Social Capital and Health

Lijun Song

Department of Sociology

Center for Medicine, Health, and Society

Vanderbilt University

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Chapter 12

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INTRODUCTION

"The real nature of man is the totality of social relations" (Marx 1963: 83). All individuals dwell in a network of social relationships. Their health conditions can be contingent on structural attributes of their network contexts. Since Durkheim's classic study on suicide ([1897] 1951), there has been a long research tradition on diverse aspects of social relationships and health in sociology and other social sciences (for reviews see Berkman et al. 2000; House, Landis, and Umberson 1988; Pescosolido and Levy 2002; Smith and Christakis 2008; Song, Son, and Lin 2011; Umberson and Montez 2010). In the last two decades social capital has grown into one of the most popular but controversial relationship-based theoretical tools in the multidisciplinary health literature.

Although only recently achieving its popularity, the idea of social capital has a long history in the social sciences. Its intellectual origins are controversial (Islam et al. 2006; Macinko and Starfield 2001). Some quote sociological predecessors, including Emile Durkheim, Talcott Parsons, Karl Marx, Frederick Engels, Max Weber, and Georg Simmel, for their insights into this concept (Portes and Sensenbrenner 1993; Turner 2003). Some attribute this idea to the legacy of economists, such as David Hume, Edmund Burke, and Adam Smith (Woolcock 1998). Others identify the philosophy of John Dewey as the central source of social capital (Farr 2004). According to Putnam (2000), the term social capital itself first appeared in a 1916 article by Lyda Judson Hanifan on a rural school community center (Hanifan 1916).

Despite its contentious intellectual roots, there is general consensus that four key figures popularized the concept of social capital and stimulated its theoretical development during the 1980s and the early 1990s, including three sociologists, Pierre Bourdieu (1986 [1983]), Nan Lin (1982, 2001a), and James S. Coleman (1988, 1990), and one political scientist, Robert D. Putnam (1993, 2000). Those four scholars offer relationship-based but distinctive definitions of social capital, which unavoidably lead to its controversial operationalizations and measurements. As in other fields, social capital as a theoretical tool has easily gained burgeoning acceptance in the health sciences (for reviews see Almedom 2005; De Silva et al. 2005; Hawe and Shiell 2000; Kawachi, Subramanian, and Kim 2008; Song, Son, and Lin 2010). The annual number of published articles with "social capital" and "health" in their topics jumped from two at the very beginning of 1990s to 140 in the late 2000s (Song et al. 2010). Despite the substantial development of this literature, Putnam's notion of social capital absorbed by public health researchers has dominated the field. The original contributions of alternative sociological theories have been relatively understated.

The purpose of this chapter is to introduce the major theoretical approaches to social capital advanced by Bourdieu, Lin, Coleman, and Putnam, and review the theoretical extension and empirical application of those different perspectives to health from a sociological lens. This chapter concludes with a discussion of issues and future research directions.

SOCIAL CAPITAL: DIVERSE RELATIONSHIP-BASED THEORIES

Bourdieu: Resources Linked to Durable Social Networks

Bourdieu is the pioneer in the conceptualization of social capital. He introduced this concept in his French version of *Distinction* in 1979 (Adam and Rončević 2003; Bourdieu 1984). His theory

on social capital was originally published in French in 1983, and translated into English for the first time in 1986. As a conflict theorist, Bourdieu was interested in what social constraints in society lead to unequal structural opportunities for status attainment and how. He argued that social structure and its functioning over time are determined by the unequal acquisition and accumulation of capital in all three fundamental forms—economic, cultural, and social—between the dominant and dominated classes. He analyzed other forms of capital as sources of and returns to social capital. He discussed the mechanisms of the production and reproduction of social capital. However, he did not specify measurements of social capital.

Bourdieu was concerned with fundamental causes of social stratification. He argued that it is the unequal distribution of capital in all forms between social classes that accounts for the production and reproduction of social structure. Capital is "accumulated labor" allowing its possessors to "appropriate social energy in the form of reified or living labor" (1986 [1983]: 241). Although criticizing economic theories for reducing diverse types of exchanges and capital into mercantile exchange and economic capital, Bourdieu emphasized economic capital as the root of other forms of capital, and highlighted another two essential forms of capital that operate together with economic capital to generate unequal profits: cultural and social (1986 [1983]: 242–8). Both economic and cultural capital are privately owned. Economic capital is material goods invested in mercantile exchanges for monetary profits. Cultural capital consists of three subforms: the embodied state (i.e., habitus, that is, "long-lasting dispositions of the mind and body"), the objectified state (i.e., cultural goods), and the institutionalized state (i.e., educational credentials).

In contrast, social capital is embedded in networks of social relationships. It 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 collectivity-owned capital, a 'credential' which entitles them to credit, in the various senses of the word" (Bourdieu 1986 [1983]: 248–9). Networks of relationships can spread across multiple forms of space. They are "based on indissolubly material and symbolic exchanges" and "partially irreducible to objective relations of proximity in physical (geographical) space or even in economic and social space" (Bourdieu 1986 [1983]: 249). The volume of social capital to which an individual has access depends on two elements: "the size of the network of connections he can effectively mobilize" and "the volume of the capital (economic, cultural or symbolic) possessed in his own right by each of those to whom he is connected" (Bourdieu 1986 [1983]: 249). Bourdieu did not further specify measurements of social capital.

Bourdieu analyzed other forms of capital as sources of and returns to social capital. According to him, the foundation of capital reproduction, and thus stratification reproduction, is the conversion of capital from one form to another that aims at concealing the intergenerational transmission of economic capital among the dominant class (1986 [1983]: 249–55). Economic capital is convertible into social capital in that monetary investment is usually required in sociability. Cultural capital can change into social capital in that class-based habitus (e.g., relational disposition) and schooling can help establish and maintain social relationships. In turn, social capital can generate material profits in the forms of goods and services, part of which is economic capital. Social capital can transform into cultural capital (i.e., symbolic profits from being associated with prestigious groups). Despite such convertibility, social capital exerts its unique effects independently from other forms of capital. "These effects, in which spontaneous sociology readily perceives the work of 'connections,' are particularly visible in all cases in

which different individuals obtain very unequal profits from virtually equivalent (economic or cultural) capital, depending on the extent to which they can mobilize by proxy the capital of a group (a family, the alumni of an elite school, a select club, the aristocracy, etc.) that is more or less constituted as such and more or less rich in capital" (Bourdieu 1986 [1983]: 256).

