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Social Capital and Health Care Access

A Systematic Review

Kathryn Pitkin Derose
RAND Corporation, Santa Monica, CA
Danielle M. Varda
University of Colorado, Denver

There is a growing interest in community-level characteristics such as social capital and its relationship to health care access. To assess the rigor with which this construct has been empirically applied in research on health care access, a systematic review was conducted. A total of 2,396 abstracts were reviewed, and 21 met the criteria of examining some measure of social capital and its effects on health care access. The review found a lack of congruence in how social capital was measured and interpreted and a general inconsistency in findings, which made it difficult to draw firm conclusions about the effects of social capital on health care access. Insights from the social network literature can help improve the conceptual and measurement problems. Future work should distinguish among bonding, bridging, and linking social capital and their sources and benefits, and examine whether three dimensions of social capital actually exist: cognitive, behavioral, and structural.

Keywords: *social capital; social networks; health care access; review*

Much of the research on individuals' interactions with the health care system has focused on individual characteristics such as health status, insurance coverage, and sociodemographics (e.g., age, income). Recently, however, there has been increasing interest in the role of contextual factors, above and beyond individual factors. For example, the social and economic characteristics of where an individual lives have been found to be associated with report of a usual source of care (Litaker, Koroukian, & Love, 2005). In addition, Law et al. (2005) found that place (neighborhood) affected physician use and having unmet need for care and that the effects

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of place on utilization differ between genders. Finally, neighborhood socioeconomic disadvantage has been found to be negatively related to having a usual source of care and receiving preventive care and positively related to having unmet need for care (Kirby & Kaneda, 2005). These types of analyses, which link individuals' health care utilization to broader social and economic factors, reflect the growing interest in community-level characteristics and their relationship to health and health care.

Social capital—defined generally as tangible and intangible resources accrued to members of a social group as a result of social interactions—has been suggested as a community-level characteristic and has engendered much enthusiasm among public health researchers and policy makers. Increasingly, however, criticisms are appearing, in particular with regard to the widely varying and ambiguous definitions of social capital and the lack of clarity regarding its causal mechanisms with health. Some even suggest that its ambiguity makes it "dangerous" (Leeder & Dominello, 1999) and that it "should be approached cautiously as a construct of potential strategic value" (Labonte, 1999, p. 430).

New Contribution

Despite these criticisms and concerns, the literature on social capital and health continues to flourish, almost too rapidly to keep up with. Previous systematic reviews of social capital in the health literature have focused on health outcomes (health status, mental illness, mental health; Almedom, 2005; De Silva, McKenzie, Harpham, & Huttly, 2005; Islam, Merlo, Kawachi, Lindstrom, & Gerdtham, 2006; Macinko & Starfield, 2001) and have largely been inconclusive regarding the relationship between social capital and health. However, access to health services has been suggested as a pathway by which social capital influences health outcomes (Kawachi & Berkman, 2000). Therefore, examining systematically the literature that focuses on this relationship—that is, between social capital and access to health care—is essential to advance theoretical understanding of social capital and assess its usefulness for health services research. In this article, first, we provide background information on social capital theory and how it has been applied in the public health literature; then, we describe our conceptual framework and our method (search strategy, selection of studies); next, we present the results of our review; finally, we discuss these results and conclude with lessons learned for future research on social capital, specifically as it relates to access to health services.

Theoretical Background on Social Capital

Although social capital has been explored from a number of disciplinary perspectives, it is seen as largely emerging from sociology, encapsulating that discipline's long-held belief that involvement and participation in groups can have positive consequences for individuals and communities (Portes, 1998). Definitions

Table 1
Definitions of Social Capital Used Frequently by Health Researchers

Author (Year)	Definition
Bourdieu (1986)	"Social capital is the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition—or in other words, to membership in a group—which provides each of its members with the backing of the collectively-owned capital, a 'credential' which entitles them to credit, in various senses of the word" (pp. 248-249).
Coleman (1988)	"Social capital is defined by its function. It is not a single entity, but a variety of different entities with two elements in common: they all consist of some aspect of social structures, and they facilitate certain actions of actors—whether persons or corporate actors—within the structure. Like other forms of capital, social capital is productive, making possible the achievement of certain ends that in its absence would not be possible. . . . Unlike other forms of capital, social capital inheres in the structure of relations between actors and among actors. It is not lodged either in the actors themselves or in physical implements of production" (p. S98).
Putnam (1995)	"Social capital here refers to features of social organization, such as trust, norms and networks, that can improve the efficiency of society by facilitating coordinated actions" (p. 167).

from the social capital theorists most often cited by health researchers are provided in Table 1. A French sociologist, Pierre Bourdieu, is credited with the first contemporary analysis of social capital (Bourdieu, 1986). Bourdieu's conceptualization of social capital is similar to that of social network theorists, with "social capital" being something that individuals possess through their networks and that can ultimately be reduced to economic capital, thereby perpetuating patterns of economic inequity and reinforcing material disadvantage (Baum, 2000). For Bourdieu (1986), "the volume of social capital possessed by a given agent . . . depends on the size of network connections he can effectively mobilize and on the volume of the capital possessed in his own right by each of those to whom he is connected" (p. 249).

Most public health researchers have not used Bourdieu's conceptualization but instead have relied heavily on U.S.-based academics, James Coleman, another sociologist, and Robert Putnam, a political scientist, who emphasized the collective aspect of social capital. Coleman defined social capital in a functional way, based on the makeup of two components: some aspect of social structure and the facilitation of action by individuals within the structure. DeLeon (1997) explains, "Coleman's social capital . . . is a watermark of personal trust, one that permits society and its members to function independently of one another but with some tangible degree of confidence in the other members' dependability" (p. 67). Putnam (1995) built on Coleman's work, defining social capital as "the features of social organizations, such

as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit" (p. 67).

What these varying definitions seem to agree on is that social capital has to do with social relationships between people or groups and the resources obtained through these relationships. In other words, social relationships are an asset that "can be called upon in a crisis, enjoyed for its own sake, and/or leveraged for material gain" (Woolcock, 2001, p. 12).

Social capital is thought to affect outcomes through various mechanisms. Generally, positive outcomes are thought to operate through (a) social control or norm observance, (b) family support, and (c) benefits mediated through extrafamilial networks (Portes, 1998). However, negative outcomes associated with social capital have also been noted. Portes and colleagues (Portes, 1998; Portes & Landolt, 1996; Portes & Sensenbrenner, 1993) identify four negative aspects of social capital that are often missed in contemporary analyses of the concept: (a) strong intragroup ties leading to exclusion of outsiders, (b) excess claims on group members, (c) membership in a community demanding conformity and restrictions on individual freedom and initiative, and (d) downward leveling pressures or norms restricting individuals' attempted entry into the "mainstream." To understand why social capital sometimes leads to positive outcomes and sometimes to negative ones, Narayan (1999) suggested examining three external phenomena: (a) the connectedness or cross-cutting ties between groups, (b) the nature of the state, and (c) how the state interacts with the distribution of social capital.

The first phenomenon, the connectedness or cross-cutting ties between groups, underlies the activity in the more recent literature on social capital and health (2001-present), which has increasingly focused on theoretically distinguishing among different types of social capital, that is, bonding, bridging, and linking social capital. When considering the difference between bonding and bridging social capital, many draw on Mark Granovetter's (1973) seminal article "The Strength of Weak Ties." Granovetter examined strong ties, which exist generally between persons who are more similar than not and therefore represent intragroup relationships ("bonding" social capital), and weak ties, which are usually found between persons of different backgrounds and between groups and therefore represent intergroup relationships ("bridging" social capital). Granovetter suggested that weak ties generate cohesive power, increase diversity, and promote diffusion of information (e.g., employment opportunities), therefore presenting an individual with an important resource for possible mobility and can, on a societal level, promote social cohesion (Granovetter, 1973).

