Chapter 28

Mental Health and Social Capital: Social Capital as a Promising Initiative to Improving the Mental Health of Communities

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Additional information is available at the end of the chapter

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1. Introduction

Mental illness is a growing public health concern and has been estimated to impact up to 450 million people across the globe [1]. In countries with particularly high prevalence rates, more than a third of the population will meet the criteria for some form of mental illness during their lifetime [2]. Mood and anxiety disorders tend to have the highest prevalence rates and it has been projected that major depressive disorder will be the second leading disease burden worldwide by 2020 [3]. Mental illness often has chronic effects that can last a life-time and negatively impacts individuals' quality of life at home, work, school, and in social settings [4].

The identification of specific factors that improve or worsen one's mental health is beneficial when aiming to understand onset and course of illness and also for preventing declines in mental health that may sequentially lead to clinical-level cases. Recognizing the key contributors to mental health is a crucial step in enhancing the efficiency of health promotion initiatives. Social capital has been identified as an upstream determinant of mental health and may be particularly beneficial when taking a population health approach. Social capital refers to the material, informational and affective resources to which individuals and, potentially, groups have access through their social connections [5]. It has been proposed that high levels of social capital result in improved mental well-being in both individuals and communities and that enhancing the social resources of groups may allow for improvement in overall population mental health.

To determine social factors that contribute to mental health and to identify who is at greatest risk, there is a need to understand how social capital may help or hinder mental well-being

and to examine how predictive factors vary between groups. This chapter will begin by describing the development of social capital, the debates that exist within the current social capital literature, and the ways in which social capital may be connected to health related outcomes. Next, the current literature will be examined in greater detail through the conduction of a systematic search of recently published studies. Findings of these studies, limitations in the current literature and suggestions for future research directions will be outlined. Lastly, public health implications and support for incorporating social capital into population-based mental health promotion programs will be discussed.

2. The development of social capital

Social capital is most often associated with concepts such as trust, norms, power, relationships, and networks and although it is relatively new to health and social sciences research as a whole, its separate components have been studied for centuries [6]. At the basis of social capital is the notion that people invest in social relations with expected returns [7]. While theorists tend to agree upon this underlying understanding, the specific definitions and measurements used in the social capital literature are often disputed [7]. In fact, discrepancies in the definition have existed since the very first attempts to define social capital beginning in the late 1980s and early 1990s. Bourdieu, Coleman, and Putnam are often referred to as early theorists of social capital, and their approaches have influenced the ways in which social capital is viewed in the field of health sciences today [7,8]. Bourdieu was interested in the distribution of social capital within society and explained that like economic or cultural capital, social capital was unequally distributed among individuals and groups [7,8]. Coleman's approach to social capital was similar to Bourdieu's in that they both emphasized the importance of examining social networks. Rather than considering structural measures of social networks, as Bourdieu and Coleman suggested, Putnam focused on relational factors including norms of trust and reciprocity [7]. Despite advances in social capital, there has tended to be a divide between those who follow approaches that are more in line with Putnam's work and those who support Bourdieu or Coleman's definitions of social capital. These approaches have led to two somewhat divergent dimensions of social capital. The first dimension can be labelled 'communitarian', and the second 'network'.

2.1. Debates within the literature

2.1.1. Communitarian versus network approaches to social capital

A central debate within social capital research is whether social capital is a communitarian- or network-driven phenomenon. Communitarian approaches to social capital typically include psychosocial or cognitive constructs (e.g.,perceptions of trust or cohesion) as well as indicators of community participation [8]. Putnam's definition, which focuses on community-level communitarian social capital, has been the most dominant in health sciences to date. In his definition, social capital encompasses five main principles: (1) 'community networks'; the number and density of voluntary, state, and personal networks, (2) 'civic engagement';

the amount of participation in civic networks, (3)'local civic identity'; the degree to which there is a sense of belonging, solidarity, and equality between community members, (4)'reciprocity and cooperation norms'; the degree to which there is a sense of obligation to help others, as well as feelings that others will reciprocate in the future, and (5) 'community trust'; the degree of trust held by individuals within the network [6,10]. Although community networks are included in this definition, Putnam and others who follow a communitarian approach typically focus on the latter four components. A network approach, as represented in the work of Bourdieu, defines social capital as resources that are accessed within social networks for the benefit of individuals or groups [11]. Network approaches to social capital measure directly how and to whom individuals are connected within their social structures by investigating the size, range, and diversity of individuals' social connections, and the resources potentially available within those networks. Although researchers typically adhere to one or the other of these two approaches, some recent studies have sought to compare communitarian and network measures within their work to understand better the potential mechanisms linking social capital to health [5,12]. An approach that includes the incorporation of both communitarian and network dimensions of analysis in studies of social capital is supported throughout this chapter. A more comprehensive approach to social capital will provide researchers and health professionals with a greater understanding of how cognitive, participatory, and network-related elements may work together to influence health outcomes. Understanding the range of social capital processes that may influence health is challenging if social capital dimensions are examined separately.

