Systems Of Cross-sector Integration and Action across the Lifespan (SOCIAL) Framework:

THE HEALTH SECTOR

FALL 2022

Foundation for Social Connection

F4SC SCIENTIFIC ADVISORY COUNCIL (SAC):

- DR. JULIANNE HOLT-LUNSTAD, BRIGHAM YOUNG UNIVERSITY, COUNCIL CHAIR
- JUAN ALBERTORIO-DIAZ, CDC STATISTICIAN, VICE CHAIR
- DR. CARLA PERISSINOTTO, PROFESSOR OF MEDICINE, UNIVERSITY OF CALIFORNIA SAN FRANCISCO
- DR. EDEN LITT, UX RESEARCHER, META
- DR. LOUISE HAWKLEY, PRINCIPAL RESEARCH SCIENTIST, NORC AT THE UNIVERSITY OF CHICAGO
- DR. MATTHEW PANTELL, ASSISTANT PROFESSOR, PEDIATRICS, UCSF
- DR. MATTHEW SMITH, CO-DIRECTOR, CENTER FOR POPULATION HEALTH AND AGING & ASSOCIATE PROFESSOR, TEXAS A&M UNIVERSITY
- DR. THOMAS CUDJOE, ASSISTANT PROFESSOR OF MEDICINE, JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE
- DR. NICOLE ELLISON, PROFESSOR AT SCHOOL OF INFORMATION, UNIVERSITY OF MICHIGAN
- DR. HARRY REIS, PROFESSOR OF CLINICAL AND SOCIAL PSYCHOLOGY, UNIVERSITY OF ROCHESTER
- DR. MARK VAN RYZIN, RESEARCH ASSOCIATE PROFESSOR, UNIVERSITY OF OREGON

F4SC STAFF:

- EDWARD GARCIA III, MPH, EXECUTIVE DIRECTOR
- JILLIAN RACOOSIN, MPH, DEPUTY EXECUTIVE DIRECTOR
- MIA HERNANDEZ, SOCIAL CONNECTION FELLOW
- MATTHEW ITZKOWITZ, JD, PROGRAM MANAGER
- ABIGAIL BARTH, MPH, RESEARCH & INNOVATION PROGRAM MANAGER

Foundation for Social Connection

TABLE OF CONTENTS

Foundation for Social Connection

Key Acronyms, Terms, and Definitions

- **SOCIAL Framework:** *Systems Of Cross-sector Integration and Action across the Lifespan (SOCIAL) Framework.*
- **SIL:** An acronym referring to both Social Isolation and Loneliness.
- **HiAP:** Health in All Policies.
- **Social Connection:** A term that refers to the (i) structure, (ii) function, and (iii) quality of relationships with others. Social connection includes not only the size and diversity of one's social network and roles, but the functions these relationships serve, and their positive or negative qualities.
- **Social Connectedness:** The degree to which an individual or population falls on the continuum of social connection.
- **Social Isolation:** Having objectively few social relationships, social roles, and group memberships, and infrequent social interaction.
- **Loneliness:** A subjective unpleasant or distressing feeling of isolation. A perceived discrepancy between one's actual and desired level of social connection.
- **Stakeholder:** Individual or group of individuals with an interest in any decision or activity of an organization or topic area. **(**source**)**

INTRODUCTION

The benefits of social connection and conversely the risks associated with disconnection (e.g., isolation and loneliness) are well documented. This evidence cuts across scientific disciplines including medicine, sociology, psychology, epidemiology, neuroscience, communication, and anthropology, and spans multiple scientific methodologies including prospective longitudinal, cross-sectional, experimental, and randomized controlled trials. This has led to a rich, but complex and dynamic literature leading to questions about how to implement and how to best promote health and reduce population health risk. The weight of the evidence has prompted the development of a systemic framework to address social connection by the Foundation for Social Connections' Scientific Advisory Council, chaired by Dr. Julianne Holt Lunstad.

THE SOCIAL FRAMEWORK

The Systems Of Cross-sector Integration and Action across the Lifespan (SOCIAL) *Framework* aims to facilitate and accelerate progress toward a society that values social connectedness across the lifespan and in all societal domains. In the public health domain, this framework illustrates untapped opportunities to significantly influence population health, many of which are not adequately addressed in national public health discourse and strategies today. Drawing upon, merging, and expanding upon the socio-ecological model and the Health in All Policy (HiAP), a scientific advisory council of interdisciplinary experts created the SOCIAL framework (Figure 1).

The SOCIAL framework illustrates the intersectionality of several selected factors relevant to health and illustrates how every sector of society can potentially contribute to risk and/or protection via actions and policies that limit or facilitate social connection. For example, during the world-wide COVID-19 pandemic, physical distancing policies were enacted to protect physical health in the short term, without acknowledging the potentially larger and longer term sequelae from ensuing social isolation, and potentially loneliness.