The production and reproduction of social capital depends on the institution and maintenance of networks of relationships. It requires the use of "investment strategies, individual or collective, consciously or unconsciously aimed at establishing or reproducing social relationships that are directly usable in the short or long term" (Bourdieu 1986 [1983]: 249). In order for an individual to accumulate and reproduce social capital, the strategy of continuous sociability is required. In order for a group—a network of relationships—to exist and persist, the concentration of within-group social capital is required through the strategy of institutionalized delegation in that a representative is authorized to defend collective interests and exclude members whose mistakes threaten group interests, while institutionalized representation may lead to the embezzlement of social capital. In order for "limits of the group"—boundaries of the network of relationships—to be reproduced, the strategy of perpetual exchanges and reinforced mutual recognition among the members is required. These exchanges are further carried out through the strategy of social exclusion. Instituted groups legitimate and encourage exchanges between homogeneous individuals (Bourdieu 1986 [1983]: 249–51).

Lin: Resources Embedded in Social Networks

Lin's book on social capital appeared in 2001, providing a fully developed theoretical scheme (Lin 2001a). His theory builds upon the original theory of social resources—"resources embedded in one's social network…accessible through one's direct and indirect ties"—that he

and colleagues gradually developed in the late 1970s and early 1980s (Lin 1982: 132; Lin, Dayton, and Greenwald 1978; Lin, Ensel, and Vaughn 1981). His framework of social capital is rooted in the classic research tradition on capital. He differentiates two types of social capital from its structural and networking sources at the micro- and meso-levels, its mechanisms, and its instrumental and expressive returns. He also offers an empirically falsifiable operationalization and measurement instrument of social capital.

Social capital is "resources embedded in a social structure that are accessed and/or mobilized in purposive actions" (Lin 2001a: 29). Social structures include both formal hierarchical structures (e.g., organizations) and less formal social networks. Lin's definition of social capital is grounded in the classic tradition of personal capital theories (e.g., Marx's capital, human capital, cultural capital). Both personal and social capital are valuable assets. But the former is under the control of individuals themselves, while the latter is under the possession of individuals' network members. Lin operationalizes social capital narrowly and strictly as "resources (e.g., wealth, power, and reputation, as well as social networks) of other individual actors to whom an individual actor can gain access through direct or indirect social ties" including ties in the cyberspaces especially on the Internet (2001a: 43). In a presumed hierarchical social structure in the shape of a pyramid, resource allocation depends on structural positions. The amount of individuals' social capital hinges in general upon structural positions, occupational positions in particular (Blau and Duncan 1967), of their social network members, including those in cyberspace.

Lin distinguishes two types of social capital: contact resources and network resources (2001b). The former refers to resources from network members that individuals mobilize in their own purposive actions, indicated by resources of contacts that individuals use in purposive

actions. The latter corresponds to resources available from network members to whom individuals have access. To capture network resources, Lin and colleagues developed a position generator to map positional networks (Lin and Dumin 1986; Lin, Fu, and Hsung 2001), which are not constrained by tie strength, geographical location, content, and homogeneity (Lin 2008; Lin et al. 2001). This instrument asks respondents to identify their contacts associated with a representative sample of occupational positions salient in a society. If respondents know several people in that type of position, they are usually asked to name the one that occurs to them first. Three social capital indices are usually created: extensity (the total number of positions in which respondents identify one contact), upper reachability (the highest prestige score of occupations to which respondents have access), and range the difference between the highest and lowest prestige scores of occupations to which respondents have access.

Network resources can also be derived from two other network instruments: the name generator and the resource generator. The name generator maps personal networks (McCallister and Fischer 1978). It asks respondents to name a fixed number of contacts (usually five) with whom they discuss important matters (Burt 1984). Similar to the position generator, it may calculate social capital, for example, based on socioeconomic attributes of named contacts. The resource generator (Snijders 1999; Van der Gaag and Snijders 2005) directly maps resource networks. It asks respondents to identify contacts associated with a fixed list of useful and concrete social resources across multiple life domains. It measures social capital as the sum score of access to all different resources. The position generator proves to be generalized across societies due to its association with the occupational structures common in modern societies; it is more flexible, useful, and efficient in describing access to social capital than the name generator and the resource generator (Lin 1999; Song and Lin 2009; Van der Gaag, et al. 2008).

Social capital stems from two sources: structural and networking (Lin 2001a). Structural sources include an individual's earlier hierarchical roles or positions, both ascribed (e.g., gender, race, family origins) and achieved (e.g., prior socioeconomic status). Higher previous social positions lead to greater social capital. Networking sources consist of tie strength and network location. Weak ties and closeness to social bridge in social networks create more social capital (Burt 1992; Granovetter 1973). Furthermore, the positive impacts of social positions and closeness to social bridge on social capital are contingent on three macro-level structural factors: the number of hierarchical levels, the equal number of occupants across levels, the resource differential across levels (Lin 2001a). The positive effect of social positions is moderated negatively by the first two structural factors and positively by the third one, while that of closeness to social bridge is moderated by these structural factors in the opposite direction.

Social capital exerts both main and moderating effects (Lin 2001a). It generates instrumental (e.g., wealth, power, and reputation) and expressive (e.g., health and life satisfaction) returns through four mechanisms: providing information, exerting influence, acting as social credentials, and reinforcing group identity and recognition (Lin 2001a). This effect interplays with tie strength. Social capital derived from weak ties creates more instrumental returns, while social capital embedded in strong ties produces more expressive returns. Also, instrumental returns and expressive returns fortify each other.

