

## Literature Review Article

# Relationship between social capital and access or use of health services by adults: a systematic review

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## Abstract

**Introduction:** The search for health services is influenced by a number of factors. One such factor is social capital, which can be conceptualized as a network of social relationships that can provide individuals and groups with access to resources and support. **Objective:** The aim of this systematic review was to explore the relationship between social capital and access or use of health services by adults. **Material and methods:** Studies were searched in PubMed, Scopus, Web of Science, Lilacs, BBO, Cochrane, and in the gray literature. The quality of the studies was analyzed using the Downs and Black checklist. **Results:** Of the 4815 studies that were evaluated, 14 met the eligibility criteria and were included. Six studies were classified as low risk of bias, six were moderate, and two were high. While social capital seems to be associated with access or use of health services by adults, it was not possible to carry out a meta-analysis to prove these findings, due to the heterogeneity of studies. **Conclusion:** It was not possible to confirm the association investigated here, then it becomes clear the need for a standardization in the design of future studies that will allow comparisons.

## Introduction

During the past few years, some theoretical models have been introduced in public health literature to explain the importance of the social context and its association with the biological and psychological determinants of the health-disease process [5, 22]. Access to health services is one of the determining factors for the health of individuals, and has been presented as one of the elements of health systems related to the organization of services, and refers to availing the service and continuing treatment) [1].

The process of using health services is the result of the interaction between the behavior of the individuals seeking treatment, and the professionals who administer it in the health system [4]. The behavior of individuals is generally responsible for the first contact with the services and the continuity given is also the responsibility of the professionals who receive it [46]. It is important to emphasize that the search for health services involves factors related to individual needs (predisposing, facilitating, and perceived), which are directly influenced by the health system and its social context) [1].

An important factor that guides individuals' perceptions about their health is the characteristic of the community organization that encompasses trust between people, reciprocity patterns, and solidarity networks) [26]. This resource is called social capital, and its definition is broad and open to different interpretations. In general, it is conceptualized as the network of social relations that can provide individuals and groups with access to resources and support) [28, 40]. These characteristics can allow people to act collectively, thereby increasing efficiency in achieving common goals and presenting a better self-perception of health [36, 49].

According to previous studies, social trust, social support, social control, political effectiveness, and social action can be considered as the dimensions of social capital) [3, 47]. Parallel to this, social capital can also be conceived at individual and contextual levels [23]. Individual social capital is related to the resources and support incorporated into the individual's social network, such as social support, person-to-person contact, and social participation) [9]. Contextual social capital can involve resources available in the country, state, and community in which the individual is placed, such as social trust, reciprocity, neighborhood security, neighborhood support, social control, empowerment, and political effectiveness) [19, 23].

Social capital has a positive impact in the health area, as it provides a healthier life by decreasing social exclusion, increasing longevity

and self-esteem, and encouraging community participation in the formulation as well as control of public policies) [32]. Its relationship with access to health occurs through some mechanisms, such as the dissemination of knowledge about health care by social groups) [6, 17]. In this way, it allows the development of coping skills; and increases information and access to local health services [30].

Although studies point to the existence of an association between social capital and access or use of health services) [6, 7, 15, 21, 24, 29, 34, 35, 37, 39, 42, 50, 51] there is no consistent evidence of this association. Thus, this systematic review aimed to answer the following question: "Does social capital is related to access to health services by adults?".

## Material and methods

### Protocol and registration

This study followed the checklist "Meta-analysis of observational studies in Epidemiology" (MOOSE) [44]. The protocol was registered in the base International Prospective Register of Systematic Reviews (PROSPERO), under the n. CRD42018106865, held from March to October 2019, and has been updated to include records up to December 2022.

### Eligibility criteria

The question: "Does social capital is related to access or use of health services by adults?" was answered through the acronym "PEO" [31], wherein (P) stood for "Population" comprising adults; (E) for "Exposition", i.e., social capital; and (O) for "Outcome", i.e., access or use of health services.

### Search strategy and information sources

This systematic review included studies from the following electronic databases: PubMed, Scopus, Web of Science, Latin American and Caribbean Literature in Health Sciences – *Literatura Latino-Americana e do Caribe em Ciências da Saúde* (Lilacs), Brazilian Database of Dentistry – *Bibliografia Brasileira de Odontologia* (BBO), via Virtual Health Library – *Biblioteca Virtual em Saúde* (BVS), and Cochrane Library. There were no restrictions on the date of publication or language. Gray literature was explored based on the System for Information on Gray Literature in Europe (Open Grey) database, as well as ProQuest dissertations, theses, and summaries from the annual conferences of the International Association

for Dental Research (IADR) and Google Scholar. A manual search was also performed on the reference lists of the included studies.

The search strategy (Appendix A) included indexed terms, such as Medical Subject Headings (MeSH) and free keywords that appeared in the titles and abstracts of the studies, combined by the Boolean operators “AND” and “OR”. References were managed using EndNote Basic software (Thomson Reuters, New York, NY, USA).

### Inclusion and exclusion criteria

Observational or clinical trials that assessed social capital related to access to health care in the adult population were included; adults are of 19 through 44 years of age (<https://www.ncbi.nlm.nih.gov/mesh/>). However, publications of personal opinions, editorial letters, pilot studies, reviews in general, qualitative studies, *in vitro*, and descriptive studies, such as case reports and case series, were excluded.

### Study selection and data collection

After removing the duplicates, based on the inclusion criteria, the studies were selected by title and abstract, by two independent examiners (LFAK and JSR). Thereafter, the full texts were obtained, even when the title and the abstract had insufficient information for clear decision making. Subsequently, the texts meeting the inclusion criteria were rated by three reviewers (LFAK, JSR, and MCLG) to confirm eligibility; and disagreements, if any, were discussed to reach mutual consensus. When disagreements persisted, a fourth reviewer (LMW) was consulted to make the final decision. The reasons for full text exclusions are in Supplementary material 2.

For this research, the data were extracted using pre-tested personalized forms.

### Analysis of the risk of bias

This step was performed by two independent evaluators (LFAK and MCLG) who, in the event of disagreement in the score assigned to the items, requested a third evaluator (JSR) for judgment. The level of agreement between the evaluators was kappa = 0,82. The main confoundings in the studies evaluated were the ways of measuring social capital, the variation in the number of participants and the type of services evaluated in the studies.