A further distinction among various types of social capital includes "linking" social capital, which represents norms of respect and networks of trusting relationships between people who are interacting across explicit, formal, or institutionalized power or authority gradients in societies (Szreter & Woolcock, 2004). These ties, represented by ties between communities or community members and representatives of formal institutions such as bankers, law enforcement officers, social workers, and

health care providers, are important for leveraging resources, ideas, and information, especially for poor communities (Woolcock, 2001).

Finally, there has been an application of another distinction, that is, between structural social capital (what people "do") and cognitive social capital (what people "feel"; Harpham, Grant, & Thomas, 2002; Stone, 2001). Structural social capital is thought to relate to the structure of social relations or networks and is often operationalized as social participation and organizational affiliation, while cognitive social capital is thought to relate to the quality of social relations and is often operationalized as perceptions of trust and reciprocity. Nevertheless, as discussed later, the distinction between these two broad categories of social capital and what each encompasses is not always clear in the empirical literature.

Application of Social Capital to Public Health

Public health applications of social capital theory have most often used Putnam's (1995) definition and conceptualized social capital as a community-level (ecologic) variable whose counterpart at the individual level is measured by a person's social interactions and civic participation (Kawachi, Kennedy, Lochner, & Prothrow-Stith, 1997). Although Kawachi and Berkman (2000) and others have postulated that "it makes no sense to measure an individual's social capital" (p. 176), a number of articles on social capital and health now examine individual-level social capital, including one coauthored by Kawachi (Kim, Subramanian, & Kawachi, 2006). A further theoretical characteristic applicable in many public health-related articles (which builds largely on Coleman's [1988] work) has been the emphasis on social capital's "nonexcludability"—that is, its benefits are available to all living within a particular community collectively and access to it cannot be restricted (Kawachi & Berkman, 2000). Although with a number of articles now examining individual-level social capital, this theoretical characteristic seems to be changing. Finally, much of the early applications of social capital in the health field proposed an additional concept to the debate—that of income inequality. Specifically, these applications postulated that social capital (or social cohesion) in large part mediates the effect of income inequality on health outcomes, through one or more of the following pathways: psychosocial (i.e., relative deprivation leads to lower self-esteem, which affects health negatively through biological processes), political (i.e., more egalitarian patterns of participation lead to more access to resources), and social (i.e., networks positively affect health-related behaviors; Kawachi et al., 1997; Kawachi, Kennedy, & Wilkinson, 1999; Kennedy, Kawachi, Prothrow-Stith, Lochner, & Gupta, 1998). All of these pathways assume a positive relationship between social capital and health (i.e., more community social capital leads to better or improved population health).

Kawachi and Berkman (2000) identified three ways that social capital could affect individual health at the neighborhood level, namely, by influencing (a) health-related behaviors through more rapid diffusion of health information, which fosters healthy

norms of behavior or exerts social control over deviant behavior; (b) access to local services and amenities (e.g., transportation, community health clinics, and recreational facilities); and (c) psychosocial processes (e.g., providing affective support and acting as the source of self-esteem and mutual respect). Given the inconclusive findings of earlier reviews of social capital and health (De Silva et al., 2005; Islam et al., 2006; Macinko & Starfield, 2001), it is important to examine systematically the literature related to these theoretical pathways (health behaviors, access to services, and psychosocial processes) to gain insight into how social capital may or may not be related to health. A review focused on social capital and mental health (Almedom, 2005) addressed much of the literature on the third pathway (psychosocial processes). No previous review has been published on the second pathway (access to services) and is necessary, as the literature examining social capital and access to health care has been increasing along with a general interest in better understanding the role that community factors play in access to health care. This latter understanding is particularly important in countries such as the United States with large inequalities in access.

Conceptual Framework

Our conceptualization of social capital distinguishes, as recent theoretical work has emphasized, among bonding, bridging, and linking social capital. Bonding social capital refers to trusting and cooperative relations among persons who are similar (i.e., they have a shared social identity), whereas bridging social capital refers to respectful and mutual relations among persons who are not alike in some sociodemographic (or social identity) sense but who are more or less equal in terms of status and power (Szreter & Woolcock, 2004). Bonding social capital therefore emerges from more homogenous social networks (i.e., composed of family or kin, persons of the same racial or ethnic group, etc.) and bridging social capital emerges from more heterogeneous social networks (i.e., composed of cross-cutting ties). A further conceptual refinement has been the introduction of linking social capital, defined as norms of respect and networks of trusting relations among people interacting across explicit, formal, or institutionalized power or authority gradients in society (Szreter & Woolcock, 2004). Like bridging social capital, linking social capital emerges from heterogeneous social networks, but these networks tend to contain more vertical and formal relations (e.g., as between marginalized communities and public officials or health care providers) as opposed to the more horizontal and informal relations in bridging social capital. Bridging social capital brings people together who might not otherwise associate; linking social capital enables groups to leverage resources, ideas, and information from formal institutions beyond the community (Woolcock, 2001).

We conceive of these different types of social capital affecting health care access or utilization by influencing the availability of health services in communities, the

availability and effectiveness of outreach resources between health care providers and communities they serve, and care-seeking behavior of individuals in those communities (Derose, 2003). For example, strong civic participation (bridging ties) within some communities can lead to organized advocacy efforts to establish community health centers in underserved areas. Furthermore, partnerships between health care providers or public health entities and underserved communities (linking ties) can extend the reach of primary health care services through providing community-based screening services, health education, and information.

In terms of health-care-seeking behavior, individuals' social networks (bonding and/or bridging ties) have been shown to be an important determinant of cancer screening among African American and Latino women (Kang, Bloom, & Romano, 1994; Suarez, Lloyd, Weiss, Rainbolt, & Pulley, 1994). It is important to note, however, that social networks can facilitate *or* decrease the use of formal health care providers, depending on the beliefs of the networks (Pescosolido, Wright, Alegria, & Vera, 1998). For example, extensive support systems among Cuban immigrants in Miami (bonding ties) have been proposed to connect uninsured and low-income patients with culturally competent clinicians (Cunningham & Kemper, 1998; Portes, Kyle, & Eaton, 1992). Knowing which providers speak your language is an important step in seeking care, and seeing a culturally competent provider who is recommended by a friend (bonding tie) probably increases trust for the care seeker. On the other hand, heterogeneous social networks with cross-cutting (bridging) ties facilitate dissemination of information more broadly (Granovetter, 1973) and may be more important for access to care when intragroup norms or knowledge of health care resources are not conducive to access.

Community organizations (linking ties) can facilitate relationships and trust between health care providers and marginalized communities and therefore affect population preferences for using those health care providers. Furthermore, when community representatives or organizations work closely with providers (linking ties) to provide community-based services, they can offer protection from potential discrimination and even recourse and accountability for poor treatment (Derose, Duan, & Fox, 2002). Community organizations can also enroll community members into subsidized health insurance programs (linking ties), improving residents' ability to pay and therefore increasing demand.

