents evidence that the achievement of stable independent housing among persons who are homeless and have serious mental illness is affected by the broader social environment including both proximate features such as the level of service systems integration and more global features such as the level of social capital and the affordability of housing.

Because both systems integration and social capital are thought to increase cooperation between individuals and coordination between agencies they are likely to have their greatest effect on relationships between agencies that have little interaction with one another and thus limited experience working together. Constructive collaboration is maximized by trusting relationships of the kind found in communities with high levels of social capital. Findings from this study that systems integration and social capital are both associated with improved housing outcomes are consistent with this conceptualization because mental health agencies are especially unlikely to have frequent interactions with public housing agencies. It is in this domain, therefore, that social capital and systems integration are most likely to improve service delivery.

Perhaps just as notable is the absence of evidence of a relationship between either systems integration or social capital and any other outcomes. Features of the social environment may have had less effect on these outcomes because ACCESS participants were all provided direct clinical services from a skilled team of providers using state-of-the-art methods of case management. Although case management teams were established primarily to standardize clinical services across sites, they also ensured that enrollees had access to health care and rehabilitation services, in effect integrating service delivery from the bottom up.

Our findings potentially contribute in two ways to understanding previous failures to document significant relationships between enhanced systems integration and improved outcomes (Lehman, Postrado, Roth, et al. 1995). On one hand, superordinate features of the social environment may have an overriding effect on service systems that may overwhelm the effects of proximate systems integration interventions. On the other hand, systems integration may have a limited effect on clinical outcomes because they are more strongly affected by direct clinical services.

### *Social Capital, Systems Integration, and the Theory of Cooperation*

This study expands our understanding of the foundations of service systems integration and of the context of service delivery through its systematic

examination of influences from the larger social environment. The most important of these findings showed that systems integration among homeless service providers is significantly associated with and perhaps derived from local levels of social capital as measured by active participation in public life, trust, and voter participation in the society at large.

Important advances in recent years in the conceptualization and measurement of social capital (Putnam 1993; Coleman 1990; Lang and Hornburg 1998; Temkin and Rohe 1998; Kawachi et al. 1997) provided us with valuable tools for relating community characteristics to client outcomes. The literature on systems integration has been based on the premise that agencies with separate funding streams and separate administrative chains of command typically have little incentive to communicate or collaborate with one another, even when they provide complementary services to a common service population (Mechanic 1991). In the absence of such communication they are unlikely to effectively assist complex clients with multiple needs. It has been widely asserted that improved cooperation between such agencies can be fostered by creating more integrated superagencies or contracts in which financial risk is shared across several agencies (Mechanic 1991; Goldman, Morrissey, Ridgely, et al. 1992). This study suggests that characteristics of broader civic culture and participation in the public life of the community may also have an important effect on the quality of interorganizational task performance.

During the past decade a growing literature on civic culture/social capital has suggested that a broad range of social institutions and organizations, including private corporations and government agencies as well as human service organizations, function most effectively under conditions of sustained trust, long-term involvement, frequent contact, and reciprocal exchange (Putnam 1993; Coleman 1990). In addition to Putnam's demonstration (1993) that government reform in Italy is most effective in regions with high levels of social capital recent studies have shown that social capital at the level of individual apartment buildings is associated with greater success in urban revitalization projects (Saegert and Winkel 1998); measures of social capital such as voting rates are associated with greater neighborhood stability (Temkin and Rohe 1998); and more frequent interaction between bankers and the local communities they serve is associated with lower loan default rates (Baku and Smith 1998). Long-term habits of trustworthy reciprocal exchange thus appear to contribute to organizational effectiveness.

One recent review defined two distinctive dimensions of social capital: "social glue" and "social bridges" (Lang and Hornburg 1998). Social glue refers to the degree to which people are active in civic life. Measures of social capital that address organizational activism, voting participation, and inter-

personal trust primarily address this social glue dimension. Voting behavior is an especially apt reflection of social glue because while potential voters may reason that voting is not worth the investment in time and effort because their single vote is not likely to change the course of an election (Downs 1957), people vote when they have a strong sense of mutual responsibility and support, even with no prospect of personal gain (Putnam 1993; Coleman 1990).