Critiques of the communitarian approach

Although the communitarian approach to social capital is the most visible in health research today, researchers have expressed several concerns about its prominence. First, the predominance of communitarian approaches in public health research has been largely due to the ways in which social capital was initially translated and cited in the field of public health [8]. Early leading papers on social capital focused on communitarian aspects of social capital, which has resulted in less attention to actual network dimensions [8]. Furthermore, network measures have appeared only recently in the social capital literature, whereas cognitive measures of trust and perceived cohesion appeared early on. Ease of measurement may be a second factor contributing to the uptake of the communitarian approach. The inclusion of network measures in research centred on social capital may give a more complete picture of the association of social capital and mental health outcomes than currently found in the literature.

Second, communitarian measures have often been labelled as proxy, or indirect, measures of social capital since they do not directly assess a person's or group's access to resources [5]. Hence, the communitarian approach has often been criticized for measuring concepts that more closely relate to theories of social cohesion than social capital [7,11]. For example, perceptions of trust may be more suited to measure social cohesion than an individual's general access to resources. Network measures may be advantageous in deciphering the types of resources accessible to individuals and groups within social networks.

A third critique of the communitarian approach lies in its supposed inability to address issues of inequality and power [8]. Other forms of capital (i.e., economic and human) have historically addressed these issues and it seems appropriate that social capital should do the same. Although social capital has been criticized for falling short in this regard, it may not be the concept itself that is ill suited to address distributions and inequalities in social capital within and between societies, but the communitarian measures that are often used. Network measures may offer clearer insights into inequality due in part to the measure's capacity to compare and contrast the types of resources accessed by certain individuals and groups.

2.1.2. Dimensions and levels of social capital

Debates within the social capital literature also concern the levels and dimensions of analysis. Dimensions of social capital include the aforementioned approaches of psychosocial, participation, and network. In terms of the levels of analysis, researchers sometimes differ in their opinions as to whether social capital should be measured with individual- or ecological-level measures. Table 1 provides examples of common individual- and ecological-level measures of social capital according to each dimension. At an ecological level, social capital measures are meant to reflect group and neighbourhood levels of connectivity [6, 14]. Ecological measures capture elements of the community that are often not measurable through individual-level data [13] and are often derived from aggregating individual-level measures. It has been suggested that aggregate data is a proxy measure of exogenous characteristics and more direct measures of neighbourhoods must be created to address this issue [15]. Multilevel studies are increasingly used to assess associations between social capital and health outcomes, and have the benefit of being able to disentangle individual- and neighbourhood-level characteristics [14].

Dimension	Level	
	Individual	Ecological (area)
Cognitive/Psychosocial	Trust, Perceptions	Community trust, Social cohesion
Participation	Participation	Area participation
Network	Ego networks	Network structures

Table 1. Dimensions and levels of analysis in social capital.

Another debate that has arisen from social capital research has been whether social capital is a concept that should be assessed generally or within certain environments, such as within neighbourhoods. General social capital would represent an individual's general levels of trust towards others, their overall participation in associations, and resources obtained from their entire social networks. Others postulate that although social capital may be measured generally, it can also be assessed in more specific contextual environments [16]. For instance, examining social capital both inside and outside individual's neighbourhoods allows for identifying where people are accessing valued resources [12]. Knowledge of whether the

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benefits of social capital for health arise from network sources within or outside the neighbourhood may be important for research and health promotion purposes. Neighbourhood social capital may be measured at an individual-level and is most commonly measured through self-report. With regards to each dimension of social capital, psychosocial measures assess perceived neighbourhood cohesion or trust in neighbours; participation measures would assess involvement in neighbourhood associations; and network measures would examine resources accessed within the neighbourhood. Both general- and neighbourhood-specific measures of social capital are being included in health research to gain a more well-rounded understanding of how and where individuals access their resources.

3. General overview: Social capital and health

3.1. Mechanisms linking social capital to health

Research on social capital has examined a range of health outcomes which have included health-related behaviours, as well as physical and mental illnesses. Social capital may influence health outcomes within neighbourhoods through mechanisms that include: (1) rapid promotion and diffusion of health information, (2) ensuring that health behaviours and norms are adopted, and (3) minimizing opportunities for negative health behaviours [17]. These mechanisms more closely relate to the communitarian rather than the network approach to social capital due to their focus on norms and social cohesion. Several broad areas of physical health are associated with social capital in the communitarian sense, and include mortality and life expectancy, self-rated health, cardiovascular disease, cancer, obesity, diabetes, and infectious disease [18].