There is a reciprocal relationship between social capital and macro-level "institutional fields" (Lin 2001a). On the one hand, an institutional field regulates and constrains its members' access to and use of social capital by legitimating certain social norms of social interaction. On the other hand, individual members can establish alternative norms and transform the existing institutional field through activating and mobilizing social capital.

Lin's initial efforts were geared more toward an individual-level conceptualization of social capital. Recently, he extends his original theory to the macro-level (Lin 2008). He defined two forms of social capital for a collectivity. Internal social capital is resources provided by members within a collectivity (i.e., associations, organizations, communities, regions, or nation-states), and external social capital refers to resources accessible from other collectivities with which the focal collectivity is networked.

Coleman: Functional Social-Structural Resources

It is Coleman's (1988) systematic examination of social capital and its positive role in the creation of human capital that called multidisciplinary attention to this term. Then, in his masterwork on *Foundations of Social Theory* (1990), Coleman devoted one chapter to analyzing social capital, including its functionalist definition, multiple operationalizations, and structural sources at the meso- and macro-levels. Coleman was a functionalist theorist. He emphasized the positive functions of social capital and its quality as a public good, that is, its generation of positive returns to every member in a collectivity.

After criticizing neoclassical economics for the individualist bias in prioritizing self-interests and personal independence, Coleman highlighted the inevitability of social interdependence by drawing on research on social relationships including Bourdieu's work on social capital and Lin's work on social resources. He conceptualized social capital as functional "social-structural resources" embodied in structures of social relations: "Social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: They all consist of some aspect of a social structure, and they

facilitate certain actions of individuals who are within that structure. Like other forms of capital, social capital is productive, making possible the achievement of certain ends that would not be attainable in its absence" (1990: 302). He justified such a broad conception by its utility in explaining multiple outcomes and bridging the micro- and macro-levels.

A catch-all functionalist conceptualization inevitably opens the door to multiple operationalizations. Coleman (1990) proposed six forms of social capital that meet the two standards of his definition (inherence in the structure of social relations and performance of facilitating functions: (1) obligations and expectations of reciprocity and trustworthiness (i.e., individuals do things for each other and trust each other to reciprocate in the future) that can establish a pool of credit slips for future drawing; (2) information potential from social relations; (3) norms (in particular "a prescriptive norm … that one should forgo self-interests to act in the interests of the collectivity" [1990: 311]) and effective sanctions that regulate individual behaviors and attitudes within a collectivity; (4) authority relations (i.e., transference of rights of control from individuals into an authority leader) that can solve common problems; (5) appropriable social organizations (i.e., organizations that can be used for other purposes beyond their original goals); and (6) intentional organizations (i.e., organizations that not only benefit their participants but also nonparticipants).

Coleman did not offer specific measurements for each form. He was actually hesitant about the value of social capital as a quantifiable concept (Coleman 1990; Lin 2001a). In his quantitative research on the association of social capital with human capital (low level of dropout among high school sophomores) (1988), he operationalized family social capital as the strength of the parent-child relationship, indicated by the presence of parents, the number of siblings, mother's expectation for child's education, and the frequency of talking with parents about

personal experience. He quantified community social capital as the strength of relationships among parents and between parents and the community, indicated by schools' religious affiliation and students' religious attendance.

Coleman (1990) also discussed five macro-level structural preconditions for the quantity of social capital: network closure, stability of social structure, collectivist ideology, affluence, and government support. The first three conditions have positive associations with social capital respectively through nurturing norms and trustworthiness, maintaining social organizations and relationships, and encouraging unselfish behaviors, although extreme network closure could damage social capital instead. The last two conditions decrease social capital by increasing interpersonal independence and eroding social relationship maintenance.

Coleman held that social capital functions in both positive and negative directions and at both individual and collective levels. However, he emphasized the positive functions of most forms of social capital for the collective, while admitting some forms of social capital such as norms could also constrict some actions (1990: 311). Also, in contrast with financial (i.e., money), physical (i.e., material objects), and human (i.e., skills and knowledge) capital that can only be privately owned, Coleman (1990) argued social capital is not a private property of individual beneficiaries but a property of social structure. It favors not only purposive investors in a structure, but also all the members of that structure, as a public good. Coleman's (1988) empirical research focuses on the positive role of social capital in educational attainment. He only briefly illuminated the importance of social capital in the health care process, mentioning that the lack of social capital (i.e., trust) between patients and physicians increases costs of – and decreases access to – medical care (1990).

Putnam: Facilitating Features of Social Organization

Putnam's work on social capital and its association with democracy appeared in 1993. It is his 1995 article, "Bowling Alone," and its expansion into a book of the same main title in 2000 that popularized the term social capital beyond the academic community, making it a part of public discourse. Acknowledging prior research on social capital including the work of Bourdieu and Coleman, Putnam proposes his functionalist definition and mixed operationalizations of social capital, and develops a state-level social capital index. He distinguishes two types of social capital and emphasizes positive returns to social capital as a public good. He analyzes macro-level structural sources and returns of social capital.

As a political scientist, Putnam is concerned about the declining intensity of civic, political, and social life in the United States. In his earlier functionalist definition, social capital refers to "features of social organization, such as trust, norms and networks that can improve the efficiency of society by facilitating coordinated actions" (Putnam 1993: 167). In his later work, Putnam decomposes social capital into three notions: "social networks and the norms of reciprocity and trustworthiness that arise from them" (2000: 19). Putnam emphasizes the importance of the relationships between these three components of social capital, but leaves their causal relations for future research (2000: 137). According to Putnam, social networks are composed of formal social connections (e.g., memberships and participation in formal organizations and activities, such as political, educational, recreational, religious, and professional organizations and activities, and connections in the workplace) and informal social connections (e.g., participation with family, friends, and neighbors in informal social and leisure activities). Networks of social connections can increase productivity of individuals and reinforce norms of reciprocity. Similar to Coleman's explanation, the norms of generalized reciprocity

mean that "I'll do this for you without expecting anything specific back from you in the confident expectation that someone else will do something for me down the road" (Putnam 2000: 21). The norms of reciprocity as a community asset can increase efficiency. Social trust (i.e., trust in other people) can lubricate social life. Besides, he included other consequences of networks such as altruism, volunteering, and philanthropy as alternative indicators of social capital. Putnam also developed a state-level social capital index, containing 14 items covering areas such as community organizational life, engagement in public affairs, community volunteerism, informal sociability, and social trust (Putnam 2000).

