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White Paper

Community-Led Interventions to Address Social Isolation Among Older Adults: A Rapid Review

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Abstract

Social isolation has serious impacts on physical, social, and mental health and well-being. Existing interventions that aim to address social isolation and inclusion among older adults, as well as their mechanisms and methods, target populations, and settings, have not been assessed. The purpose of this rapid review was to address this gap. A search of MEDLINE and APA PsycINFO for English-language peer-reviewed primary research or review articles identified 27 articles describing community-led interventions addressing social isolation among community-dwelling adults aged 60 years and older and that report on process or outcome measures. Analysis revealed eight distinct intervention strategies: singing, arts-based activities, volunteering, physical activities and physical fitness activities, educational activities, talking and socialization, gardening, and mobility and accessibility activities. Both complex, multicomponent and simple, single-focused interventions appear to benefit health and well-being, including of participants at highest risk (i.e., age ≥80 years, low socioeconomic status, rural residence). Although the variations in the interventions, methodologies, and measures preclude direct comparisons, and efficacy or causality could not be determined, interventions are best designed and implemented based on specific contextual characteristics, with the targeted participants' needs and interests in mind and with participants involved in the planning, delivery, and/or evaluation of the approaches. Building on existing community resources and developing partnerships with governments, community organizations, and service providers supports the feasibility and long-term sustainability of the interventions. Additional research to determine their long-term effects is required to provide robust evidence for best practices or additional practice-relevant recommendations.

Introduction

The social isolation that can occur with changes in social connectedness[1,2] has been identified as a serious public health risk among older adults.[3] Social isolation impacts high blood pressure, heart disease, obesity, weakened immune system, anxiety, depression, cognitive decline, substance use disorder, and mortality, among others.[4-8] In turn, risk factors for social isolation and loneliness include many of the same chronic diseases and conditions (e.g., heart disease) and psychiatric disorders (e.g., major depression) as well as others (e.g., stroke, cancer, generalized anxiety disorder, social anxiety disorder); major life transition (e.g., loss of spouse, family members and friends relocating, loss or restriction of driver's license, entry into care, caregiving); geographic location; poverty and lack of access to transportation or housing; sexual orientation and gender identity; limited social relationships; and limited knowledge and awareness of technology, services, and programs.[3,7]

Although the terms are often used synonymously and the concepts overlap[9], *loneliness* is commonly described as a subjective feeling of isolation or lack of companionship, whereas *social isolation* is the sense of a lack of social belonging, indicated by few fulfilling social contacts.[10,11] While loneliness is the more common target of research studies with older adults[4], social isolation and loneliness often do not significantly correlate.[12]

Further, the social isolation measures researchers use do not always apply to older adults.[13] Indicators such as social network size and range, marital status and living arrangements, and community participation do not take into account personal perception of the quality and value of an individual's relationships.[4] Cleland et al.[14] concluded that the tools that measure older adults' quality of life need to go beyond health and take into account independence, social connections, emotional well-being, mobility, and relevance in terms of activities.

Although primary studies and reviews that focus on interventions to address social isolation and inclusion of older adults have been conducted[4,15], the mechanisms and methods, target populations, and settings of the interventions have not been clearly defined.[16] Furthermore, interventions that can be led – designed, implemented, and evaluated – by communities have not been given due attention by the scientific community. To address this gap, we undertook a community-engaged study[17,18], using rapid review methods[19], to inform the work of Alberta Health Services with communities that were leading interventions to address their health priorities as part of the Healthy Communities Approach (for details, refer to Chaisson et al.[20]). Although this review was completed prior to the COVID-19 pandemic, and social distancing, quarantines, and other measures implemented to limit the spread of disease have since been lifted, the findings continue to be relevant because of the potential psychological effects of quarantine, including post-traumatic stress symptoms, confusion, and anger[21], that are now becoming apparent.

Methods

We conducted a rapid review of the academic literature to find interventions that promote social inclusion and address social isolation among community-dwelling older adults.

Search

Two online databases, OVID Medline and APA PsycINFO, chosen to capture the breadth in interdisciplinary research and for optimum retrievability, were searched on 15 August 2018, for English-language peer-reviewed primary research (quantitative, qualitative, or mixed methods) or review articles published from 2013 to 2018, using terms developed by an information specialist to align with the research practice question and PICO framework[19]:

- Population: Community-living people aged 60 years or older or otherwise indicated (e.g., “seniors,” “elderly,” “aged”);
- Intervention: Community-led or community-level interventions targeting social isolation and/or social exclusion;
- Comparison: Change from before the start of the intervention;
- Outcome of interest: All outcomes, processes, or implementation measures.

Detailed search terms by database are shown in Supplementary Table 1.

We excluded: theoretical studies, commentaries, editorials, letters, and practice-based reports; studies of children, the general population, adults aged younger than 60 years, and institutionalized adults (e.g., in long-term care), and of animals; studies of interventions that do not target social isolation and/or inclusion or of institutional interventions (e.g., hospital-based, long-term care facilities) or that did not include outcome or implementation measures, assessments, or evaluations; articles published in languages other than English; or studies that were not peer-reviewed primary research or reviews.

