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Mental health impact of social capital interventions: a systematic review

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Abstract

Purpose—Mental disorders are a major contributor to the global burden of disease and disability, and can be extremely costly at both individual and community level. Social capital, (SC) defined as an individual's social relationships and participation in community networks, may lower the risk of mental disorders while increasing resilience capacity, adaptation and recovery. SC interventions may be a cost-effective way of preventing and ameliorating these conditions. However, the impact of these SC interventions on mental health still needs research.

Methods—We conducted a systematic review of SC-based interventions to investigate their effect on mental health outcomes from controlled, quasi-experimental studies or pilot trials. We searched twelve academic databases, three clinical trials registries, hand-searched references and contacted field experts. Studies' quality was assessed with the Cochrane Risk of Bias tools for randomized and non-randomized studies.

Results—Seven studies were included in the review, published between 2006 and 2016. There was substantial heterogeneity in the definitions of both SC and mental disorders among the studies, preventing us from calculating pooled effect sizes. The interventions included community engagement and educative programs, cognitive processing therapy and sociotherapy for trauma survivors, and neighbourhood projects.

Conclusions—There are paucity of SC interventions investigating the effect on mental health outcomes. This study showed that both SC scores and mental health outcomes improved over time but there was little evidence of benefit compared to control groups in the long term. Further high-quality trials are needed, especially among adverse populations to assess sustainability of effect.

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Compliance with ethical standards

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

Keywords

Social capital; Psycho-social intervention; Mental health; Well-being; Systematic review

Introduction

Common mental disorders, comprising depression, anxiety and substance use disorders are one of the main causes of the global burden of disease [1]. They cause significant disability globally, directly accounting to 7.4% of disability-adjusted life years and 22.9% of all years lived with disability, in high, middle- and low-income countries [2] and can be extremely costly to the individual, their families, their communities and health systems [3]. They often have a chronic-recurrent course despite accessing treatment [4]. Even with the existing cost-effective interventions in mental health, there is limited implementation and a lack of human resources to effectively reach most deprived areas, where services for prevention and recovery are still required [2].

Poor mental health is associated with poorer physical health [5], social exclusion and negative economic impact [6], can lead to impaired economic development [7] and decreased social capital (SC) [8].

SC is a complex construct with distinct components, and can be understood as an inherent cohesive force that enables collective action within populations [9, 10]. For the purpose of this review we followed the definition of SC used by Robert Putnam, which highlights SC as an invaluable resource for the public as it “represents the characteristics of social organization, networks, rules, and trust that facilitate coordination and cooperation for mutual benefit” [9]. The nature of this construct was classified in sets of components: “SC is multifaceted and has two main components: The structural component which “reflects the nature and intensity of an individual’s participation in community networks; and the cognitive component which refers to the perceived quality of an individual’s social relationships” [11]. For measurement purposes, its components have been classified in attributes that can be assessed with quantitative tools [12]. “Structural (participatory) SC refers to relationships, networks, membership, organizations, associations and institutions that may link groups or individuals together. Cognitive (perceived) SC refers to values, norms, attitudes, beliefs, civic responsibility, altruism and reciprocity within a community” [13]. There is still no universal measurement for SC due to its multidimensional composition and collective factors. It can be measured both at the individual and ecological level [14].

Social capital and mental health

The “social psychology of participation” has been established [15] as the process involved in the functioning of community participation, with three factors: SC, social identity and social representation. There is strong evidence that shows how social relationships, group memberships and social identities provide a beneficial impact, by protecting population’ mental health while having an impact on psychological well-being [16–19]. Although not every group membership will provide psychological resources to its affiliates, the ones with whom the individuals choose to identify and internalize as being psychologically influential