High levels of social capital at group, neighbourhood, and network levels has been shown to provide individuals with increased resources in terms of finance, care, and transportation which in turn is found to benefit overall health [19]. The measurement of individual resource access via social connections, along with the emotional support received from these connections, are said to reinforce physical and mental health [19]. For example, those with large social networks may have greater access to social support, which in turn leads to better health [16]. Furthermore, those who have access to network members leading healthy lifestyles may turn to these connections for information which may in turn reinforce positive health behaviours [16]. Researchers have highlighted the benefits of network capital by relating those to the potential positive health benefits that may result from a person's or a group's greater access to informational, material, and socially supportive types of resources. Health-related outcomes that have been shown associated with network components of social capital include self-rated health and obesity [5,12,20]. Thus, research indicates important associations between social capital and health outcomes using both communitarian and network measures. As research moves forward, it is important to understand how both dimensions may work together to influence health outcomes.

3.2. Social capital and mental health

A general search of the social capital and mental health literature show that studies of depression occupy a central part of the literature. The high prevalence rates of depression and the ease of measuring depression through short questionnaires likely contribute in part to prominence of research on depression and social capital. Most studies of social capital and depression have used communitarian measures of social capital, such as trust and participation. Several studies have shown individual-level generalized trust to be inversely related to depressive symptoms [13,21-25]. In studies measuring perceived neighbourhood trust, higher trust in neighbours has also been shown to be a protective factor of depression [22,25]. Studies using indicators of community participation and volunteer work to measure social capital have not shown social capital to be related to depression [22]. While individual-level studies have lent some support for the relationship between depression and social capital, the measures of social capital used in these studies are problematic since they tend to include only communitarian measures such as trust and participation.

Less research has examined social capital and mental health using formal social network data. Analyses that have examined social networks and depression have shown that individuals who report being socially isolated within their social networks are more likely to have depression than those who report more network ties [22,25-28]. Using a resource generator to measure access to specific types of resources within individual's neighbourhoods, researchers did not find any association of social capital with depression over a six-month period [25]. Another study found that women with core neighbourhood ties reported fewer depressive symptoms when compared to women with both neighbourhood and non-neighbourhood core ties, demonstrating the importance of examining neighbourhood connectivity and mental health [29]. One research group [30] conducted a particularly comprehensive study which investigated the spread of depression through social networks. Individuals with several core ties and those who were located centrally within their networks had lower rates of depression [30]. It was found that depressive symptoms do spread within social networks and individuals with depression are more likely to have close ties that also suffer from depression [30]. In fact, having close ties with depression doubled the probability that the respondent will develop depressive symptoms themselves [30]. Initial findings thus demonstrate that both network and communitarian components of social capital may be associated with depressive symptoms, and such relationships require further exploration.

Further research on social capital and other forms of mental illness, including major depression, is needed. On an international level, anxiety disorders typically have even higher prevalence rates than mood disorders with lifetime estimates of approximately 16.6% [31-32]. Anxiety disorders include generalized anxiety, post-traumatic stress, specific phobias, obsessive-compulsive, panic, and social anxiety disorders [32]. Almost half of those diagnosed with depression are also diagnosed with an anxiety disorder [31]. Yet, research studies examining social capital as a potential determinant of anxiety disorders (and other forms of mental illness) are largely understudied. Again, research has tended to focus on communitarian dimensions when examining anxiety. Initial studies suggest inverse associations between psychosocial dimensions of social capital with anxiety symptoms and post-traumatic

stress disorder [33-35]. When network and participation items were measured together in one scale, "structural" social capital was also shown to be negatively associated with anxiety symptoms [34]. More research is needed that examines formal network data in relation to various mental illnesses.

4. Systematic review of literature

4.1. Rationale and objectives

Earlier reviews of social capital and mental health have shown inconsistent results in the association between social capital and mental health [6]. Inconsistencies in the measures of social capital make it difficult to compare studies and to draw common conclusions from the literature. To summarize recent findings on social capital and mental health, we performed a systematic literature review. Compiling and comparing results allows for researchers and health professionals to determine which dimensions of social capital may be most important when examining important mental health outcomes. Gaps within the literature may also be discovered through this process. The main research questions underlying our review were (1) how has social capital been measured in recent studies of social capital and mental health (e.g., psychosocial, participation, or network measures)?; (2) what are the main findings from these studies?

4.2. Methods

Search Procedure. The literature review search was conducted in PubMed; a database that includes access to various health-related articles and journals. Search terms included "social capital AND mental health", "social capital AND mental illness", "social capital AND depression", "social capital AND depressive symptoms", "social capital AND anxiety", and "social capital AND schizophrenia". Search criteria specified that terms were included in the titles of research papers and that articles were published within the last 5 years. After abstracts were gathered, studies that did not in fact examine direct associations between social capital and depressive symptoms, and articles that were not obtainable in English were excluded.