Screening

Using a two-step screening process to identify articles according to the *a priori* inclusion and exclusion criteria, a single reviewer checked the title and abstract of each article retrieved through the preliminary search. A full-text review of all the articles that passed primary screening underwent secondary screening using the same eligibility criteria. If the relevance of an article was unclear, a second reviewer (NG) was consulted.

The preliminary searches retrieved 1455 unique records. Title and abstract screening excluded 1281 records and a further 148 were excluded during the secondary full-text screening. An additional article was identified from the reference list of another included article during the full-text screening. A total of 27 articles was included in the rapid review. Figure 1 depicts the selection process.

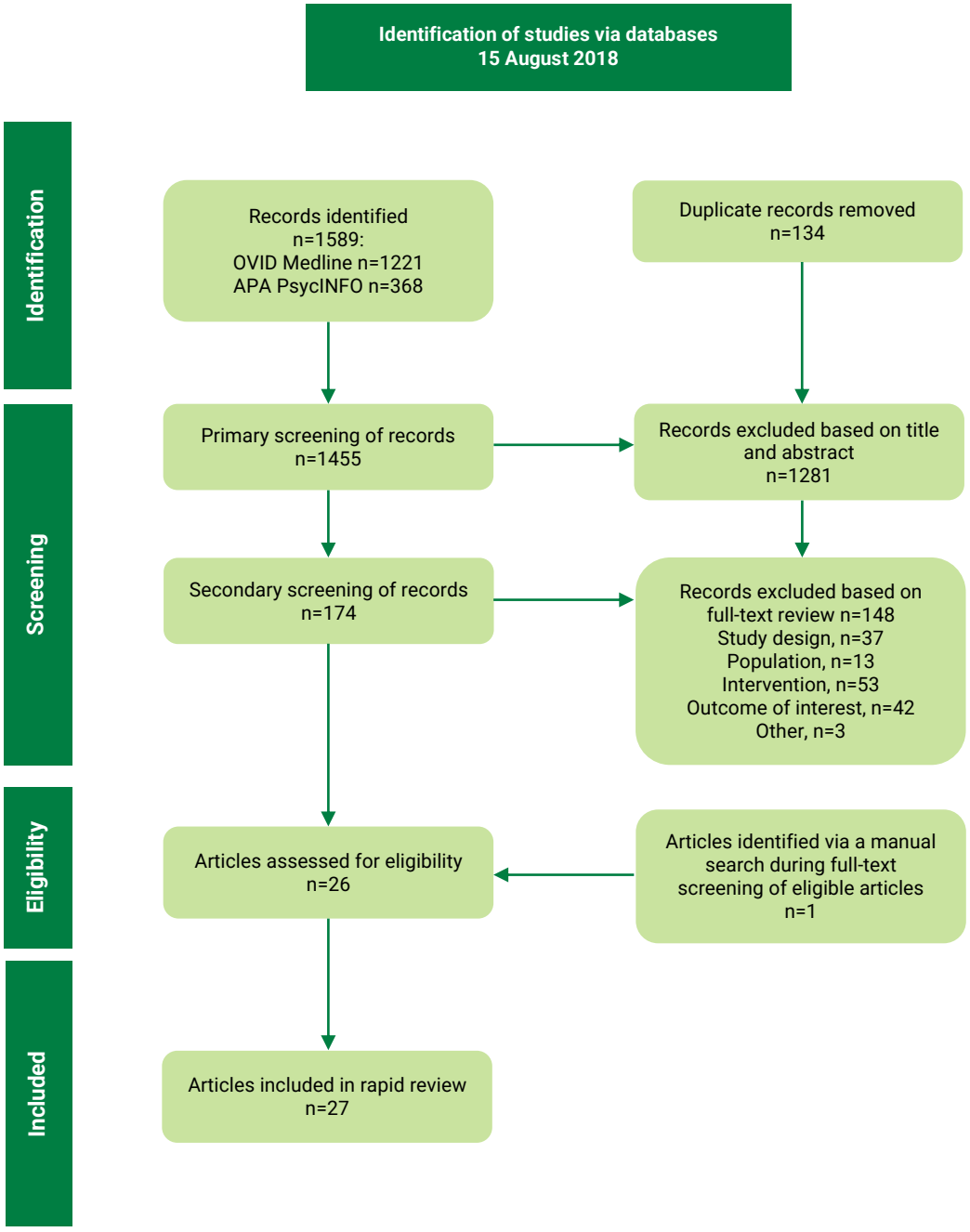

Figure 1. PRISMA 2020 flow diagram[22] of search and inclusion of studies in this rapid review

Evidence Synthesis

The articles included in the rapid review assessed:

- Community-led or community-level interventions targeting social isolation and/or social exclusion, including in community seniors' residences;
- All outcome measures: program/process/implementation evaluation/measurement/impact, effectiveness, equity impact, feasibility, participant engagement, program participation/uptake, knowledge, attitudes, behavior change, cost).

A single reviewer extracted the following details from the included articles into an Excel file[23]:

- Authors' names, year of publication, full citation, article type (e.g., review, report);
- Study characteristics – location (region/country, city), setting (urban, inner city, rural), methodology, objectives, data collection tools;
- Population and community characteristics – community setting, age, sex, other author-identified characteristics;
- Description of the intervention – focus, type, activities, duration;
- Description of implementation process and support – barriers, facilitators;
- Measures and timing of measurement;
- Results related to impact or implementation;
- Unintended study outcomes/harms e.g., increasing inequalities;
- Implementation "lessons learned" according to article authors; and
- Limitations according to article authors.