Method

With the assistance of a research librarian, we searched 15 databases (PubMed, CINAHL, Sociological Abstracts, Social Science Abstracts, Psych. Info, WorldCat, GPO Monthly Catalog, New York Academy of Sciences Grey Literature Database, Science.gov, Papers First [OCLC FirstSearch], Proceedings [OCLC FirstSearch], Onefile [Infotrac], Ebscohost [Infotrac], JSTOR, and Web of

Science) through May 14, 2008, for empirical studies of social capital and health care access. Because different terms have been and still are used to describe social capital, and because far fewer studies have examined its relationship with health care (as opposed to health status or other health outcomes), we used a broad range of search terms: *social capital, social context, social environment, social cohesion, neighborhood cohesion,* and *social disorganization*. For an article to be selected, it had to have one of the preceding terms in combination with one of the following terms for health care access: *health services, accessibility, utilization, health care,* and *access*. We also searched bibliographies of relevant articles to identify any additional articles.

A total of 2,396 abstracts identified through the search strategy were reviewed by the first author. To be included in our review, the abstract had to indicate that an empirical study (qualitative or quantitative) was conducted examining some aspect of social capital and an outcome related to health care access or utilization. Articles examining only health outcomes (e.g., mortality, health status) were excluded. If there was any ambiguity, the paper was retrieved to confirm whether it met the inclusion criteria. Ultimately, 21 eligible papers were identified, and both authors independently assessed each of them using agreed criteria (see the appendix).

Finally, although some have argued that concepts such as "social networks" are distinguishable from social capital (Kawachi & Berkman, 2000), others claim that social networks are sufficient as proxy measures of social capital (Burt, 1992). Therefore, we also conducted a separate search using the term *social networks* and the previously mentioned terms for health care access to identify any additional articles that might provide further input for our review. We integrate these findings into our discussion of the different types of social capital and their relationships to health care access.

Results

Overview of Social Capital and the Health Care Access Literature

The 21 articles identified through our systematic search were varied in their settings, designs, method for measuring social capital, and their findings. The studies took place almost equally as often in the United States (12 studies) than in other countries (9 studies)—Sweden (3), Netherlands (2), Canada (1), China (1), Ivory Coast (1), and Republic of Kazakhstan (1)—demonstrating the transnational appeal of social capital. The majority of articles used a cross-sectional, quantitative design with only 2 applying a qualitative design (Viladrich, 2005, 2007). Six studies included U.S. samples that were either nationally representative or spanned multiple U.S. cities, whereas 11 studies included representative samples from a particular region, province, state, county, or city (of the United States or another country). The

remaining 4 studies used convenience samples of particular ethnic groups: Latinos in Nebraska (Blankenau, Boye-Beaman, & Mueller, 2000), Argentine tango dancers and Argentine immigrants in New York City (Viladrich, 2005, 2007), and Korean Kazakhs and non-Korean Kazakhs (Wan & Lin, 2003). Finally, of the 19 quantitative studies, 11 used a multilevel design, by examining the dependent variable(s) at the individual level and social capital (independent variables) at the level of community, neighborhood, Metropolitan Statistical Area (MSA), county, or state. Of the rest, 7 were completely at the individual level (where social capital and health care access both were measured at the individual level), and 1 was ecological (where social capital and health care both were measured at the level of the province).

A common critique of social capital measurement and its application is that there is no uniform measure and that instead a variety of measures have been used. As noted earlier, much of the social capital research has focused on structural (what people "do") and/or cognitive (what people "feel") components of social capital. In the quantitative articles reviewed here, eight used measures that included both structural and cognitive components, seven used measures that included only the structural component, and the other four used measures reflecting only the cognitive component. However, the specific social capital indicators used to reflect the structural and cognitive components were diverse. Structural component measures included those relating to social and civic participation (e.g., voting, club meeting attendance, volunteering), social networks (e.g., existence of a support network), number and density of community organizations (e.g., schools and churches), neighborhood disorganization, tenure in community, and race/ethnicity of community. Cognitive component measures included those relating to reciprocity (e.g., relationship with neighbors, helping others), trust (e.g., generalized social trust, trust of neighbors), self-esteem, social control, social cohesion, and sense of personal safety.

An increasingly common practice in social capital research, and one strikingly apparent in the articles we reviewed, is to create scales using several different individual or aggregate measures. All but seven of the quantitative studies we reviewed used scales for at least one of their social capital indicators. Most of these scales appeared to be unique to these studies; only two (Drukker, Driessen, Krabbendam, & van Os, 2004; van der Linden, Drukker, Gunther, Feron, & van Os, 2003) used scales previously developed (these were the informal social control and social cohesion and trust scales developed by Sampson, Raudenbush, & Earls, 1997). However, there was little consistency in how authors selected specific variables to include in these scales. Moreover, only one study that used these (apparently) new scales reported any psychometric properties for the scales developed. In that study, Ahern and Hendryx (2003) created an MSA-level scale that included per capita crime rate, voting rates, and per capita contributions to United Way (as generalized reciprocity), as well as scales for social trust, civic engagement, and self-esteem, reporting an alpha of 0.76. The rest of the studies failed to examine and/or report any psychometric properties.

None of the identified articles distinguished among the different types of social capital (bonding, bridging, and linking) emphasized in more recent theoretical work. However, to move our understanding forward of how social capital might be related to health care access, in the following sections we categorize the social capital articles within this framework, along with any additional insight that can be provided by the related literature on social networks and access to care.

Bonding Social Capital and Individual Health Care Access

Bonding social capital refers to social ties and/or resources found in horizontal, informal, and strong social networks and is often measured as informal social control and generalized social trust (Sampson et al., 1997) and norms of reciprocity. Individuals who expressed greater trust in others generally reported better access to a regular doctor (Lindström et al., 2006; Prentice, 2006); however, individual-level trust has also been found to only indirectly affect variation in health services use through health status (more trusting individuals reported better health status and less health services use; Wan & Lin, 2003). Individuals living in neighborhoods where people are reportedly willing to help their neighbors have been more likely to report having a regular source of care and preventive checkup (Prentice, 2006). Similarly, individuals living in neighborhoods with greater informal social control used more mental health services (Drukker et al., 2004). Moreover, existence of a support network has been positively associated with an individual receiving financial assistance for accessing general health care services when ill (Ayé, Champagne, & Contandriopoulos, 2002) and being less likely to report barriers to care (Perry, Williams, Wallerstein, & Waitzkin, 2008). Individuals living in a village with greater levels of generalized social trust and reciprocity were more willing to pay for community-based health insurance (Zhang, Wang, Wang, & Hsiao, 2006).

Articles from the social network literature focus mostly on bonding ties and add some interesting insights to our understanding of the role of these types of ties in access to health care. First, although many studies indicate that social network size is related to a lower risk for psychiatric hospitalization, Albert, Becker, McCrone, and Thornicroft (1998) suggest that this is only a small part of the picture and that more qualitative aspects of social networks—such as the quality and context of relationships—are better predictors of access to health services.

Second, an important qualitative aspect to consider, as noted earlier, includes the beliefs or norms of the network (Pescosolido et al., 1998), and this point has been illustrated by several studies across diverse outcomes. For example, Davey, Latkin, Hua, Tobin, and Strathdee (2007) found that the likelihood of access to drug treatment by drug users was higher when more individuals in their social networks were also in treatment and less frequent users of drugs. Similarly, large, nondisperse, geographically proximate social networks have been found to predict greater use of

pediatric health services, apparently because of the transmission of the networks' promedical health beliefs (Horwitz, Morgenstern, & Berkman, 1985). In a study of social network characteristics and breast cancer screening, Allen, Sorensen, Stoddard, Peterson, and Colditz (1999) found that network size was not associated with regular screening, but the perception that screening is normative among one's peers and provider recommendation were predictive.