4.3. Results

Search Results. PubMed yielded 31 articles. The majority of articles (n = 16) were derived from the "social capital AND mental health" search. No articles were found with "social capital AND mental illness" or "social capital AND anxiety" searches. The search "social capital AND depression" yielded 10 articles, "social capital AND depressive symptoms" resulted in 4 articles found, and "social capital AND schizophrenia" generated 1 article. Of these articles, 3 were not available in English and 7 did not look at direct associations between social capital and mental health. The final article count included in analyses was 21 [16,21-22,25,33-49].

Table Information. Table 2 includes summary information for each of the 21 studies. Information obtained from each study included: citation number, country of study, study design, sample, measures of social capital, dimension/s of social capital measured, mental health outcome, dimension/s of social capital associated with outcome, and main study findings. In order to compare the findings of studies measuring similar dimensions of social capital, "dimension of analysis" and "social capital dimensions associated with outcome" categories were created. Dimensions of analysis include psychosocial, participation, and network dimensions discussed previously. In many instances, researchers did not use these terms, but may have used 'cognitive' instead of 'psychosocial', or 'structural' instead of 'participation'. In these cases, we re-classified the terms to correspond with one of our defined dimensions (ie. 'cognitive' became 'psychosocial'). Terms used in the "measures of social capital" and " study findings" were consistent with those used in the original research articles.

Descriptive Results. Studies took place in 11 countries across the globe. Most studies measured social capital and mental health outcomes in the general adult population. However, three studies examined social capital and mental health in adolescents, and three examined associations in older adults. Although several studies were cross-sectional in design, seven were longitudinal or prospective cohort studies. The majority of studies examined depression or depressive symptoms as a mental health outcome (n = 15). Other mental health outcomes examined included anxiety (n = 2), post-traumatic stress disorder (PTSD) (n = 2), schizophrenia (n = 1), psychological distress (n = 1), and self-rated mental health (n = 4). Various social capital measures were used in study analyses. Consistent with previous literature, psychosocial (n= 17) and participation (n= 9) dimensions were most frequently measured in conjunction with mental health.

Social Capital and Mental Health Findings

Psychosocial dimensions and mental health. Eleven studies examining the direct association between psychosocial dimensions of social capital and depression or depressive symptoms found that social capital was inversely associated with symptoms. Similar inverse associations were found for studies that included PTSD, anxiety, self-rated poor mental health, and psychological distress as mental health outcomes (N = 7).

Participation dimensions and mental health. Studies reported mixed results when examining direct associations between participation dimensions and mental health outcomes. Of the 3 studies examining participation in relation to depression or depressive symptoms, none found participation in local contexts to be associated with decreased risk of experiencing depressive symptoms. On the other hand, participation was associated with self-rated mental health status in three additional studies.

Network dimensions and mental health. Results of studies examining network dimensions of social capital in association with mental health outcomes were inconsistent. Two of the four studies found network capital to be inversely associated with depressive symptoms. Network dimensions were not examined in relation to other mental health outcomes.

Study	Country of Study	Study Design	Sample	Social Capital (constructs measured)	Social Capital Dimension Measured*	Mental Health Outcome (measure)	Dimension Associated with Outcome?*	Main Findings
16.	USA	Cross-sectional, multilevel	N=497, adults.	Structural Network Capital (reach, range and diversity; Resource Network Capital (embedded employment, transportation, and educational resources)	N	Depressive symptoms (CESD-7)	N = yes	Network density (B = -.54), voluntary organization integration (B = -. 34), access to mainstream individuals (B = -. 13) and access to transportation resources (B = -.48) associated with decreased symptoms. Network social capital was mediator between neighbourhood disadvantage and symptoms.
21.	Sweden	Cross-sectional	N=7757, students aged 13-18.	Psychosocial (general trust) and Neighbourhood social capital (neighbourhood cohesion, reciprocity, safety and cleanliness)	PS	Depression (Depression self-rating scale, DSRS)	PS = yes	Neighbourhood social capital (B = -.10) and general social trust (B = -.20) negatively associated with depression.
22.	USA	Prospective study	N=724, adults.	Cognitive (trust in neighbours, sense of belonging, mutual aid); Structural (volunteer work, community participation)	PS & P	Major depression (CIDI-SF)	PS = yes P = no	Those with neighbourhood trust less likely to develop major depression during follow-up (OR=0.43). After excluding participants with depression at baseline, associations became non-significant. Structural dimensions not associated with depression.
25.	England	Longitudinal, six-month prospective cohort study	N=158, adults.	Network resources (Resource Generator-UK: access to 27 resources and skills)	N	Depression (HAD-D)	N = no	Social capital not independently associated with depression.
33.	England	Cross-sectional survey, multilevel	N=232, adults.	Community social capital (SA-SCAT), structural (know individuals holding certain job titles, participation) and cognitive (ie. trust).	PS, N, & P	Post-traumatic stress as indicator of disaster mental health (PTSD	PS = yes P&N = no	High cognitive social capital negatively associated with posttraumatic stress (B=-. 36). Structural social capital not directly associated with PTSD.