A summary of the extracted data is available from the authors on request.

Two reviewers conducted a detailed reading of the data extracted from the included articles and grouped the articles according to eight strategies for community-led interventions: singing activities; arts-based activities; volunteering activities; physical activities and physical fitness activities; educational activities; talking and socialization activities; gardening activities; and mobility and accessibility activities. A third reviewer was consulted to discuss the groupings, key practice implications, and literature gaps. Any discrepancies were discussed until consensus was reached

Results

Study Designs

The included articles (n=27) described 11 qualitative studies[24-33]; 11 mixed methods studies[34-44]; and five quantitative studies.[45-49] The studies used the following study designs: pre–post design with single intervention group (n=11)[26,35-43,45]; case study (n=7)[24,25,28,34,31,33,50]; non-randomized intervention and control groups (n=2)[46,47]; cross-sectional with single intervention group (n=2)[29,44]; single study postintervention only (n=1)[30]; randomized intervention groups (n=1)[48]; randomized intervention and control groups (n=1)[49]; participatory method (n=1)[27]; and qualitative study of an intervention group nested within a randomized controlled trial (n=1).[32]

Target Populations

The community-led interventions in the included articles targeted specific populations based on one or more of the following characteristics of older adults: defined chronological age (e.g., aged >60, 65, 70, or 75 years) (n=6)[29,31,35,46,47,49]; with a physical disability (n=5)[25,38-40,48]; cultural or linguistic diversity (n=5)[25,27,37,41,45]; low socioeconomic status (n=3)[30,41,43]; retirement or pensionable age (n=3)[28,32,42]; unspecified risk factor(s) for social isolation (n=3)[33,45,50]; with cognitive impairment (n=2)[26,36]; receiving particular services (e.g., meal delivery, home care) (n=2)[29,35]; and sexual orientation (n=1).[41] Three articles described interventions that targeted community-dwelling older adults with no other defined characteristic.[24,34,44]

Intervention Settings

The community-led interventions identified in this rapid review took place in Canada (n=7)[27,30,33,37,38,41,50]; Australia (n=6)[24-26,35,39,45]; the United Kingdom (n=4)[28,32,44,49]; the United States (n=4)[36,40,42,43]; the Netherlands (n=2)[29,47]; Austria (n=1)[48]; Japan (n=1)[46]; Mexico (n=1)[31]; and New Zealand (n=1).[34]

The interventions targeted urban communities (n=11)[27,28,30,35-37,40,41,46,48,49]; rural communities (n=6)[24,29,31,33,47,50]; and a combination of rural, regional, and urban communities (n=1).[45] Nine articles did not report on the community setting of the intervention.[25,26,32,34,38,39,42-44]

Intervention Activities

Interventions addressing social isolation and social inclusion among older adults were based around the following eight activities: singing (n=7)[25,26,32,35,37,44,46]; arts-based activities (n=3)[33,41,50]; volunteering (n=6)[31,33,42,45,48,50]; physical activities and physical fitness activities (n=7)[30,34,38,39,45,46,48]; educational activities (n=9)[24,30,34,37,42,43,45,46,48]; talking and socialization (n=25)[24-28,30,32-50]; gardening (n=1)[43]; and mobility and accessibility (n=3).[28,40,45] These interventions, their target populations, and outcomes are summarized in Table 1.

Table 1. Summary of intervention strategies

Activities/ Implementation Tips	Target Population(s)	Possible Outcomes[a]				Evidence[b]
		Social Health	Physical Health	Mental Health	Other	
Singing						
Consider participants' musical interests and take requests when selecting songs. Include music from different eras and genres, and familiar and new culturally appropriate songs. Take a progressive approach and base activities on singing skill level Provide snacks	All older adults; home-bound older adults; culturally and linguistically diverse older adults; older adults with dementia and their caregivers	↑ sense of community and belonging, social contacts, social network, social skills, peer support, social engagement outside of singing group, and connection with friends from the past ↓ feelings of social isolation	↑ breathing, which can improve stamina ↓ body aches, pains, and physical limitations	↑ memory and cognition, emotional support, self-identity, self- esteem, self-confidence, enjoyment, self-expression, pride, and sense of achievement ↓ stress	↑ knowledge in music and singing skills	Chan, 2014[25]; Clark et al., 2018[26]; Davidson et al., 2014[35]; Harada et al., 2018[46]; Jo et al., 2018[37]; Skingley et al., 2016[32]; Teater & Baldwin, 2014[44]
Arts-based activities						
Alter the art form based on the interests of intervention participants in the community Host an art exhibition or final celebration in the community to showcase the works created. Have a party for everyone involved	All older adults; socially isolated older adults in rural communities; underserved older adults (e.g., low socioeconomic status, racialized people, language barriers)	↑ social relationships with facilitators, social interaction with others, sense of belonging, feeling like valued members of society, and interaction with family	↑ perception of health and of chronic pain and healthy behaviors	↑ confidence and self-esteem, opportunities to grow, exploration of creative identity, reflection on lives and the aging process, and ability to learn and see things from a different perspective ↓ stress and anxiety	↑ engagement in the arts outside of the intervention strategy ↑ learning new artistic skills	Phinney et al, 2014[41]; Macleod et al., 2016[50]; Wilkinson et al., 2013[33]

