

INTERVENTIONS TO ADDRESS SOCIAL ISOLATION AND LONELINESS

Lessons Learned from Programs Around the Globe



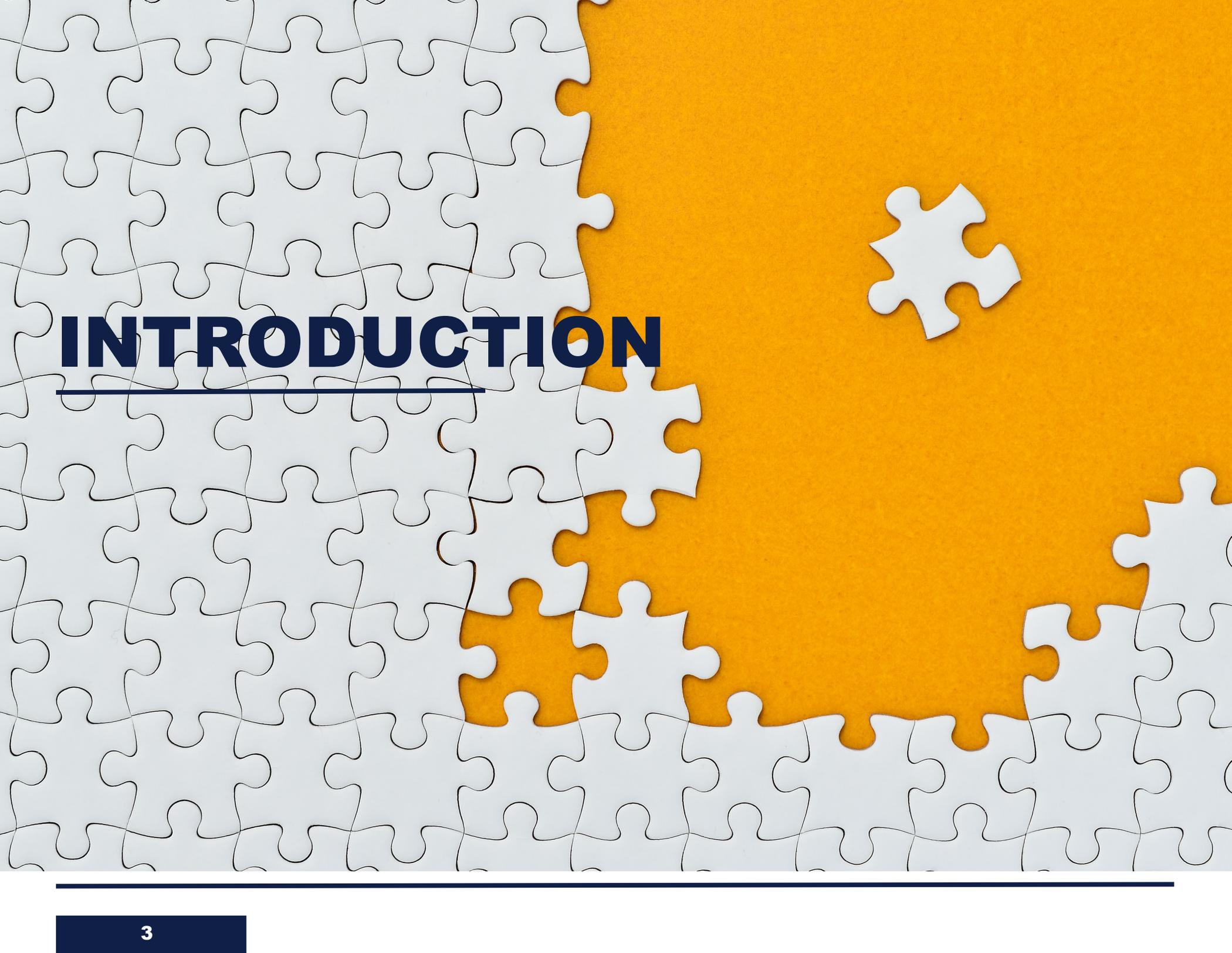
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Social Interventions Research & Evaluation Network

The background features a pattern of interlocking puzzle pieces. The left side is white, and the right side is orange. A single white puzzle piece is missing from the orange area, floating in the upper right. The word 'INTRODUCTION' is written in bold, dark blue, uppercase letters across the middle of the image, underlined.

INTRODUCTION

Introduction

Long before the COVID-19 pandemic began, public health leaders in the United States recognized the importance of addressing social isolation and loneliness as a strategy for improving health. The COVID-19 pandemic has accelerated isolation globally by decreasing in-person interactions.

Social isolation refers to the objective infrequency or lack of social contact, while loneliness refers to the subjective feeling of being lonely or socially isolated.¹ A large body of evidence demonstrates that social isolation and loneliness, are associated with a variety of adverse health outcomes, including cardiovascular disease,² mental illness,¹ and overall mortality.^{3,4} Socially isolated older adults also account for an estimated 6.7 billion in additional Medicare spending annually when compared to those with social connections.⁵

The health and cost consequences of social isolation and loneliness have prompted increased interest in effective interventions. In the United States, the National Academies of Sciences, Engineering, and Medicine released a report that recommended advancing research on effective strategies to address both issues and supporting a national resource center to centralize evidence and best practices.¹



Interest in this area is not exclusively from health researchers. Multiple US federal legislative bills now include provisions to address social isolation and loneliness. As an example, the 2020 Supporting Older Americans Act includes administration of grants and contracts for activities that promote “reduced social isolation and improved participant social connectedness.”⁶ In the United Kingdom, the Prime Minister appointed its first Minister of Loneliness in 2017,⁷ and other European countries are also considering government involvement to address loneliness.⁸

Given the growing global interest in addressing social isolation and loneliness, we sought to surface interventions addressing these issues from settings around the world. By studying these interventions—including how they are developed, implemented, scaled, and sustained—we hope to help build a foundation for researchers, clinicians, and funders advancing this work in the US.



METHODS

WHAT DID WE DO?

1. Reviewed peer and grey literature. We developed detailed search strategies to find relevant literature in both PubMed (see box for more details) and the grey literature (see box).

PUBMED SEARCH:

We conducted a peer-reviewed literature search to select articles about social isolation interventions.

PubMed search terms

“social isolation” OR “loneliness”
“program” OR “interventions” OR “addressing” OR
“connecting” OR “referral” OR “implementation”
OR “trial” OR “policy”
AND English

GREY LITERATURE SEARCH:

We used databases listed in the “Grey Matters” database report,⁹ which lists grey literature databases for the following countries and groups of countries: Australia, Austria, Belgium, Canada, Denmark, France, Germany, Finland, Ireland, The Netherlands, New Zealand, Norway, Spain, Sweden, United Kingdom, United States, and the Organisation for Economic Co-operation and Development. We also set the Google search engine location to each of these countries and performed identical searches. In each database we used eight searches (see grey literature box).

“Grey Matters” and Google search terms:

“‘social isolation’ health intervention”
“‘social isolation’ health program”
“‘social isolation’ intervention”
“‘social isolation’ program”
“loneliness intervention”
“loneliness program”
“loneliness health intervention”
“loneliness health program”

We reviewed all interventions and then rated them on the following inclusion criteria (see box below):

Inclusion Criteria

- Had to have social isolation or loneliness (whether quantitative or qualitative) either as a primary or secondary outcome
- If social isolation/loneliness is included in sub-scale, had to report on that specific component
- If targeting a specific population based on a health condition, had to be potentially generalizable to populations beyond those with that health condition

Ultimately, 189 interventions from PubMed and 166 identified from the grey literature met our inclusion criteria. We then used the review criteria (see box below) to rate these interventions.

Review Criteria

- social isolation and/or loneliness impact
- health impact
- scale
- feasibility in the United States
- novelty
- demonstrated sustainability
- relevance to high cost/high need populations

2. Surveyed 61 leaders from programs identified in the peer and grey literature search. Survey questions explored program design, implementation, and sustainability.

