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Social capital in health research – Conceptual model of disease-specific social capital based on disease-specific social networks

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ABSTRACT

Objectives: Social capital is a resource derived from human social structure comprising social networks and their cognitive contents, such as values and norms, e.g., trust. These are old psychological concepts, but psychological theories and conceptualization are often ignored in studying social capital in public health research.
Study design: A narrative review-based analysis of the components of social capital from a psychological perspective.
Methods: We examine the health-enhancing components of individual-level social capital by incorporating corresponding psychological concepts. We propose a model that illustrates the impact of social capital dimensions on the health of individuals after the diagnosis of a chronic or severe disease.
Results: We concur with the suggestion that the social capital process comprises the determinants, components (social structure, its contents), and outcomes. We propose that after diagnosis, the components should be divided into generic and disease-specific types, which are based on generic and disease-specific social networks, respectively. Generic social networks consist of individuals known to the patients, while disease-specific networks include those with whom patients have contact regarding the disease (discussed it with the patient or are involved in treatment and care). Furthermore, different types of trust must be distinguished. Generalized trust, as a stable personality factor, is included in determinants, not components. Trust toward specific people should be divided into trust toward members of generic social networks and disease-specific social networks, thus being components of either generic or disease-specific social capital.
Conclusions: Different subcomponents of social capital should be recognized in public health research and when studying individuals with chronic diseases.

1. Introduction

Resources derived from the social environment are important for health. Individual social relationships are investigated as *social networks, social* support, [1–4] and *social capital* [5–9]. The concept of social capital emerged in the late 1980s due to the observation that, in addition to economic and individual factors, social resources are also important for productivity, progress, and well-being [10–13]. It was first used in public health research in late 1990s [14]. It is commonly seen that the structural component and foundation of social capital consist of human social relationships[1], typically operationalized as social networks, and their contents include, e.g., values and norms shared in these networks, such as trust and reciprocity; see below. The main components of social capital, namely social networks, norms, and trust, are much older concepts than social capital. Social networks and trust have long been investigated in psychology, behavioral sciences, and social sciences, and they are shown to be associated with health [1,2,15,16]. Similarly, social capital and its components are associated with various health and

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[1] Understanding social relationships—how they develop, their impact on individuals' lives, and their benefits and limitations—forms the basis of several subdisciplines in psychology, such as clinical, developmental, and social psychology.

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well-being outcomes, including all-cause mortality; in fact, health benefits are the best-documented outcomes of social capital [8,11–13,17–22].

The concept of social capital has been developed partially separately in different disciplines, such as social sciences and public health research [4,10,11,13,16,17,23,24]. The conceptualization of social capital has been debated since its appearance [10]. Multiple definitions have been presented [4,11,13,16], and none are universally accepted. Most definitions emphasize the multidimensional nature of social capital [8,11,13,16,24,25]. Social capital may be examined at both the individual and community levels [4,23,24]. At the individual level, social capital focuses on the characteristics of individuals and as the social capital available to them, while the community perspective views social capital as resources derived from the characteristics of collectives or communities. Usually, social capital is viewed as a resource that derives from human social structures, facilitating certain actions [6,8] and/or providing access to such resources [4]. Scholars mainly agree that social capital comprises of social networks [3,11], and their cognitive contents, e.g., trust and reciprocity [4,8,11,13,17,25].

Conceptually, social capital consists of social structures, i.e., social relationships, which are usually assessed as social networks, and of the contents of these structures, such as values and norms shared in them (Table 1).

Either the structural basis or the contents may be emphasized [4,6–8]. Conceptual diversity is challenging for readers: by 'social capital,' various things may have been meant, and comparisons of the study results is thus difficult or even impossible [17,24,26]. As a result, the social capital methodology and measurement have varied significantly, leading to a wide variety of measures used to assess social capital, including in public health research [11,18,24,27].

In a multidimensional construct like social capital, each component can influence the others, and different components may impact outcomes through various mechanisms. Structural and cognitive social capital are argued to represent different types of social capital [21,28], but both have been found to promote individual health.