Putnam (2000) distinguishes two subtypes of social capital: bonding and bridging. Bonding social capital exists in relationships connecting homogeneous individuals, while bridging social capital lies in connections linking heterogeneous persons. Also, bonding social capital works for enhancing within-group reciprocity and solidarity, while bridging social capital helps obtain goods from outside groups. Putnam emphasizes the positive functions of both types of social capital, while admitting that bonding social capital may lead to between-group enmity. This typology has been critiqued from a strict social network perspective since bonding and bridging are properties of social networks instead of social capital (Lin 2008).

Putnam emphasizes positive functions of social capital at two levels: individual and collective. Social capital is both a "private good" and a "public good" (Putnam 2000: 20). One's investment in social capital not only benefits oneself, but also spills over to others. Putnam recognized that functions of social capital are sometimes negative for those outside of a given network if social capital is used for antisocial purposes, even while generally positive for those within that network.

Putnam reports an overall decline of social capital in American society based on his preliminary bivariate correlation analyses. He attributes that decline to multiple macro-level factors, such as pressures of time and money, residential mobility and sprawl, electronic entertainment, and generational change (2000). He highlights the potential of small groups, social movements, and telecommunications including the Internet to offset that decline. He discusses positive associations of social capital with education and children's welfare, neighborhood safety and productivity, economic development, health and happiness, democracy, and tolerance and equality. Drawing on previous research on network-based concepts such as social integration, social cohesion, and health, Putnam argues for health returns to social capital without explicitly distinguishing social capital from those concepts. He reports correlations of social capital at the state level with public health and mortality, and of social connections at the individual level with happiness (2000).

Synthesis: Two Schools of Social Capital Theories

To summarize, all four of the aforementioned scholars agreed that social capital contains resources derived from the structure of social relationships, and that it operates effectively net of personal capital such as economic capital, human capital, and cultural capital (Lin 2001a). However, their definitions and operationalizations diverge from one another. Two schools can be distinguished (Song et al. 2010).[1]

Bourdieu and Lin exemplify a network-based approach that is deeply rooted in the stratification research tradition in sociology. They define social capital as a relational asset available to individuals, and identify it as one independent stratifier, parallel to other forms of capital, in the production and reproduction of the hierarchical social structure. Their approach is

more refined and strict, distinguishing social capital from its antecedents and yields for individuals from a conflict perspective (Adam and Rončević 2003; Portes 1998). They discuss the interplay between personal and social capital. They assert that networks are preconditions of social capital and exist across multiple contexts. Lin develops a methodological instrument to measure social capital embedded in social networks. Bourdieu did not discuss measurements, but his proposed elements of social capital (i.e., network size, personal capital of network members) are consistent with social capital indices derived from the position generator. One major difference between Bourdieu and Lin lies in the creation process of social capital (Lin 2001a). Bourdieu valued network closure and social exclusion while Lin emphasizes network bridging. Also, Lin pays more attention to macro-level institutional arrangements: their reciprocal relationship with social capital and their interaction effect with causes of social capital. In addition, Lin specifies collective assets such as trust and norms as determinants instead of elements of social capital, as in the work of Coleman and Putnam (2001a).

Coleman and Putnam represent a normative approach that is closely intertwined with the functionalist research tradition in sociology. They highlight both underlined moral norms such as trust and reciprocity as two forms of social capital. They tend to measure social capital at the collective level and emphasize its positive function as a public good while recognizing its private good aspect. Their conceptualizations and operationalizations of social capital are broad. They label multiple related but distinctive concepts as social capital without analyzing their relationships to each other, and mingle social capital with its sources and outcomes (Lin 2001a; Portes 1998). One major distinction between Coleman and Putnam exists in their causal arguments on social networks. Coleman used networks as sources of social capital, while Putnam subsumes networks under the umbrella of social capital. In addition, Coleman's argument on the

definition of social capital by its functions is criticized for its tautology (Lin 2001a). Next, I review theoretical and empirical applications of each framework in the health literature.

SOCIAL CAPITAL AND HEALTH: THEORETICAL EXTENSION AND EMPIRICAL EVIDENCE

Bourdieu: Controversial Applications

Although Bourdieu's seminal theory of social capital receives overwhelming recognition, its direct applications in the health literature are limited. Available quantitative and qualitative examination of his theory further raises theoretical and methodological debates, primarily because Bourdieu did not explicitly offer his measurement of social capital. Ziersch and colleagues (2005) extend Bourdieu's conceptualization using Australian community data. They highlight the theoretical utility of Bourdieu's work for individual-level inequality research, in contrast with Putnam's focus on the collective-level social capital as a public good (Ziersch et al. 2005), and for distinguishing sources and consequences of social capital (Ziersch 2005). Ziersch and colleagues (2005) construct five indicators of neighborhood-based social capital: neighborhood connections, neighborhood trust, reciprocity, neighborhood safety, and local civic action. These researchers find positive associations of neighborhood safety with physical and mental health and of neighborhood connections with mental health. Ziersch (2005) distinguishes social capital infrastructure from social capital resources. She uses three measurements for the former (i.e., informal networks, formal networks, and values such as trust, reciprocity, and safety), and four measurements for the latter (i.e., help, acceptance, civic actions, and control). Among these seven measurements, values, informal networks, help, and control are – either

directly or indirectly – positively associated with mental health, but none are associated with physical health.