Third, without knowing something about the networks' beliefs, other aspects of the content of these networks can be important, such as the types of people in the network (family vs. friends vs. acquaintances, men vs. women, drug users vs. non-drug users, etc.) For example, more strong-tie, nondisperse networks (i.e., those where most members are immediate family members or relatives) have been found to be associated with underutilization of prenatal care (St. Clair, Smeriglio, Alexander, & Celentano, 1989). For HIV-positive injection drug users, networks with more females, more emotional support, and fewer drug users have been related to having a regular source of care, outpatient service use, and optimal emergency department use (Knowlton, Hua, & Latkin, 2005).

Finally, another aspect of social networks to consider is how cohesive they are, an indicator of the bonding nature (ties) of social networks. Carpentier and White (2002) examined social network cohesion that considered both structure and content of social ties and found that individuals in cohesive networks were more likely to seek psychiatric services and maintain clinical follow-up, whereas the onset and development of problem behaviors were less easily recognized for those belonging to a less cohesive network.

Bridging Social Capital and Individual Health Care Access

Bridging social capital refers to social ties and/or resources that cross-cut social groupings (e.g., broader civic participation) and are often characterized by weaker but more diverse social connections. This type of social capital is often operationalized through voting participation and more general community participation (e.g., volunteering, membership in community associations, etc.). However, in the studies of social capital and health care access, the tendency was to include these measures of bridging social capital in scales that also included measures more aligned with bonding social capital (e.g., social trust, informal social control). Thus, it is difficult to separate out the distinct relationship between bridging social capital and health care access.

Individuals living in states with higher levels of bonding and bridging social capital (a scale of 13 items) experienced better continuity of care for mental health services on three of eight outcomes (having a mental health outpatient visit first 6 months after discharge, no service gap for patients with schizophrenia or affective psychosis, and greater provider consistency; Greenberg & Rosenheck, 2003). Individuals living in MSAs with greater bonding and bridging social capital

(as global scales) reported fewer access problems and more trust in their physicians (Ahern & Hendryx, 2003; Hendryx, Ahern, Lovrich, & McCurdy, 2002). Conversely, individuals with low trust and low social participation (low bonding and bridging social capital) were more likely to think that health care staff were not open to their needs and requirements and that they did not receive information concerning their health status and medical tests and treatment (lack of access to information; Lindström & Axén, 2004). Individuals with greater social participation (individual and contextual) were more likely to report access to a regular doctor (Lindström et al., 2006). However, individual-level bridging social capital (civic participation) was not related to alcohol and drug treatment use for youth who needed it (Winstanley et al., 2008). Furthermore, when examined separately from social support and interconnectedness (bonding social capital), community participation (bridging social capital) was not related to any health care outcomes (Perry et al., 2008).

Articles focused on social network measures followed a similar pattern of combining bridging and bonding social capital. For example, Suarez et al. (2000) created a social network index (or measure of an individual's social integration) that included number of close friends and relatives and frequency of contact (bonding social capital) and church membership and attendance (bridging social capital) and found that greater social integration was related to pap smear screening for Mexican American, Central American, and Cuban women, but not for Puerto Rican women (social integration was not strongly related to mammography screening for any group).

Linking Social Capital and Health Care Access

Linking social capital refers to social ties and/or resources found in vertical relationships, such as those found between individuals in a community and institutions or individuals with access to resources beyond the community. The operationalization of this type of social capital is the least developed in the literature but could be represented by the presence of community-based organizations and networks and relationships between individuals and health care providers. Individuals living in MSAs with more collaborations between public health institutions and private managed care and state and community groups were more likely to report using mental health care than individuals living in MSAs with less collaboration among these groups (Drukker et al., 2004; Hendryx & Ahern, 2001). Individuals with low trust in health care system (low vertical trust) were more likely to report poor health, partly through lower use of care (Mohseni & Lindstrom, 2007). Argentine immigrants who engaged in heterogenous and "fluid" (i.e., weak) social networks were able to find accountable health care providers (Viladrich, 2007); however, unspecified obligations also led to misunderstandings and disappointments, pointing to the oft-neglected "downside" of social capital (Viladrich, 2005). Finally, low-income

adolescents living in counties with above-average schools and churches per capita were more likely to use health care and yet had lower health care expenditures (Youngblade, Curry, Novak, Vogel, & Shenkman, 2006).

While most of the articles we found on social networks and access to care focused on the bonding networks of individuals, a couple pointed to linking social capital or relations with more formal, vertical connections. For example, Deri (2005) studied individuals' connections to language-concordant physicians and found that such connections are positively related to utilization of health services. Furthermore, it appears that such utilization among immigrants has a feedback loop to access by increasing the number of language concordant doctors in their neighborhood.

Social Capital and Intermediate Outcomes for Access

Most of the reviewed studies examined the influence of social capital on individual access or behavior (e.g., having a regular physician, use of mental health services), but two studies examined how social capital affected the activities and performance of health care organizations (hospitals and health district boards). Both studies examined intermediate steps toward health care access, although neither provided conclusive evidence that social capital was related to these intermediate steps. Hospitals in U.S. communities with higher voter participation and greater community board representation (bridging social capital) tended to provide more community-oriented services, although hospitals in counties with higher community participation (number of club meetings attended, number of community projects, and number of times participated in volunteer work) tended to provide fewer community-oriented services (Lee, Chen, & Weiner, 2004). In another study in Canada, provincial social capital measured as associational density, social involvement, and civic participation (bridging social capital) was not related to performance of district health boards' governing effectiveness (Veenstra, 2002).

Disentangling the Effects of Social Capital

We should note that within many of the studies reviewed, contradictory and/or negative results were found for other social capital indicators or outcomes, raising questions about consistency of the relationships. For example, Prentice (2006) examined seven social capital indicators and found that one (neighborhoods where people are willing to help their neighbors) was associated with higher odds of having a regular source of care and a preventive checkup, but another (the frequency with which neighbors do favors for one another) was associated with a lower odds for these same primary care outcomes (none of the other five social capital measures were related to the outcomes examined). Some studies showed no relationship between social capital and health care (Blankenau et al., 2000; Veenstra, 2002) or found that social capital variables were collinear with neighborhood socioeconomic

deprivation variables and therefore their effects could not be disentangled (Drukker et al., 2004). There was also the problem of interpreting contradicting findings among the social capital variables examined. For example, where social capital variables were examined separately, "trust" was often found to be significantly related to the outcome, but social participation variables were not (Lindström & Axén, 2004; Wan & Lin, 2003). This raises questions about the wisdom of combining these different types of variables (cognitive and structural or bonding and bridging) into a summary social capital scale, as was done in several of the articles reviewed. The fact that only one of the articles that used such scales reported psychometric properties was not reassuring.

Discussion

The concept of social capital has had, as Lynch, Due, Muntaner, and Smith (2000) observed, "a meteoric rise in political, economic and public health rhetoric" (p. 404). The very quick increase in social capital rhetoric has prompted widespread application and, appropriately, scrutiny of the concept. Whether social capital can continue to survive the robust demands of academic research depends largely on developing universally accepted definitions and measures of the concept. As reported to the Canadian government in a roundtable presentation by the Policy Research Initiative,

> The current range and ambiguity in the meanings attached to the concept do not help in making a case for its practical value for policy and program development…we may be approaching a point where the term has been applied in so many different contexts and to such a range of events as to mean everything and nothing. (Matthews, 2003)

The increased application of the concept throughout various fields is a positive sign. There is little doubt that social capital is an interesting and important concept. However, the lack of consistency in applying social capital to research questions has left us with an uncertain conceptual and methodological framework.