SURVEY RESPONDENTS AND QUESTIONS

61 of 343 program surveys were completed (17.8% response rate) including by program founders, directors/executives, managers, trainers, communication officers, and researchers. Specific questions included in the survey covered topics such as: program characteristics, target population, implementation barriers and facilitators, impact evidence (e.g. on social isolation, loneliness, and health), funding sources, and lessons learned. The complete text of the program surveys is provided in Appendix 1.

COUNTRY OF SURVEY RESPONDENTS

- Australia
- Canada
- China
- Denmark
- Finland
- Germany
- Ireland
- Israel
- The Netherlands
- New Zealand
- Norway
- Russia
- South Africa
- Spain
- Sweden
- Turkey
- United Kingdom
- United States

3. Interviewed 19 key informants from five case study organizations selected from our literature search. Case study organizations were included based on geographic diversity, and scoring highly on at least one of several criteria such as scale, novelty, effectiveness evidence, and demonstrated sustainability. A detailed description of these selection criteria is included in Appendix 2.

CASE STUDY QUESTIONNAIRE

Key informants were asked about program design, implementation, effectiveness, and sustainability. Questions included topics of development of program, how the COVID-19 pandemic has affected the program, design challenges, and the impact that the program had on the participants it was designed to support. The complete text of the key informant interview guide is provided in Appendix 3.

CASE STUDIES

A row of folders with colorful tabs (yellow, green, blue, orange) and a pink tab, set against a dark background. The folders are arranged in a perspective view, receding into the distance. The tabs are of various colors: yellow, green, blue, orange, and pink. The text 'CASE STUDIES' is overlaid on the left side of the image, underlined.

Groups 4 Health

BACKGROUND

Groups 4 Health (G4H) is an evidence-based adult group psychology intervention designed to improve health by providing participants with the knowledge, skills, and confidence to increase social connectedness by strengthening group-based social identification. Launched in 2014 in Australia, it was developed by researchers at the University of Queensland interested in helping socially isolated/disconnected people. In addition to providing skills-based knowledge, G4H facilitates social group memberships by offering an in vivo group experiences.

FINANCING MECHANISM

To date, G4H has been funded as a research program by the University of Queensland, the Social Identity and Groups Network, the Australian Government Australian Research Council, and the Canadian Institute for Advanced Research.

RESULTS

Program participants of G4H have reported that participation reduces feelings of loneliness and stress, social anxiety, depression symptoms, and general practitioner visits; and improves life satisfaction and sense of belonging.^{10,11}

KEY PROGRAM FEATURES

The program consists of five x 1.5-hour sessions provided over the course of two months. The sessions aim to give participants the knowledge and skills they need to effectively manage their social group memberships and the identities that underpin them. Each session is attended by 6-8 participants, and each session focuses on a different topic.



SOURCE: Groups 4 Health website

Figure 2:
Groups 4 Health Five Key Modules

Appreciating Groups	Raising awareness of the value of groups for health and of ways to harness this resource.
Mapping Groups	Developing social maps to identify existing group connections and areas for social growth.
Strengthening Groups	Training skills to maintain and use existing networks and reconnect with valued groups.
Expanding Groups	Using the G4H group as a platform to trial trained skills, develop new group connections, and harness these effectively.
Maintaining Groups	Reviewing progress, troubleshooting challenges, and reinforcing key program messages.

SOURCE: Groups 4 Health website

WEBSITE

<https://sign.centre.uq.edu.au/products-services/products/social-connection-for-health>

KOMP



BACKGROUND

KOMP is a screen-based, one-button communication product designed for older adults less comfortable using video-based communication technologies. The program enables clients' family and friends that are more versatile with technology to initiate contact using their own smart devices. It was launched in 2017 by *No Isolation*, a Norwegian startup founded in 2015 with a mission to “reduce involuntary loneliness and social isolation by developing communication tools that help those affected.”¹⁵ KOMP targets older adults and other adults living with functional impairments or disability.

FINANCING MECHANISMS

No Isolation receives funding from a combination of investors, grants, revenue from sales and KOMP Pro subscriptions. Original funding to develop the KOMP came from the Norwegian Cancer Society.

RESULTS

Studies are currently in progress at several research institutions. To date, users have reported that the product is easy to use and reduces feelings of loneliness.¹² Sharing photos using KOMP increased during the COVID-19 pandemic.



SOURCE: KOMP website

KEY PROGRAM FEATURES

KOMP is designed specifically for ease of use -- it involves one screen and one button. After plugging in the KOMP and connecting it to WiFi in the primary user's location of choice, a user's family and friends can then download the KOMP app on their smartphones or tablets to facilitate communication with the primary user. Calls to KOMP are automatically picked up after 10 seconds, and people can send photos and text messages that are shown on a continuous loop on the screen. Organizations also can purchase KOMP (“KOMP Pro”), which enables them to manage a large number of devices, create groups of KOMP users, and individualize care. Several municipalities have purchased KOMP Pro to improve connectivity and facilitate communication between health care professionals and patients.

WEBSITE

<https://www.noisolation.com/global/komp/#header>

LISTEN

LISTEN – AN INTERVENTION DESIGNED FOR LONELINESS

SOURCE: LISTEN website

BACKGROUND

LISTEN (Loneliness Intervention using Story Theory to Enhance Nursing sensitive outcomes) is a 5-session group cognitive behavioral intervention designed to help adults recognize thought and behavior patterns that contribute to their feelings of loneliness. Established in the US in 2010 by Dr. Laurie Theeke, it was developed and implemented within the framework of cognitive behavioral and problem-solving therapy and story theory. While LISTEN has been geared primarily towards adults with a chronic illness and those living in rural settings, it targets all adult populations.

FINANCING MECHANISM

The Robert Wood Johnson Foundation Nurse Faculty Scholars program and other US foundation grants initially financed the intervention's development and evaluation. The project team is exploring other funding opportunities for evaluating and scaling the program.

RESULTS

Research on LISTEN shows that the program reduces loneliness, enhances overall social support,¹³ and reduces systolic blood pressure.^{13,14} In one process evaluation, participants found the program highly acceptable, and expressed an interest in “booster” follow-up sessions; the session attendance rate was also high.¹⁵

KEY PROGRAM FEATURES

Participants attend five 2-hour long sessions in a group setting of 3-5 people. Reflection and writing exercises are part of the sessions, each of which has a specific focus:

Session 1: Focuses on belonging, with an assessment of how sense of belonging and loneliness have evolved throughout the life course.

Session 2: Focuses on relationships, exploring former and current relationships and the individuals' role in these relationships, as well as the link between relationships and loneliness; Encourages re-connection with self and a thoughtful reflection of self in relation to others and community.

Session 3: Explores patterns of getting out or staying in. During this session, group participants gain insight into how others get out or stay in while experiencing loneliness.

Session 4: Explores both the ups and downs of loneliness, focusing on the realities of coping with loneliness; focuses on identifying critical moments when loneliness may have changed over time.

Session 5: Identifies life lessons on loneliness. Participants recap the first four weeks, differentiate being alone from loneliness, and write messages for others about loneliness. Ends with a discussion about how participant will employ knowledge gained from participation in LISTEN to alter their experience of loneliness.

WEBSITE

<https://listenforloneliness.com/>

PARO

BACKGROUND

PARO is a therapeutic robot seal designed to help alleviate distress among patients and their caregivers. The current version of PARO is the 8th generation of a design that has been used in Japan and Europe since 2003. It enables the benefits of animal therapy to be administered to patients in environments such as hospitals and extended care facilities where live animals present treatment or logistical difficulties. The program's main target populations to date have been older adults living in institutions or living with cognitive impairment.

FINANCING MECHANISM

PARO has received multiple academic grants in Japan for the development of the robotic technology. It is a commercial product and retail sales help generate revenue that is returned to ongoing development of the product. In the US its use can be reimbursed under Medicare¹⁶ as a biofeedback device. Additionally, people can directly purchase PARO for their own use.