Activities/ Implementation Tips	Target Population(s)	Possible Outcomes[a]				Evidence[b]
		Social Health	Physical Health	Mental Health	Other	
Volunteering activities						
Provide training, ongoing support, and opportunities to socialize during volunteer activities Have diverse volunteering activities, such as: peer support for more socially isolated participants; environmental stewardship projects; community service activities	All older adults	↑ formation of new friendships, activation of social network, and interaction with new people	↑ perception of body functioning	↑ enjoyment as a result of learning new skills, appreciation for the opportunity to give back to the community, opportunity to reflect on their own aging when working with other older adults, and value of life	↑ knowledge related to training	Bartlett et al., 2013[45]; Kapan et al., 2017[48]; Macleod et al., 2016[50]; Martínez-Maldonado et al., 2018[31]; Pillemer et al., 2017[42]; Wilkinson et al., 2013[33]
Physical activities and physical fitness activities						
Include diverse activities, such as strength training, walking, swimming, hiking, and biking Host groups sessions to encourage social interaction	All older adults; frail or pre-frail older adults; culturally and linguistically diverse groups of older adults	↑ social participation, sense of belonging, connectedness, formation of new or revival of old friendships and development and maintenance of social networks, community, or group cohesiveness, and perception of social and emotional support from the group or facilitator ↓ loneliness	↑ general well-being and health, physical health, physical performance, endurance, energy levels, healthy eating habits, motivation to improve fitness or take care of themselves, and overall mobility and functional autonomy	↑ mental health quality of life, positive attitude toward health, self-esteem, pride, confidence, perception of emotional support, feelings of happiness, and mental stimulation	↑ participation in leisure and household activities, knowledge of local area due to walks, outdoor activity skills, and knowledge of the environment	Bartlett et al., 2013[45]; Boyes, 2013[34]; Harada et al., 2018[46]; Hwang et al., 2018[30]; Kapan et al., 2017[48]; Levasseur et al., 2016[38]; McNamara et al., 2016[39]

Activities/ Implementation Tips	Target Population(s)	Possible Outcomes[a]				Evidence[b]
		Social Health	Physical Health	Mental Health	Other	
Educational activities						
Educational activities can take different formats, such as formal lectures, interactive classes, and one-on-one sessions Have activities at a single event or on a regular basis; select topics that appeal to the participants in the community, e.g., gardening, healthy aging, healthy eating, sleep promotion, computers and technology, history, literature, science and the environment Match activities and format to the target population's needs, e.g., provide lectures in other languages, host sessions on technology for people who are house bound	All older adults	↑ sense of belonging, neighborhood network size, social relations, social participation, and connection to family and friends	↑ appetite and improved diet, activity levels, motivation to take care of themselves ↓ body pain and functional limitations due to emotional issues	↑ self-awareness through exploration and extension of interests, pride in achievements, peer support outside of the program, and enjoyment due to experience of learning	↑ peer learning and skills related to the topics covered	Bartlett et al., 2013[45]; Boyes, 2013[34]; Burmeister et al., 2016[24]; Harada et al., 2018[46]; Hwang et al., 2018[30]; Jo et al., 2018[37]; Kapan et al., 2017[48]; Pillemer et al., 2017[42]; Strout et al., 2017[43]

Activities/ Implementation Tips	Target Population(s)	Possible Outcomes[a]				Evidence[b]
		Social Health	Physical Health	Mental Health	Other	
Talking and socialization						
Include talking and socialization activities with all interventions, either guided (by a facilitator and focusing on a specific topic) or in a free format, involving shared meals or conversations over refreshments, using the introduction time for socialization, and encouraging socializing during shared transportation. For distance options, consider telephone befriending or group teleconferences. Connect older adults with a digital companion or a call center Recruit participants through hospitals, memory clinics, and/or day health programs	All older adults; older adults transitioning into affordable housing	↑ social participation within and outside the social group, network size, social connections, social support, friendships, cohesiveness within the group or community, and sense of community ↓ loneliness and perceived barriers in the social environment	↑ physical quality of life, healthy lifestyle, positive attitude toward physical health ↓ experience of body pain and functional limitation due to emotional issues	↑ confidence and positive attitude toward psychological quality of life	↑ knowledge sharing and planning for the future	Bartlett et al., 2013[45]; Boyes, 2013[34]; Burmeister et al., 2016[24]; Chan, 2014[25]; Clark et al., 2018[26]; Davidson et al., 2014[35]; Demiris et al., 2017[36]; Fang et al., 2016[27]; Green et al., 2014[28]; Harada et al., 2018[46]; Honigh-de Vlaming et al., 2013[47]; Hwang et al., 2018[30]; Jo et al., 2018[37]; Kapan et al., 2017[48]; Levasseur et al., 2016[38]; MacLeod et al., 2016[50]; McNamara et al., 2016[39]; Mulry & Piersol, 2014[40]; Mountain et al., 2014[49]; Phinney et al., 2014[41]; Pillemer et al., 2017[42]; Skingley et al., 2016[32]; Strout et al., 2017[43]; Teater & Baldwin, 2014[44]; Wilkinson et al., 2013[33]