Carpiano (2006) constructs a Bourdieu-based conceptual model of neighborhood social capital for health. Like Ziersch (2005), Carpiano praises Bourdieu's theory for distinguishing social capital from its sources and outcomes. He suggests that, from a sociological perspective, we use social capital exclusively for network resources as Bourdieu conceived, and that Putnam's notion of social capital based on social cohesion should be seen as a precondition of social capital. He makes efforts to distinguish social capital from its sources (e.g., neighborhood socioeconomic conditions, social cohesion) and outcomes. He uses connectedness and values such as trust and familiarity to indicate Putnam's social cohesion. He uses four measures to indicate Bourdieu's social capital, including neighborhood organization participation, informal social control, social support, and social leverage (i.e., neighbors ask each other for advice). He also adds neighborhood attachment in his model, which is hypothesized to moderate the social capital effect. His two empirical studies analyze community data collected in Los Angeles. In one study on adults (Carpiano 2007), he finds unexpected positive associations of social support with daily smoking and binge drinking, negative association of social leverage with daily smoking, negative association of informal social control with binge drinking, and no associations of either social capital indicator with perceived health. He also shows evidence that neighborhood attachment interacts positively with informal social control and negatively with neighborhood organization participation for perceived health. In another study on female caregivers (Carpiano 2008), he reports an unexpected positive association of social support with daily smoking, negative association of social leverage with daily smoking, and positive association of neighborhood organization participation with perceived health. Neighborhood

attachment interplays negatively with social leverage for perceived health and with informal social control for daily smoking.

Stephens (2008) points out that Bourdieu's work advances our understanding of health inequality in broader social connections beyond neighborhoods, in interrelationships of economic, cultural, and social capital, and in the social exclusion process. She credits the above quantitative applications for their efforts to disentangle sources and outcomes of social capital. She further criticizes them for constraining attention to geographical locations and measuring social capital as existing concepts using secondary data. She employs a qualitative method to document social connections in three neighborhoods in New Zealand and reports evidence for the existence of social networks beyond geographical community. She shows that personal and community capital is convertible to social networks. Interviewees from different individual and community socioeconomic backgrounds had different social connections for different needs. She also finds evidence for health-relevant returns to social capital when some interviewees participated in voluntary groups in order to offset the loss of services including health services. Stephens (2008) takes an extreme position that social capital cannot be quantified at the individual level.

Lin: The Confirmed Bright Side and the Emerging Dark Side

The concept of social capital developed by Lin has stimulated substantial studies on status attainment. The positive impact of prior social positions on social capital, as well as the positive socioeconomic returns to social capital, have been well documented across societies (for a review, see Lin 1999). Health returns to social capital, though, have received relatively less attention. Most available studies report findings in support of the positive health effect of social

capital, while a couple of most recent studies show results indicating its negative health consequences.

To extend Lin's theory of social capital as social resources, social capital can protect health through many possible mechanisms (Erickson 2003; Song 2011): exerting influence on macro-level health policies and micro-level access to health services and resources; providing diverse forms of social support (e.g., informational, emotional, and material); acting as social credentials in accessing health resources; encouraging engagement in healthy norms and behaviors; decreasing exposure to social stressors; advancing objective and subjective social status; and reinforcing psychological resources.

Also, social capital may interplay with personal capital with two possibilities (Song and Lin 2009). One hypothesis is the compensation effect proposition. Individuals lacking personal capital are more motivated to resort to social capital, and thus receive more health benefits from social capital. An alternative hypothesis is the cumulative advantage proposition. Individuals with more personal capital are more able to successfully mobilize social capital, thus receiving more health resources from social capital.

Nine quantitative studies on diverse health outcomes have contributed to investigating the theory and methodology of social capital in different societies. Four of them study the U.S. society. Two of these studies draw national representative data from the General Social Survey and measure social capital through the name generator. One study reports that social capital—the mean educational level of one's network members— is positively related to life satisfaction and negatively associated with anomie (Acock and Hurlbert 1993). The other study shows that social capital—average education of network members and proportion of network members with a high

school degree or higher—is positively associated with frequency of health information seeking and seekers' frequency of use of two sources (friends or relatives and the Internet), and also that average education of network members is positively associated with seekers' diversity of used sources and frequency of consultation with medical professionals (Song and Chang forthcoming). The third study analyzes longitudinal community data and demonstrates that individuals are more likely to quit smoking if their friends with more education stop smoking, implying that social capital indicated by friends' education enhances smoking cessation (Christakis and Fowler 2008). The fourth study uses national representative data of adults, and finds that social capital indicated by the average prestige scores of accessed occupations measured through the position generator is negatively associated with psychological distress, and part of that effect is indirect through subjective social status (Song 2011a). Also it reports that social capital acts as a mediator linking other structural factors (i.e., age, gender, race/ethnicity, education, occupational prestige, family income, and voluntary participation) with psychological distress.

Two studies analyze community data in Canada, and measure social capital through the position generator. One of these studies constructs a latent social capital factor derived from three observed indices (extensity, higher reachability, and range), and finds a negative association between social capital and the likelihood of elevated waist circumference risk and being overweight (Moore, Daniel, Paquet, Dubé and Gauvin 2009). The second study measures inside- and outside-neighborhood social capital indices including extensity, higher reachability and range, and reports one positive association between outside-neighborhood extensity and self-reported health (Moore et al. 2011).

Two studies investigate data representative of the island of Taiwan. Each study calculates social capital as a latent factor derived from three observed indices (extensity, upper

reachability, and range) measured through the position generator. One study shows that social capital is associated with a smaller degree of psychological distress and a greater level of self-reported health, and that the negative association between social capital and psychological distress is stronger for the less-educated (Song and Lin 2009). The second study finds positive associations of social capital with self-rated physical health, psychological health, and social health (Yang et al. 2011).

Another study of community data in the United Kingdom finds that social capital—the access to domestic resources, expert advice, personal skills, and problem-solving resources from network members measured through the resource generator—is negatively associated with the incidence of common mental disorders (Webber and Huxley 2007).

Social capital embedded in electronic networks also receives attention nowadays. For example, Drentea and Moren-Cross (2005) employ a mixed-method approach to study a mothering board on a website for parents. As they report, social capital embedded in online mothers' networks may influence mothers' and their children's health indirectly by providing emotional support and instrumental support such as informal health information sharing.