The risk of bias was assessed for each study according to an adapted version of the Cochrane

Collaboration tool [16] which included the four key domains from Downs and Black's checklist [12] reporting, external validity, internal validity (bias), and internal validity (confounding and selection bias). For that, the instrument was adapted. This tool originally consisted of 27 questions that were apportioned into five subscales: report (10 items), external validity (3 items), internal validity of detailed measurements and result bias (7 items), confounding factors (6 items), and power (1 item). Each of the items forming part of the checklist were assigned scores from 0 to 1, except for the items that evaluated the description of the confounding factors and the study's potency, to which one could attribute up to two points and up to five points, respectively. The instrument's maximum achievable score was 32 points [12].

In the present analysis, 14 questions intended for intervention or cohort studies were removed from the original version. The four key domains finally included were: report (7 items), external validity (2 items), internal validity (bias) (3 items), and internal validity (confusion and selection bias) (1 item). A score was given to the studies, with 14 points being the maximum value attributed.

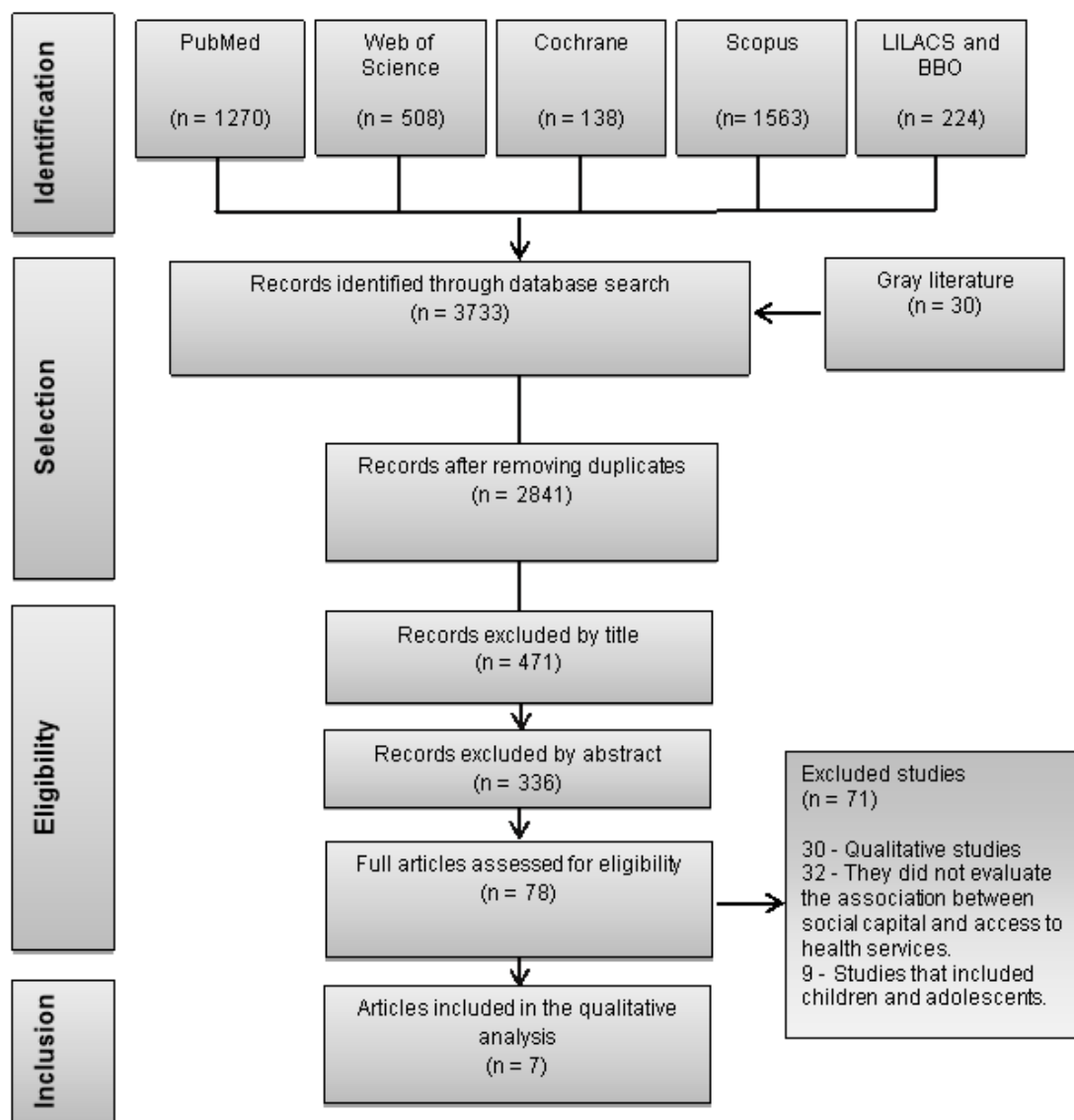
The studies that presented clear reports and information of internal and external validity were considered to have a low risk of bias. When the criteria were not met or could not be determined in all other domains, the study was considered to have a moderate risk of bias; while non-fulfillment of a criterion in the main domains, was considered as a high risk of bias. Thus, the traffic light plot was used as visual method of interpretation of Downs and Black checklist domains.

### Summary of measures and synthesis of results

Through data analysis, the following information was extracted: author /year; country; study design; number of participants (percentage of female subjects); participants' ages; mean and standard deviation (SD); access or use measures and the health services offered; social capital measurement approach (mechanisms); as well as statistical analysis and results. The characteristics and results of the studies were tabulated, and the associations between social capital and access to health were reported. Due to the heterogeneity of the methods of measuring social capital and outcomes, meta-analysis could not be performed.

## Results

Of the 4815 studies identified (figure 1), 43 full texts were assessed for eligibility. This number reduced to 14 [6, 7, 10, 15, 21, 24, 29, 34, 35, 37, 39, 42, 50, 51] after this procedure, and their characteristics are listed in table I.



**Figure 1** – Flowchart of the study method

Of the 14 studies selected, five pertained to the USA [7, 10, 15, 34, 39] three to China [37, 50, 51], and one each, to Brazil [6], Australia [21], Sweden [24], Cameroon [29], Luxembourg [35], and Indonesia [42].