Activities/ Implementation Tips	Target Population(s)	Possible Outcomes[a]				Evidence[b]
		Social Health	Physical Health	Mental Health	Other	
Gardening						
Provide gardening spaces and/or gardening activities. Construct garden beds at waist height to make it easier for participants to reach the beds. Install garden beds side by side to promote social interaction. Demonstrate gardening techniques including planting seeds, thinning, harvesting, and watering. Provide the necessary equipment, such as seeds, hand shovels, and watering cans	All older adults; older adults living in affordable housing	↑ friendships, peer support, and social interaction and engagement within and outside of the group	↑ protein, vegetable, and water consumption, and self-rated nutrition status	↑ cognition and pride in achievements	↑ sharing with others, gardening skills, and knowledge of different vegetables	Strout et al., 2017[43]

Activities/ Implementation Tips	Target Population(s)	Possible Outcomes[a]				Evidence[b]
		Social Health	Physical Health	Mental Health	Other	
Mobility and accessibility						
Organize group and one-on-one sessions to discuss and identify strategies to address accessibility and mobility barriers. Provide participants with access to free community or public transportation Build community capacity for a community-led transportation service if public transportation is not available. For example, participants could obtain accreditation for volunteer bus services Provide personalized advice to address participants' concerns with community mobility	All older adults; older adults who experience community mobility and accessibility barriers	↑ social participation, sense of belonging, cohesiveness, and maintenance of friend networks ↓ perception of obstacles in the social environment	↑ physical well-being as a result of more walking exercise and functional autonomy	↑ in pride and feelings of freedom, independence, and competence ↓ loneliness and isolation	↑ ability to move about the community, ability to identify mobility-related health risks, ability to identify transportation alternatives	Bartlett et al., 2013[45]; Green et al., 2014[28]; Mulry & Piersol, 2014[40]

Notes : ↑ increased since commencement of intervention strategy; ↓ decreased since commencement of intervention strategy

[a] Due to limitations in study design and measurement tools, causality and/or the connection between outcomes and intervention activities cannot be determined. The outcomes listed are possible, but can vary in relation to the intervention strategies, implementation, setting, participants, and other contextual factors.

[b] Included are only those articles that contribute to the information in this table.

Of the 27 retrieved articles, 11 reported on complex or multicomponent intervention strategies that included two or more of the eight identified intervention activities.[29,30,33,37-39,42,45-48] The remainder focused on interventions with a primary activity.[27,31,36,49] Most of these included other activities as a support or as part of the primary activity (e.g., education about hiking for an outdoor adventure physical activity intervention[34]; mapping exercises to locate services and supports[27]). The most common additional activity was related to talking and socialization.[24-26,28,32,34,35,40,41,43,44,50]

Based on the participants' experiences, the community-led interventions provided opportunities to socialize and build new relationships (n=15)[24,26-28,30,32-35,37,38,40,41,43,44]; contributed to a sense of community belonging (n=4)[28,32,37,44]; enhanced communication and social contacts outside of the intervention activities through improved mobility (n=1)[26]; or increased knowledge of computers or navigating the internet (n=4)[24,31,39,40]. Additional perceived benefits included mental stimulation (n=2)[26,32] improved self-identity (n=7)[25,26,30,33,37,41,44]; greater self-expression (n=3)[25,33,41] increased confidence (n=4)[26,32,33,41]; greater sense of independence (n=2)[25,28]; and learning to use a coping strategy (n=3).[25,41,44] Other reported benefits were improved access to community services and resources (n=3)[27,28,40]; increased function and participation in activities (n=3)[38-40]; and increased knowledge (n=2).[24,43] Overall, the interventions improved measures or participants' perceptions of their social,[24,26-28,30-48] mental,[25,26,28,30,32-37,41,43,44,48,49] and physical health and well-being.[30,32,34,37,39,41,43,48]

Barriers to Participation and Strategies to Facilitate Participation in Community-led Interventions

Common barriers to successful implementation of community-led social inclusion interventions for older adults included: the interventions not meeting participants' needs or interests[27,29,32,35,36,39,46]; transportation difficulties[35,39]; program costs[39]; and conflicting schedules.[46]

Study authors suggested a number of ways to mitigate these barriers: taking a person-centered approach to ensure activities met participants' needs[24,34,38,43,50]; offering a range of activities and topics[32,45,46] that do not require previous experience[35,42]; offering activities that were free of charge[28,30,37] or at affordable rates[34,39]; and providing transportation[29,35,45] or assisting participants with transportation arrangements.[39] For participants who lived in remote areas or who were home-bound for health and or social reasons, internet-based[24] or in-home activities[29,48,50] were suggested as ways of facilitating engagement and inclusion. To address scheduling conflicts, holding events at a variety of venues and times can improve accessibility.[32]

For ethnically and/or culturally diverse populations, study authors recommended that interventions be culturally and linguistically appropriate.[45] Chan[25] suggested that facilitators practice cultural empathy by having an open-minded attitude toward participants' unique cultural backgrounds and personal experiences and by being aware of their own cultural biases. Delivering interventions through cultural organizations familiar with the shared cultural heritage and with established networks can ensure that the services are relevant.[37]

Strategies to Target Recruitment

Several authors noted difficulties recruiting participants who were the most likely to benefit from the interventions, for example, those with mobility issues.[27,29,34,35,48,49] To address this, authors recommended using targeted recruitment strategies.[30,35,46] Honigh-de Vlaming et al.[29] suggested providing personalized invitations from medical or other service providers and/or to family and friends, and packaging information as a story, rather than as an announcement, to make it more relatable.