Despite the above confirmed bright side of social capital, three recent studies are challenging the original social resource assumption and propose two arguments for the dark side of social capital: the stressful cost of maintaining social networks where social capital is embedded (Moore, Daniel, Gauvin, and Dubé 2009) and the stressful relative deprivation due to negative self-evaluation in comparison with resource-rich network members (Song 2011b, forthcoming). All three studies measure three social capital indices (extensity, higher reachability, and range) through the position generator. One study uses community data collected in Canada, and finds that the association between social capital—a latent factor derived from

these three indices—and sense of mastery is positive for people with more education (a high school degree or more), but negative for less-educated persons (Moore, Daniel, Gauvin, and Dubé 2009). Its findings indicate that social capital may injure mental health of the disadvantaged through threatening their sense of mastery. The other two studies examine the institutional contingency of health and well-being impacts of social capital using national representative data of adults in the United States, urban China, and Taiwan. The first study compares the United States and urban China, and reports positive effects of three social capital indices on psychological distress and self-reported health limitation in both societies (Song 2001b). Also social capital exerts a stronger positive effect on self-reported health limitation urban China than in the United States, which may be due to the greater degree of social inequality in urban China. The third study compares the impact of social capital on satisfaction with six life domains in all three societies (Song forthcoming). In general it finds evidence for the social resource argument in people's satisfaction with private life domains in urban China and Taiwan and for the relative deprivation argument in people's satisfaction with public life domains in urban China and the United States. Varying findings across societies are attributed to two institutional factors including relational culture and inequality structure. Different findings by life domain are attributed to the higher chance of negative social comparison in the public domain.

Coleman: Mixed Evidence for Collective Efficacy Theory

Coleman's social capital has been broadly applied to educational attainment, but not to health outcomes. Sociologist Sampson and colleagues have contributed to extending Coleman's work by developing a neighborhood-level collective efficacy theory (Sampson, Morenoff, and Earls

1999; Sampson et al. 1997). Collective efficacy is a social good and meets collective needs. It is the degree of neighbors' mutual trust and willingness to intervene in social control for the common good. It thus redefines social capital as shared expectations for action among neighbors. It includes: informal social control (i.e., neighbors are counted on to intervene), social cohesion (i.e., neighborhood is close-knit; neighbors help each other, get along with each other, and share values), and trust (i.e., neighbors can be trusted). Individual responses to these elements are aggregated to the neighborhood level to indicate collective efficacy. Collective efficacy is characterized by spatial dynamics. In other words, collective efficacy from surrounding neighborhoods positively influences that within focal neighborhoods. Collective efficacy is expected to influence individuals' health by depressing health risks in neighborhoods, creating stress buffers such as social support and safety nets, and maintaining and achieving health-relevant resources such as educational, clinical, and housing resources (Drukker et al. 2005).

Three studies have examined collective efficacy theory. All of them target the youth population, but report mixed empirical evidence. Drukker and colleagues (2003) analyze data on children of about 11 or 12 years old who attended one level of the primary school in Maastricht, the Netherlands. Their analysis shows that informal social control is positively associated with children's mental health but not with their general health, while social cohesion and trust are not associated with both outcomes. In order to explore collective efficacy theory across societies, Drukker and colleagues (2005) use the same data in Maastricht, the Netherlands, and include additional community survey data on children aged 12 in Chicago. They find that informal social control – and social cohesion and trust – increase adolescents' perceived health for the Dutch sample and the Hispanic subsample in the United States, but not for the non-Hispanic subsample. Van der Linden and colleagues (2003) examine data on 56 children utilizing the mental health

service and 206 children not using that service in Maastricht, the Netherlands. They report that neither informal social control, nor social cohesion and trust, predict children's mental health service use; but social cohesion and trust offset the effect of neighborhood socioeconomic deprivation on that type of service use.

Putnam: Expansive Applications and Mixed Evidence

Kawachi and colleagues first applied Putnam's social capital, exploring its association with mortality in 1997. A huge multidisciplinary literature has emerged since then. Social capital has been divided into different dimensions: structural and cognitive (Bain and Hicks 1998). Structural social capital includes formal and informal social connections. Cognitive social capital involves trust and norms of reciprocity. Social capital has also been measured at multiple levels. Its individual-level measurement reflects individual social capital, which exerts a compositional effect, and its higher-level measurement, usually as the aggregation of individual responses at the community, state, and even country level, indicates ecological social capital, which has a contextual impact (De Silva et al. 2007; Macintyre and Ellaway 2000).

Different mechanisms can link multiple levels of social capital to health (Kawachi 1999; Kawachi et al. 2008; Kawachi, Kennedy, and Glass 1999; Kawachi, Kennedy, and Wilkinson 1999). Social capital functions at an individual level through the supply of social support, the impact of social influence (i.e., the maintenance of healthy norms, the promotion of health behaviors), social engagement, and physiological and biological mechanisms. Social capital operates at the neighborhood levels through the process of informal social control, the maintenance of healthy norms, the promotion of health behaviors, the enhancement of services

and facilities, collective socialization, and the supply of social support. Social capital at the state level protects health through egalitarianism-oriented political participation and policy making. Apart from its direct path to health, social capital, in particular ecological social capital, may reflect underlying psychosocial risk factors and mediate the negative association between income inequality and health (Wilkinson 1996).

A huge literature has examined the linkages of multiple forms of social capital as Putnam conceives it to various health and well-being outcomes such as life expectancy, mortality, physical health, mental health, health behavior, health care and services, health information, and life satisfaction among diverse populations of adolescents, adults, and the elderly across levels of social capital, cultures, and societies (for recent reviews, see Almedom 2005; De Silva et al. 2005; Hawe and Shiell 2000; Kawachi, Subramanian, and Kim 2008; Macinko and Starfield 2001; Whitley and McKenzie 2005). The popularity of Putnam's approach to social capital in the health literature is probably because of their political implications and quick measurements in secondary data (Foley and Edwards 1999). An extensive review of that literature is beyond the scope of this chapter. In brief, although the empirical results are mixed, varying with forms and levels of social capital, outcomes, units of analysis, data sources, research populations, and societies, there is stronger evidence for the salubrious effect of trust than for that of social participation and for the protective effect of individual-level measurement than for that of collective-level measurement (Kim, Subramanian, and Kawachi 2008).