Little congruence. As others have found when reviewing the literature on social capital and health (Macinko & Starfield, 2001), we found little congruence in how social capital was defined, measured, and interpreted, even though we narrowed our search to include only empirical articles examining health care access and utilization. Our review identified few conceptual frameworks, few qualitative studies, mostly cross-sectional designs (a good proportion of which were multilevel), a variety of data sources, numerous social capital indicators, and a preference for developing summary scales of social capital (without reporting any psychometric testing). This varied application has left the field with an inability

to identify firm conclusions about what social capital is, how it is measured, and, most important, what are its effects (if any) on the delivery of health care and access to care.

Indicators. One of the most difficult challenges of reviewing these articles was comparing the uses of various indicators to identify a singular definition of social capital. There was a general lack of consistency in social capital indicators. Social capital has come to mean many things—high levels of civic and voting participation, trusting and helping others, strong social networks, self-esteem, and healthy and safe communities. These varying indicators, coupled with multiple levels of measurement (individual, community, aggregates of individual indicators) have resulted in empirical application outpacing theory and the ability to measure the concept. The indicators reviewed here were pulled from a variety of data sources, of varying quality, and seem to fit into several categories. However, the lack of consistency in indicators used in general, and the predominant use of scales in particular, without reporting any information about their psychometric properties, leads us to question the reliability of findings. An earlier review by Macinko and Starfield (2001) found that few scales developed to measure social capital have undergone rigorous psychometric testing—it appears that since then, little progress has been made in this arena.

Not only the choice of indicators used but also the interpretation of their significance is questionable. It would be nearly impossible to compare any one of these studies with another and expunge a common measure to discuss social capital as a cause of common outcomes. In many of the studies reviewed, a number of indicators were chosen for testing, but it was rare to find that more than one of those indicators actually related significantly to health care. And none of the indicators were consistently found to be significant across all the studies, leaving us with little to conclude about which specific indicators of social capital might affect health care delivery. Instead, we are only able to identify a few indicators that showed significance in one study or another. In addition, it was sometimes difficult to disentangle social capital from sociodemographic variables and health status.

One final note about the social capital indicators is that nearly all the studies that examined social capital as a community-level variable chose to measure this through aggregating individual behaviors or attitudes rather than through community-level measures that do not necessarily rely on individuals (Harpham et al., 2002). Lochner, Kawachi, and Kennedy (1999) suggest that observation of community improvements (e.g., to city streets) and community trust (e.g., prepaying at pumps) are ways to capture community-level social capital levels. However, these types of measurements have largely not been developed, and it is quite possible that confounding factors (e.g., socioeconomic status) are the actual source of difference rather than social capital per se. For now, individual-level and aggregated measures are the most common indicators of social capital used to examine its effects on health and health care.

Overall findings. The literature on social capital provides some evidence that bonding social capital is related to overall improved health care access, that is, better access to a regular doctor, receipt of preventive care, and utilization conditional on need. However, the social network literature has demonstrated that whether bonding social capital is related to better access depends on the quality of the relationships and the norms or beliefs of the members within the network. When the beliefs or experiences of the network are not conducive to health care access, bridging and linking ties may become more important. However, the empirical evidence for this is rather limited, especially because of the tendency to mix different types of social capital into overall indices.

Future Directions

The concept of social capital has potential to enhance our understanding of how community-level factors affect health care delivery. However, as is apparent in our overview of the literature, much work needs to be done before social capital can be completely useful analytically both in the health care literature and elsewhere.

For social capital to be a useful concept for public health and health services research, it must be seen as a product of broadly defined social relations, rather than as primarily a psychological construct—that is, it must take into account horizontal and vertical ties (Lynch et al., 2000) or bonding, bridging, and linking social relations. For example, measuring social capital with questions about an individual's level of trust and reciprocity with "others" (in a generic sense) does not take into account different types of social relations. Using data from the General Social Survey (GSS), Alesina and La Ferrara (2000) found that belonging to a group that historically felt discriminated against, such as minorities (Black, in particular) and, to a lesser extent, women, and being economically unsuccessful in terms of income and education both significantly reduced individual's trust of others. The research on social capital and health care has progressed beyond the early work on social capital and health, which primarily used only GSS data for the social capital indicators. However, it has not incorporated some of the other theoretical developments, such as the distinctions among bonding, bridging, and linking social capital. Furthermore, bridging social capital has been identified as comprising several types of connections, including those that link (a) different types of social capital, (b) different low-income communities, (c) poor and more affluent communities, and (d) people and communities nationally (Warren, Thompson, & Saegert, 2001). Therefore, much work needs to be done to operationalize these types of social capital and examine their respective relationships with health and health care.

Second, in conceptualizing social capital, one needs to distinguish between its sources and the benefits derived from them. If the sources and benefits are confused, the presence of social capital is inferred from the assets that an individual or

group acquires through their networks, and the term merely says that the successful succeed (Portes & Landolt, 1996). To avoid this circularity, Portes (1998) advised the analyst of social capital to follow certain "logical cautions": (a) separate the definition of social capital, theoretically and empirically, from its alleged effects; (b) establish some controls for directionality so that the presence of social capital is demonstrably before the outcomes that it is expected to produce; (c) control for the presence of other factors that can account for both social capital and its alleged effects; and (d) identify the historical origins of community social capital in a systematic manner. Carpiano (2006) has slightly modified this approach to separate social capital and related concepts into the following elements: structural antecedents to social cohesion and social capital, social cohesion, social capital (social support, social leverage, informal social control, and neighborhood or community organization participation), and outcomes of social capital. Woolcock (2001) took an even more radical approach in suggesting that "trust" should be eliminated from the definitions of social capital because it is more accurately understood as an outcome. As we saw in our review, more than half of the quantitative articles included some measure of trust, most often as part of a composite index of social capital, and if trust was eliminated as a measure of social capital, it is likely that a number of the articles we reviewed would no longer have significant findings.

Third, serious theorizing about how social capital (in its different forms) might be related to health and health care needs to be done. Suggestions on how to do this in health services research, adapted from Muntaner, Lynch, and Smith (2001), are (a) examine the *sources* of connections among individuals and groups; (b) explore what exactly gets transmitted over those connections that might be related to health and health care access, utilization, and satisfaction; and (c) understand how one can change these health- and health-care-relevant aspects of the networks to improve public health and health care delivery. Furthermore, more qualitative research on social capital is needed to build theory and generate better hypotheses that can be tested quantitatively.

Finally, future work should refine the typologies used to conceptualize the different dimensions of social capital. As noted earlier, two dimensions of social capital are typically mentioned, the structural dimension and the cognitive dimension. Some suggest that each of the identified social capital dimensions, cognitive and structural, must be measured in a "comprehensive and valid investigation of social capital" (Stone, 2001, p. 34). Others, however, find the structural conceptualization of social capital more compelling empirically, methodologically, and theoretically and see the use of generalized social trust as the primary focus of attention as "a dead-end" (Foley & Edwards, 1999). Our review of the health services literature frequently found contradictory results between the structural and cognitive dimensions of social capital (when these were examined separately); thus, the combination of

social participation (structural) and trust (cognitive) in the same index seems problematic. But beyond this, we assert that the labeling of social participation variables as "structural" variables is confusing. To some, structural indicators of social capital include actions that people do such as interacting with neighbors, participating in events, and even voting. A less common approach in the social capital literature, but one that has a rich and well-developed tradition, comes from network analysts who incorporate network structural measurements such as density, strength of ties, and redundancy of interactions in their social capital analyses (Burt, 1992, 1997, 2000, 2001; Granovetter, 1973; Lin, 1999, 2001; Lin, Ensel, & Vaughn, 1981). Others (Moore, Haines, Hawe, & Shiell, 2006; Moore, Shiell, Hawe, & Haines, 2005) have also lamented the lack of development or growth in the application and use of network perspectives within the public health literature and suggest that this has led to a "premature disenchantment" with the concept and its utility for health research.