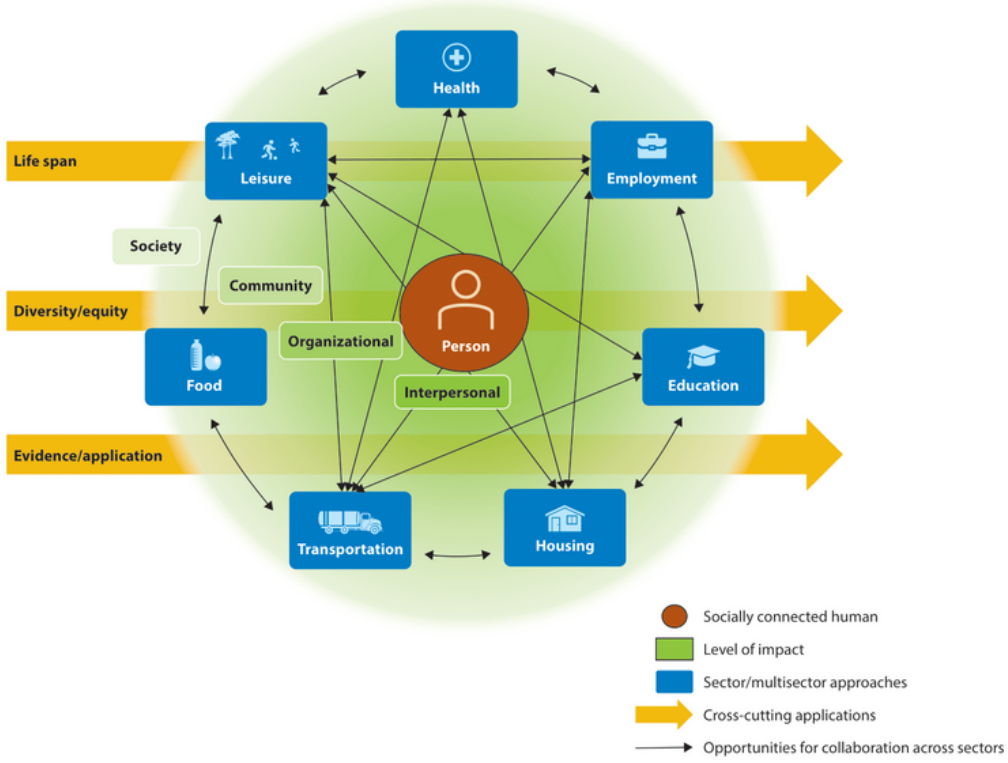

Figure 1 Conceptual representation of the SOCIAL Framework (source Holt-Lunstad, 2022)(65).

Key Components of the Framework: The SOCIAL framework has four main components. Each identified component guides us in understanding the level of impact, which sector is involved, how to collaborate across sectors, and highlights themes that are present throughout.

- **Level of influence.** Depicted in green, illustrates the selected levels of individual, interpersonal, organizational, community, and societal stratification of the socio-ecological model. (For additional resources on the socioecological model see here).
- **Sector of Society.** Depicted in blue, illustrates the selected sectors included within the Health in All Policy (HiAP) model. (For additional resources on the HiAP model see here).
- **Cross Cutting Themes.** Depicted by the gold arrows, illustrates selected areas of focus (e.g, life span, diversity and equity, and evidence and application) that span across the levels and sectors represented in the framework.
- **Opportunities for collaboration across selected sector**s acknowledges and encourages approaches that are transdisciplinary.