WEBSITE

<http://www.parorobots.com/>



SOURCE: PARO website

KEY PROGRAM FEATURES

The PARO seal is able to interact with people and its environment through five kinds of sensors: tactile, auditory, posture, light, and temperature located throughout the device. PARO is able to differentiate types of touch and can distinguish between voices and recognize verbal inflection (e.g., whether it is receiving praise or hearing a greeting). It can learn to behave in ways that a user prefers. For example, PARO will repeat previous actions that led to praise. Additionally, it is able to respond to its name, can make sounds (it mimics the sounds of a baby harp seal), and it can move most of its body.

RESULTS

Studies suggest PARO alleviates feelings of loneliness¹⁷ and increases individuals' social interactions and agency.¹⁸ A scoping review of PARO studies noted that its main benefits were reducing negative emotion and behavior symptoms, improving social engagement, and promoting positive mood and quality of care experience,¹⁶ and a systematic reviewed demonstrated that it can improve quality of life.¹⁹

Circle of Friends (Ystäväpiiri)

BACKGROUND

Circle of Friends (CoF) is a group-based intervention focused on creating a sense of togetherness and shared interests among lonely older adults and initially facilitated by a CoF facilitator. CoF was developed in Finland in 2002 as part of an academic study led by Dr. Kaisu Pitkälä, a geriatrician, interested in decreasing loneliness and improving health among lonely older adults.

FINANCING MECHANISM

The program is financed through Veikkaus Oy, the national government-owned slot machine and gambling association in Finland, which makes numerous charitable donations to programs throughout Finland. Additional funding for research studies is secured through independent research grants.

WEBSITE

<https://vtkl.fi/toiminta/ystavapiiri/circle-of-friends>



SOURCE: Circle of Friends website

KEY PROGRAM FEATURES

A CoF group is a closed group of up to 8 older adults that meet 12 times in three months in an effort to alleviate participants' loneliness and promote well-being. The groups are initially guided by a group facilitator from the local community based on specific selection criteria. The facilitator participates in an extensive 5-month training. After the 12 weekly sessions led by a CoF facilitator, the goal is for each group to self-organize future events.

RESULTS

CoF has been systematically and widely implemented and disseminated in Finland for 14 years. Over 1,000 CoF facilitators have been trained across Finland, and roughly 10,000 older people have participated.²⁰ CoF has been shown to improve psychological well-being,²¹ improve cognition,²² improve subjective health, reduce health care service use, reduce health care costs, and have a survival benefit.²³ Roughly 45% of participants report finding new friends in the year following participation; over 60% of CoF groups organize group meetings after facilitators' roles end; and 90% of participants perceive that participating in CoF groups has contributed to reducing their loneliness.

A close-up photograph of a white jigsaw puzzle. A magnifying glass is held over the puzzle, focusing on a single red puzzle piece that is missing from its position. The text 'KEY FINDINGS' is overlaid on the left side of the image.

KEY FINDINGS

Implementation Barriers

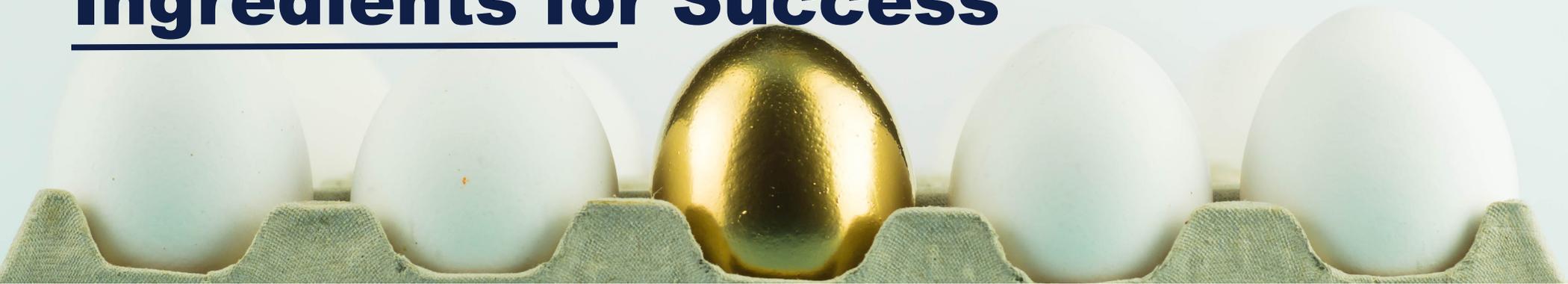
Organization leaders described a variety of barriers related to the development, implementation, and adoption of social isolation and loneliness interventions. Key barriers included:

- Participant recruitment: Implementers noted that loneliness can be a barrier to recruitment itself:

“You can’t just look at someone and say, ‘Hey, that person is lonely.’ Because it’s a subjective feeling - subjective experience. So, you need to spread the word.”

- Participant engagement: Even if interested in participating, barriers that drive social isolation and loneliness often erect barriers to participation. Examples include living in an isolated area, lack of access to transportation, and meeting spaces that are not easily accessible to people with limited mobility.
- Funding: Many interviewees described how funding limited implementation and adoption of interventions. Several interviewees who worked on interventions that started as research studies described how it was difficult to raise money to scale the intervention after the initial pilot study phase. Others described the stress of having to identify and apply for funding regularly to sustain their program.

Ingredients for Success



Interviewees uniformly emphasized one common ingredient to successful program implementation: early partnerships with other organizations and community groups. Local partner institutions and health systems can help programs by publicizing interventions and referring clients. In some instances, government partnerships also facilitated program scaling. Interviewees also stressed building in routine check-ins with these partners and other external stakeholders to discuss how the program is progressing, challenges they may face in engaging with or referring to the program, and success stories or stories of impact about the program, all of which can help build and sustain organizational relationships.

Other factors highlighted as key ingredients for success across our interviews included:

- Publicly normalizing loneliness and social isolation—and perhaps more importantly, reducing associated stigma:

“Newspapers and radio’s a good place to talk about loneliness and how it’s not something that you need [not] to be ashamed of. And you talk about it and actually it’s normal to feel loneliness; it’s not something that’s like stigmatized or bad thing. But it’s really tricky to find the persons who genuinely feel lonely. Because it might be even bigger step for them to step into the game and say, ‘Hi, I’m lonely; I want to come to the group. I want to join the group.’”

- Gaining community trust: People experiencing loneliness or social isolation may be not be immediately ready to join a related intervention, particularly programs that involve intensive group participation.
- Clarifying intervention target population: Some program participants have very different experiences or life conditions that can affect a group intervention where shared experiences are an important therapeutic program component. Selecting participants based on shared experiences is important to program success.

Sustainability

Funding mechanisms to support the five case study programs varied widely. One program applies annually and receives operating funds from their country's government-owned slot machine and gambling company. Others earn revenue from selling their own products. While many of these programs grew out of an initial research project, most reported that program scaling required funding outside of academia.

Key messages about scaling and sustainability included:

- User-centered design is important to developing useful interventions and subsequent funding.
- Intervention flexibility: While an intervention may be researched in a strictly defined patient or client population, it should have the flexibility to be tailored to other populations and contexts while still maintaining the core elements.

“First is, we need to see where it fits in the overall system that we’re delivering it. . . Does it fit within a health system? Does it fit within an insurance system? Is it a standalone that you’re referred to? Is it part of your faith community? Is it part of your community? . . . It can be part of all of those things. But where you decide to put that matters because it impacts who you’re going to have in your groups and how they’re going to pay for that and if they have to pay for it and all of those sorts of things.”

COVID-19



Our case study interviews were conducted in the fall of 2020, by which time COVID-19 was affecting all the countries represented in this report. We asked interviewees about how COVID-19 influenced their social isolation and loneliness programs. Most described having experienced a rapid uptick in interest, use, and effectiveness during the pandemic.

In parallel, some informants noted that funding became more limited in the wake of the pandemic as institutions and funders struggled with the global financial crisis. In contrast, some organizations found that the surge in interest in social isolation and loneliness led to more funding opportunities.