Social capital and health have been investigated mainly in adult general populations and in certain communities/areas [10]. There is a need to study social capital in subpopulations with specific health problems/risk factors to obtain information on how "particular groups aim to access and mobilize (successfully or not) different types of social capital for health-related goals and outcomes" [10]. Research should focus on individuals with context-specific needs because certain or even unique forms of social capital may be important for well-being in different life contexts [26]. Such subpopulations may include people with diseases/conditions with public health importance, such as cardiovascular diseases and cancers.

2. Methods

We conducted a narrative review to analyze the components of individual-level social capital used in public health research as compared to the concepts used in psychology. We examine the health-enhancing components of social capital as psychological concepts, aiming for a theoretical extension by incorporating the corresponding psychological concepts as subcomponents of social capital, specifically in the context of the health of individuals diagnosed with a chronic or severe disease or health condition. Our goal is to bridge psychology and public health research. We develop a conceptual model that illustrates how social capital affects the health of individuals after diagnosis of a chronic or severe disease.

Table 1
Dimensions of social capital.

Main dimension	Comprising of	Concepts
Structural social capital	Human social structure, i.e., social relationships, social ties, and connections between people (e.g., social network size and composition)	Social networks Participation
Cognitive social capital (also: contextual, psychosocial)	Cognitive contents of these social structures, such as values, beliefs, conceptions, opinions, norms, and attitudes shared in them	Trust Reciprocity

2.1. Health-enhancing components of social capital

Individual social capital (also, personal social capital) is examined in relation to the characteristics of individuals. This field of research focuses on whether individuals benefit from their social network and its cognitive content [4,11,13,17,23,24,27]. Individual social capital is operationalized as persons' characteristics and experiences and as their access to certain social resources through their social structures. The approach mostly applies psychological concepts, such as social networks and trust [1–3,15]. Although social networks are defined to be the basis of social capital, they are also the source of social support [2,3,29–31]. Although trust is included in the content of social capital, it is also a major determinant in the development of a human being [32] and the development and maintenance of social relationships [15].

Seeing social capital as individuals' resources may be a problem for researchers in psychology because the established concept of *social* support already describes resources derived from social networks [1–3,16]. According to social support theories, individuals have access to types of support via their social networks. The individual approach has been criticized for calling by a new name some old concepts [11,16]. It is also criticized for viewing social capital independently of the context [24]. Since there is already a widely recognized concept for describing these types of resources, it is crucial to explicitly conceptualize social capital. The benefit of the concept of social capital in health research probably lays in shifting the attention from individuals to the social context.

2.2. The structural basis: social networks

The concept of social networks has been utilized since the 1950s to describe the extent of an individual's social integration within their environment [1,33]. It is defined as a web of social ties between individuals and a set of nodes connected by relations [1,3,31]. Social networks represent the structural characteristics of social capital, and many theorists consider them the core element [5,8,9]. Social networks also describe participation in social activities [4], which is viewed as an important aspect of social capital [24]. Social networks are a necessary but not sufficient condition for social support and social capital to emerge. Multiple possible pathways and mechanisms have been suggested through which social relationships affect health [3,34].

Social networks are associated with lower mortality, better prognoses in chronic illnesses, and well-being [1,35]. From the 1960s onward, a series of longitudinal population studies demonstrated that few or lack of social relationships predict higher total mortality [1,2,36–42]. The size and diversity of a person's social network are shown to predict a lower incidence and better prognoses of various diseases and well-being, whereas social isolation and a lack of social networks predict poorer health [1,35,40,41,43–48]. A causal impact on health was shown early [1]. The most common indicators used have been marital status, network size (or number of confidants), frequency of contacts, social connectedness [49], and participation in civic organization activity [24]. However, social networks may have positive and negative impacts. In breast cancer patients [50–52], the closest relationships have been found to burden patients' well-being/health either psychologically (patients worry about the loved ones' well-being) or in practice (patients take care of or act as family caregivers).