Besides improving the operationalization of these terms and their application for research, we suggest that a more developed typology should be incorporated into social capital research. "Structure" measures have begun to blur the definition of what "structural" social capital means. We suggest instead that three dimensions of social capital exist—cognitive, behavioral, and structural. Cognitive indicators of social capital refer, as has been identified, to what people "feel," for example, feelings of trust toward others. Behavioral indicators of social capital include those things that people do (voting, participation) that reflect social ties and resources within communities. And structural indicators of social capital are those measures that network analysts refer to when studying social capital, for example, density, strength of ties, and redundancy of interactions. We suggest that all three of these dimensions apply to studies at all levels—individual and community levels—and across the bonding, bridging, and linking types of social capital identified elsewhere. Persons' ego networks are studied as consistently as community networks, and all three dimensions can apply to multiple levels of analysis. Table 2 provides examples of indictors reflecting the distinction among the bonding, bridging, and linking types of social capital, and across the cognitive, behavioral, and structural dimensions of social capital.

The combination of the distinctions among different types and dimensions of social capital creates a "whole" view of what social capital is and how it can be measured. We suggest that all social capital research should strive to include variables that can assess each of these types and dimensions. Following a standard typology can lead to rigorous conceptual development of an empirically testable theory of social capital and testable hypotheses.

Limitations

Although our search for empirical work on health care and social capital was comprehensive, it is possible that some articles were missed. Furthermore, given the

Table 2
Types and Dimensions of Social Capital and Examples of Indicators

	Cognitive	Behavioral	Structural
Bonding	Trust in others from same group Belief that neighborhood is close knit	Number of club meetings attended in past year Membership based attendance in homogenous groups	Strength of ties (strong)
Bridging	Trust in others from other group Sense of personal safety	Voting participation Membership-based attendance in heterogeneous groups	Strength of ties (weak) Structural holes and cut points
Linking	Trust in health care provider Trust in community organization	Wrote letter to government official	Density of ties (e.g., number of contacts with community-based organizations)

tendency toward publication bias, where studies with statistically significant findings are more likely to be published (Dickersin, 1990, 1997; Easterbrook, Berlin, Gopalan, & Matthews, 1991), we may have overestimated the evidence that social capital is important for health care.

Conclusion

Given the growing interest in health services research to better understand the role of contextual factors and the current popularity of the concept of social capital in public health research, we undertook this review of empirical studies on social capital and health care access and utilization. We found many of the same problems identified in earlier systematic reviews of social capital and health outcomes, namely, lack of conceptual frameworks and standardization in measurement; limitations of cross-sectional designs; and little consistency in findings (Macinko & Starfield, 2001; Derose, 2003; De Silva et al., 2005). We also found some creative attempts to develop health-care-specific social capital measures, though with mixed results. What we did not find, however, were any efforts to draw on the increasingly well-established literature on network analysis to improve the operationalization of social capital or any acknowledgment of what we might borrow from related fields such as the study of organizations.

Ultimately, research on health care access in a social capital context suffers from the absence of a comprehensive framework. To really understand whether and how much social capital affects health care delivery, an area of focus not to be taken lightly in a time of uncertain patterns of access and growing health care inequalities, we need more rigor and reflection.

Appendix
Empirical Studies of Social Capital and Health Care Access ($N = 21$)

Author (Year), Location of Study Site(s)	Study Design, Sample Size, and Unit(s) of Analysis	Social Capital Indicator(s) [Data Source(s)]	Health Care Access (Dependent) Variable(s)	Key Findings on Social Capital and Health Care Access
Ahern & Hendryx (2003), 24 Metropolitan Statistical Areas (MSAs) in U.S.	Cross-sectional, 17,653 randomly sampled adults (Community Tracking Study, 65% response rate), multilevel linear regression analyses	MSA-level social capital scale (α = .76), which included: Total per capita crime rate 1996 voting rates Per capita contributions to United Way (generalized reciprocity) Social trust scale Civic engagement scale Self-esteem scale [Media marketing database]	Individual level: Trust in physician scale (5 items, used mean)	Residing in cities with lower social capital is associated with lower levels of trust in physicians. No other community-level health sector variables were associated with trust.
Ayé, Champagne, & Contandriopoulos (2002), 5 communities in Adzopé Department of the Ivory Coast	Cross-sectional, 1,180 respondents of randomly selected households, individual-level logistic regression analyses	Individual level: Social involvement of the ill person and his or her family Membership in village associations Intrafamilial associations Existence of a support network [Author-collected, same in-person survey]	Individual level: Received financial assistance for accessing general health care services when ill Received financial solidarity for accessing formal, modern health care services (public or private services recognized by state) when ill	Existence of a support network was positively associated with financial solidarity for general health care. None of the other social capital measures were related to financial solidarity for general health care or for formal modern health care services.

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Author (Year), Location of Study Site(s)	Study Design, Sample Size, and Unit(s) of Analysis	Social Capital Indicator(s) [Data Source(s)]	Health Care Access (Dependent) Variable(s)	Key Findings on Social Capital and Health Care Access
Blankenau, Boye-Beaman, & Mueller (2000), 2 rural towns in Nebraska, U.S.	Cross-sectional, 221 Latinos (mostly women) identified door to door and through snowball sampling, individual-level chi-square analyses	Individual level: Marital status Length of residence in U.S. [Author-collected, same in-person survey]	Individual level: Physician use in last year when ill Physicals and pap smears (i.e., preventive care over 3 periods) (Also examined health status)	Neither of the social capital measures were found to be related to individuals' use of health care.
Drukker, Driessen, Krabbendam, & van Os (2004), Maastricht, Netherlands	Unmatched case-control, 909 patients registered in mental health case register, multilevel logistic and linear regression analyses	Neighborhood level: Informal social control scale (Sampson, Raudenbush, & Earls, 1997) Social cohesion and trust scale (Sampson et al. 1997) (Also examined various measures of socioeconomic deprivation and residential instability) [Separate community mail survey of 200 randomly selected adults in each of 36 neighborhoods (48% response rate, $N = 3,469$)]	Individual level: Use of mental health (MH) services (yes–no) No. of days of care consumption (among MH patients) Hospitalization days Outpatient contacts Total (hospitalization and day care days + outpatient contacts)	Neighborhood factors were not associated with an individual having used MH services (yes–no). Individuals living in neighborhoods with less informal social control had less total utilization. Individuals living in deprived neighborhoods that were residentially stable (interaction) had less outpatient care. Socioeconomic deprivation and social capital variables were collinear (effects cannot be disentangled).

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Author (Year), Location of Study Site(s)	Study Design, Sample Size, and Unit(s) of Analysis	Social Capital Indicator(s) [Data Source(s)]	Health Care Access (Dependent) Variable(s)	Key Findings on Social Capital and Health Care Access
Greenberg & Rosenheck (2003), U.S.	Cross-sectional, 139 Department of Veteran Affairs (VA) medical centers (VA's National Mental Health Performance Monitoring System), multilevel linear regression analyses	State-level social capital scale (13 items)—aggregation of individuals' No. of club meetings attended in past year No. of community projects worked on in the past year No. of times volunteer work was done in past year General belief that other people are honest Proportion of adults that voted in 1988 and 1992 elections [Roper & DDB Needham Life Style Surveys]	Individual-level continuity of care for MH services: *Across organizational boundaries* Any MH outpatient treatment first 30 days after discharge Any MH outpatient treatment first 6 months after discharge Any medical outpatient care first 6 months after discharge *Regularity of care* No. of 2-month periods in 6 months after discharge with 2+ MH visits No. of months in 6 months with at least 1 visit No outpatient MH visit	Of the 8 continuity of care outcomes examined, social capital was positively associated with 3 (1 in each of the 3 domains): *Across organizational boundaries*—any MH outpatient treatment first 6 months after discharge, *Regularity of care*—no service gap for patients with schizophrenia or affective psychosis, and *Provider consistency*—MMCI.