The social bridges component of social capital concerns the strength of ties between groups, especially those that have infrequent contact with one another and are therefore unlikely to trust one another. Although this dimension has not been measured in previous studies of social capital, our measure of systems integration addresses interorganizational relatedness in one segment of the community and our analyses demonstrate the close relationship between social glue and social bridges phenomena.

The findings of this study, along with a growing body of empirical (Lang and Hornburg 1998) and theoretical (Axelrod 1985) research, thus suggest that the central mechanism by which both social capital and systems integration increase treatment effectiveness is by fostering conditions of trust, cooperation, and coordination that improve the performance of service delivery agencies.

It is also important to note that both social capital and systems integration were observed to have direct relationships to housing outcomes, apparently unmediated by the process of coordinated service delivery. Although data available in this study only address client contacts with public housing agencies, homeless people with mental illness also receive housing from private nonprofit agencies. It is thus likely that some ACCESS clients exited from homelessness with help from such agencies. The apparently direct pathways that appear in our structural equation model may thus reflect the absence of information about alternative housing agencies that, like the public housing agencies, were more effective in integrated service systems.

It is still possible, however, that measures of social capital and systems integration may represent some other unmeasured community or service system characteristics that facilitate exit from homeless (e.g., general sympathy for the poor or the presence of charitable religious organizations) but data are not available to test this possibility.

### *Housing Affordability*

This study also examined a measure of housing affordability, a crucial material characteristic, that showed a significant and positive direct relationship with housing outcomes, presumably because poor people have better access to

housing resources in communities in which incomes are better matched with housing prices. Housing affordability in the general population was more strongly related to housing outcomes among homeless people than housing affordability among low-income households, providing some empirical support for the view that the accessibility of housing for poor people often depends on the overall state of the housing market (O'Flaherty 1996).

Data from this study thus suggest that both cultural and material/economic features of the social environment have important and significant effects on housing outcomes for homeless people with severe mental illness.

### *Methodologic Limitations*

Several methodologic limitations must be acknowledged. First, in any quasi-experimental study such as this, unmeasured differences in client characteristics across conditions (i.e., across levels of service systems integration) can bias the results. We have tried to minimize this threat to validity by adjusting for these factors in our model; however, this limitation is intrinsic to the study of geographically dispersed service systems.

Second, key informant reports on interorganizational relationships and assessments of the operation of the case management teams are based on personal judgment and have not been independently validated in this study, although they have been validated elsewhere (Calloway, Morrissey, and Paulson 1993).

Third, although efforts were made to standardize case management services across sites and measure differences in housing affordability and social capital, our analyses do not include data on the availability of other services such as subsidized housing or welfare resources, on the state of the local labor markets, or on the prevalence of poverty. These factors may (1) have a direct effect on exiting from homelessness independent of social capital, (2) be mediators of the effect of social capital, or (3) represent confounding factors that affect housing outcomes but are only coincidentally associated with social capital. While our model does not exhaustively address all possible social influences, it successfully demonstrates the importance of some of them.

### *Policy Implications*

Because this study is cross sectional it cannot address the questions of whether specific public policy initiatives can increase levels of social capital over time or whether specific intervention strategies can improve interagency coordination in human service networks such as those that care for homeless people.

It does underline the potential policy importance of such interventions and is the first study to clearly demonstrate that community matters in the delivery of mental health services to homeless people. Francis Fukuyama (1999) has suggested that levels of social capital have been increasing in recent years, perhaps reflecting the rapid development of information technology. While increasing the stock of social capital in an entire community would be a formidable task, it is not unreasonable to think that cooperation and trust could be fostered among a circumscribed group of organizations with a shared service mission. This is precisely the goal of the ACCESS demonstration. When completed, this demonstration will provide two years of additional longitudinal data that will document both the effectiveness of selected strategies designed to raise the level of service systems integration and the effect of those efforts on the outcomes for persons who are homeless and have mental illness.

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