for them, will become part of their social identity. This process will strongly influence the individuals to invest in the creation and management of SC, effectively utilizing the beneficial psychological means that said membership provides [20, 21]. Still, the complex association of SC, well-being, health determinants [22] and contextual factors remain under investigation by researchers [23–26]. The main obstacle to determining a causal relationship between SC and mental health has been the lack of controlled, prospective studies [27, 28]. A high level of SC within a community has been shown to be a beneficial, supportive attribute for its members in the majority of cases [10, 12, 14, 28–30]. However, only a small number of experimental studies have successfully shown that strengthening of SC leads to improvement in health outcomes [31–33]. A few studies obtained preliminary results that cannot be readily extrapolated to the general adult population or larger communities [34, 35]. In addition to these examples, the available experimental studies of SC manipulation with associated mental health outcomes is even scarcer, despite the evidence of beneficial protective results obtained through longitudinal and cross-sectional studies [36–38]. Particularly in low- and middle-income countries, where between 76 and 85% of mental disorders remain untreated [39] there is a need of interventions to prevent mental disorders and to build resilience that can be administered at the community level. A recent systematic review recommended the development of interventions aimed at improving SC and considered it as a cost-effective way of preventing common mental disorders, and indicated that initiatives focusing on increasing the cognitive component of SC can act as a protective factor against the development of mental disorders in the long term [13]. This is, especially important in the context of poverty, [8, 40] structural conflict, humanitarian crisis [41] or disasters [42–45]. SC may have a significant influence on the capacity of local communities to adapt to sudden environmental events such as flooding, drought, the ongoing climate change effects [46–48] or other environmental disasters [49–51]. SC can strengthen the trust between communities and local authorities, enabling better coordination of preventive and reconstructive efforts [52, 53] with social support measures [54]. Challenging contexts need replicable and community-based interventions that boost SC and which can be adapted and implemented in different settings to reinforce good mental health and improve recovery, resilience capacity and community well-being.

However, there are currently few longitudinal, controlled studies of high-quality SC interventions. Some of the existing studies have heterogeneous designs and outcomes, and some obtained conflicting results [55, 56]. Previous systematic reviews on SC and mental health outcomes in the general population applied heterogeneous SC measures. In addition, the evidence, which was obtained, was mainly from high-income countries and many types of study designs were considered. One recent systematic review, published in 2015 by Ehsan and De Silva [13] focused its search on quantitative studies examining the direct association between SC and common mental disorders in adults, and included 31 cross-sectional and 8 cohort studies. They found conclusive evidence of the direction of the association between the different SC types and common mental disorders. However, their focus was not on controlled designs in SC interventions, and the search dates (up to July 2014) justify a more up-to-date review. Another previous systematic review (Nyqvist et al. 2013) [57] searched for quantitative studies of SC and mental well-being in older adults specifically, and included 11 studies. All of them were cross-sectional, and no mental health outcomes were

considered. A more recent systematic review, published in July 2017 by Coll-Planas et al., [58] searched for the impact of SC interventions on health outcomes in older populations. Although it did not focus only on mental health assessments and the included population were older than 65 years old, their results support the positive potential of SC interventions on population's mental health. These results highlight the need for additional research, as, despite the positive findings obtained so far, they do not allow us to unravel the complex associations between SC and mental health, as the included studies in these reviews were not exclusively prospective, or experimental. Most of the published literature currently available on this topic consists of cross-sectional studies, which do not allow us to establish causality. Based on current recommendations, there is enough evidence to support the use of SC interventions related to mental health protection, but most of it will be based on observational studies. This will be the first systematic review to explicitly evaluate the impact of SC-based interventions on mental health outcomes among the adult general population. In this context, we conducted a systematic review of the literature of controlled, quasi-experimental or pilot studies that attempted to build or strengthen SC components with an intervention that will also improve mental health outcomes in adults, to review and assess their nature and effectivity. This information will be useful for the design or adaptation of future SC interventions aimed at preventing and ameliorating mental disorders.

Methods

This review was written in accordance with the PRISMA guidelines [59]. The aim of this review was to identify controlled studies, including quasi-experimental and pilot trials, which assessed the effects of a SC intervention on mental health outcomes in an adult population in any setting. With the support of a librarian and a Cochrane collaborator, a comprehensive search strategy (Appendix A of the electronic supplementary material) was developed with search terms tailored to 12 academic databases: CENTRAL (from 1966 onwards The Cochrane Library July 2017), MED-LINE (1946 to July Week-1 2017), EMBASE (1980 to 11 Jul 2017), PsycInfo (1806 to July 2017 Week-1), Global Health (1910 to 2017 Week-26), Social Science Citation Index (1970 to July 2017), Sociofile (from 1974 onwards 19 July 2017), World Bank e-library (1978–2017), LILACS (1981–2017), Health Management Information Consortium (1979–2017), IBSS—PROQUEST (1987–2017) and CAB Abstracts (1910–2017). Additionally, the WHO International Clinical Trials Registry Platform, The EU Clinical Trials Registry and the US Clinical Trials Register were searched. Reference lists of all relevant retrieved articles were hand-searched, including study protocols, meta-analyses and systematic reviews. Finally, corresponding authors from other systematic reviews were contacted to obtain suggestions for additional articles. No language restrictions were applied for this search.