Social networks can be divided into different types of social relationships/ties, possessing different resources with different health outcomes [4,11,18,53–58]. In addition to closeness, social relationships

vary in quality (e.g., positive/negative), function (e.g., type of support provided), and structure (e.g., size, composition, contact frequency) [57]. They may be divided into weak/strong, horizontal/vertical, and formal/informal [11,55]. The familiar classification into strong and weak ties (family and close friends vs. infrequently maintained contacts) suggests that they have different impacts on health [8,11,34,43,44,55,59]. Formal networking has been considered the most important for social capital because it builds civic skills and provides access to formal informational and tangible support [7]. However, informal networks are important in sustaining social ties, and they provide sources of emotional support [4]. Coleman [8] even sees strong ties as the core of social capital and family as the typical form of social network. Social networks can also be divided into generic and partial or purposive networks, the latter comprising those who fill specific roles or perform special actions in individuals' lives [3]. These include event/disease-specific networks [53,58].

2.3. Contents of the structures: trust

Measures on cognitive social capital have focused mainly on trust [6–8,11,13,17,24,25,27], as it is usually considered an important, and sometimes the most important, component of social capital. It is an old psychological construct[2]. Essentially, trust is a fundamental factor in human relationships, the development of a 'social human being' [15,32] and the creation and maintenance of social relationships. In social capital research, trust is often seen conceptually simple and misleadingly, as a single concept [17,25]. Trust actually encompasses a range of concepts that refer to various types of trust [15]. It is important to analyze what is meant by 'trust' as a component of social capital. There have long been two mainly divergent conceptualizations [15,25,60].

First, trust can be defined as generalized trust, which describes expectations toward people in general. It represents a general tendency (or even a personality trait) of an individual. This concept is referred to as generalized trust, general trust, trait trust, or global trust [15]. It is a stable pattern of emotion, behavior, and perception and a generalized expectation that other people can be trusted and relied upon [61]. This trust is independent of time, content, and situation. It may be measured with responses to questions like, 'In general, would you say that people can be trusted?' [17] It is a continuum, where at one end are suspicious and wary people, who tend to evaluate other people as dishonest and selfish, and at the other end are people who tend to be accepting and take others at their word [15].

Second, trust may be defined and evaluated as trust toward specific others, either a person or a group of people [15,21,25], often referred to as *relational trust* (also, particularized trust, personalized trust, interpersonal trust, individual trustfulness, or trustworthiness of others). It describes concrete and immediate belief in a certain person's fairness, honesty, and goodwill and thus changes over time. Unlike generalized trust, relational trust requires emotional ties between people and time and experience to develop. Generalized trust and relational trust may be related [25,60], but they cannot be assumed to be aspects of the same phenomenon because their origins are separate [25]. Measures of generalized trust have not predicted the trust experienced in specific social relationships [15,60,61].

In social capital research, a conceptual confusion prevails between different concepts of trust. The essential distinction between generalized trust and the actual trustworthiness of specific others is frequently ignored. Often 'trust' is taken to mean generalized trust. This may be partially due to widespread availability and ease of use of indicators of general trust [24]. However, when trust is considered a component of social capital that pertains to the content of social networks, it is essential to focus on trust toward specific individuals in these networks. This requires more detailed measurement, but relational trust can also be measured in a concise way [21].

Trust is both a condition to and a consequence of social relationships, and social networks may mediate the impact of trust on health. When trust enhances social networks [25], trust and reciprocity have been suggested as ways for individuals to protect themselves from stress. Relational trust may affect health because it reduces social anxiety and fear and consequently lowers social stress [25]. Mistrustful people may be more socially isolated and suffer the adverse effects of isolation.