At the individual level, some studies find consistent evidence on various health-relevant outcomes across societies. An analysis of community data in the United States, for example, finds that all five social capital indicators (i.e., social trust, associational involvement, organized

interaction, informal socializing, and volunteer activity) are positively associated with self-reported health (Schultz, O'Brien, and Tadesse 2008). Another study of nationally representative data from England finds that civic participation, social trust, perceived social support, and reciprocity are all positively related to better self-reported health (Petrou and Kupek 2008). But some studies find mixed evidence. A two-wave prospective panel study of a national representative sample in the United States, for example, reports that trust in neighbors rather than civic participation decreases major depression (Fujiwara and Kawachi 2008a). A fixed-effect analysis of adult twins in the United States (Fujiwara and Kawachi 2008b) measures four social capital variables (i.e., social trust, sense of belonging, volunteering, and community participation), and examines four outcomes (i.e.., perceived physical health, perceived mental health, number of depressive symptoms, and major depression). Results vary by health outcome, social capital indicator, and the type of twins. In Canada, a study of community data (Veenstra et al. 2005) shows that voluntary participation is predictive of overweight status but not of self-rated health, emotional distress, and chronic illness.

Studies on ecological social capital also report mixed evidence. At the community level, for example, Lochner and colleagues (2003) examine death rates using community data in Chicago, and measure three components of neighborhood social capital: civic participation, trust, and reciprocity. Their results vary by cause of death, race/ethnicity, gender, and social capital indicator. Another study of community data in Chicago (Wen, Browning, and Cagney 2007) reports that neighborhood trust and reciprocity are positively related to regularly physical exercise. At the state level in the United States, studies of 39 states (Kawachi et al. 1997; Kawachi, Kennedy, and Glass 1999) finds that all three social capital indicators—civic

engagement, trust, and reciprocity—are positively associated with self-reported health, and that civic engagement and trust are negatively related to total mortality rates.

There are also studies on multilevel social capital. One study analyzing nationally representative data (Kim, Subramanian, and Kawachi 2006) measures six individual-level social capital indicators, including formal bond (i.e., formal involvement in homogeneous groups), trust in own racial/ethnic groups, formal bridge (i.e., formal involvement in heterogeneous groups), informal bridge (i.e., interaction outside one's own racial/ethnic groups), diversity (i.e., diversity of friendships), and social trust. It combines and aggregates the first two indicators to the community level as community bonding social capital, and the next three indicators to the community level as community bridging social capital. As it reports, three individual-level social capital indicators such as formal bonding, trust in own racial/ethnic groups, and social trust are positively associated with self-reported health, and community bonding social capital instead of community bridging social capital exerts a modest effect on self-reported health. One study of 45 countries (Mansyur et al. 2008) finds individual voluntary participation and social trust have a positive effect on individual self-reported health, while the significance of national voluntary participation and trust depends on the countries included. Another study of 22 European countries (Poortinga 2006) shows that individual instead of national civic participation and social trust predict individual self-rated health. Also, the effect of individual participation and social trust is stronger in countries with higher national civic participation and social trust.

In addition, evidence for the dark side of social capital is emerging. One study of community data in Sweden (Lindström 2005) focuses on individual-level social capital, and finds that high social participation combined with low trust is positively associated high alcohol consumption among men. The possible explanation is that high social participation offers more

opportunities for men with low trust, which is linked to psychological and psychosocial problems, to access and drink alcohol.

ISSUES AND FUTURE DIRECTIONS

Social capital is one of the most acknowledged contributions from sociology to social science and public discourse during the last two decades (Portes 1998). It has stimulated a burgeoning multidisciplinary health research literature across societies during the last two decades. Four scholars – Bourdieu, Lin, Coleman, and Putnam – have contributed to the theoretical construction of social capital from different perspectives. Among them, Putnam's notion has captured most attention in the health literature with the effort of public health researchers, while the value of other sociological theories has been understudied. Considering the fact that social capital is an intrinsic sociological factor, medical sociologists are expected to play a crucial role in advancing our understanding of the relationship between social capital and health by responding to the following three issues.

What is the distinction between diverse definitions of social capital and their causal relationships to each other? Some scholars equate social capital with multiple relationship-based concepts such as social integration, social cohesion, and social support (e.g., Carpiano 2006; Coleman 1990; Putnam 2000, 2004; Sampson et al. 1997), while others conceive of social capital strictly as network resources (Bourdieu 1986 [1983]; Lin 2001a). From a social network perspective we are able to understand the differences and causal relationships between these diverse concepts (Song 2011a; Song et al. 2010). In brief, social cohesion reflects norms of trust and reciprocity among network members (Kawachi and Berkman 2000); social integration refers

to involvement in social roles, networks, and activities (Brissette, Cohen, and Seeman 2000); social support represents various forms of aid individuals receive or perceive from their network members (Berkman 1984; House 1981); and network resources captures assets that network members actually possess. We can trace the ideas of social integration and social cohesion back to Durkheim's work on suicide (1951 [1897]) (Turner 2003), and the notion of social support to the work of Cassel and Cobb (Cassel 1976; Cobb 1976).

Among those relationship-based factors, social cohesion as the most upstream factor in the causal chain can positively influence the other three factors. People who are embedded in more trusting and supportive network norms are more motivated for active social integration, and are more likely and easily to accumulate network resources and get social support from their network members. Thus the other three network-based concepts—social integration, network resources, and social support—can mediate the relationship between social cohesion and health. Second, social integration can positively determine opportunity structures for network resources and social support. People with higher degrees of social integration are more likely and able to maintain old relationships, establish new ones, and enlarge social networks. Therefore, network resources and social support can mediate the relationship between social integration and health. Third, network resources positively determine the quantity and quality of social support. The amount of aids individuals can get from their network members depends on the volume of assets their network members actually possess. Thus social support can mediate the relationship between network resources and health. Arguably these relationships can also be reciprocal. People with more social capital, for example, may attract more membership invitation or social support. All these possible arguments must be systematically examined. One recent study documents that network resources intervene in the relationship between social integration and

psychological distress (Song 2011a). More future research is in need for integrating our understanding of these network-related concepts and establishing a more complete network-based theoretical framework of the social dynamics of health.