Interviewees also discussed operational challenges they faced secondary to social distancing guidelines, and how programs that center on in-person meetings limited implementation and scaling strategies. However, the pandemic also bred innovation and accelerated key program adaptations, including virtual program development.

“So I’d say, if anything, the main effect that COVID’s had, I guess, is kind of probably accelerated our move towards online options for the program.”

A network diagram consisting of numerous gold-colored pins arranged on a white surface. The pins are interconnected by thin, colored threads in shades of blue, red, green, and purple, forming a complex web of connections. The threads connect the pins in various directions, creating a dense network of triangles and other geometric shapes. The overall appearance is that of a physical model of a network or graph.

SUMMARY & RECOMMENDATIONS

Summary & Recommendations

Our literature review, surveys, and case studies help to highlight the rapidly evolving global effort to develop, implement, and scale interventions to address social isolation and loneliness. Key lessons relevant to program development and implementation in the US include:

User-centered design is crucial for development and adoption of interventions

Social isolation and/or loneliness interventions have both indirect and direct effects on health

Working with community-based partners facilitates development, implementation, and adoption of interventions

Scaling may require intervention adaptations that can accommodate new populations

Online programs (even those adapted from original in person formats) are feasible when there are limited opportunities for in-person contact (eg. during COVID pandemic)

Research is still needed on both program implementation and effectiveness to understand comparative impacts and feasibility of different social isolation programs

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Social Interventions Research & Evaluation Network

The Social Interventions Research and Evaluation Network (SIREN) is located at the University of California, San Francisco. SIREN's mission is to improve health and health equity by advancing high quality research on health care sector strategies to improve social conditions.

REFERENCES

1. National Academies of Sciences, Engineering, and Medicine. *Social Isolation and Loneliness in Older Adults: Opportunities for the Health Care System*. Washington, DC: National Academies Press; 2020.
2. Valtorta NK, Kanaan M, Gilbody S, et al. *Heart* 2016;102:1009–1016.
3. Pantell M, Rehkopf D, Jutte D, Syme SL, Balmes J, Adler N. Social isolation: a predictor of mortality comparable to traditional clinical risk factors. *Am J Public Health*. 2013;103(11):2056–2062.
4. Holt-Lunstad J, Smith T, Layton J. Social relationships and mortality risk: A meta-analytic review. *PLoS Med*. 2010 Jul 27;7(7):e1000316.
5. Flowers, L., A. Houser, C. Noel-Miller, J. Shaw, J. Bhattacharya, L. Schoemaker, and M. Farid. 2014. Medicare spends more on socially isolated older adults. <https://www.aarp.org/content/dam/aarp/ppi/2017/10/medicare-spends-more-on-socially-isolated-older-adults.pdf> (accessed May 4, 2019).
6. Supporting Older Americans Act . (2020). Supporting Older Americans Act, H.R. 4334, 116th Cong. Retrieved from <https://www.congress.gov/bill/116th-congress/house-bill/4334/text> on 5/4/21.
7. “U.K. Appoints a Minister for Loneliness.” *The New York Times*. 01/17/2018. Accessed online on 5/4/21: <https://www.nytimes.com/2018/01/17/world/europe/uk-britain-loneliness.html>
8. “Isolation Is Rising in Europe: Can Loneliness Ministers Help Change That?” Noack R. *The Washington Post*. 02/02/2018. Accessed online on 5/4/21: <https://www.washingtonpost.com/news/worldviews/wp/2018/02/02/isolation-is-rising-in-europe-can-loneliness-ministers-help-change-that/>
9. Grey matters: a practical tool for searching health-related grey literature [Internet]. Ottawa: CADTH; 2018. Accessed online on 5/4/21: <https://www.cadth.ca/resources/finding-evidence>
10. Haslam C, Cruwys T, Chang MXL, et al. GROUPS 4 HEALTH reduces loneliness and social anxiety in adults with psychological distress: Findings from a randomized controlled trial. *Journal of Consulting and Clinical Psychology*. 2019;87(9):787-801.
11. Haslam C, Cruwys T, Haslam SA, Dingle G, Chang MXL. Groups 4 Health: Evidence that a social-identity intervention that builds and strengthens social group membership improves mental health. *Journal of Affective Disorders*. 2016;194:188-195.
12. Haslam C, Cruwys T, Haslam SA, Dingle G, Chang MXL. Groups 4 Health: Evidence that a social-identity intervention that builds and strengthens social group membership improves mental health. *Journal of Affective Disorders*. 2016;194:188-195.
13. The impact of KOMP on seniors’ levels of loneliness and well-being.” *No Isolation*. Accessed online on 5/10/21: <https://www.noisolation.com/global/research/what-we-know-about-the-impact-of-komp-on-seniors-levels-of-loneliness-and-well-being/>
14. Theeke L, Mallow J, Moore J, McBurney A, Rellick S, VanGilder R. Effectiveness of LISTEN on loneliness, neuroimmunological stress response, psychosocial functioning, quality of life, and physical health measures of chronic illness. *Int J Nurs Sci*. 2016 September;3(3):242-251
15. Theeke L, Mallow J, Moore J, McBurney A, VanGilder R, Barr T, Theeke E, Rellick S, Petrone A. Using gene expression analysis to examine changes in loneliness, depression and systemic inflammation in lonely chronically ill older adults. *Open J Nurs*. 2016 August;6(8):620-631.
16. Hung L, Liu C, Woldum E, Au-Yeung A, Berndt A, Wallsworth C, Horne N, Gregorio M, Mann J, Chaudhury H. The benefits of and barriers to using a social robot PARO in care settings: A scoping review. *BMC Geriatr*. 2019;19:232.
17. Robinson H, Macdonald B, Kerse N, Broadbent E. The psychosocial effects of a companion robot: a randomized controlled trial. *J Am Med Dir Assoc*. 2013;14(9):661-667.
18. Robinson H, Broadbent E, MacDonald B. Group sessions with Paro in a nursing home: Structure, observations and interviews. *Australas J Ageing*. 2016;35(2):106-112.
19. Wang X, Shen J, Chen Q. How PARO can help older people in elderly care facilities: A systematic review of RCT. *Int J Nurs Knowl*. 2021; May 7:1-11.
20. Circle of Friends website. Accessed online on 5/10/21: <https://vtkl.fi/toiminta/ystavapiiri/circle-of-friends>
21. Routasalo P, Tilvis R, Kautiainen H, Pitkälä K. Effects of psychosocial group rehabilitation on social functioning, loneliness and well-being of lonely, older people: Randomized controlled trial. *Journal of Advanced Nursing*. 2009;65(2):297-305.

References

22. Pitkälä K, Routasalo P, Kautiainen H, Sintonen H, Tilvis R. Effects of socially stimulating group intervention on lonely, older people's cognition: A randomized, controlled trial. *Am J Geriatr Psychiatry*. 2011;19(7):654-663.
23. Pitkälä K, Routasalo P, Kautiainen H, Tilvis R. Effects of psychosocial group rehabilitation on health, use of health care services, and mortality of older persons suffering from loneliness: A randomized controlled trial. *J Gerontol A Biol Sci Med Sci*. 2009;64A(7):792-800.

APPENDIX 1

Survey on Program Characteristics

If your program is no longer operating, please answer the questions about program logistics when it was still operating.