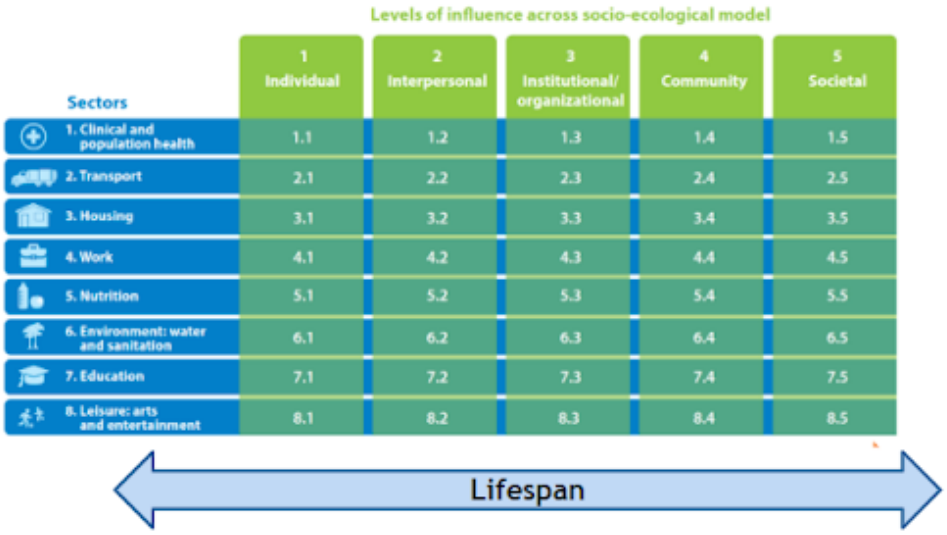

Figure 2 The SOCIAL framework is illustrated in a table format to facilitate systematic identification of areas in which to focus efforts (Holt-Lunstad, 2022)(65).

How to Use the SOCIAL Framework: The SOCIAL framework provides a structured means of promoting social connection and addressing social isolation and loneliness (SIL) at any level, within any sector of society, and for individuals of any age. Specifically, the SOCIAL framework can be used by researchers, community organizations, institutions, and policy makers to:

- Identify opportunities to expand efforts to address gaps (in research, range and types of interventions, and local and national policies).
- Consider the full scope of the socio-ecological model (individual, interpersonal, community, society) to devise cross-cutting collaborative approaches to improving social connectedness and reducing loneliness and social isolation.
- Ensure that social connectedness is receiving appropriate attention for individuals at all stages of the life course (e.g., infancy, childhood, adolescence, adulthood, middle adulthood, older age).
- Ensure that social connectedness interventions are inclusive of diverse populations, and that gaps in this regard are addressed to promote equity and reduce disparities.
- Conduct a self-assessment of the mission and scope of one's own organization. While some organizations are intentionally targeted in scope, the framework can be used to highlight opportunities for greater impact, broader perspective, and areas for collaboration.

We acknowledge that some stakeholders and interventions are represented at multiple levels of the socio-ecological model. The examples provided in this report are for illustrative purposes and are by no means exhaustive.

Identification of Gaps and Opportunities for Research and Action: Within each "cell" of the framework (as displayed in Figure 2) gaps and opportunities in both evidence and action can be identified. Some cells have a wealth of evidence (or certain types of evidence), and similarly some cells are receiving considerable action (or types of action) while other cells have little evidence or action.

Evidence: There are several potential sources of evidence needed within each cell of the framework including the following:

- Basic research (development of new knowledge to predict and understand causal associations).
- Applied research (research focused on finding solutions)
- Translational research (identification of successful small-scale research findings that can be "translated" to the community for implementation and used to modify public policy)
- Evaluation research (evaluation of intervention integrity and uptake, and of impact on social connectedness and risk of loneliness and isolation)

Action: There are several potential types of action needed within each cell of the framework including the following:

- Assessment (individual and population risk)
- Development of public health prevention efforts (primary, secondary, tertiary)
- Documentation and dissemination of evidence-based interventions
- Advocacy for evidence-based policies

Key Acronyms, Terms, and Definitions

- **SOCIAL Framework:** *Systems Of Cross-sector Integration and Action across the Lifespan (SOCIAL) Framework.*
- **SIL:** An acronym referring to both Social Isolation and Loneliness.
- **HiAP:** Health in All Policies.
- **LGBTQ+:** Lesbian, gay, bisexual, transgender, queer. The plus-sign signifies a number of other identities.
- **NASEM:** National Academy of Science, Engineering, and Medicine
- **ICD-9 CM:** International Classification of Diseases-9. Clinical Modification
- **IDEA:** Inclusion, Diversity, Equity, Access
- **Social Connection:** The (i) structure, (ii) function, and (iii) quality of relationships with others. Social connection includes not only the size and diversity of one's social network and roles, but the functions these relationships serve, and their positive or negative qualities.
- **Social Connectedness:** The degree to which an individual or population falls on the continuum of social connection.
- **Social Isolation:** Having objectively few social relationships, social roles, and group memberships, and infrequent social interaction.
- **Loneliness:** A subjective unpleasant or distressing feeling of isolation. A perceived discrepancy between one's actual and desired level of social connection.
- **Stakeholder:** Individual or group of individuals with an interest in any decision or activity of an organization or topic area.
- **Direct Clinical Care:** Refers to work directly with patients to diagnose and treat health conditions.
- **Population Health:** Refers to the health status or health outcomes within a group of individuals and the distribution of such outcomes within the group, rather than the health of one person at a time.
- **Public Health:** The science of protecting the safety and improving the health of communities through education, policy making and research.
- **Social Determinants of Health (SDoH):** Conditions in the environments where people live. Economic stability, educational access and quality, social and community context, neighborhood and built environment, and healthcare access are all included.
- **Accountable Communities for Health (ACH)**: A structured and cross-sectoral approach to community development, closing the gap between healthcare, public health and other health organizations. This includes strategically identifying and addressing social needs to increase population health and health equity.