Table 1 – Synthesis of the studies selected for this systematic review (n = 14)

Author (year)	Country	Study design	Number of participants (female individuals%)	Age (in years) of participants Mean (SD) [Variation]	Access measures	Social capital Approach measure (mechanisms)	Statistical analysis	Results
Borges <i>et al.</i> (2018) [6]	Brazil	Cross-sectional	2052 (59.7)	≥ 60 (NR) [NR]	Medical: under medical treatment, frequency, health service used more often (public, insurance or private). Dental: regular visit to the dentist, dental service used more often (public, private, others), dental appointment in the past six months, major dental complaint (pain, prevention, clinical treatment).	Individual social capital measured by The World Bank Integrated Questionnaire (IQ-MSC), questionnaire with six dimensions: Groups and Networks, Trust and Solidarity, Collective Action and Cooperation, Social Cohesion and Inclusion, and Empowerment and Political Action.	Adjusted	Low individual social capital was inversely associated with medical appointment, and positively associated with the lack of regular dental appointments, low community engagement, and low odds of good familiar functionality.
Burr and Lee (2013) [7]	USA	Cross-sectional	2978 (56.0)	74.2 (NR) [65-97]	Going to the dentist for the past two years.	– Social interaction (self-reported frequency of interactions with children, other relatives and friends) – Social participation (self-reported) and feeling of loneliness. – Neighborhood cohesion	Adjusted	Evidence for an association between the use of the dental care service and a variety of indicators of social integration and social support.
Chi and Carpiano (2013) [10]	USA	Cross-sectional	1800 (51.0)	37.9 (10.9) [18-64]	Visit to the dentist for any reason in the last 12 months.	Neighborhood social networks: social support, social leverage, informal social control and participation in groups.	Adjusted	Social support was significantly associated with dental access by adults.

To be continued...



*Continuation of table 1*

Author (year)	Country	Study design	Number of participants (female individuals%)	Age (in years) of participants Mean (SD) [Variation]	Access measures	Social capital Approach measure (mechanisms)	Statistical analysis	Results
Hendryx <i>et al.</i> (2022) [15]	USA	Cross- sectional	19,672 (51.0)	35.4 (NR) [NR]	Necessary medical care received in the last 12 months. – Deselect or postpone necessary medical care in the past 12 months. Health insurance.	Community social capital (six individual elements: Interpersonal trust, feelings of reciprocity, sense of personal effectiveness, sense of personal security, voting behavior and civic engagement).	Adjusted	Social capital is related to improving access to health care.
Kesavayuth <i>et al.</i> (2021) [21]	Australia	Longitudinal	7455 (NR)	64.4 (9.7) [NR]	Number of doctor visits and number of nights in hospital (at least one day) in the last 12 months.	Social interaction.	Adjusted	Social capital is a pathway through which life satisfaction at baseline influences subsequent healthcare usage.
Lindström <i>et al.</i> (2006) [24]	Sweden	Cross- sectional	13,604 (54.0)	NR (NR) [18-80]	Regular consultation with a doctor. Private health service.	Social participation (how the person actively participates in the activities of formal and informal groups in society). – Generalized trust in other people / horizontal trust (perception of generalized trust in other people).	Adjusted	Social capital can explain the individual's lack of access to a doctor regularly.
McTavish and Moore (2015) [29]	Cameroon	Cross- sectional	110 (100.0)	28.5 (6.3) [18-45]	– Number of maternal health care. – Number of times a woman reported seeing a health professional during her last pregnancy. NR.	Social network (average level of education of female networks).	Adjusted	The resources that women can access through their social networks (ie social capital) have been associated with greater assistance to maternal health.

*To be continued...*

Continuation of table I

Author (year)	Country	Study design	Number of participants (female individuals%)	Age (in years) of participants Mean (SD) [Variation]	Access measures	Social capital Approach measure (mechanisms)	Statistical analysis	Results
Nguyen <i>et al.</i> (2011) [34]	USA	Cross-sectional	67 (59.0)	42.2 (13.5) [NR]	Consulted a doctor or received care at a public health clinic. the past six months. Public health service.	Cohesion of the perceived neighborhood.	Adjusted	Higher levels of cohesion in the perceived neighborhood are associated with an increased likelihood of using health services.
Paccoud <i>et al.</i> (2022) [35]	Luxembourg	Cross-sectional	386 (65.0)	42 (NR) [NR]	Healthcare service navigation and optimization.	Social contacts (individual's network).	Adjusted	The impact of discrimination on both health service navigation and optimisation was reduced after accounting for social capital. Higher social capital was associated with better healthcare experience and lower probability of perceived racial discrimination.
Peng <i>et al.</i> (2020) [37]	China	Cross-sectional	456 (55.0)	70.6 (7.3) [NR]	Access to health services integrated by home and community-based service (HCBS).	– Structural social capital: citizenship activity, organization membership, formal volunteering, and social participation. – Cognitive social capital: trust in local community, perceive helpfulness of others, willingness to cooperate with others, and feeling of belonging.	Adjusted	Structural social capital had a direct association with HCBS utilization. Cognitive social capital showed an indirect association with HCBS utilization via structural social capital.

To be continued...

Continuation of table 1

Author (year)	Country	Study design	Number of participants (female individuals%)	Age (in years) of participants Mean (SD) [Variation]	Access measures	Social capital Approach measure (mechanisms)	Statistical analysis	Results
Prentice (2006) [39]	USA	Cross-sectional	2080 (49.0)	NR (NR) [18-64]	Have a regular source of care. – Conducting preventive check-up in the last two years. NR.	Collective neighborhood effectiveness (level of mutual trust between neighbors and perceived norms of reciprocity). Social interaction and functional support (number of friends living in the neighborhood).	Adjusted	Neighborhood environment significantly affects a regular source of care and having it check-up in the past two years.
Santoso <i>et al.</i> (2020) [42]	Indonesia	Cross-sectional	16,860 (51.0)	38.7 (15.2) [NR]	Dental service utilization (last examination, regularity of visits).	Cognitive social capital and Structural social capital.	Adjusted	Non-users were more common in communities living in rural areas, with high cognitive social capital, or low structural social capital. High community structural social capital was associated with dental service utilisation in urban areas.
Yang and Jiang (2021) [50]	China	Cross-sectional	130,642 (47.6)	NR (NR) [22-59]	Access to health education in the past year, and having a health record.	Cognitive social capital and Structural social capital.	Adjusted	Social capital plays an important role in the access of migrant population to National Essential Public Health Services.
Zhao <i>et al.</i> (2022) [51]	China	Cross-sectional	117,108 (NR)	35.9 (10.5) [15-96]	Health records.	Individual's network.	Adjusted	Social capital is a potential pathway influencing the migrants' use of public health services.