1. What is the name of the social isolation/loneliness program or study with which you are involved? _____
2. Is the program still in operation?
 - o Yes
 - o No
3. If available, can you provide a link to the website for your program? _____
4. What is your role in the program/study?
 - o Principal investigator/project leader
 - o Project manager
 - o Researcher
 - o Sponsor or funder
 - o Other (please specify)
5. What is your official position title in the program?
6. If not you, who is the program leader (e.g. director, CEO, principal investigator)? _____
7. Where is the program based? (City, State/Country) _____
8. What geographic catchment area does the program serve? (E.g. Piedmont County; California; the United Kingdom) _____
9. Does the program target:
 - o Social isolation (if yes, how does your program define social isolation?) _____
 - o Loneliness (if yes, how does your program define loneliness?) _____
 - o Other (please define) _____
10. What population(s) does the program target (please click all that apply):
 - o Children (ages 0-12)
 - o Adolescents (ages 13-17)
 - o Adults (ages 18-64)
 - o Older adults (ages 65 and older)
 - o People with mental or behavioral health issues
 - o People with chronic illnesses (other than mental health)
 - o People with functional impairments and/or living with a disability
 - o Parents
 - o Pregnant women
 - o Immigrants/migrants
 - o People with a specific disease or medical condition (please specify) _____
 - o Other (please specify) _____
11. Roughly how many people does the program serve in one year?
 - o <30
 - o 30-99
 - o 100-499
 - o 500-4,999
 - o 5,000 or more

12. What type of intervention does your program involve (please check all that apply):
- Group activities (e.g. support groups; exercise groups)
 - Home-based one-on-one linkages (e.g. home visits)
 - One-on-one linkages outside of the home
 - Resilience training
 - Online communications (e.g. chat rooms, social networking groups)
 - Telephone communications
 - Mobile app connecting participants to people or resources
 - Other online/digital solution (please specify)
 - Other (please specify)
13. For how many years has your program been operating (or, for a program that has ceased operating, for how many years was it operating):
14. Please briefly describe the intervention:
15. Does your organization measure program impact on:
- Social isolation/loneliness (if so, using what measures?)
 - Health (if so, using what measures?)
 - Well-being (if so, using what measures?)
 - Other impact (if so, using what measures?)
16. If measured, what has been the program's impact on:
- Social isolation/loneliness
 - Health
 - Well-being
 - Other _____
17. Was the program initially designed to (check all that apply):
- Reduce social isolation/loneliness
 - Improve health (please specify which health outcomes)
 - Other (please specify which other outcomes) _____
18. Has there been a formal evaluation of your program?
- Yes
 - No
19. In which industry is your program based?
- Health/Health Care
 - Communications/Electronics
 - Education
 - Entertainment
 - Food
 - Housing
 - Non-profits/Foundations/Philanthropy
 - Religious Organizations
 - Transportation
 - Other (please specify)
20. Is your program linked to health care organizations (e.g. operates within a health clinic; funded healthcare payers)?
- No
 - Yes, it operates within a health care organization (please describe)
 - Yes, it works with health care organizations, but is based in another industry (please describe)

21. Is your program linked to government organizations (e.g. receives funding; is staffed by government employees)?
- Local government (if so, how?) _____
 - State/regional government (if so, how?) _____
 - National government (if so, how?) _____
 - Our program is not involved with the government
22. Does your program collaborate with community organizations?
- No
 - Yes (if so, how?) _____
23. What percent of your program is funded/supported? (please check all that apply)
- Sustainable/ongoing funding from the government (please specify) : _____
 - Sustainable/ongoing funding from another organization (please specify) : _____
 - Short-term government grants : _____
 - Philanthropic/charitable donations : _____
 - Profits from the program : _____
 - Private sector funding : _____
 - Other (please describe) : _____
 - Total : _____

24. Is your program planning to expand in the near future?
- Yes
 - No
25. What is/are the most important lessons learned from your experience working in this field? What advice would you give others that want to implement programs to reduce social isolation and loneliness? _____
26. Is there anything else about your program you think we should know? _____
27. Please list any other exemplar programs below:
- Name/URL/Contact #1 _____
 - Name/URL/Contact #2 _____
 - Name/URL/Contact #3 _____
28. Are there any other people working in the field of social isolation and/or loneliness interventions with whom you think we should speak (not necessarily in charge of programs)?
- Name/Title/Contact Info #1 _____
 - Name/Title/Contact Info #2 _____
 - Name/Title/Contact Info #3 _____

APPENDIX 2

Case Nomination Criteria

Criteria	0 points	1 point	2 points	3 points
Impact - Health	Not measured; measured but null	Qualitative evidence that is poorly described or with small sample size; quantitative evidence limited by sample size; quantitative evidence that is not significant	Quantitative evidence that is significant	Strong significant quantitative (large sample size over 50); multiple populations with evidence of smaller scale
Impact Social Isolation/ Loneliness	Not measured; measured but null	Qualitative evidence that is poorly described or with small sample size (N<100 at one site or N<50 at many); quantitative evidence limited by sample size; quantitative evidence that is not significant	Quantitative evidence that is significant; multiple samples with qualitative evidence; qualitative study focused specifically on social isolation/ loneliness impact	Strong significant quantitative evidence; multiple populations with evidence of smaller scale
Scale	Case study; disease specific	Small scale (N <50) and likely not scalable	Small (N <50) or multisite with N<25 at each, but feasible to scale up; OR larger scale (N>50 or multisite N > 25) with unclear scalability	Already large scale evidence available
Feasibility in US	Unlikely or impossible	Possible, but would take a change in policy/financing to work	Possible given the current US landscape (as of date of review)	Already embedded as a program in the US
Novelty	Not novel	Older idea repackaged in new context; older idea borrowed from another sector	New idea using resources available before, but never introduced	New idea using technology/ resources that are also fairly new
Demonstrated Sustainability	Not working anymore; "failed"	Promising, but has not made it beyond pilot phase	Ongoing with one or two sources of support, or soft-money support	Long-standing (>3 years) with consistent support
High-cost/High-need Relevance	Not relevant	Program does not include HCHN participants, but it could	Program included HCHN participants	Program focused on HCHN participants

APPENDIX 3

Case Study Interview Guide

Interview with Founder/Catalyst of the Program/Program Leads

[Have informant start interview by describing intervention – have them walk you through it. Probe about pathway to impacting loneliness/social isolation, target population. etc]

[Of note, the below questions assume that people have filled out the questionnaire that tells us about the following program characteristics: location, population served, outcome targeted, description, years active. If these questions were not answer, start by getting answers to these questions using the survey format.]

Catalyst/Impetus

- Can you tell me a bit about the factors that led you to developing this program/initiative?
- Where did the project idea come from?
- What was the original aim/goal of the program?
 - Did this change over time – if so, why?
- How did you come up with the program design?
 - Was it based on another model? If so, was there a strong evidence base for this prior model? Had it been evaluated?
 - Which stakeholders did you include in the design development and why?
- Can you describe any external influences – such as policies or funding opportunities – that prompted creating this program?

Barriers/Facilitators to Implementation

- What were the main facilitators of implementing this program?
- How did you engage stakeholders to implement this program?
- Were there any stakeholders you had on board who particularly helped you in setting up the program?
- How did you decide who should be part of the project team? Why did you pick these individuals? Did you make any changes over the course of the project?
- Did you encounter any challenges in starting up the program? What were they?
 - Possible issues to prompt about:
 - Workforce capacity and training
 - Change management/organizational culture
 - Workflow challenges
 - Data challenges
 - Leadership challenges
 - Partnership challenges
 - Funding
- What have been the biggest challenges in running the program, and how were they addressed?

[For interventions embedded within bigger organizations – i.e. that do not stand alone]

- How did the organizational climate help or impede implementation?
- What was the perception of the importance of this intervention versus other priorities within your organization?

Interview with Founder/Catalyst of the Program/Program Leads

- Did members of your organization believe in the potential benefits of this intervention initially? Did this change over time?
- How were you able to sustain the program after its initial pilot or start-up phase?
 - What were the difficult decisions or trade-offs you needed to make?
- Does your organization rely on other organizations to operate or enhance its mission?
 - If so, what is the nature of this relationship? Why is it important to work with this group?
- Are you considering or pursuing any potential partnerships or collaborations in the future?
 - With healthcare systems?
- How has the COVID-19 pandemic affected the program?
 - What changes were required in program delivery/ implementation?
 - Did financing of the program change in any way? How?
 - Has there been increased support or engagement with your program since the COVID-19 pandemic? How?