						Checklist – Civilian version).		
34.	England	Cross-sectional	N=232, adults.	Cognitive (trust, mutual help, reciprocity) Structural (community linkages) (SA-SCAT-15 item questionnaire)	PS & N	PTSD (PTSD Checklist Civilian Version), anxiety and depression (Hopkins Symptom Checklist-25)	PS = yes (mental health) P&N = yes (anxiety)	Cognitive social capital negatively associated with PTSD (B=-.28), anxiety (B=-.13) and depression (B=-.26), and structural social capital was positively associated with anxiety (B=.13).
35.	USA	Cross-sectional	N=205, adult women.	Trust (neighbourhood trust, trust in people) Volunteering	PS & P	Depressive symptoms (Items from PHQ9, K10, CIDI-SF), anxiety symptoms (CIDI-SF, K10)	PS&P = yes	Social capital negatively associated with depression (B=-.41) and anxiety (B=-.41). Social capital mediated the association between acculturation and depression and anxiety symptoms.
36.	Mexico	Longitudinal	N=2611, adults ages 65-74.	Social capital (groups and networks, trust and solidarity, collective action and cooperation, information and communication, social cohesion and inclusion, empowerment and political action)	PS, N & P	Depressive symptoms (Geriatric Depression Scale). Incidence assessed at 11-month follow-up.	PS&P&N = yes	Higher social capital at baseline associated with lower incidence rates of depressive symptoms in women only (OR=.73).
37.	Ireland	Cross-sectional survey	N=5992, adults.	Trust	PS	Self-reported mental health	PS = yes	Those from rural areas more likely to report high trust and poorer mental health.
38.	Finland	Cross-sectional	N=1102, adults ages 65 and older.	Cognitive social capital (social support, trust, help from neighbours)	PS	Self-reported depression (CIDI-SF) and Psychological distress (General Health Questionnaire)	PS = yes	Cognitive social capital (difficult access to help from neighbours) associated with depression. Not having people to count on, lack of concern from others, and mistrust towards others associated with psychological distress.
39.	Sweden, Finland	Cross-sectional	N=6838, adults aged	Psychosocial (trust in friends and neighbours);	PS & N	Depression (Geriatric	PS = yes N = yes	Low structural capital, measured by infrequent

			65, 70, 75, and 80.	structural (frequency of social contact with friends and neighbours)		Depression Scale-4)		contact with friends (OR=1.53) and neighbours (OR=1.33) associated with depression. Mistrust between friends (OR = 2.01), but not neighbours, associated with increased symptoms.
40.	Japan	National cross-sectional survey, multilevel	N=5956, adults.	Cognitive (trust); structural (membership in sports, recreation, hobby or cultural groups).	PS & P	Self-reported mental health (SF-36).	PS = yes P = yes	Social capital associated with mental health at individual and ecological levels. Cognitive (B= 9.56) and structural social capital (B=8.72) at the ecological level associated with better self-rated mental health.
41.	South Korea	Cross-sectional survey, multilevel	N=5934, adults.	Participation (individual-level participation in organizations); cognitive social capital(individual-level perceived helpfulness); contextual social capital (derived from individual measures)	PS & P	Mental health (self-rated 8-item scale).	PS = yes P = yes	Organizational participation (B=0.151) and cognitive social capital (B=.237) positively associated with mental health. Contextual level of social capital not associated.
42.	USA	Cross-sectional, survey	N=155, adults.	Religious social capital (religious involvement/use of spiritual leader for personal problems); group participation(membership in various groups); social trust(general trust, trust in other homeless, trust in service providers, trust in community leaders); bridging social capital(close ties different to themselves)	PS, N & P	Depression (CESD)	PS = yes P = no N = no P&PS=yes	Higher religious social capital (B = - .21) and higher trust (B = -.18) negatively associated with symptoms. Bridging social capital and group participation not associated.
43.	Germany	Cross-sectional, online survey	N=328, adults.	Perceived social capital at work (Social Capital in Organizations Scale:	PS	Depressive symptoms (German	PS = yes	Lower levels of perceived workplace social capital