Note: USA – United States of America. SD – standard deviation; NR – not reported



Thirteen studies [6, 7, 10, 15, 24, 29, 34, 35, 37, 39, 42, 50, 51] presented a cross-sectional study design, and only one [21] was longitudinal. There was a disparity relating to the number of participants, ranging from 67 [34] to 130,642 [50], with a mean value of 22,5.

The percentage of female participants was specified in twelve studies [7, 10, 15, 24, 29, 34, 39] with a mean of 53.9%. Kesavayuth *et al.* [21] and Zhao *et al.* [51] not reported this data. In the research by McTavish and Moore [29], the sample was composed exclusively of women.

In ten studies [7, 10, 15, 21, 29, 34, 35, 37, 42, 51] it was presented the mean age of the participants, the equivalent to value of 47.2. Borges *et al.* [6] only mentioned that the age of the participants was  $\geq 60$  years. The interval of ranging was the only information regarding the age mentioned by Lindström *et al.* [24], from 18 to 80 years; Prentice [39], from 18 to 64; and Yang and Jiang [50], from 22 to 54.

In nine studies [7, 10, 15, 21, 29, 34, 35, 37, 51] the access to the medical care was evaluated and in three [7, 10, 42] the access to dental services. Borges *et al.* [6] included both, medical and dental access, and Yang and Jiang [50] did not specify this information.

Since the studies included here evaluated social capital in different ways, it is relevant to highlight the instrument's using more than one dimension of analysis. In six studies [7, 10, 15, 34] social capital was assessed through neighborhood cohesion by measuring the dimensions of social trust, reciprocity, cooperation, security, social support, and levels of friendship. Civic engagement and informal social control were analyzed in the studies of Hendryx *et al.* [15], and Chi and Carpiano [10], respectively. Borges *et al.* [6] analyzed the individual social capital, measured by The World Bank Integrated

Questionnaire (IQ-MSQ), a questionnaire comprising six dimensions: Groups and Networks, Trust and Solidarity, Collective Action and Cooperation, Social Cohesion and Inclusion, and Empowerment and Political Action. In turn, Peng *et al.* [37], Santoso *et al.* [42], and Yang and Jiang [50], analyzed cognitive and structural social capital.

Access or use of medical services [15, 21, 24, 34, 39] and dental services [7, 10, 42], or both [6], were surveyed using the number of visits to professionals, with the variation in the frequency of this access being identified between 6 to 24 months. In one study [24] the guiding question about access was compiled by asking about regular consultation with a doctor. McTavish and Moore [29], however, addressed the issue through the care received during the last pregnancy. Paccoud *et al.* [35] investigated healthcare service navigation and optimization, while Peng *et al.* [37] the access or uses of health services integrated by home and community-based service. In two studies the authors considered the existing health records as an indicator of health access [50, 51].

Regarding access or use of health services, seven studies [7, 10, 15, 21, 29, 35, 37, 39] did not report which health system was used by the participants. In the other studies [6, 15, 24, 34, 39, 42, 50, 51] this data was reported with health insurance, private or public health services.

The statistical analysis performed in all the studies varied between multivariate logistic regression [6, 7, 10, 15, 21, 24, 29, 34, 35, 37, 39, 50] and multilevel analysis [15, 39, 42] since adjustments were required to be made.

### Quality of included studies

Table II provides further details on the results of the quality analysis of the studies included in this review.

**Table II** – Synthesis of quality and risk of bias assessment of the studies selected for this systematic review (n = 14)

Author	Risk of bias assessment*				Quality assessment** (Total score)
	Reports? (7 items)	External validity (2 items)	Internal validity bias? (3 items)	Internal validity confounding (selection bias)? (1 item)	
Borges <i>et al.</i> (2018) [6]	?	+	?	+	11
Burr and Lee (2013) [7]	+	+	+	+	13
Chi and Carpiano (2013) [10]	+	+	+	+	13
Hendryx <i>et al.</i> (2022) [15]	?	+	+	+	12
Kesavayuth <i>et al.</i> (2021) [21]	+	+	+	+	13
Lindström <i>et al.</i> (2006) [24]	+	+	+	+	13
McTavish and Moore (2015) [29]	-	-	+	+	10
Nguyen <i>et al.</i> (2011) [34]	+	?	+	+	11
Paccoud <i>et al.</i> (2022) [35]	-	?	?	+	8
Peng <i>et al.</i> (2020) [37]	?	+	?	+	11
Prentice (2006) [39]	+	+	+	?	12
Santoso <i>et al.</i> (2020) [42]	?	+	?	+	11
Yang and Jiang (2021) [50]	+	+	+	+	13
Zhao <i>et al.</i> (2022) [51]	+	+	+	+	13

Low risk of bias . Moderate risk of bias . High risk of bias 

Note: \* Adapted from Cochrane Collaboration (Higgins *et al.*, 2011). \*\* Adapted from Downs and Black (Downs and Black, 1998); ranking scores range from 0 to 13 (higher values indicate superior quality)

It was observed that six studies [7, 10, 21, 24, 50, 51] presented low risk of bias, six [6, 15, 34, 37, 39, 42] presented moderate risk, while two [29, 35] presented a high risk of bias for the key domains.

Burr and Lee [7], Chi and Carpiano [10], Kesavayuth *et al.* [21], Lindström *et al.* [24], Yang and Jiang [50], and Zhao *et al.* [51], presented all the necessary requirements stipulated in the checklist proposed by Downs and Black [12]. Hendryx *et al.* [15] showed bias in the distribution of the main confounding factors in group of individuals, the characteristics of the patients included in the study is not clearly described in the reported domain. For Prentice [39], there was no adjustment in the final

analysis of the data, compromising the domain of confounding bias.

Three studies [6, 37, 42] showed similar results, with bias in the distribution of the main confounding factors in group of individuals, and if the results were based on “data dredging” was not exposed.