Assessing and Achieving Impact

- Has the program achieved its initial goals? What have been the most successful aspects of the program? What made them possible?
- Has the program been evaluated either internally or externally/formally? [If yes]
 - Which aspects of the program were evaluated?
 - What data was collected?
 - Why did you choose the metrics that you did?
 - Outcomes/impacts?
 - For whom?

- Over what time points?
- How did the evaluation contribute to the program?
- Did it help with sustaining the program or securing additional funding?
- Did it change any structure to improve the program?
- How have you demonstrated impact and value to stakeholders?
- Have you conducted any participant surveys? If so, what were the results?
- Knowing what you do now, what would you do differently if you were starting again?
- Can you think of an instance where the project was really successful for the end user?
 - What were the key ingredients for this? What would it take to repeat that?
 - Is there an example of a client success story that exemplifies the program?

Sustainability

- How were you able to sustain the program after its initial pilot or start-up phase?
 - What were the difficult decisions or trade-offs you needed to make?
- What do the next few years look like for your program? Will it continue? If so, in what form(s)?
 - If they are making changes: Why are you making these changes?
- What changes to the program would make it more successful going forward?
- How are you planning on sustaining it in terms of funding?
- What would help facilitate this program expanding/scaling? Replicating?

Interview with Founder/Catalyst of the Program/Program Leads

- Do you think this program would be adaptable in other settings?
- What are the core components of the intervention that are needed for success in regards to:
 - The program's goals?
 - Reducing social isolation/loneliness?
 - Promoting/improving health?
 - Versus what are the adaptable elements that can be tailored based on different settings?
 - Has the program been replicated elsewhere? If yes, where? Was it successful?
 - Given how US health care is delivered and financed in the US, do you think this program would be adaptable there?
 - What are the top 3 pieces of advice you would give someone initiating a similar program in the US?
- Is there anything else you would like to share with us?

Interview with Front-line Implementers

Identification/Logistics

- Can you tell me about your role in the program?
- How long have you been involved with the program?
- Why is the intervention being implemented in your setting?
- What are the phases of implementation this program has gone through? What phase are you at now?
- What does a typical day working in the program/intervention/initiative look like for you?
- What does a typical day working in the program/intervention/initiative during COVID-19?
- What was your background before working at this program? (education, prior work)
- What supports and training were most helpful in preparing you for implementing this program?
 - How did it help facilitate your work?
 - Are there things you wish you could have learned about to help prepare you for your role?

Attitudes about the Program

- In your view, what is the aim of the program?
 - With that aim in mind, how well has the project worked?
 - Is there an alternative to address this aim that you think would work better? Why?
- Why is it important to conduct this type of work within your organization now as compared to other priorities?

Barriers/Facilitators to Implementation

- As an implementer of this program, what needs to be in place to make your work feasible? (Think org structure, support from funders, specific types of colleagues, an app, etc)? What helps this program run?
- Conversely, what have been barriers to this program running better in the past or now?

- What were the most important adaptations and extensions of the program that had to be made? What are some of the reasons for these changes?
- Which contextual factors (organizational, financial, cultural, historical etc.) have influenced the implementation and outcomes of the program?

Assessing and Achieving Impact

- What impacts has this program had on the participants it was designed to support? How do you know? Do any particular examples come to mind?
- What do you enjoy about working with this program?
- What is hard about working with this program?
- What advice would you give to people working in similar programs?
- What are the top 3 factors that make this program successful?

[Supplemental Section if the Intervention is a Product]

- Can you tell me about the 'need' your team identified for which this product is intended to address? How did you identify this need?
- What is the added value of this product in relation to existing interventions or strategies to reduce social isolation or loneliness?
- How does the product reduce social isolation or loneliness?
- Could you walk me through the process of using this product?
- What type of formative work and research synthesis did you do to inform the content of this product? (If they answer none: could you tell me about some of the decision-making processes that led you not to including research or evidence-based content in this product?)

Interview with Front-line Implementers

- In your view, what are the key components of the product that help in achieving the impact you described earlier in our conversation?
- Can you tell me a bit more about the strategies you plan to use to keep users engaged with the product and its content?
- How has COVID-19 changed your content or your method of engaging the end user?
- How do you make sure that this product reaches your intended population?
- Can you tell me a bit about uptake of the product? Was this expected/unexpected? How do you increase uptake of the product?
- Can you tell me a bit about some of the strategies your team uses to tailor the product to end users needs over time? What does your data say about how effective tailoring the product has been?

- Is there anything else you would like to share with us?

Interview with Program Evaluators/Researchers

Identification/Logistics

- Can you tell me a little about your role, and your relationship to the program?
- Can you share with us the overall evaluation framework and study design for this program?
- Can you tell us about your evaluation plan? How did you choose the metrics you did in order to evaluate this program?
-(Please identify – RCT, case reports, etc.)
- What were your findings?
 - Health impact
 - Social isolation/loneliness impact
 - Facilitators of/barriers to implementation and success
 - Anything else?
- How did the evaluation contribute to the program?
 - Did it help with sustaining the program or securing additional funding?
 - Did it change any structure to improve the program?

Barriers/Facilitators to Evaluation

- What were some of the evaluation challenges you faced? How did you address them?
- What advice would you give to researchers wanting to work on evaluating future programs tackling social isolation or loneliness?
- To what extent did the COVID-19 pandemic affect data collection or evaluation plans of the program? What mitigation strategies were put into place or changes made to the evaluation plan?

Assessing and Achieving Impact

- What are the experiences of end users/beneficiaries/participants? [choose term that fits best in the context]
- Can you describe a specific story about how the program impacted a participant?
- Did you identify evaluation metrics that could be tracked by the organization over time after your evaluation was over? If so, what were they?
 - Could these metrics also be applied to other programs?

Sustainability

- What is needed to sustain the program over the coming years?
- How do you view the future of the program?
- What would help facilitate this program expanding/scaling? Replicating?
- Is there anything else you would like to share with us?

Interview with Policymakers/Funders

Identification/Logistics

- Could you tell us a bit more about your role and relationship to the program?
- Why did you choose to support it initially?
 - What influenced this decision?
- What did you find most important about this program?

Barriers/Facilitators to Implementation

- What kind of local, state, or national performance measures, policies, regulations, or guidelines influenced the decision to implement the intervention?
- What kind of financial or other incentives influenced the decision to implement the intervention?
- Would any important adaptations to the program be needed in your view?
- What about this program made it fundable over other similar programs?
- What barriers exist to funding programs like this?
- What advice would you give others thinking of funding a similar program? And why?
- How did the COVID-19 pandemic change your government's priorities, and what implications did this have on this program? (prompts: changes in financing, policy provisions, monitoring and evaluation needs)
- Did the COVID-19 pandemic increase regional/national interest in addressing social isolation and/or loneliness?
- What measures have you put in place to mitigate the adverse impacts of COVID-19 on social isolation and loneliness?

Assessing and Achieving Impact

- What are the experiences of end users/beneficiaries/participants? [choose term that fits best in the context]. Can you describe a specific story?
- How does your organization measure impact?
 - What has the impact of this program been?
- How has this program influenced policy decisions?

Sustainability

- What is needed to sustain the program over the coming years?
- How do you view the future of the program?
- What would help facilitate this program expanding/scaling? Replicating?
- Is there anything else you would like to share with us?