Strategies for Intervention Facilitation and Delivery

A common logistical consideration was identifying and recruiting suitable program facilitators. Study authors reported that the quality of facilitators, irrespective of whether they were professionals, non-professionals, or volunteers, was as an important factor in program participants' continued participation in and enjoyment of the intervention activities.[24-27,30,32,34,35,50] Experts to guide educational sessions, give lectures, or run music or art sessions, etc., can be recruited from the community, local college or university faculties,[42,46] or local agencies.[42] Using volunteers[33,37,42,46,49,50] can help manage costs (MacLeod et al., 2016; Pillemer et al., 2017) and expand the reach and scope of programs.[33] Nevertheless, adequate resources are necessary to recruit and train volunteers.[50] For long-term sustainability of programs, study authors recommended developing relationships with local authorities, community organizations, and social and health services to share resources and/or facilitate recruitment, participation, and/or find volunteers or expert facilitators.[38,42,44,45]

Evidence Gaps and Limitations

Most of the interventions identified in this rapid review targeted specific community types and/or populations. However, because of limited contextual details and the variations in the interventions, methodologies, definitions of social isolation, and measurement tools, comparisons between the studies cannot be made. Similarly, determining efficacy or causality is difficult, and transferability is unclear. Articles describing complex and multicomponent interventions lacked details on the connections between the outcomes and specific mechanisms and/or intervention components. In addition, many of the qualitative and quantitative studies had no control or comparison groups, so program efficacy is unclear. Most of the interventions were short term, with no indication of continued sustainability or long-term impacts.

Considerations for factors related to equity (e.g., gender identity, sexual orientation) were rarely explicit within the design and/or implementation of the interventions or analyses. Women were overrepresented as study participants, whereas Indigenous People were notably missing from reports of interventions in Australia, Canada, and the United States.

Author-Identified Limitations

Author-identified study limitations included limited generalizability due to small sample sizes[30,36,40,41,43] and limited range of sociocultural characteristics[32,34,36,42]; limited sex distribution, with females making up the majority of participants in most of the studies,[30,32,36] geographic distribution,[32] and diversity in age[28,32]) and race/ethnicity.[28] Self-selected participation[28-30,32,34,37,44,46,48,49] and high drop-out rates[32,35,47] may have also introduced bias into the results.

Discussion

This rapid review identified eight distinct, community-led intervention activities that facilitate social inclusion and benefit older adults' overall health and well-being: singing, arts-based activities, volunteering, physical activities and physical fitness activities, educational activities, talking and socialization, gardening, and mobility and accessibility activities. Both complex, multicomponent and simple, single-focus interventions demonstrated promise. The authors of the studies recommended designing and implementing interventions that take into account the specific contextual characteristics (e.g., setting, culture, resources, location), needs, and interests of the targeted participants.[24,34,38,44,50] The authors also suggested involving participants in the planning and delivery of the approaches, as well as their evaluation, to ensure that the interventions suited their needs and interests[29,39,40,45] and to align with principles of "community-led" strategies. Building on existing community resources and developing partnerships with governments, community organizations, and service providers to support the feasibility and long-term sustainability of the interventions was also recommended.[38,42,44,45] These recommendations align with and extend the three factors that Gardiner and colleagues[15] identified as contributing to successful interventions: adaptability, a community development approach, and productive engagement. The summary of included articles in Supplementary Table S2 provides further details on each study.

The articles included in this rapid review had significant study limitations, used different methodologies and measurement scales, provided few contextual details (e.g., setting, population), lacked implementation details, and often did not assess the efficacy of the described interventions. These limitations affect the ability to recommend best practices. Other researchers have reported similar limitations in the evidence supporting practice recommendations for interventions that address social isolation among older adults,[4,15,51] indicating the need for further research. Specifically, more robust data are needed to understand which community-led interventions work (or do not work), for whom, and in what context.[15] Longitudinal research that can parse out causal relationships and long-term impacts is also required. Such research would benefit from a shared understanding or conceptual model of social isolation and appropriate measurement tools to improve possibilities for comparison and synthesis across studies.[4,13,15,51]

The effects on health of loneliness and social isolation may vary based on socioeconomic status and ethnocultural characteristics.[4] The articles in this rapid review lack explicit equity considerations; applying an equity lens to the design, delivery, and analysis of interventions would increase the likelihood that underserved populations (e.g., informal caregivers, substance users) experience the benefits.[4] Evaluating process and outcome measures as they relate to social characteristics and the social determinants of health would support the development of equitable interventions. Such research could inform policies and programs to improve the health and well-being of at-risk older adults.[51,52]

Despite their limitations, the identified intervention strategies present possibilities for social inclusion that support older adults. Many of the interventions included in this rapid review were delivered in-person. However, it is possible to adapt them for virtual delivery, or via the telephone, which may suit people who live in remote locations or who prefer to avoid in-person contact.