				cohesion, trust, values, and support)		version of World Health Organization Five-Item Well-Being Index)		associated with depressive symptoms (OR=.76)
44.	England	Cross-sectional, survey	N=16459, adults.	Neighbourhood-level social capital (social cohesion, trust and social disorganization)	PS	Incidence of schizophrenia (ICD-10 F20). Incidence estimated using local data.	PS = yes	Association between social cohesion and trust and schizophrenia was u-shaped. Compared with neighbourhoods with medial levels of social cohesion and trust, incidence rates significantly higher in neighbourhoods with low (IRR 2.0) and high (IRR 2.5) cohesion and trust.
45.	Finland	Prospective cohort study, multilevel	N=33577, adults.	Workplace social capital (trust, norms, cohesion between other employees and employer)	PS	Depression (self-reported physician-diagnosed and recorded antidepressant prescriptions)	PS = yes	Odds for depression 20-50% higher for employees with low compared to high social capital. Aggregate-level social capital not associated with subsequent depression.
46.	Finland	Longitudinal cohort study	N=25763, adults.	Vertical social capital (trust and reciprocity between employee and employer); horizontal social capital (trust, reciprocity and norms among coworkers)	PS	Depression (self-reported physician-diagnosed and recorded antidepressant prescriptions)	PS = yes	Odds for new physician-diagnosed depression and antidepressant treatment were 30-50% higher for employees with low compared to high vertical and horizontal workplace social capital.
47.	England	Longitudinal, multistage	N=15770, adolescents.	Community social capital (parental involvement at school, sociability, involvement in activities outside the home)	P	Mental health (General Health Questionnaire-12)	P = yes	Adolescent sociability associated with decreased psychological distress only in boys (OR=.64).
48.	South Africa	Cross-sectional	N=16800 adults ages 15 and over.	Neighbourhood-level social capital (aggregated: support and reciprocity, association activity, collective norms, safety);	PS & P	Depressive symptoms (CESD-10)	PS = yes P = no	Compared to those with high neighbourhood-level social capital, those with moderate (B = 0.82) and low (B=0.89) social capital more likely to report symptoms. Compared to those with

				Individual-level trust and civic participation				high trust, moderate trust associated with increased symptoms (B=0.83). No associations found for participation.
49.	China	Longitudinal	N=5164, adolescents and their parents.	Family social capital (frequency have dinner with parents, home alone, go out with unfamiliar friends, parents check homework); Community social capital (perceived safety, neighbourhood ties, neighbourhood cohesion)	PS	Depressive symptoms (CESD)	PS = yes	Higher community social capital associated with lower levels of adolescent depressive symptoms (B=-.97). Family social capital mediated effects of contextual factors on adolescent depressive symptoms. Female adolescents reported more depressive symptoms as result of lower availability of family social capital.

*PS = psychosocial, P = participation, N = network.

Table 2. Search findings of social capital and mental health literature. Studies published within last 5 years.

Composite social capital and mental health. Five studies used scale or composite scores which included two or more dimensions of social capital. When measures of participation and network dimensions of social capital were assessed together, social capital was found to be positively associated with anxiety symptoms. On the other hand, these dimensions were not associated with post-traumatic stress disorder or depressive symptoms. Psychosocial and participation dimensions were also used as composite measures of social capital (N = 2). The fusion of both dimensions is consistent with a communitarian approach to social capital. Both studies found communitarian social capital to be inversely associated with depressive symptoms. Communitarian dimensions were also inversely associated with anxiety symptoms. Lastly, when all three dimensions of social capital were included as a social capital composite score, social capital was negatively associated with depressive symptoms in older adults.

4.4. Discussion

In this literature review, the diverse measurement of social capital in recent studies of mental health and social capital was investigated, and key findings of these studies were highlighted. The first objective of this review was to examine how social capital is currently being measured in the mental health literature. Studies of communitarian social capital were dominant. Psychosocial dimensions of social capital were included in most studies, and participation dimensions were second-most common. Network measures

were least common. Yet, with network components increasingly recognized as a core construct of social capital in research on social capital and physical health outcomes [5], it is important that researchers and health professionals also consider network capital in studies of mental health.