Taking into account different definitions used to describe SC and its multi-dimensional nature, we employed a wide range of terms to ensure the inclusion of all relevant studies, such as “social organization”, “social cohesion”, “community (or neighborhood) participation” or “social networks”. As per the inclusion and exclusion criteria (Appendix B of the electronic supplementary material) papers were also included which classified Mental and behavioural disorders as defined in ICD-10 (F-cat) [60] or DSM-V [61] respectively, and had to be measured using a validated tool.

Study selection

The first author (ECF) screened the titles and abstracts of all retrieved articles and those from additional sources, and initially assessed them against the outlined inclusion and exclusion criteria of this review. Additionally, 20% of the studies were independently double-screened by a second reviewer (AMB). Both reviewers selected and agreed on the articles to be assessed in full text. Any disagreements on the selection after full-text review were solved by a third reviewer (ALG). All selected studies had to include a SC-based intervention that complies with the components and dimensions of the following definition: “Any intervention which seeks to either create or increase group connection, and/or cooperation within and between community members, with the intention of strengthening the social connection that elicits mutual feelings of trust, reciprocity, and recognition of shared identity and/or increases access to shared information and resources within and between its members for mutual benefits”. We included interventions which intended to improve mental health outcomes of study participants and excluded interventions which were administered solely on the basis of training or as supplementary interventions to other treatment programs. Mutual aid or support groups which were not delivered as an intervention were excluded, as well as studies where the assessments only relied on retrospective self-report surveys. The quality of the selected studies was evaluated using the Cochrane Collaboration’s tools for assessing risk of bias in randomized and non-randomized studies [62, 63]. Risk of bias for other study designs was assessed both at the design (e.g. allocation concealment) and outcome assessment level (e.g. loss of follow-up of participants). The studies were too heterogeneous to enable a meta-analysis; therefore, a narrative synthesis is presented here.

Results

Figure 1 presents a flowchart of the eligibility process for this review. Ultimately, seven studies were included in the review (see main results in Tables 1 and 2). All the studies measured SC components in adults and followed them up to see whether their initial assessment changed over time, in addition to mental health, well-being and additional health outcomes. The shortest follow-up period was 2 months and the longest was 42 months, with an average of 12.5 months. Six studies assessed individual SC, while only one quasi-experimental study assessed it at the ecologic level.

Intervention effect on cognitive and structural social capital

Five studies measured the cognitive components of SC or proxies at the individual level, with mixed results: one quasi-experimental study [64] found no statistically significant change in cognitive SC at the end of the intervention (after 3 months) and at follow-up (at 8 months). A cluster-randomized controlled trial [65] found a statistically significant difference and improvement in the collective efficacy proxy at the end of its follow-up period (after 42 months). A non-randomized pilot study [66] did not find a sustainable effect on the increase of cognitive SC proxies’ measurements at the 6-month follow-up. A small randomized control trial [67] found a significant positive effect on the assessed proxy at the 6-month follow-up. And finally, a quasi-experimental study, conducted in a specific

aboriginal population found significant differences in cognitive SC proxies, which persisted at the 18-month follow-up assessment [68].

Regarding the structural component of SC, six studies that measured SC or associated proxies at individual level also found mixed results. A randomized controlled trial [69] which only assessed structural SC in women survivors of sexual violence found a significant difference in SC scores measured between the two allocation arms at 6 months follow-up. The small randomized trial [67] with the same follow-up period, found significant differences in some of their measured indicators, but did not obtain significant differences in other related indicators (as social network scores) at follow-up. From the other studies, a non-randomized pilot [66] and a large cluster-randomized trial [65] did not find significant differences in their assessed structural SC proxies at follow-up. Finally, one quasi-experimental study, conducted in post-conflict population, found a significant positive effect in its structural SC proxy assessment at 8-month follow-up.

An ecological SC intervention [70] which had the shortest follow-up period among the included studies, found a significant positive effect for both components of SC at 2 months follow-up.