APPENDIX 4

Other Examples of Social Isolation Programs

Study/ Program Name	Target Population	Location	Intervention Summary	Intervention Type	Evidence/Key Findings/ Impact
<p>Meals on Wheels</p> <p>Social Call Program from Meals on Wheels</p>	<p>Adults</p> <p>Adults</p>	<p>Canada, United States</p> <p>Canada, United States</p>	<p>Meals on Wheels deliver food (meals) directly to individuals' homes.</p> <p>The Social Call Program is an extension of Meals on Wheels aimed at alleviating social isolation through regular visits with clients.</p>	<p>Home-based one-on-one linkages</p>	<p>There are numerous studies and resources showing the impact of Meals on Wheels program modifications and empathic social calls on loneliness and social isolation outcomes. Example: An RCT of several MoW programs throughout the US found that meal recipients had lower adjusted loneliness scores at follow-up compared with the control group. Individuals receiving daily meals more likely to self-report reduced loneliness than those receiving meals less frequently (e.g., once/week).</p> <p><i>Thomas, Kali S., Ucheoma Akobundu, and David Dosa. "More than a meal? A randomized control trial comparing the effects of home-delivered meals programs on participants' feelings of loneliness." Journals of Gerontology Series B: Psychological Sciences and Social Sciences 71.6 (2016): 1049-1058.</i></p>
<p>Ways to Wellness via link workers</p>	<p>Adults with long term conditions</p>	<p>United Kingdom</p>	<p>LinkWorker is a UK-based social prescribing program comprising personalized support to identify meaningful health and wellness goals, ongoing support to achieve agreed objectives and linkage into appropriate community services. Ways to Wellness is one of the first UK organizations to deliver social prescribing at scale and sustained over time.</p>	<p>Social prescribing Group - activity-focused; Resilience training</p>	<p>Evaluations have found that the program has had positive impact on health-related behaviors including weight loss, healthier eating and increased physical activity. Management of long-term conditions and mental health in the face of multimorbidity improved and participants reported greater resilience and more effective problem-solving strategies. The intervention cultivated feelings of control and self-confidence, as well as reduced social isolation.</p> <p><i>Moffatt, S., Steer, M., Lawson, S., Penn, L., & O'Brien, N. (2017). Link Worker social prescribing to improve health and well-being for people with long-term conditions: qualitative study of service user perceptions. BMJ open, 7(7), e015203.</i></p> <p>Additional citations and survey here.</p>

Appendix 4

Study/ Program Name	Target Population	Location	Intervention Summary	Intervention Type	Evidence/Key Findings/ Impact
Men's Shed	Older men	Many countries, including Australia, Canada, Denmark, New Zealand, Ireland, United Kingdom, and United States	Originally from Australia, sheds are supposed to be social spaces for men, especially those with mental health conditions, to congregate and engage in group activities. The program provides a space for men to gather and work on projects.	Group - activity focused	<p>In a non-comparison observational study, the researchers concluded that sheds can be places for older men to reconnect socially (fostering social connectedness and support) but further studies will have to measure its impact on mental and physical wellbeing.</p> <p><i>McGeechan GJ, Richardson C, Wilson L, O'Neill G, Newbury-Birch D. Exploring men's perceptions of a community-based men's shed programme in England. J Public Health (Oxf). 2017;39(4):e251-e256.</i></p> <p><i>Fildes D, Cass Y, Wallner F, Owen A. Shedding light on men: The Building Healthy Men Project. Journal of Men's Health. 2010;7(3):233-240.</i></p>
HenPower	Older Adults	United Kingdom	HenPower establishes hen houses in outdoor communal care setting. The aim of the program is to improve health and well-being through helping care for hens.	Animal-based	Non-comparison observational study showed reduced depression and improved well-being, and a reduction in loneliness. The intervention also helps older adults build positive relationships.
SilverSneakers	Older adults	United States	SilverSneakers is a fitness program that provides access to gyms and fitness classes for older adults, often covered through Medicare Advantage Plans.	Group - activity-focused	<p>In a non-comparison observational study, participants enrolled in SilverSneakers reported increased physical activity ($P < .01$), measured by levels of low-intensity, moderate, and high-intensity exercise. Participants reported lower levels of social isolation ($P < .01$), measured by the Berkman social disengagement scale.</p> <p><i>Brady, S., D'Ambrosio, L. A., Felts, A., Rula, E. Y., Kell, K. P., & Coughlin, J. F. (2020). Reducing isolation and loneliness through membership in a fitness program for older adults: implications for health. Journal of Applied Gerontology, 39(3), 301-310.</i></p>

Appendix 4

Study/ Program Name	Target Population	Location	Intervention Summary	Intervention Type	Evidence/Key Findings/ Impact
<u>Personal Reminder Information and Social Management (PRISM) system</u>	Older adults	United States	PRISM is a computer system designed for older adults to learn about technology and gain online communication skills.	Skills training	<p>A randomized controlled trial found that the PRISM system resulted in an increase in the Energy dimension of the SF-36 ($p < .05$), and a greater decline in loneliness ($p < .04$; Loneliness Scale) and greater increase in social support ($p < .004$; Interpersonal Support Evaluation List) compared to the control condition.</p> <p><i>Czaja SJ, Boot WR, Charness N, Rogers WA, Sharit J. Improving Social Support for Older Adults Through Technology: Findings From the PRISM Randomized Controlled Trial. The Gerontologist. 2018;58(3):467-477.</i></p>
Voices United for Harmony	Aboriginal and Torres Strait Islander peoples	Australia	Aboriginal and Torres Strait Islander peoples from five communities participated in a one-year Voices United for Harmony community singing program.	Group -activity focused	<p>A rigorously observational study found a significant increase in physical and health beneficial activities ($P < 0.001$). Significant number of participants quit smoking by post-intervention ($P < 0.001$). There were also increased social interactions across groups ($P < 0.01$).</p> <p><i>Sun J, Buys N. Effectiveness of a participative community singing program to improve health behaviors and increase physical activity in Australian Aboriginal and Torres Strait Islander people. International Journal on Disability and Human Development. 2013;12(3):297-304.</i></p>
Friendship Enrichment Program	Older women	United Kingdom	The friendship enrichment programme was developed for older women (53–86 years) comprising 12 lessons that focused on friendship-related topics such as self-esteem.	Group - general; Resilience training	<p>A randomized controlled trial showed improvements in mean scores for negative affect (Positive and Negative Affect Scale 28.14 [SD 5.10] vs 29.46 [5.37], $P=0.027$, and reduced loneliness (De Jong, Gierveld, and Van Tilburg loneliness scale 6.63 [3.59] vs 7.49 [3.52], $P=0.041$). Mean declines in loneliness in the intervention and control groups were not significantly different (ANOVA 0.86 vs 0.25, $P=0.51$)</p> <p><i>Owen L, Nolan K, Tierney R, Pritchard C, Leng G. Cost-effectiveness of a befriending intervention to improve the wellbeing and reduce loneliness of older women. The Lancet. 2016;388(SPEC.ISS 1):84.</i></p>

Appendix 4

Study/ Program Name	Target Population	Location	Intervention Summary	Intervention Type	Evidence/Key Findings/ Impact
Java Group Programs	Older adults	Canada; United States	Java Group Programs offers peer mentorship designed to reduce social isolation, loneliness, and depression in older adults (particularly those in long-term care centers).	Resilience training; Skills training	<p>In a non-comparison observational study, there were significant decreases in depression measured by the Geriatric Depression Scale-Short Form ($P = .02$). Participants reported reduced feelings of loneliness measured by the UCLA Loneliness Scale ($P = .02$).</p> <p><i>Theurer, Kristine A., et al. The Impact of Peer Mentoring on Loneliness, Depression, and Social Engagement in Long-Term Care. Journal of Applied Gerontology (2020): 0733464820910939.</i></p>
Ageing Better in Camden	Older adults	United Kingdom	Ageing Better in Camden connects older adults with support, services, and activities in their community. An outreach teams identifies and provides support to the most isolated individuals. Additionally, older people are invited to participate in the Older People's Advisory Group to guide the program through the years.	Group - general; Group - activity-focused; One-on-one linkages outside the home	<p>Non-comparison observational study qualitative work revealed improved physical and mental health. Individuals reported feeling more socially connected after participation in the program.</p> <p>Since starting in July 2015, 7000 older people have connected with the service. Monthly there are 194 activities and over 3000 attendance and there are 30 local partners.</p> <p><i>Ageing better in Camden. Tackling social isolation and loneliness in our community. 2019 Annual Report. Available online.</i></p>
Call and Check	Isolated adults	United Kingdom	Call & Check uses the assistance of postal workers to check on isolated individuals and aid in referrals to community and social resources.	Home-based one-on-one linkages	<p>Qualitative reports of increased social support and feelings of connectedness. Available online.</p> <p><i>Dickinson, J. (2019). Call&Check: A community service which disrupts the norm. International Journal of Care Coordination, 22(2), 100-103.</i></p>