Key to moving interventions online is the provision of the necessary technologies (e.g., internet access, mobile devices with accessibility features) and appropriate and meaningful training in their use.[53] Without these in place, any adaptations could exacerbate existing social inequities. That said, evidence suggests that online or long-distance activities (e.g., via telephone) can reduce inequities in access and facilitate inclusion.[54] Similarly, key to successful adoption is engaging the people for whom the interventions are

intended. In its report *National Programmes for Age-friendly Cities and Communities: A guide*, the World Health Organization[55] recognized that a "crucial preliminary step is identif[ying] stakeholders who are already working to create more age-friendly environments,"[p.20] chiefly older adults, their families and caregivers, and the organizations that represent them.

Limitations

Several methodological limitations affect the interpretation of the results of this rapid review. We searched only two databases, which may have limited the number of relevant articles retrieved. Our search for articles published in English may have resulted in our not investigating relevant interventions in some countries or regions; this is a limitation given that social isolation is a recognized global problem.

To maintain the narrow scope required of a rapid review, we excluded articles that did not report on process or outcome measures. We did not assess the quality of included studies; although this is common when conducting a rapid review with limited evidence, doing so can limit the strength of any recommendations based on the results.

The search for relevant articles took place in August 2018 and covered the previous 5 years, 2013 to 2018. An updated search was not conducted, as many community-led interventions were halted in keeping with social distancing restrictions, many of which were not lifted until 2022-2023.

Conclusion

This rapid review assessed studies describing interventions that can address social isolation and promote social inclusion among community-dwelling older adults. These interventions targeted various populations, including high-risk underserved populations (i.e., age ≥80 years, low socioeconomic status, or living in rural areas). Analysis revealed eight distinct intervention activities: singing, arts-based activities, volunteering, physical activities and physical fitness activities, educational activities, talking and socialization, gardening, and mobility and accessibility activities. Overall, participating in the intervention activities improved participants' social, mental, and physical health and well-being, although the research findings were mostly based on qualitative studies or quantitative investigations lacking randomization or controls. In addition, the variations in the interventions and study methodologies and measures preclude direct comparisons between the studies, and determining efficacy or causality is difficult. Despite these limitations, the identified interventions present promising avenues for future research and/or practice The following actions are recommended for communities to effectively address social isolation among older adults:

- When planning interventions, focus on activities that the target population enjoys; people are more likely to participate in activities they find enjoyable and meaningful.
- Encourage social interaction and engagement by providing opportunities through, for example, singing, dancing, gardening, or volunteering.
- Provide intervention facilitators with training on providing support and guidance to participants and creating a safe and supportive environment for social interaction.
- Collect data on intervention participants' social interactions, well-being, and quality of life; robust evaluations facilitate a deeper understanding of what works for whom in what context and helps to uncover intended and unintended consequences.

With social isolation increasing globally across all age cohorts, interventions that aim to address social inclusion are particularly relevant. Evidence to inform the development and implementation of equitable community-led interventions to improve social isolation among older adults and facilitate enhanced health and well-being is vital.

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Supplementary Materials

Supplementary Table S1. Detailed search strategy by database

Database: Ovid MEDLINEI Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINEI Daily and Ovid MEDLINEI 1946 to Present Date executed: August 15, 2018 Strategy:	
1	exp Aged/ (2843430)
2	Aging/ (216149)
3	((adult* or citizen* or people or person* or resident*) adj1 (older* or senior*)).tw,kf. (96317)
4	(ageing or aging).tw,kf. (201908)
5	community dwelling*.tw,kf. (19212)
6	or/1-5 [Combined MeSH & text words for older adults] (3087331)
7	Community-Based Participatory Research/ (3561)
8	Community Health Planning/ (4933)
9	Community-Institutional Relations/ (10288)
10	exp Residence Characteristics/ (57663)
11	built environment*.tw,kf. (2714)
12	((cities or city or communit*) adj1 friendly).tw,kf. (206)
13	((communit* or municip* or neighbo*) adj3 (design* or framework* or initiative* or intervention* or partnership* or plan* or program* or resource* or service* or strateg* or support*)).tw,kf. (67699)
14	((design* or plan*) adj1 (environmental* or urban)).tw,kf. (2013)
15	or/7-14 [Combined MeSH & text words for community interventions] (138661)
16	Community Participation/ (15889)
17	Friends/ (4353)
18	Interpersonal Relations/ (66399)
19	Social Environment/ (41172)
20	exp Social Isolation/ (16044)
21	Social Participation/ (1716)
22	Social Planning/ (2694)
23	Social Welfare/ (8931)
24	((activit* or verall* or capital or connect* or contact* or environment* or identit* or inclusi* or interact* or verall* or participat*) adj1 social).tw,kf. (46876)
25	age-friendl*.tw,kf. (155)
26	or/16-25 [Combined MeSH & text words for socialization] (181481)
27	and/6,15,26 [Combined concepts for older adults, community & socialization] (3114)
28	exp Animals/ not Humans/ (4487377)
29	(animal* or bovine* or calves or camel* or canine* or cat or cats or chimp* or dog or dogs or equine* or feline* or goat* or hamster* or horse* or llama* or mice* or monkey* or mouse* or pig or piglet* or pigs or porcine* or primate* or rabbit* or rat or rats or rodent* or sheep* or simian* or swine*).ti. (2174982)
30	27 not (28 or 29) [Exclude animal studies] (3108)
31	(editorial or comment or letter or newspaper article).pt. (1670689)