Measurement of the psychosocial, participation, and network dimensions of social capital were often inconsistent. Psychosocial measures included a broad range of cognitive and socio-relational characteristics. Despite variations within psychosocial measurement, results consistently found psychosocial social capital to be associated with various mental health outcomes including depression, anxiety, PTSD, psychological distress, and self-reported mental health. Such findings speak to the magnitude of impact that psychosocial characteristics likely have on one's mental health. Measures of participation across studies tended to assess similar constructs and may allow for greater cross-comparison between studies. When examined as a separate dimension, participation was not associated with depressive symptoms. Comparing studies on psychosocial and participatory social capital with those that examined network social capital and mental health is difficult. Studies used various network measures and many failed to conduct comprehensive analyses of social networks and resources. For example, some studies investigated social networks as a complementary component to the participation dimension of social capital, but did not exclusively focus on this dimension of social capital as a potential key contributor to mental health. Nevertheless, network dimensions of social capital were inversely associated with depressive symptoms in two studies, lending support to the notion that network capital plays an important role in mental health outcomes. No studies in the current search observed network social capital in relation to health outcomes other than depression. More rigorous measurement of network connections and resources is needed to understand how network dimensions of social capital may be associated with mental health outcomes.

4.5. Limitations and strengths of current literature review

There are a few limitations to the current literature review. First, search terms were limited to titles of studies. This was to ensure that the articles included in the review focused primarily on social capital and mental health outcomes; yet other studies that examined direct associations may have been missed. Second, articles that were not included in the PubMed database may have been left out from the final list of studies. Third, while common mental illnesses were included in search terms in hopes of capturing a larger range of articles than yielded by general 'mental health' and 'mental illness' searches, studies that examined outcomes other than depression, anxiety, schizophrenia, or general mental health in relation to social capital may have been missed. Researchers who conduct future literature reviews may wish to expand search results to include terms in abstracts or key terms, conduct searches in various databases, and expand searches to include a wider range of mental health outcomes.

This literature review has several strengths. To our knowledge, this is the most recent review of the social capital and mental health literature. Mental health research is an ever-growing field and social capital is increasingly examined as a potential contributor to

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well-being. Consequentially, reviews are needed to inform researchers of other works being conducted in an accessible and informative manner. This literature review has also worked towards drawing common conclusions from diverse studies that previously seemed incomparable. This was done by grouping social capital measures into the three most common dimensions of analysis and comparing findings across various mental health outcomes. As far as we are aware, this is the first review of the social capital literature to compare studies in such a manner. Previous review works have focused on individual- and ecological- levels of social capital in attempts to tease out measurement debates [13], however there has also been a need to understand how dimension of social capital is portrayed in the public health field. Lastly, another major strength of conducting this literature review lies in the implications that can be drawn from it. Several gaps within the literature have been highlighted throughout this review process and directions for future research and health promoting programs can be inferred from these gaps. These points will be expanded upon in the following sections.

5. Limitations in current research and suggested future directions

Having compiled and evaluated the literature, it is apparent that more research, particularly from a network perspective, is needed to understand how social capital contributes to mental health. With several debates surrounding the definition and measurement of social capital, it is evident that researchers must work towards building a consensus. An all-inclusive approach that considers psychosocial, participation, and network dimensions may be particularly beneficial when examining mental health outcomes, since it will allow for clearer depictions of contributing factors to the illness. Furthermore, discrepancies of measurement within each dimension must also be addressed. This might be achieved by building a consensus on the definition of social capital. Once social capital is uniformly defined, gold-standard measures of each dimension can be developed and standardized.

Furthermore, an overwhelming number of studies derived from the literature search measured depression or depressive symptoms as the primary mental health outcome. There is a need to understand how social capital, and its separate dimensions, relate to other relevant mental health issues. For example, other social determinants, including socioeconomic status and gender, have been outlined as potential contributors to anxiety spectrum disorder, and more research is needed to examine how social capital might impact one's risk for experiencing anxiety [50]. Co-morbid mental and physical illness may also be necessary to investigate in future studies of social capital. Current research suggests that social capital may have differential effects on different mental illnesses; however co-morbid illnesses within individuals are largely unexplored [34].

Another potential limitation to the current literature is that results are typically generalizable only to others experiencing symptoms of mental illness. Most studies have not conducted formal clinical diagnoses of the mental health outcome of interest, but have relied on brief questionnaires to assess symptomatology. Elevated symptoms may sometimes corre-

spond with a diagnosable illness, however it has not yet been proven that current study results are applicable to those with clinical-level syndromes.

Having established some preliminary associations between social capital and mental health, more research is needed to determine how social capital may impact mental illness in different groups. Initial research suggests that social capital is an important predictor of mental illness at many different life stages. For example, social capital has been found to be associated with depressive symptoms in children, middle-aged, and older adults [21,36,49]. Studies on gender, social capital and health should be advanced. Recent studies suggest important differences in social capital and mental health between men and women. For example, although social capital has been found to be associated with depressive symptoms in both women and men, women may be more prone to experiencing negative mental health consequences in response to decreased levels of psychosocial and network dimensions of social capital in some instances [51]. Further research is needed to examine group differences between social capital and mental health outcomes.