What are the future research directions for the network-based approach to social capital? This approach contributes to highlighting resources embedded in social networks as one unique resource locator and stratifier. Its further development requires effort in six directions. First, the lack of measurement in Bourdieu's work produces controversial theoretical and empirical applications. Instead of measuring Bourdieu's social capital as in the normative approach or other established social factors such as social support (e.g., Carpiano 2006; Ziersch 2005), it is arguable that the two determinants of social capital in Bourdieu's work—network size and network members' capital—may serve as proxy indicators of social capital (Portes 1998; Song et al. 2010). Those two determinants are further consistent with Lin's measurement of social capital through the position generator.

Second, future research should further incorporate social capital into the larger picture of the social dynamics of health and study its interplay with other social determinants. Both Bourdieu and Lin emphasize the reciprocal relationship between social capital and personal capital. Lin also highlights unequal access to social capital by other structural factors and institutional embeddedness of social capital. Social capital can influence health directly by mediating the influence of its social antecedents and indirectly by influencing other social causes of health. It may also interact with those health stratifiers by either bringing compensations for the disadvantaged or enhancing the privilege for the advantaged. In addition, social capital should be integrated with the life course perspective to health stratification (O'Rand 2001), cumulative advantage/disadvantage theory in particular (Dannefer 2003). Whether the health gap

by social capital increases with age or varies by life stages remains an interesting question (Song 2012). Furthermore, the contingency of the social capital-health relationship on macro-level institutions such as relational culture and inequality structure requires larger-scale comparative studies across more societies (Song 2011b, forthcoming).

Third, future research should further examine the emerging dark side of social capital. On the one hand, network members' resources can protect individuals' health through multiple mechanisms as introduced earlier, social support in particular. On the other hand, they can hurt individuals' health because of their stressful relational cost and their creation of relative deprivation (Moore, Daniel, Gauvin, and Dubé 2009; Song 2011b, forthcoming). Available evidence on the negative health impact of social capital is not a surprise if we integrate social capital theory with the research tradition on reference groups and social comparison (Gartrell 1987; Merton and Kitt 1950). Future research should directly study the possible mechanisms for the negative health effects of social capital. Fourth, future studies should examine the mobilization process of social capital in the access to health resources. Available empirical studies only examine access to social capital. Studies of mobilized social capital can help us understand the role of social capital in the dynamics of disease and illness from onset to recovery (Webber and Huxley 2004).

Fifth, Lin has only recently proposed his macro-level conceptualization of social capital. He specifies internal social capital at the collective level as the sum of members' resources. The established literature on the protective effect of community- and societal-level socioeconomic characteristics on various health outcomes implicitly demonstrates his conceptualization (Robert and House 2000). Future theoretical clarification and methodological work is needed for a direct examination of his macro-level definition. Finally, the empirical examination of the network-

based approach is relatively limited. For the purpose of generalizability and stronger causal inferences, longitudinal research designs containing appropriate network instruments, multiple health outcomes, and information for potential explanatory mechanisms are needed.

What are the major challenges and future directions for the normative approach? Collective efficacy theory helps draw our attention to the neighborhood mechanisms of health inequality. Its limited empirical applications report mixed results. Different elements of collective efficacy exert varying effects. There is also evidence for an interaction of certain elements of collective efficacy with race and neighborhood deprivation. There is no doubt that Putnam's work contributes significantly to the health literature. Despite the fact that there is mixed evidence, multiple indicators and levels of social capital are associated with various health-related outcomes across populations and societies. Social capital not only exerts direct effects but also interplays with other factors such as gender, race, age, and neighborhood contexts. The mixed evidence for the normative approach to social capital provides a challenge for future theoretical and empirical research. Available sociological theories, however, may help. Mixed results across societies, for example, suggest that future research should integrate institutional theory into the social capital literature. Varying results across gender, race, and age groups imply that future studies should explore cultural and life-course explanations. Different results across levels show that future research should elaborate the relationships between multiple levels of social capital. Mixed results across health outcomes indicate that future research should theorize specific mechanisms for different outcomes. Varying results across measurements of social capital point out that future studies should analyze each indicator and its mechanisms separately instead of combining indicators without theoretical justification. Also, most results are from cross-sectional data. For the purpose of stronger causal inferences, stricter

research designs such as the collection of prospective data are needed. Finally, there has been evidence on the negative health consequences of social capital (Lindström 2005). Future health research should go beyond the presence or absence of social capital, and study the nature and content of social capital and the combinations of different forms of social capital.

Despite its popular application, the normative approach raises theoretical critiques, such as their understatement of social conflict and social capital's negative consequences, the confusing stretching of social capital into the macro-level, the mixed combination of established psychosocial factors, and tautological arguments of social capital as both a cause and an effect (Foley and Edwards 1999; Lin 2001a; Portes 1998). Future studies need to pay attention to the significance of social capital for health inequality. Also, more theoretical and methodological efforts are needed on the construct validity of multilevel measurements of social capital (Hawe and Shiell 2000; Lin 2001a; Muntaner and Lynch 2002; Portes 1998). To solve the tautological problem, as described earlier, future research should theorize and examine relevant concepts (e.g., social integration, social cohesion, informal social control, social support, and social networks) independently instead of subsuming all of them under the trendy umbrella of social capital.

NOTES

1 The division of schools is controversial. For example, Adam and Rončević (2003) distinguish three schools: Bourdieu's approach, Lin's utilitarian network-based approach, and the normative approach of Coleman and Putnam. Moore et al. (2005) discern two schools: the network approach of Coleman and Bourdieu, and the communitarian approach of Putnam.

Kawachi et al. (2008) seem to classify two approaches: the social cohesion school of Coleman and Putnam, and the network school of Bourdieu and Lin.

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