The study by Nguyen *et al.* [34] regarding the external validity, received the color yellow (lost two points) in the final results, because it was not possible to determine whether the subjects who had participated in the research were representative of the entire population from which they were recruited. The study of Paccoud *et al.* [35] had the lowest score because the authors did not mention the characteristics of the patients included, as well as it was not clear of the subjects asked to participate in the study were prepared and representative of the entire population. Finally, it was not clear if the data were dredge. McTavish and Moore [29] had the second lowest score, where losses were considered in the domain report, and it was not possible to identify the confidence intervals and/or the “p” values for the main outcomes. Another domain that showed bias was external validity, wherein the research subjects of the studied place, represented a convenience sample (exclusively female), not representative of the entire population.

## Discussion

This systematic review was proposed to enhance understanding of the association between social capital and adult individuals’ access or use of health services. For this purpose, an evaluation of the quality of the included studies was carried out. Despite the indications of the existence of an association in the studies evaluated [6, 7, 10, 15, 21, 24, 29, 34, 35, 37, 39, 42, 50], a conclusive evidence has not been reached.

Various definitions, dimensions and subtypes of investigations, and theories about the relationship between social capital and health have been found in literature [18, 48] which generate a divergence of methods and respective findings. The lack of evidence about the relationship between social capital and health due to the diversity in systematic review studies, has already been reported by other authors [11, 13].

Despite the differences between the studies and their measurement methods, what is common between them and can be understood as the core of all interpretations, is the concept of social capital, that deals with the characteristics of social structure, such as trust, interpersonal aspects, networks,

norms of mutual aid, and reciprocity, which act as resources for individuals and facilitate cooperation and collective action [27].

Among the analyzed studies, the first distinction can be drawn between cognitive and structural social capital. Cognitive capital is related to individuals’ perception of the level of interpersonal trust and satisfaction with relationships, benefits that result from their social networks, and reciprocity rules established for living in the social group [48]. Supported by this concept, the dimensions used in this review to cognitively assess it were: trust, reciprocity, personal effectiveness, security, political behavior, and civic engagement [15, 24, 39, 42, 50]. Structural capital, on the other hand, emphasizes the resources that can be designed by individuals to pursue collective goals [9, 25, 48]. As in the studies selected for this review, structural social capital was weighted through participation in social groups and activities [7, 10, 15, 24, 29, 42, 50].

The mechanisms by which cognitive and structural social capital can influence health occur through social support, as well as through shared principles and habits [18], thus corroborating the results of McTavish and Moore [29], which revealed greater maternal health care for women who had participated in group associations. Likewise, Lindström *et al.* [24] in research with a predominantly female sample, observed that the distinct effect of participation in groups was related to increased access to medical services.

Another distinction made was between social capital and the interaction networks between individuals and groups through horizontal relationships (bonding or bridging) and vertical relationships (linking) [14]. Bonding is characterized by a strong feeling of solidarity, reciprocity, and values within networks or groups with generally similar characteristics [20, 38, 45]. Bridging refers to connections between different ethnic, religious, or occupational groups, who are similar in terms of status and power. Linking refers to the relationships between communities, and formal or institutionalized power, or authorities in society [14, 20, 38, 45].

In relation to characteristics of the groups worked on, the studies in this review presented connections that were horizontal [6, 7, 29, 39] as well as bridge [10, 24, 42, 50, 51]. Although this distinction is important and crucial in some societies, there are no standard questions to measure the bridge and the bond of social capital, and more research is needed to specify the type of social capital to be measured, according to this study’s objectives.

A variation in the concept of social capital occurs through scales, at the individual level (place of work or family) and in the neighborhood, state or nation [9]. In the literature analyzed in this review, Borges *et al.* [6], Kesavayuth *et al.* [21], McTavish and Moore [29], Paccoud *et al.* [35], Peng *et al.* [37], Santoso *et al.* [42], Yang and Jiang [50], and Zhao *et al.* [51], analyzed the social capital on an individual scale, referring to individual variables, family relationships and resources. The results of these studies are very similar, and for example, Borges *et al.* [6] can be mentioned. The authors concluded that low individual social capital was inversely associated with medical appointment, and positively associated with the lack of regular dental appointments. Also, Yang and Jiang [50], and Zhao *et al.* [51], confirmed that social capital plays an important role in the access and use of health services.

In addition to using the individual scale, Burr and Lee [7], Lindström *et al.* [24] and Prentice [39], also aggregated data from the neighborhood. The studies that evaluated social capital only at the neighborhood level were those by Nguyen *et al.* [34], Hendryx *et al.* [15], and Chi and Carpiano [10]. The common feature in these studies was the large number of individuals who composed the samples, except for Nguyen *et al.* [34].

The ways in which neighborhood social capital has an effect on individual health can occur through the spread of information on health-related topics, culminating in access to services [18]. It was noted that this effect was considered positive for Nguyen *et al.* [34], where higher levels of neighborhood cohesion were associated with an increased likelihood of medical access. Prentice [39] also revealed that those surveyed stated that the neighborhood's social capital affected access to primary care, but the specific mechanism for this was not clear. However, the author stated that individuals who lived in neighborhoods with greater residential stability were more likely to have significantly increased access to the doctor, which could be due to increased social interaction between neighbors.

Using a stratified sample composed of 2978 people with mean age of 72 years, Burr and Lee [7], found that individuals with greater social support were less likely to visit a dentist, as in the study by Chi and Carpiano [10]. In terms of access to dental services, the authors pointed out the usefulness of anguish for utilizing resources received with help, to the detriment of the ones judged to be more important, such as other health care or economic issues [7, 10].

Ultimately, Hendryx *et al.* [15] used aggregated data from 22 North American cities, with social capital calculated by averaging six indicators, considering that people living in areas with higher levels of social capital reported fewer problems with access to medical health care.

Despite the smaller number of participants, and the fact that it was carried out with individuals who had greater difficulty in accessing health services due to geographic and ethnic problems, or because they were socioeconomically less favored individuals, the research by McTavish and Moore [29] and Nguyen *et al.* [34], showed positive results from social capital in relation to access to health services. Since social capital is a heritage shared by a community [8], racial and ethnic minorities can directly benefit if engaged as active participants in their communities as a means of investing in their health and using health care [34].

Regarding access to health services, it is opportune to mention both the favorable and unfavorable factors that are known to exist, such as the relation between the behavior of the individual and the professional sought [4, 26] economic, social, and cultural factors [2]; inequality in the distribution of resources [39, 43]; insufficient supply of services [32]; geographical factors [33]; lack of transport; and violence [32], besides lack of knowledge of the health system [34].