3. Results

We analyzed the social capital construct in individuals diagnosed with a chronic or severe disease and propose here a new theoretical model that includes the concepts of disease-specific social capital and disease-specific social networks. We differentiate 1. determinants, 2. components (social structure and their contents), and 3. Outcomes in the social capital process (Fig. 1), as suggested previously e.g., by Hanibuchi and Nakaya [23]. However, we propose that after the diagnosis, the components of social capital should be categorized into generic and disease-specific types, whose structural bases are generic and disease-specific social networks, respectively [53,58]. We describe these in detail below. Furthermore, we argue that different types of trust should be included either in the determinants (generalized trust) or the components (relational trust), and further, that relational trust toward generic social network members and disease-specific social network members are distinct and influence different places in the social capital process; see below.

3.1. Determinants of disease-specific social capital

Sociodemographic and economic characteristics, such as age, gender, marital status, and socioeconomic status (SES), impact social structures and their cognitive contents and are thus determinants of individuals' social capital (Fig. 1) [23,62]. However, we suggest that the determinants also include relatively stable personality-related factors, such as generalized trust. These stable factors do not change, at least not so fast that this would influence the disease-specific social capital process. Also, community-level determinants, including economic and criminal rates of the community/area and indicators of population health, may determine the individual-level social capital [23]. In addition, the disease/condition and its treatment, i.e., the clinical factors, have an obvious impact on the emergence of disease-specific social capital. Furthermore, the patient's psychological response to the disease has an influence.

3.2. Components of disease-specific social capital

The social capital components (social networks and their cognitive contents) should be divided further after a diagnosis of a chronic or severe disease or health condition. The structural basis of personal social capital before such diagnosis is generic social networks, which comprise the social relationships present in a subject's life before (or despite) the diagnosis (Fig. 1). This is the social capital people generally have. However, after the diagnosis, these networks often change, such as in size and in the types of subnetworks involved. Some relationships disappear or are not told about the disease, and new relationships are created. Only some persons known may be told about the disease, but the networks are usually widened by the persons involved in the treatment, care, and peer support [58]. We have labeled this new emerging social network type as '*disease-specific social networks,*' and it includes people who are aware of the patient's disease and thus available for disease-specific actions.

As a result of the preceding, the cognitive contents of disease-specific capital, which include the values and beliefs shared within disease-specific social networks—such as relational trust and reciprocity—also

[2] Trust is the belief that someone can be relied on to do what they say they will and is a key element of social relationships and cooperation.

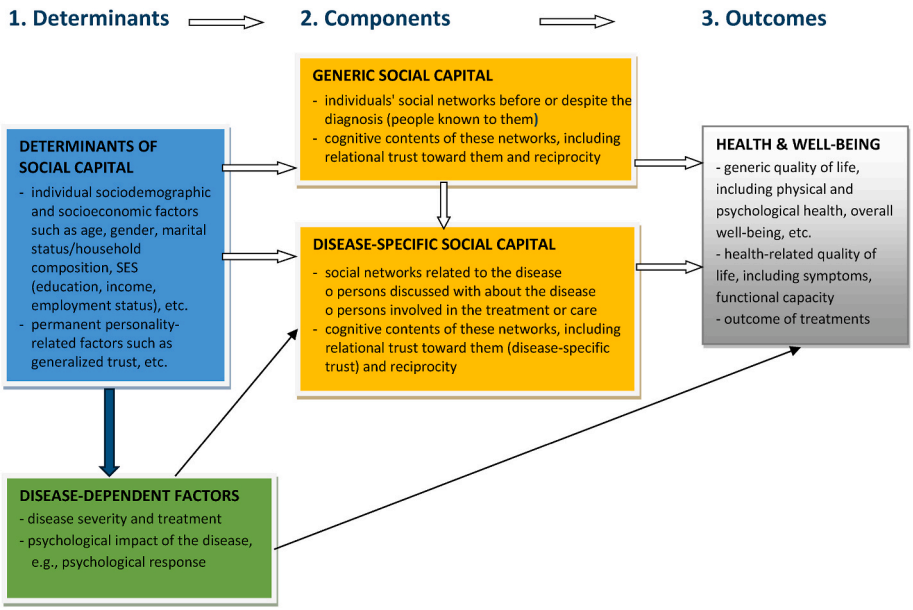

Fig. 1. Health and well-being impacts of different aspects of individual-level social capital after diagnosis of a severe disease: Generic and disease-specific social capital.

form a new entity. Like the generic and disease-specific networks, the cognitive contents of them are also separate because their structural basis, i.e., type of social network, is different. Thus, relational trust in members of generic social networks is part of the content of generic social capital, whereas relational trust in members of disease-specific networks is included in the content of disease-specific social capital (Fig. 1). Based on this analysis, trust toward members of the disease-specific social networks can be labelled 'disease-specific trust.'