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Author (Year), Location of Study Site(s)	Study Design, Sample Size, and Unit(s) of Analysis	Social Capital Indicator(s) [Data Source(s)]	Health Care Access (Dependent) Variable(s)	Key Findings on Social Capital and Health Care Access
			Provider consistency Continuity-of-Care Index Modified Modified Continuity Index (MMCI)	
Hendryx & Ahern (2001), 43 MSAs in U.S.	Cross-sectional, 43,278 randomly selected adults (Community Tracking Study, 65% response rate), multilevel logistic regression analyses	MSA-level health sector social capital: Collaborations between physical health (PH) institutions and private managed care sector Collaborations between PH institutions and other state and community groups Ratio of recipients of Medicaid and other state public insurance programs to total no. of people in community [National Association of City and County Health Officials 1997 National Profile of Local Health Departments-mail survey (response rate 88%)]	Individual level: Use of MH care (yes–no)	All 3 social capital indicators (MSA level) were positively related to the likelihood of an MH care visit at the individual level.
Hendryx, Ahern, Lovrich, & McCurdy (2002), 22 MSAs in U.S.	Cross-sectional, 19,762 randomly selected adults (Community Tracking Study, 65%	MSA-level, general social capital = level of interpersonal trust, reciprocity sentiments, sense of personal efficacy, sense of personal safety, voting	Individual level: Self-reported access to care problems	Individuals in MSAs with more social capital reported fewer access problems.

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Author (Year), Location of Study Site(s)	Study Design, Sample Size, and Unit(s) of Analysis	Social Capital Indicator(s) [Data Source(s)]	Health Care Access (Dependent) Variable(s)	Key Findings on Social Capital and Health Care Access
	response rate), multilevel logistic regression analyses	behavior, civic engagement (each of 6 indicators was standardized to M = 50 and SD = 10) [Multicity broadcast media marketing database]		
Lee, Chen, & Weiner (2004), U.S.	Cross-sectional, 1,383 community hospitals (1997 AHA Annual and Governance Surveys), multilevel linear regression analyses	County-level indicators of Community participation (composite indicator of): No. of club meetings attended No. of community projects No. of times participated in volunteer work Voting participation (% of adults who voted in 1996 November general election) [DDB Needham Market Factors Survey, 1996 County Election Data]	Hospital level: Community accountability (sum of 8 dichotomous variables) Provision of community-oriented services (sum of 17 variables)	Neither of the 2 social capital indicators were related to hospital community accountability. Hospitals in counties with higher community participation tended to provide fewer community-oriented services. Hospitals in counties with higher voting participation and greater community board representation (interaction) tended to provide more community-oriented services.
Lindstrom & Axén (2004), Scania, Sweden	Cross-sectional, 3,456 randomly selected individuals aged 18-80 who had a regular doctor surveyed via mail (59% response rate), individual-level	Individual: Social participation (13-item index dichotomized as low participation, <3) Generalized trust in other people/horizontal trust (*do not agree at all* and *do not agree* were	Individual-level patient satisfaction: Health care staff open to needs and requirements (to *very high extent* or *to some extent* vs.	Patients with low trust and low social capital (low social participation and low trust) had higher odds of thinking that health care staff were not open to their needs and requirements.

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Author (Year), Location of Study Site(s)	Study Design, Sample Size, and Unit(s) of Analysis	Social Capital Indicator(s) [Data Source(s)]	Health Care Access (Dependent) Variable(s)	Key Findings on Social Capital and Health Care Access
	logistic regression analyses	classified as low trust) High social capital (high social participation and high trust) Low social capital (low social participation and low trust) [Author-collected, same mail survey]	*not particularly* or *not at all*) Received information concerning health status and medical tests and treatment (to *very high extent* or *to some extent* vs. *not particularly* or *not at all*)	Patients with low trust and low social capital (low social participation and low trust) had higher odds of reporting lack of health information. Low social participation was not related to either of the outcomes.
Lindström et al. (2006), Scania, Sweden	Cross-sectional, 13,604 randomly selected individuals aged 18-80 surveyed via mail (59% response rate), multilevel logistic regression analyses	Municipality and individual Social participation (13-item index dichotomized as low participation, <3) Individual: Generalized trust in other people/horizontal trust *(do not agree at all* and *do not agree* were classified as low trust) [Author-collected, same mail survey]	Individual level: Self-reported access to a regular doctor (yes–no)	All 3 social capital indicators (individual and contextual social participation and individual trust) were negatively related to lack of access to a regular doctor.
Mohseni & Lindstrom (2007), Scania, Sweden	Cross-sectional, 27,963 randomly selected individuals ages 18-80 surveyed via mail (59% response rate), logistic regression analyses	Individual: Generalized trust in other people/horizontal trust *(do not agree at all* and *do not agree* were classified as low trust) Trust in the health care system/vertical trust (*very high* to *no trust at all*)	Individual-level: Care seeking (not sought medical care when needed)	Individuals with low trust in health care system were more likely to report poor health, partly through lower use of care.

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Author (Year), Location of Study Site(s)	Study Design, Sample Size, and Unit(s) of Analysis	Social Capital Indicator(s) [Data Source(s)]	Health Care Access (Dependent) Variable(s)	Key Findings on Social Capital and Health Care Access
Perry, Williams, Wallerstein, & Waitzkin (2008), New Mexico, U.S.	Cross-sectional, 1,216 randomly selected low-income individuals via telephone (76.4% response rate), logistic regression analyses	Individual level: Social support (likely to call/ask neighbors for help in emergency, ride to clinic, and help filling out forms) Interconnectedness (believe most people in community can be trusted, community is good place for kids to grow up, and expect to live in community for long time) Community participation (believe it is possible to influence decisions that affect your community, work with others to influence decisions, and that people have connections and can influence what happens) [Collected in same telephone survey]	Individual level: Barriers to health care Use of health care services Satisfaction with care Quality of provider communication	Individuals with greater social support were less likely to report barriers to care. Individuals with greater interconnectedness were more likely to be satisfied with care. Community participation was not related to any of the health care outcomes. None of social capital measures predicted use of care or perceived quality of communication with providers.
Prentice (2006), Los Angeles (CA), U.S.	Cross-sectional, 2,623 randomly selected adults from the Los Angeles Family and Neighborhood Survey (in-person), multilevel logistic regression analyses	Neighborhood level (census tract): % in same house 5 years ago Predominantly White or Latino (vs. no predominant group) Neighborhood is close-knit People are willing to help neighbors Neighbors can be trusted Friends living in neighborhood Frequency neighbors do favors for one another [Collected in same in-person survey]	Individual level: Has a regular source of care (RSOC) Preventive check-up in last 2 years	Individuals in neighborhoods where people are willing to help their neighbors had higher odds of having a RSOC and preventive check-up. Individuals in neighborhoods where neighbors do more favors for one another have lower odds for both primary care outcomes.