In sum, a direct comparison of results between social capital and access to health services is affected by methodological issues, associated with the way the outcome is measured. According to Pattussi *et al.* [36] and Shiell *et al.* [43], since social capital is a complex project composed of several dimensions and components, for using it as a tool, it must be culturally adapted to suit different configurations and variations. Therefore, it is desirable that a consensus is reached among researchers so that the results are standardized, and uniform tools allow for more accurate collections and interpretations, with a view to ensuring the external validity of the results.

The form chosen for presenting data for the synthesis of quality and risk of bias assessment, was one that had already used in another study [41], based on the Cochrane Collaboration [16], for facilitating visual identification by readers.

Finally, when assessing the present study's findings, its limitations should also be considered. Six of the seven studies were conducted in high-income countries, hence, their results cannot be generalized to other low and middle-income settings. Since the studies used different scales or tools for social capital, their outcome measures were not



comparable, and prevented calculating a grouped effect size. New studies with more complex designs are encouraged.

## Conclusion

In sum, although social capital seems to be related to access to health services by the adult population, it was not possible to confirm these findings. A greater consensus must be reached among researchers working with social capital, to have a standardization of methods that generate results that can be analyzed in terms of the components and dimensions of this construct, in different contexts so that, external validity of the results is guaranteed.

## References

1. Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? *J Health Soc Behav.* 1995;36(1):1-10.
2. Bas-Sarmiento P, Fernández-Gutiérrez M, Albar-Marín MJ, García-Ramírez M. Percepción y experiencias en el acceso y el uso de los servicios sanitarios en población inmigrante [Perceptions and experiences of access to health services and their utilization among the immigrant population]. *Gac Sanit.* 2015;29(4):244-51.
3. Bezerra IA, Goes PS. Associação entre capital social, condições e comportamentos de saúde bucal [Association between social capital and oral health conditions and behavior]. *Ciênc Saúde Coletiva.* 2014;19(6):1943-50.
4. Bibiano AMB, Moreira RS, Tenório MMGO, Silva VL. Fatores associados à utilização dos serviços de saúde por homens idosos: uma revisão sistemática da literatura [Factors associated with the use of the health services by elderly men: a systematic review of the literature]. *Ciênc Saúde Coletiva.* 2019;24(6):2263-78.
5. Borde E, Hernández M. Revisiting the social determinants of Health Agenda from the Global South. *Glob Public Health.* 2019;14(6-7):847-62.
6. Borges CM, Souza MCMR, Campos ACV, Oksanen T. Social capital and the use of health services: a cross-sectional study among Brazilian older adults. *Geriatr Gerontol Int.* 2018;12(3):154-58.
7. Burr JA, Lee HJ. Social relationships and dental care service utilization among older adults. *J Aging Health.* 2013;25(2):191-220.
8. Cannuscio C, Block J, Kawachi I. Social capital and successful aging: the role of senior housing. *Ann Intern Med.* 2003;139(5 Pt 2):395-99.
9. Carrillo Álvarez E, Romaní JR. Measuring social capital: further insights. *Gac Sanit.* 2017;31(1):57-61.
10. Chi DL, Carpiano RM. Neighborhood social capital, neighborhood attachment, and dental care use for Los Angeles family and neighborhood survey adults. *Am J Public Health.* 2013;103(4):e88-e95.
11. Coll-Planas L, Nyqvist F, Puig T, Urrútia G, Solà I, Monteserín R. Social capital interventions targeting older people and their impact on health: a systematic review. *J Epidemiol Community Health.* 2017;71(7):663-72.
12. Downs SH, Black N. The feasibility of creating a checklist for the assessment of the methodological quality both of randomised and non-randomised studies of health care interventions. *J Epidemiol Community Health.* 1998;52(6):377-84.
13. Ehsan A, Klaas HS, Bastianen A, Spini D. Social capital and health: a systematic review of systematic reviews. *SSM Popul Health.* 2019;8:100425.
14. Fenenga CJ, Nketiah-Amponsah E, Ogink A, Arhinful DK, Poortinga W, Hutter I. Social capital and active membership in the Ghana National Health Insurance Scheme – a mixed method study. *Int J Equity Health.* 2015;14:118.
15. Hendryx MS, Ahern MM, Lovrich NP, McCurdy AH. Access to health care and community social capital. *Health Serv Res.* 2002;37(1):85-101.
16. Higgins JPT, Altman DG, Gøtzsche PC, Jüni P, Moher D, Oxman AD et al. The Cochrane collaboration's tool for assessing risk of bias in randomised trials. *BMJ.* 2011;343:d5928.
17. Iida H, Rozier G. Mother-perceived social capital and children's oral health and use of dental care in the United States. *Am J Public Health.* 2013;103(3):480-87.
18. Kawachi I, Berkman LF. Social cohesion, social capital, and health. In: Berkman LF, Kawachi I, Glymour M, editors. *Social epidemiology.* New York: Oxford University Press; 2014. p. 290-319.
19. Kawachi I, Subramanian SV. Social capital and health: a decade of progress and beyond. In: Kawachi I, Subramanian SV, editors. *Social capital and health.* New York: Springer; 2008. p. 1-26.