In summary, we propose that individual social capital can be categorized into the following (see Fig. 1):

a) Generic social capital, which encompasses individuals' generic social networks, that is, people known to them, as well as their cognitive content, such as trust toward these people.
b) 'Disease-specific social capital,' which emerges after individuals fall ill and is based on new or different social contacts that have developed as a result. This social capital encompasses the members of generic social networks talked to about the disease (the number of disease-specific persons in a subnetwork is always equal to or smaller than the generic number) and the individuals involved in treatment and care and also the relational trust toward them.

3.3. *Outcomes of disease-specific social capital*

Correspondingly, there may also be generic and disease-specific outcomes in the social capital processes (Fig. 1) because they may be influenced by different mechanisms. The generic health/well-being outcomes comprise, e.g., generic quality of life and the disease-specific health/well-being, e.g., health-related quality of life.

4. Discussion

The concept of social capital is widely used in research and politics, and it is a prominent social concept in health research [10]. However, after a 30-year period of use, there are still conceptual and methodological challenges related to its utility and application in public health research and practice. The theory and methodology of social capital have been very heterogeneous [11,24,27]. Although social capital is a multidimensional construct, the measurement has often been simple, and even single-factor indicators have been used. If the measurement is simple and limited, most information about the multidimensional construct is missed. Also, does the health impact of one of its components indicate the effect of 'social capital' or just that component? More than one component of social capital should be measured, and their mutual association should be investigated [26]. We propose in our model some factors that seem to be relevant. Psychological theories and concepts may be useful to clarify the conceptualization of social capital.

We introduce here a model to conceptualize social capital in individuals diagnosed with a chronic or severe disease. We hope our model will guide research on social capital in specific subpopulations of individuals with specific health challenges. Because we found that notable changes occur in the structural basis of individual social capital and therefore in its cognitive contents after falling severely ill, we suggest that social capital after the diagnosis should be divided into generic and disease-specific forms. Generic social capital is present in individuals' lives prior to or regardless of a diagnosis, stemming from their general social networks, while disease-specific social capital is based on the social networks formed due to the disease. Generic and disease-specific social networks have been investigated in cancer patients [54], and the study revealed that separating the suggested entities of social capital is meaningful.

We also highlight the difference between types of trust as cognitive components of social capital. We identified three conceptually different types of trust—generalized trust, relational trust toward members of the generic social networks, and relational trust toward members of the disease-specific social networks—and argue that these belong to separate locations in the social capital process. Generalized trust, as a relatively stable personality-related factor, is a determinant, not a component. That is, we argue that generalized trust is not part of social capital if social capital is considered a resource derived from individual social structure. This is a dilemma because social capital is often measured as generalized trust. How important a part of social capital may it be seen? However, trust in specific individuals in the social networks (relational trust) is by definition a component of social capital. It alters after a major health event because the individuals who are trusted change. Hence, we propose that relational trust also should be categorized into two types: generic social trust and disease-specific trust.

A comprehensive and systematic analysis of the social capital construct(s) would help in choosing the best measures of social capital in health studies. We argue that patients' social capital after a major health

event consists of two types, namely generic and disease-specific. Both may be important health resources, but they are different in their origins. Empirical studies should investigate how these sub concepts are interrelated and whether the extended model holds predictive and/or explanatory value.

Ethical statement

Not applicable; no person/patient data used.

Availability of data and material

Not applicable.

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Conflict of interest statement

The authors declare that they have no conflict or competing of interests and no relevant financial or non-financial interests directly or indirectly related to the work submitted for publication.

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