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Author (Year), Location of Study Site(s)	Study Design, Sample Size, and Unit(s) of Analysis	Social Capital Indicator(s) [Data Source(s)]	Health Care Access (Dependent) Variable(s)	Key Findings on Social Capital and Health Care Access
Van der Linden, Drukker, Gunther, Feron, & van Os (2003), Maastricht, Netherlands	Cross-sectional, parents of 262 children (56 cases and 206 controls from Youth Health Care Division of local health clinic), multilevel logistic regression analysis	Neighborhood level: Informal social control scale (Sampson et al. 1997) Social cohesion and trust scale (Sampson et al. 1997) [Separate community mail survey of 200 randomly selected adults in each of 36 neighborhoods (48% response rate, N = 3,469)]	Individual level: MH service use (yes–no)	Social capital, by itself, was not related to children's MH service utilization. Children living in poor neighborhoods were more likely to use MH services, especially in neighborhoods with lower levels of social cohesion and trust (interaction effect).
Veenstra (2002), Saskatchewan, Canada	Cross-sectional, 30 rural health districts, ecological level correlation and linear regression analyses	Provincial social capital index created from: Associational density (parent associations per capita) Social involvement index (member of voluntary organizations and frequency of participation) Civic participation (% eligible voters who voted in federal election 1993, provincial election 1995, district health board election 1995) [Various sources]	Governing effectiveness of district health boards (4 measures based on small surveys of board members, review of board minutes, experiment of mailing to boards, and examination of financial data) (Also examined age-standardized mortality rate)	Social capital index was not related to performance of the district health boards. Taken together in a regression, neither income inequality nor social capital predicted mortality (though each might have some influence on the other's relationship with mortality).
Viladrich (2007), New York City (NY), U.S.	Qualitative (participant observation, informal interviews), 50 semistructured	Access to resources on the basis of trust-based social relationships	Use of health brokers (Argentine immigrant doctors who gave informal health	Argentine immigrants engaged in diverse informal social webs to reach healers from different realms.

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Author (Year), Location of Study Site(s)	Study Design, Sample Size, and Unit(s) of Analysis	Social Capital Indicator(s) [Data Source(s)]	Health Care Access (Dependent) Variable(s)	Key Findings on Social Capital and Health Care Access
	interviews and life histories of Argentine immigrants and 100 informal conversations		advice, referrals, and prescription drugs) Use of psychologists, psychotherapists	Through shared social networks, participants were able to find accountable practitioners. Trust was built with providers and with those providing referrals. Exclusive reliance on health brokers reflects immigrants' hidden demand for care.
Viladrich (2005), New York City (NY), U.S.	Qualitative (participant observation, informal interviews), 15 semistructured interviews with Argentine immigrants and various informal interviews and participant observation in tango community	Relationships of reciprocity in provision and reception of social resources (by belonging to the same group) Trust Prominence of rules of inclusion and exclusion (paralleled power hierarchy) Bounded solidarity	Health advice, referrals, prescription drugs Free or reduced cost health services	Accumulation of social capital among tango practitioners requires other sources of capital. Amount of social capital is relatively independent of size and density of social networks—quality is more important. Tango dancers solved health problems through direct help of health providers in social network or referred by them. Social capital transactions sometimes led to disappointments and misunderstandings and lost of trust.

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Author (Year), Location of Study Site(s)	Study Design, Sample Size, and Unit(s) of Analysis	Social Capital Indicator(s) [Data Source(s)]	Health Care Access (Dependent) Variable(s)	Key Findings on Social Capital and Health Care Access
Wan & Lin (2003), Republic of Kazakhstan	Cross-sectional, purposive sample of 500 women aged 45 years and older (252 Korean Kazakhs; 248 non-Korean Kazakhs) interviewed in person, individual-level structural equation modeling	Individual level: Trust (0-3 scale indicating: trust of others in community, considers people and public programs helpful, and shares common interest w/ community) Social involvement (0-2 scale indicating: active participation in community affairs, and frequent attendance of social activities) Reciprocity (0-3 scale indicating: reported benefits of participating in public activities or programs, learned about specific medical services in community, shared sense of common goals and interests in promoting health) [Author-collected, same in-person survey]	Individual level: Health services use (scale, indicating number of physician visits, alternative medicine visits, hospital visits, outpatient visits regarding breast cancer screening and preventive practices) (Also examined health status)	Individual-level social capital (trust) only indirectly affects variation in health services use through health status (more trusting ➔ better health status ➔ less health services use).
Winstanley et al. (2008), U.S.	Cross-sectional, 38,115 randomly selected youth ages 12-17 (National Survey on Drug Use and Health, 1999 and 2000) interviewed in person, individual-level logistic regression analyses	Individual-level civic participation—scale divided into low (0-1), medium (2-3), and high (4-10) based on how many school and community activities youth participated in Individual-level neighborhood disorganization—scale divided into low (0), medium (1), and high (2-8)	Individual level: Alcohol or drug (AOD) treatment use (inpatient or outpatient), controlling for AOD use and dependence	Individual-level social capital not related to AOD treatment access for youth. Youth reporting medium or high neighborhood disorganization had higher odds of receiving AOD treatment.

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Author (Year), Location of Study Site(s)	Study Design, Sample Size, and Unit(s) of Analysis	Social Capital Indicator(s) [Data Source(s)]	Health Care Access (Dependent) Variable(s)	Key Findings on Social Capital and Health Care Access
		based on youth perspectives of neighborhood crime, drug selling, graffiti, and neighbors visiting and helping each other [Collected in same in-person survey]		
Youngblade, Curry, Novak, Vogel, & Shenkman (2006), Florida, U.S.	Cross-sectional, 28,408 low-income adolescents (11.5-18 years) enrolled in Florida Healthy Kids Program, multilevel logistic and linear regression analyses	County-level social capital (dichotomized as above or below state mean)—composite indicator derived as sum of county rankings on No. of schools per 100,000 pop No. of churches/temples/synagogues per 100,000 No. of adults with high school diplomas per 100,000 No. of 2-parent households per 100,000 [Florida Department of Education, Glenmary Research Center, U.S. Census]	Individual level: Any health care use (yes–no) Health care charges	Low-income adolescents living in counties with above-average social capital rankings were more likely to use health care and yet had lower health care expenditures than those living in counties with lower than average social capital.
Zhang, Wang, Wang, & Hsiao (2006), Fengsan Township, Guizhou Province, China	Cross-sectional, 2,380 randomly selected adults (1,157 households from 6 villages) surveyed in person, logistic regression adjusted for	Village- and individual-level social capital: Horizontal (generalized) trust index— sum of 5 questions regarding belief that Most villagers can be trusted. Most villagers would take advantage of them.	Individual level: Willingness to pay for community-based health insurance (with varying levels of government subsidy)	Individuals with higher trust and living in communities with higher levels of reciprocity were more likely to be willing to pay for community-based health insurance.

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Appendix (continued)

Author (Year), Location of Study Site(s)	Study Design, Sample Size, and Unit(s) of Analysis	Social Capital Indicator(s) [Data Source(s)]	Health Care Access (Dependent) Variable(s)	Key Findings on Social Capital and Health Care Access
	regression adjusted for clustering within households	Most villagers would return what they find. Neighbors can be trusted. Village leaders can be trusted. Reciprocity index—sum of 5 questions regarding Villagers have concern for others' issues Villagers would provide help if needed Would lend money to neighbor to see doctor Feel like member of village family Would like to support project that would benefit mostly others [Collected in same survey]		

Note: AHA = American Hospital Association; MSA = metropolitan statistical area.

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