20. Kawachi I. Commentary: social capital and health: making the connections one step at a time. *Int J Epidemiol.* 2006;35(5):989-93.
21. Kesavayuth D, Shangkhum P, Zikos V. Subjective well-being and healthcare utilization: a mediation analysis. *SSM Popul Health.* 2021;14:100796.
22. Kollia N, Caballero FF, Sánchez-Niubó A, Tyrovolas S, Ayuso-Mateos JL, Haro JM et al. Social determinants, health status, and 10-year mortality among 10,906 older adults from the English longitudinal study of aging: the ATHLOS Project. *BMC Public Health.* 2018;18(1):1357.
23. Lamarca GA, Leal MC, Sheiham A, Vettore MV. The association of neighbourhood and individual social capital with consistent self-rated health: a longitudinal study in Brazilian pregnant and postpartum women. *BMC Pregnancy Childbirth.* 2013;13:1.
24. Lindström M, Axén E, Lindström C, Beckman A, Moghaddassi M, Merlo J. Social capital and administrative contextual determinants of lack of access to a regular doctor: a multilevel analysis in Southern Sweden. *Health Policy.* 2006;79(2-3):153-64.
25. Lippman SA, Neillands TB, Leslie HH, Maman S, MacPhail C, Twine R et al. Development, validation, and performance of a scale to measure community mobilization. *Soc Sci Med.* 2016;157:127-37.
26. Loch MR, Souza RKT, Mesas AE, González AD, Rodríguez-Artalejo F. Association between social capital and self-perception of health in Brazilian adults. *Rev Saúde Pública.* 2015;49:1-9.
27. Lochner K, Kawachi I, Kennedy BP. Social capital: a guide to its measurement. *Health Place.* 1999;5(4):259-70.
28. Macinko J, Starfield B. The utility of social capital in research on health determinants. *Milbank Q.* 2001;79(3):387-427.
29. McTavish S, Moore S. On est ensemble: social capital and maternal health care use in rural Cameroon. *Glob Health.* 2015;11:33.
30. Mohseni M, Lindstrom M. Social capital, trust in the health-care system, and self-rated health: the role of access to health care in a population-based study. *Soc Sci Med.* 2007;64(7):1373-83.
31. Moola S, Munn Z, Sears K, Sfetcu R, Currie M, Lisy K et al. Conducting systematic reviews of association (etiology): the Joanna Briggs Institute's Approach. *Int J Evid Based Healthc.* 2015;13(3):163-9.
32. Moore S, Kawachi I. Twenty years of social capital and health research: a glossary. *J Epidemiol Community Health.* 2017;71(5):513-7.
33. Nemet GF, Bailey AJ. Distance and health care utilization among the rural elderly. *Soc Sci Med.* 2000;50(9):1197-208.
34. Nguyen DD, Ho KH, Williams JH. Social determinants and health service use among racial and ethnic minorities: findings from a community sample. *Soc Work Health Care.* 2011;50(5):390-405.
35. Paccoud I, Nazroo J, Leist AK. Region of birth differences in healthcare navigation and optimisation: the interplay of racial discrimination and socioeconomic position. *Int J Equity Health.* 2022;21:106.
36. Pattussi MP, Moysés SJ, Junges JR, Sheiham A. Capital social e a agenda de pesquisa em epidemiologia [Social capital and the research agenda in epidemiology]. *Cad Saúde Pública.* 2006;22(8):1525-46.
37. Peng C, Burr JA, Kim K, Lu N. Home and community-based service utilization among older adults in urban China: the role of social capital. *J Gerontol Soc Work.* 2020;63(8):790-806.
38. Poortinga W. Community resilience and health: the role of bonding, bridging, and linking aspects of social capital. *Health Place.* 2012;18(2):286-95.
39. Prentice JC. Neighborhood effects on primary care access in Los Angeles. *Soc Sci Med.* 2006;62(5):1291-303.
40. Putnam RD, Leonardi R, Nonetti RY. Making democracy work: civic traditions in modern Italy. Princeton: Princeton University Press; 1993.
41. Rocha JS, Arima LY, Werneck RI, Moysés SJ, Baldani MH. Determinants of dental care attendance during pregnancy: a systematic review. *Caries Res.* 2018;52(1-2):139-52.
42. Santoso CMA, Bramantoro T, Nguyen MC, Bagoly Z, Nagy A. Factors affecting dental service utilisation in Indonesia: a population-based multilevel analysis. *Int J Environ Res Public Health.* 2020;17(15):5282.
43. Shiell A, Hawe P, Kavanagh S. Evidence suggests a need to rethink social capital and social capital interventions. *Soc Sci Med.* 2020;257:111930.
44. Stroup DF, Berlin JA, Morton SC, Olkin I, Williamson GD, Rennie D et al. Meta-analysis of observational studies in epidemiology: a proposal for reporting. *JAMA.* 2000;283(15):2008-12.



45. Szreter S, Woolcock M. Health by association? Social capital, social theory, and the political economy of public health. *Int J Epidemiol.* 2004;33(4):650-67.
46. Travassos C, Martins M. Uma revisão sobre os conceitos de acesso e utilização de serviços de saúde [A review of concepts in health services access and utilization]. *Cad Saúde Pública.* 2004;20(Suppl. 2):190-8.
47. Vial EA, Junges JR, Olinto MTA, Machado PS, Pattussi MP. Violência urbana e capital social em uma cidade no Sul do Brasil: um estudo quantitativo e qualitativo [Urban violence and social capital in a Southern Brazilian city: a quantitative and qualitative study]. *Rev Panam Salud Publica.* 2010;28(4): 289-97.
48. Villalonga-Olives E, Kawachi I. The measurement of social capital. *Gac Sanit.* 2010;29(1):62-4.
49. Wickes R, Hipp JR, Sargeant E, Mazerolle L. neighborhood social ties and shared expectations for informal social control: do they influence informal social control actions? *J Quant Criminol.* 2017;33(1):101-29.
50. Yang Z, Jiang CH. Impact of social capital, sex, and education on the utilization of public health services: a cross-sectional study based on the China migrant dynamic survey. *BMC Public Health.* 2021;21(1):751.
51. Zhao Q, Xu S, Aziz N, He J, Wang Y. Dialect culture and the utilization of public health service by rural migrants: insights from China. *Front Public Health.* 2022;10:985343.