Effect on mental health outcomes

Mental health outcomes and measurement tools reported in the included studies were also heterogeneous: two studies [66, 69] measured depression and anxiety symptoms among other outcomes, three assessed mental well-being [65, 67, 70] another measured mental health risks and well-being as well as resilience, and one study evaluated self-reported mental health scores. Six of the seven included studies obtained positive mental health results post-intervention and at the follow-up assessment. Only one study [65] did not find significantly different improvement in mental health outcomes among participants in the intervention group (Table 2).

Quality assessment of included studies

Generally, studies were of high-to-moderate quality, presenting a high risk of bias in at least one domain in the Cochrane Risk of Bias Assessment tool (Figs. 2, 3). All seven studies failed to specify whether outcome assessment occurred under blinded circumstances, and five did not report whether the participants or staff related to the intervention were blind to the group allocation. Due to ethical reasons and community decision, there was self-allocation in one of the quasi-experimental studies [68]. In five studies, it was unclear whether the method used to conceal the allocation to treatment groups prevented either participants or investigators from seeing the allocation in advance, and two studies had a high risk of bias in the same category. Finally, for three studies an uncertain risk of bias was assigned due to incomplete outcome data and the unknown impact of high attrition rates reported by the authors.

Discussion

This review cannot provide enough evidence that SC interventions for adult populations should be recommended as a preventive measure for mental disorders at the individual or

ecological level, despite promising results obtained in most of the included studies. In addition, in cases where the intervention was delivered as a stand-alone procedure, there is not enough evidence that the positive effects on mental health outcomes are sustained in the medium or long term [70]. Unfortunately, the lack of suitable comparable studies restricted a more detailed comparability across studies. Despite these findings, four studies [66–69] obtained statistically significant results for both SC and mental health outcomes measured at the individual level, which were sustained at the follow-up period. Recommendations should be cautious regarding their external validity, as other studies obtained conflicting results [64, 65]. These interventions, if replicated in larger controlled randomized trials with allocation blinding for participants or research staff may provide stronger evidence for public health policies.

Two studies conducted in Africa included special populations [64, 69] (survivors of sexual violence and post-conflict survivors) and their interventions were locally and culturally adapted. Similarly, these interventions may not be readily generalizable to other settings without proper validation and adaption. Another study in Australia [66] was targeted at socially isolated and affectively disturbed adults in an urban setting, which will also limit its generalizability for other population groups.

Referring to the available literature, we cannot assume that all interventions that strengthen or build SC components in different settings will automatically translate into improved community well-being and better health outcomes [71]. The influence of additional contextual factors should be taken into account as they may negatively influence the expected effect of SC in different communities. This is, especially important when developing new interventions. Some studies in low- and middle-income countries found that, SC components have a marginal role in the explanatory mechanisms for poor mental health compared to other contextual factors like violence or poverty [72, 73]. Also, in the study conducted by Wolf et al. [74] the expected positive effect in adaptation readiness to an environmental hazard of SC in the affected community was not found, therefore, additional explanatory factors should be taken into account for future research undertaken in similar settings.

SC is a complex construct and made up of multiple dimensions and components, therefore, its measurement tool must be culturally adapted to be appropriate for different settings and populations. The interdependence of the social components between and within communities will assign a different weight, influence and importance to each component, comparing their assessments in different regions or cultural settings.

Two of the included studies of this review, should be highlighted for their interesting designs, and some of their design components should be considered for future research. The first was a quasi-experimental study in the USA [70] with an ecological intervention to build SC components, which emphasized community participation in the decision to build selected elements that the residents desired or needed in their neighborhoods, while providing opportunities for participant's discussion and expert's consultancy, coupled with volunteer work. Secondly, a pilot trial in Australia [66] aimed to develop a social identity map for self-reported socially isolated participants. It was a short but intensive program, which