Appendix 4

Study/ Program Name	Target Population	Location	Intervention Summary	Intervention Type	Evidence/Key Findings/ Impact
Enhance	Older adults	United States	Enhance Fitness offers a fitness class aimed at older adults to improve their overall health and reduce risk of falls.	Group - activity -focused	Overall, studies involving Enhance Fitness show reductions in healthcare costs, improved physical health and increased physical activity, increased sense of community and improved social connectedness. A pre-post study in 2020 showed that at 6-month follow-up, loneliness scores (UCLA loneliness scale) decreased by 6.9%, where Enhance was one of the interventions offered. Citations available here .
Papa	Older adults	United States	A mobile app that pairs “Papa Pals” with older adults. Papa Pals assist with various everyday tasks, and provide companionship for the older partner. Health plans can purchase “Health Papa” which integrates connecting clients with Papa Pals and health care services.	Mobile app	Qualitative reports of reduced loneliness and social isolation. Report of improvement in number of physically and mentally healthy days per month.
Reading Friends	Adults	United Kingdom	Reading Friends aims to reduce loneliness across the UK by facilitating community reading groups.	Group - general; Group - activity-focused	Qualitative reports of reduced loneliness and increased feelings of connectedness. Available online .
One against Loneliness (Een tegen eenzaamheid)	Older adults	Netherlands	One Against Loneliness is a digital directory of resources that are aimed at addressing social isolation and loneliness in the community.	Online resources/ referral platform with searchable activities/ resources by zipcode	Non-comparison observational study (document analysis, individual and group interviews, roundtable discussions). The program was evaluated positively, showing growth in maturity as a program, with a good program infrastructure, including with dedicated staff, clear expectations and engaged stakeholders. National and local coalitions on loneliness are better defined and involved stakeholders are increasing. Focus on the theme of loneliness has been boosted over the past 18 months by the activities of the program. The COVID-19 outbreak has further increased awareness of the issue and the importance of the program. <i>Laan, A., Geuzebroek, E., Wolves, M. Rapportage tweede fase ex durante evaluation programma een tegen eenzaamheid. Ministry of Health, Welfare and Sport of the Netherland, December 2020. Available online.</i>

Appendix 4

Study/ Program Name	Target Population	Location	Intervention Summary	Intervention Type	Evidence/Key Findings/ Impact
Re-Engage	Older Adults	United Kingdom	Re-engage has over 14000 volunteers who helped to organize 900 regular social gatherings throughout the UK with over 8500 older guests in 2020. In response to the COVID-19 pandemic, Re-Engage added a new service, a telephone befriending service for older people called call companions. This ensures older people get a regular phone call throughout the lockdown.	Group - general	In a non-comparison observational study 85% said they had improved well-being, 90% made friends with volunteers and other guests, 77% said they feel less lonely, and 63% said they felt included in the community. Available online.
Cycling without Age	Older adults	Global – 24 countries	Global group cycling program aimed at older adults.	Group -activity-focused	Quantitative reports of improvement in short-term mood, well-being, and happiness. Qualitative reports of improved mood, improved well-being, and initiation of friendships. URL. <i>Gray R & Gow A. Cycling Without Age: Assessing the impact of a cycling-based initiative on mood and well-being. Gerontology & Geriatric Medicine. 2020;6:1-9.</i> <i>Cotnam, V. "Exploring the Effects of the Cycling Without Age Program on Older Adults Living in Long-Term Care" (2020). Electronic Thesis and Dissertation Repository. 7374. https://ir.lib.uwo.ca/etd/7374.</i>
RestovanHarte	Adults of all ages	Netherlands	The program aims to reduce social isolation by bringing people from the neighborhood together, consisting of restaurant guests and volunteers. Dinners are prepared and eaten together among people from all ages and backgrounds, typically in a community center or school. Performances and other activities are common between the dinner courses, and social engagement is encouraged.	Group - general; Group - activity-focused	A qualitative study found that 75% of participants coming to the restaurant had greater social contact/ connectedness and 60% felt less lonely. <i>Apon, E. Intervention Description Resto VanHarte. For Databank Effectieve Sociale Interventies. Movisie. Utrecht, Netherlands, January 2016. Available online.</i>

Study/ Program Name	Target Population	Location	Intervention Summary	Intervention Type	Evidence/Key Findings/ Impact
Virtual Learning Program , part of the Cummings Centre	Older Adults	Canada	The Virtual Learning Program allows older adults to access virtual programs and media through the Cummings Centre. The aim of the program is to reduce the risk for developing mental illness and improve social engagement. The platform has over 330 videos of With 330+ videos of Cummings Centre events, classes and lectures spanning health and wellness, global affairs, music and art, exercise, & entertainment.	Online platform with resources and activities	Non-comparison observational study showed that the program helps to reduce feelings of social isolation. <i>Botner E. Impact of a Virtual Learning Program on Social Isolation for Older Adults. Therapeutic Recreation Journal. 2018;52(2):126-139.</i>
Woebot	Adults	United States; Global	Woebot is an automated conversational agent that delivers cognitive behavioral therapy (CBT) through brief daily engagements with an individual, and tracks moods. It is built as an instant messenger app (platform agnostic). The bot displays empathic responses and also helps to comfort/guide individuals through moods and loneliness, ultimately to reduce symptoms of anxiety and depression.	App	Participants reported significant reductions in anxiety symptoms on the GAD-7 (P = .004) and depressive symptoms on the PHQ (P = .01) <i>Fitzpatrick, K. K., Darcy, A., & Vierhile, M. Delivering cognitive behavior therapy to young adults with symptoms of depression and anxiety using a fully automated conversational agent (Woebot): a randomized controlled trial. JMIR mental health. 2017;4(2):e19.</i>
“University” of the 3rd Age	Older adults	New Zealand; United Kingdom	University of the 3rd Age (U3A) is a worldwide movement, with national chapters in countries like the United Kingdom and New Zealand. It’s a movement of locally run interest groups that provide diverse opportunities to learn for seniors. Members explore new ideas, skills and activities together.	Group - general; Group - activity-focused	In an observational study, 75% of those that reported feeling isolated prior to U3A said they felt the program alleviated their feelings of isolation and loneliness. <i>Swindell, Rick. “U3A online: A virtual university of the third age for isolated older people.” International Journal of Lifelong Education 21.5 (2002): 414-429.</i>

Appendix 4

Study/ Program Name	Target Population	Location	Intervention Summary	Intervention Type	Evidence/Key Findings/ Impact
Standing Together Project	Older adults	United Kingdom	Standing Together (2015-2018) was a Big-Lottery funded project in the UK aiming to facilitate self-help peer support groups in retirement and extra-care housing schemes throughout London. Standing Together's goal is to reduce social isolation and loneliness amongst the elder through weekly self-help groups. Individuals can enquire with the Mental health Foundation of the UK to start their own Standing Together Group, and have access to sample implementation plans and materials to facilitate the self-help groups.	Group- general	<p>A mixed-method evaluation was conducted to assess the impact of the program. The focus groups revealed that most residents felt that the self-help groups helped to combat loneliness, improved social connectedness and belonging, improved well-being through discussion among peers and the presence of a facilitator, and provided meaningful, stimulating activities. Residents also expressed desire for the groups to continue. Quantitative findings showed no significant change on outcome measures. The process evaluation confirmed the positive findings of the focus groups. The process evaluation also emphasized the value in having two skilled facilitators.</p> <p><i>An evaluation of the Standing Together project. The Mental Health Foundation. Available online.</i></p>

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