Lastly, some lingering uncertainty exists when attempting to understand the causal relation between social capital and mental health. While cross-sectional studies have many advantages in terms of brevity and reduced resource load and are helpful when gaining an initial understanding of associations, longitudinal studies within the current area of research is a logical next step. Of the longitudinal studies conducted to date, there is some support that suggests social capital may in turn influence mental health [36,47,49]. Programs that promote mental health also seem to follow this rationale by first altering social constructs with hopes of in turn improving mental well-being. Such efforts will be discussed shortly. While the current evidence points to social capital as a potential contributor to mental health, there is a need for long-term longitudinal studies to ease existing uncertainties. Longitudinal investigations of the relationships between social capital and mental health may help identify specific causal directions, and will inform health professionals when developing tailored community programs.

6. Public health implications

Understanding the role that social capital may play in mental health has broader public health implications in terms of treatment and prevention programs. Several studies included in the literature review emphasized the practical public health implications of their findings [21,33,3-36,38,48]. As well as benefitting the general population, increasing social capital may also be used to address mental health issues faced by vulnerable groups including post-disaster victims, ethnic minorities, women, adolescents, older adults, homeless individuals, and those living in disadvantaged neighbourhoods [21,33,35,38,42,51]. Enhancing social capital within vulnerable groups may be achieved by increasing social skills and developing networks [52]. With increased social capital, it was expected that sequential improvements in mental health might be observed [52]. Since various groups are found to face differential barriers to achieving positive mental well-being, it has been suggested that intervention programs be tailored to specific groups of interest [53].

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Determinants at individual, social, organizational and community levels must be considered when creating programs aimed at improving population-level mental health. While individual-level intervention programs may be beneficial in aiding those who require critical mental health care, population-based approaches may be most effective when prevention of mental illness and promotion of mental well-being in broader populations is the goal. Social capital is advantageous in that it can be applied at individual and group levels. From an organizational standpoint, it has been suggested that increased social capital between fellow co-workers and between employees and employers may be one potential outlet for improving mental health [45]. Social capital may also be used to foster positive mental well-being at the community level. Because social capital can be measured within neighbourhoods, programs have the potential to be designed from a community or group perspective. These programs may foster a sense of trust and cohesion within broader groups, while also developing community resources to maximize social capital within a given area. This may allow for the improvement or maintenance of positive mental health of larger population-level groups.

Countries across the globe have recognized the potential for social capital to be used as a health promoting mechanism. The improvement of social capital in communities (and its cognitive, network, and resource components), has recently been outlined as an important health promotion initiative in countries including Canada, Australia, and the United Kingdom. The Victorian Government suggest that social capital can be fostered by emphasizing community development, which can be improved by defining community-level goals, mobilizing resources, and developing plans to address collective problems [54]. European initiatives to improve the mental health of population include action goals such as promoting mental health in schools and the workplace, supporting mentally healthy aging and reducing disadvantage [55]. Goals such as these can be accomplished by promoting social inclusion, implementing community development programs, and encouraging social, cultural, economic and political contribution of individuals in society [55]. Through the development of social capital within communities, inequality issues in health and well-being and the ways in which groups come together to promote health can be directly addressed [54].

Canadian initiatives do not yet typically include the term 'social capital' within their mental health initiatives, as does the U.K.; however health promoting goals have included several of its key concepts for decades. For example, in 1986, efforts to improve mental well-being in its population, the Ottawa charter for mental health promotion strived to (1) build health public policy, (2) create supportive environments, (3) strengthen community action, (4) develop personal skills, and (5) reorient health services [56]. Each goal incorporates fundamental concepts of social capital by emphasizing the importance of building connections within social networks, developing health promoting resources and behaviours within communities, and fostering cohesion between individuals and groups. As social capital gains increased recognition in research and public health fields, the use of social capital within health initiatives are likely to become more common. Until then, it is promising that countries recognize the value in its individual components when outlining health promotion goals.

7. Concluding thoughts

Previous and recent evidence strongly suggests that social capital is a key contributor to mental health outcomes. Psychosocial components are consistently shown to be associated with symptoms of depression, anxiety, post-traumatic stress, psychological distress and self-rated mental health. Participation dimensions of social capital may be important for self-rated mental health, but do not seem to be associated with depressive symptoms. Network components on the other hand have been shown associated with depressive symptoms in some instances but have not been examined in relation to other forms of mental illness. More research is needed to establish associations between dimensions of social capital and various mental health outcomes. There remains important gaps within the literature that must be addressed. Nevertheless, social capital is a promising tool that can be used for policy and intervention purposes. Enhancing social capital of communities is thought to contribute to improved mental, and potentially physical, well-being of populations across the globe. With further research, the creation of health promoting programs, changes in policy, and increased knowledge translation between these realms, social capital may be a promising mechanism to improving mental well-being and preventing mental illness.

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