successfully promoted cognitive components of SC in a small group of participants. Both studies showed positive change in SC components and improved mental health scores. These studies are good examples on the feasible delivery of SC-based interventions at both the individual and ecological level. Taking into complex and changing environments, especially in deprived communities, we believe that a successful approach to building or strengthening SC and ameliorating negative mental health outcomes would require two separate approaches at two different levels: First, the participants will need to reach self-awareness of their own social mapping and assess their own useful resources, and second, should aim for improvement of their social ties and tangible changes in an ecological setting. A past systematic review has also highlighted the need to have evidence from mixed-methods studies to obtain more information of the temporal and spatial meanings assigned to key terms of SC [75]. Consensus needs to be reached among researchers on the standardized outcomes and tools that will be used to assess SC components and dimensions across contexts to ensure external validity of results. Our study has several limitations that should be taken into account when evaluating its findings. Five out of seven studies were conducted in high-income countries, so their results may not be generalizable to other low- and middle-income settings. Studies were not comparable in their outcome measurements and used different scales or tools for mental health and SC, which prevented us from calculating a pooled effect size. Also, the first author single-screened all identified studies and double screening occurred in 20% of the originally identified references only and we cannot exclude the possibility that our search strategies missed eligible trials.

Despite these limitations, this review is the first to identify SC-based controlled interventions, which have both an effect on mental health outcomes and in the building or strengthening of SC components. Our review highlights the need to reach consensus on standardized measures and tools which are applicable across contexts. Ideally, interventions should employ SC approaches at both ecological and the individual level, drawing on the different dimensions and components of SC that have proven to ameliorate mental health problems. We believe this topic is important and has promising evidence to be considered as an add-on component in a complex intervention that provides mental health support, as well as fostering community engagement. There is dearth of evidence; therefore, this review highlights the need to develop SC-based interventions, which have an effect on mental health outcomes in controlled, high-quality studies. This would especially benefit communities which require the building or re-building of local assets, re-organization and strengthening of partnerships in locations affected by adversity such as environmental disasters.

SC-based interventions show promising beneficial results on mental health [13, 14, 58, 76]. Its potential still needs to be confirmed by robust trial designs with appropriate allocation concealment, double blinding of participants to ensure generalization of these results. It would also be desirable to standardize the SC definitions and measurements, to allow better outcome evaluations and comparisons in the mental health research field. Finally, taking into account implementation and delivery of complex SC interventions, future studies need to consider additional measures to motivate participants' adherence to the study and follow-up assessments, to prevent high attrition rates and loss to follow-up reported in some studies.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Fig. 1.
Study selection. *More than one exclusion criteria was considered for some of the studies

	Blinding of participants and personnel (performance bias)	Blinding of outcome assessment (detection bias)	Incomplete outcome data (attrition bias)	Selective reporting (reporting bias)	Other bias	Random sequence generation (selection bias)	Allocation concealment (selection bias)
Hall 2014	?	-	+	+	+	?	?
Haslam 2016	-	-	?	+	+	-	-
Phillips 2014	-	-	?	+	+	+	?
Saito 2012	?	+	+	+	-	+	-
Semenza 2006	-	-	+	+	+	?	?
Sun 2016	-	?	+	+	?	-	?
Verduin 2014	-	-	?	+	+	+	?

Fig. 2.
Risk of bias—summary of included studies

Fig. 3.
Risk of bias—graph percentages across included studies

Table 1

General characteristics of studies included in the review ($n = 7$)