**Appendix A – Electronic database and search strategy**

<b>PubMed</b>	
#1((((("Health Services Accessibility"[Title/Abstract]) OR "utilization health care"[Title/Abstract]) OR "care-seeking behavior"[Title/Abstract]) OR "health care access"[Title/Abstract]) OR "utilization of health services"[Title/Abstract]) OR "utilization of health services"[Title/Abstract]) OR "Service utilization"[Title/Abstract]) OR "health services utilization"[Title/Abstract]) OR "Health services use"[Title/Abstract]) OR "healthcare utilization"[Title/Abstract])	#2 ((((((Social capital[MeSH Terms]) OR social support[MeSH Terms]) OR social isolation[MeSH Terms]) OR "social capital"[Title/Abstract]) OR "social support"[Title/Abstract]) OR "Social Isolation"[Title/Abstract]) OR "neighborhood social capital"[Title/Abstract]) OR "Individual social capital"[Title/Abstract]) OR "emotional support"[Title/Abstract]) OR "social network"[Title/Abstract]) OR "social cohesion"[Title/Abstract]) OR "psychosocial support"[Title/Abstract]) OR "community capital"[Title/Abstract]) OR "neighborhood cohesion"[Title/Abstract]) OR "informal social control"[Title/Abstract]) OR "neighborhood disorder"[Title/Abstract]) OR "social disorganization"[Title/Abstract]) OR "social disorganisation"[Title/Abstract]) OR "bonding social capital"[Title/Abstract]) OR "bridging social capital"[Title/Abstract])
#1 AND #2	
<b>Scopus</b>	
#1 ((TITLE-ABS-KEY("Utilization health care") OR TITLE-ABS-KEY("Care seeking behavior") OR TITLE-ABS-KEY("health care access") OR TITLE-ABS-KEY("utilization of health services") OR TITLE-ABS-KEY("Service utilization") OR TITLE-ABS-KEY("health services utilization") OR TITLE-ABS-KEY("Health services use") OR TITLE-ABS-KEY("Healthcare utilization"))))	#2((TITLE-ABS-KEY("Social capital") OR TITLE-ABS-KEY("social support") capital") OR TITLE-ABS-KEY("neighborhood social capital") OR TITLE-ABS-KEY("emotional support") OR TITLE-ABS-KEY("social network") OR TITLE-ABS-KEY("social cohesion") OR TITLE-ABS-KEY("psychosocial support") OR TITLE-ABS-KEY("community capital") OR TITLE-ABS-KEY("neighborhood cohesion") OR TITLE-ABS-KEY("Social Isolation") OR TITLE-ABS-KEY("Individual social -KEY("informal social control") OR TITLE-ABS-KEY("neighbourhood disorder") OR TITLE-ABS-KEY("social disorganization") OR TITLE-ABS-KEY("bonding social capital") OR TITLE-ABS-KEY("bridging social capital")))) AND (LIMIT-TO EXACTKEYWORD, "Adult"))
#1 AND #2	
<b>Web of Science</b>	
#1Topic:TOPIC: ("Health Services Accessibility") ORTOPIC: ("Utilization health care") ORTOPIC: ("Care seeking behaviour") ORTOPIC: ("health care access") ORTOPIC: ("utilization of health services") ORTOPIC: ("Service utilization") ORTOPIC: ("health services utilization") ORTOPIC: ("Health services use") ORTOPIC: ("Healthcare utilization") Indexes=CSI-EXPANDED, SCSi, AandHCI, CPCI-S, CPCI-SSH, ECSI Timespan=All years	#2 Topic:TOPIC: ("Social capital") OR TOPIC: ("Utilization health care") OR TOPIC: ("social support") OR TOPIC: ("Social Isolation") OR TOPIC: ("Individual social capital") OR TOPIC: ("neighborhood social capital") OR TOPIC: ("emotional support") OR TOPIC: ("social network") OR TOPIC: ("social cohesion") OR TOPIC: ("psychosocial support") OR TOPIC: ("community capital") OR TOPIC: ("neighbourhood cohesion") OR TOPIC: ("informal social control") OR TOPIC: ("neighbourhood disorder") OR TOPIC: ("social disorganization") OR TOPIC: ("bonding social capital") OR TOPIC: ("bridging social capital") Indexes=CSI-EXPANDED, SCSi, AandHCI, CPCI-S, CPCI-SSH, ECSI Timespan=All years #3 Topic: #2 AND #1 Indexes=CSI-EXPANDED, SCSi, AandHCI, CPCI-S, CPCI-SSH, ECSI Timespan=All years
#1 AND #2 AND #3	

**LILACS and BBO**

#1 (mh:(“Health Services Accessibility”)) OR  
(tw:(“Accesibilidad a los Servicios de Salud”))  
OR (tw:(“Acesso aos Serviços de Saúde”)) OR  
(tw:(“utilizationhealthcare”)) OR (tw:(“utilização  
de serviços de saúde”)) OR (tw:(“utilización de  
servicios de salud”)) OR (tw:(“healthcareaccess”))  
OR (tw:(“acesso a serviços de saúde”)) OR  
(tw:(“acceso a lasalud”))

#2 (mh:(“Social capital”)) OR (tw:(“Capital Social”))  
OR (mh:(“social support”)) OR (tw:(“Apoyo Social”)) OR  
(tw:(“Apoio Social”)) OR (mh:(“Social Isolation”)) OR  
(tw:(“Aislamiento Social”)) OR (tw:(“Isolamento social”))  
OR (tw:(“informal social control”)) OR (tw:(“Controles  
Informales de la Sociedad”)) OR (tw:(“Controles Informais  
da Sociedade”))enfermeria” OR Medicos OR MH: “Medicos  
assistentes” OR “Assistentes médicos”

#1 AND #2

**Cochrane Library**

#1 (“utilization of health services”):ti,ab,kw  
OR (“Service utilization”):ti,ab,kw OR (“health  
services utilization”):ti,ab,kw OR (“Health  
services use”):ti,ab,kw AND (“healthcare  
utilization”):ti,ab,kw  
#2 (“Health Services Accessibility”):ti,ab,kw OR  
 (“Health Services Accessibility”):ti,ab,kw OR  
 (“utilization health care”):ti,ab,kw OR (“care  
seeking behaviour”):ti,ab,kw OR (“health care  
access”):ti,ab,kw  
#3 (“utilization of health services”):ti,ab,kw  
OR (“Service utilization”):ti,ab,kw OR (“health  
services utilization”):ti,ab,kw  
#4 #1 OR #2 OR #3

#5MeSHdeCSriptor: [Social Capital] explode all trees  
#6MeSHdeCSriptor: [Social Support] explode all trees  
#7MeSHdeCSriptor: [Social Isolation] explode all trees  
#8 “social capital”:ti,ab,kw OR (“social support”):ti,ab,kw  
OR (“Social Isolation”):ti,ab,kw OR (“neighborhood social  
capital”):ti,ab,kw OR (“Individual social capital”):ti,ab,kw  
#9 (“emotional support”):ti,ab,kw OR (“social  
network”):ti,ab,kw OR (“social cohesion”):ti,ab,kw OR  
 (“psychosocial support”):ti,ab,kw OR (“community  
capital”):ti,ab,kw  
#10MeSHdeCSriptor: [Health Services Accessibility]  
explode all trees  
#11 #5 OR #6 OR #7 OR #8 OR #9

#4 AND #11