32	30 not 31 [Exclude opinion pieces] (3068)
33	limit 32 to yr="2013-2018" (1289)
34	limit 33 to english (1231)
35	remove duplicates from 34 (1222)
Database: Ovid PsycINFO 2002 to August Week 1 2018 Date executed: August 15, 2018 Strategy:	
1	exp Aging/ (45875)
2	Geriatrics/ (8465)
3	Late Life Depression/ (501)
4	((adult* or citizen* or people or person* or resident*) adj1 (older* or senior*)).ti,ab. (45511)
5	(ageing or aging).ti,ab. (39428)
6	community dwelling*.ti,ab. (7419)
7	or/1-6 [Combined subject headings & text words for older adults] (89163)
8	Built Environment/ (734)
9	Communities/ (24673)
10	Community Development/ (1724)
11	exp Community Health/ (3370)
12	exp Community Services/ (17679)
13	exp Neighborhoods/ (6243)
14	Rural Environments/ (10852)
15	Urban Environments/ (14585)
16	Urban Planning/ (393)
17	built environment*.ti,ab. (1384)
18	((cities or city or communit*) adj1 friendly).ti,ab. (158)
19	((communit* or municip* or neighbo*) adj3 (design* or framework* or initiative* or intervention* or partnership* or plan* or program* or resource* or service* or strateg* or support*)).ti,ab. (31399)
20	((design* or plan*) adj1 (environmental* or urban)).ti,ab. (910)
21	or/8-20 [Combined subject headings & text words for community interventions] (90600)
22	exp Community Involvement/ (4356)
23	Friendship/ (5286)
24	Interpersonal Interaction/ (11427)
25	Social Deprivation/ (424)
26	Social Environments/ (3681)
27	Social Integration/ (2689)
28	Social Interaction/ (13103)
29	Social Isolation/ (3409)
30	((activit* or verall* or capital or connect* or contact* or environment* or identit* or inclusi* or interact* or verall* or participat*) adj1 social).ti,ab. (51059)
31	age-friendl*.ti,ab. (128)
32	or/22-31 [Combined subject headings & text words for socialization] (81097)

33	and/7,21,32 [Combined concepts for older adults, community & socialization] (684)
34	(animal* or bovine* or calves or camel* or canine* or cat or cats or chimp* or dog or dogs or equine* or feline* or goat* or hamster* or horse* or llama* or mice* or monkey* or mouse* or pig or piglet* or pigs or porcine* or primate* or rabbit* or rat or rats or rodent* or sheep* or simian* or swine*).ti. (87837)
35	33 not 34 [Exclude animal studies] (683)
36	(editor* or comment* or letter* or news*).ti. (42727)
37	35 not 36 [Exclude opinion pieces] (680)
38	limit 37 to yr="2013-2018" (375)
39	limit 38 to english (360)
40	remove duplicates from 39 (360)

Database: World Health Organization **Date executed: August 15, 2018** **Strategy:**
Search 1 > "age friendly" (395) limit to Publications (4) RF note: kept 1
Search 2 > Browsed resources on age-friendly cities program page: http://www.who.int/kobe_centre/ageing/age_friendly_cities/en/ RF note: kept 3
Search 3 > Browsed all publications related to aging: http://www.who.int/kobe_centre/publications/ageing/en/ RF note: kept 1
Search 4 > Searched WHO site for: older adults and communities and social Limited to Publications (5) RF note: kept 1
Search 5 > Searched WHO site for: seniors and communities and social Limited to Publications (1) RF note: kept 0
Search 6 > Searched WHO site for: aging and communities and social Limited to Publications (20) RF note: kept 1

Supplementary Table S2. Inclusion and exclusion criteria for article selection

Characteristic	Inclusion	Exclusion
Study Design	Scoping reviews; systematic review; meta-analysis; primary research studies (i.e., qualitative/ethnographic, quantitative, mixed-methods); case studies; cross-sectional studies; implementation studies; measurement/evaluation/impact studies (outcome and process) and/or practice-based reports	Comments; editorials; letters; theoretical papers; abstracts only
Population, Location	Humans Urban; suburban; municipal; city Outdoor and/or simulations of outdoors	Animals; plants Rural Indoor
Intervention and/or Evaluation	Related to impact of outdoor LED lighting on human health (social, physical, and mental)	Not related to outdoor LED lighting and the impact/effect on an aspect of human health (social, physical, and mental)
Outcome	All outcomes and process and/or implementation measures (e.g., program, process, implementation, evaluation, measurement, impact, effectiveness, equity, feasibility) of the impact/effect of outdoor LED lighting on human health	Studies that do not include outcome or process measures
Other	English; full text available	Whole books; thesis/dissertation abstracts; research protocols