Author, date, country	Design	Population (age), sample	Intervention	Control group
Hall, J. 2014, DRC	RCT	Survivors of sexual violence. Women (18), $N = 405$	Locally adapted cognitive processing therapy (CPT) delivered by trained psychosocial assistants: 1-hour individual session and 11 weekly 2-hour group sessions (6–8 people)	Individual support services
Haslam, C. 2016, Australia	Non-Randomized pilot	Socially isolated and affective disturbed persons. Adults (18), $N = 158$	G4H program: Manualized 5-module-pilot (60–75 min each, 5–8 people) delivered: 4 weekly (Schooling, Sourcing, Scaffolding) booster session after 1 month (Sustaining)	TAU
Phillips, G. 2014, UK	Cluster RT	Deprived urban communities. Adults (16), $N = 3986$	Well London program: multicomponent, community engagement program for improving mental well-being and health-related behaviours. Phase 1: 14 interlinked projects developed and delivered in 20 deprived neighbourhoods (coproduction approach). Projects focussed on: health and social outcomes, ecological improvement of local environment, cultural activities, and improvement of employment/training opportunities	TAU
Saito, T. 2012, Japan	RCT	Relocated within last 2 years in the study city. Older Adults (66–84), $N = 63$	Group-based educational, cognitive and social support program designed to prevent social isolation by improving community knowledge and networking. Four 2-h sessions, bi-weekly at a public facility, involving social acquaintance of participants and staff, focus group discussions, awareness of own needs and interests, individual meetings with community gatekeepers, and a city sightseeing tour of city's public facilities and historical places	Waiting list
Semenza, J. 2006, USA	Quasi-experimental	Low- and middle-income urban communities. Adults (21), $N = 409$	Community development strategy, followed by social activities to promote bonding and SC. Subsequently, development of community-design 3 neighbourhood group projects, through workshops with oversight and support of related professionals, municipality and organizations	No control group
Sun, J. 2016, Australia	Quasi experimental	Aboriginal and Islander people with a mental health condition or chronic risk factor. Adults (18), $N = 235$	“Voices United for Harmony”, community-based singing activity intervention conducted and coordinated through local aboriginal Community Controlled Health Services (CCHSs) representatives. Weekly group rehearsal sessions for 2 h with 15-min break for social interaction and encouragement to individually rehearse at home	Waiting list
Verduin, F. 2014, Rwanda	Quasi-experimental	Post-conflict survivors. Adults (16) $N = 200$	Sociotherapy programme aiming to promote SC. Forty-five simultaneously run, mixed working groups guided by trained community leaders. Meetings followed six phases of sociotherapy: safety, trust, care, respect, rules and memories. Intervention employed debates, exchange of experiences and coping strategies among participants, exercises, games and mutual practical support. Trauma symptoms were addressed through psycho-education and advice. Fifteen weekly meetings, 3 h each	TAU

SC social capital, TAU treatment as usual

Table 2

Social Capital (SC) and Mental Health (MH) ($n = 7$)

Author, year	Indicator of SC and scale(s) used	MH outcomes and scale(s) used	Statistical analysis/Key findings	Implications and remarks
Hall, J. 2014	Structural SC (social inclusion, group memberships and participation, group engagement degree, financial and instrumental support and network size, emotional support seeking) measured through selected items from the "Integrated Questionnaire for the Measurement of SC"	Depression, anxiety and PTSD symptoms. Tools: Hopkins Symptom Checklist-25 and 16-item Harvard trauma questionnaire	Multilinear regression models/Small to medium effect size differences for 2 study outcomes: CPT intervention increased group membership and participation at 6-month FU ($B = 1.11$ ($p < 0.05$; $d = 0.22$)) and emotional support seeking after the intervention compared to control ($B = 0.31$ ($p < 0.05$; $d = 0.37$))	Increased involvement in community groups and greater support seeking are potentially important improvements in the lives of sexual violence survivors. Intervention may work by changing negative thoughts and avoidance behaviours, providing a safe space that encourages the survivors to open up to each other, and providing a foundation from which social networks for survivors can be expanded. Assessment of SC structural component
Haslam, C. 2016	Cognitive SC proxies: social connectedness, group identification; structural SC proxy: group memberships. Assessed with: Roberts UCLA Loneliness Scale (RULS-8); social adjustment scale; four-item measure of social identification (FISI)	Depression, anxiety, stress, life satisfaction, self-esteem. Tools: Depression, Anxiety and Stress Scale-21 (DASS-21); Social Phobia Inventory (mini-SPIN); Satisfaction with life scale; Single-item measure of self-esteem	Paired t tests (Cohen's d) for repeated measures/Between T1 (start) and T2 (completion, at 2 months): average depression score reduced from "moderate" to "mild" ($p < 0.05$), and average anxiety and stress scores from "severe" to "moderate" (both $p < 0.001$). Improvements: social anxiety, life satisfaction, self-esteem, social functioning, and loneliness (effect sizes 0.29–0.86). Between T3 and T2 (6 month FU): sustained improvement from T1 for depression, anxiety, stress, and self-esteem ($p < 0.01$). Outcomes sustained at 6 month FU	Pilot psychological intervention to address major health problems in social isolation. The intervention may help to overcome these challenges by building social identifications. Delivered either as a stand-alone program or as an adjunct to other forms of psychotherapy. Additionally, the program can potentially address wider social problems that often exacerbate clinical presentations
Phillips, G. 2014	Social integration, collective efficacy, social networks, social support. Tools: questions from the office for national statistics' SC harmonised question set. Additional questions on help/support (practical, financial, emotional) from the SHARP study (Scotland's housing and regeneration project)	Mental well-being. Tools: GHQ-12 score; Warwick Edinburgh mental well-being scale and HOPE scale	Multilinear regression models/Primary outcomes were not significantly different in intervention neighbourhoods compared to controls. A secondary social outcome ("proportion of residents thinking that people living in their neighbourhood pulled together") showed statistically significant difference compared to controls; higher in intervention neighbourhoods (RR: 1.92; 95% CI 1.12–3.29)	Findings do not provide evidence supporting that the intervention improved health behaviours, well-being and social outcomes. Low participation rates and population attrition rates likely compromised any impact of the intervention, as well as a potential influence of imprecise estimation of outcomes and sampling bias. Authors recommend: better feasibility strategies before future implementations; new methods to understand longitudinally the different pathways residents take through such interventions and their outcomes, and new theories of change that apply to each pathway
Saito, J. 2012	Social support (emotional and instrumental support), social networks, frequency of participation in group activities (neighbourhood or commercial organizations, hobbies or religious groups, etc.). Familiarity with city-provided formal services	Subjective well-being, affective dimension of depressive status in elderly and loneliness. Tools: LSI-A scale; GDS and AOK loneliness scale	Linear mixed models/The intervention had a significant positive effect on subjective well-being ($p = 0.039$), social support ($p = 0.013$), and familiarity with services scores ($p = 0.008$), and had a significant negative effect in loneliness ($p = 0.011$) until 6 months FU	Results suggest that programs aimed at preventing social isolation may be effective when they are tailored to the specific needs of the individual, utilize existing community resources and target people with shared similar experiences
Semenza, J. 2006	Sense of community, social interaction, perceived control and neighbourhood participation. Tool: SC	Depression and well-being. Tool: CESD-11 and SF-36	Multivariate analysis of variance/Improvements in: sense of community ($F = 3.97$; $p = 0.01$); SC ($F = 1.71$; $p = 0.04$) and depression ($F = 1.95$; $p = 0.03$)	Results showed evidence that participants in the intervention improved their social interaction building, SC, neighbourhood capacity and health outcomes. It also empowered them to design and

Author, year	Indicator of SC and scale(s) used	MH outcomes and scale(s) used	Statistical analysis/Key findings	Implications and remarks
Sun, J. 2016	assessment tool (Krishna et al.) Social connectedness: measured by a 10-question scale (Lee, RM, et al.) and social support, measured by 8 items related to the perception of quality and quantity of friendship networks and feelings of trust for local community (McCubbin HI, et al.)	MH and emotional well-being: resilience and physical and psychological benefits of intervention participation. Tools: MH and psychological distress scale (Schlesinger, CM, et al.), brief resilience scale (Smith, BW, et al.) and singing-related QoL scale (Clift S, et al.)	Generalized linear model and structural equation model/At 18-month FU: reduction from 54.8% at baseline vs. 38.3% at FU in the proportion of adults in the intervention group classified as depressed ($p < 0.02$). Improvements in the singing-related QoL scores (OR 0.85, $p = 0.02$), singing-related social and emotional well-being (OR 0.78, $p = 0.03$), and resilience (OR 0.71, $p < 0.001$) were negatively related to psychological distress in the intervention group	create the development of public places within their own community Aboriginal and Torres strait islander participants significantly improved their perceptions about the health benefits of singing and improved their resilience scores, reflecting an increase in their perceived ability to cope with stressful events and better manage MH conditions. There was a subsequent significant reduction in the proportion of people who experienced psychological distress
Verduin, F. 2014	Cognitive SC, social support and civic participation. Tool: short version of the Adapted SC assessment tool, (Short A-SCAT)	Screening of CMDs. Tool: validated version of the self-reporting questionnaire (WHO) and SRQ-20	Factorial analysis and latent growth models/Significant effect of sociotherapy on both linear change in MH (-0.38 , $p < 0.05$) and civic participation (-0.41 , $p < 0.05$). Although MH and CP were correlated at baseline (-0.26 , $p < 0.05$), linear changes over time were not significantly correlated (0.21)	The study hints at the possibility to foster one element of SC: civic participation, and to simultaneously impact MH. Identification of pathways of influence may contribute to the designing of psychosocial interventions that effectively promote recovery in war-affected populations

SC social capital, MH mental health, CPT cognitive perception therapy, FU follow-up, PTSD post traumatic stress disorder, QoL quality of life