CHAPTER 1

The Health Sector: Clinical and Population Health

BACKGROUND

While the importance of social connection, and the dangers of social isolation and loneliness (SIL) span many sectors, the health sector is a particularly key sector ripe for action given much of the scientific evidence has focused on the health consequences related to social connectedness and SIL.

The evidence supporting the medical and healthcare relevance of social isolation and loneliness has been summarized in the NASEM consensus report, as well as several scientific reviews and meta-analyses that document the protective effects of social connection and the risks associated with SIL (see list of key sources of evidence here). Despite the strong scientific evidence, there are many gaps and untapped opportunities for additional evidence and action within the health sector. The SOCIAL framework helps to point out these opportunities for both evidence and action.

PURPOSE

The aim of this chapter is to illustrate potential untapped opportunities for the health sector as a means of accelerating progress –including clinical, population, and public health. The SOCIAL framework may serve as a guide to systematically identify potential gaps and opportunities to aid in the establishment of systemic strategies within the health sector.

This chapter is entirely dedicated to the health sector, which broadly includes direct clinical care and both public and population health approaches. Please refer to the larger SOCIAL Framework for additional opportunities for potential collaboration and integration across sectors.

The following sections address the question of who should take action, what potential action can be taken, and how policy can be applied at each level of influence. This section is broken down by these levels of influence as depicted in the columns found in figure 2 above - thus, highlighting the individual, interpersonal, community, and societal opportunities to impact social connection.

1.1 Individuals

What you will find in this section

1.1 Individual Summary

Key Stakeholders

Individuals, Healthcare professionals, Corporations and Insurance companies (Payors), Technology companies, and Professional organizations.

Potential Approaches to Consider

Treatment, social prescription, behavioral and self-guided, education, and technological approaches.

Questions to Consider:

- How will I measure the success of interventions focused on the individual?
- What are key considerations that impact the individuals I am seeking to serve?
- How can I address potential issues?
- What is my plan if an individual does not want help?

1.1 Individuals

Efforts to foster social connectedness and/or address SIL may benefit by focusing on the individual. Efforts focused on the individual need to take into consideration individual differences that contribute to risk for (or protection from) social isolation and loneliness, such as socio demographic attributes (age, gender, race/ethnicity, education, and income), and background factors such as personality, culture, history, and immigration status.

Who: ***Who are the key stakeholders who should be concerned and responsible for taking action to improve social connectedness?***

The key stakeholders are those who reach individuals and can take action focused on social connection and/or SIL. These include the following:

Individual People. Individuals who are isolated and/or feel disconnected or lonely, or who know of others who are lacking social connection, can play an integral role. Individuals are the users of resources and services that address SIL, and on behalf of others, such as family caregivers, can advocate for diverse and accessible solutions.

Healthcare Professionals. Healthcare professionals that either currently, or have the potential to, reach individuals through direct care relationships. Primary care professionals (physicians, nurse practitioners, etc.), therapists, counselors, social workers, community workers, health educators, and any other health care professionals that work directly with individuals– not just limited to those experiencing or are at risk for social isolation and/or loneliness (SIL) but all individuals can benefit from social connection.

Corporations and Insurance Companies (Payors). Corporate and insurance organizations that provide programming to individuals such as Employee Assistance (1,2) or health oriented incentives, like employee wellness plans, have an important part to play in affording individuals access to preventive services that can promote social connection and reduce risk for SIL. Payors, such as Humana and UnitedHealthcare, may also start providing benefits to members for participating in activities aimed at promoting social connection and reducing SIL.

Technology companies. Given the number of people who turn to technology, like social media for social connection (sometimes specifically when lonely (3), companies like Meta (formerly known as Facebook), TikTok, and Twitter could play a particularly outsized role in supporting the health sector by partnering with experts to provide timely access to resources (e.g., Facebook's emotional health resource), work together on scalable interventions (e.g., WhatsApp and the Connection Coalition's loneliness advice chatbot), and share research and data as appropriate (e.g., Facebook's Data for Good) (4). In addition, there are some companies and organizations who have dedicated their technology development to focus specifically on SIL-related services and interventions like BeMe and Hopelab. Software companies that manage electronic health and medical records (EHR and EMR), such as Epic, Cerner, and MEDITECH, could also play a role by integrating social connection, SIL, and other SDoH factors into their administrative EHR or EMR thereby increasing clinicians capacity to address these needs by appropriately flagging and referring individuals to key resources. Independent entities that exclusively focus on providing SDoH data, like Socially Determined, should also be considered an important player.

Professional Organizations. Entities that develop public-facing information and treatment guidelines for individuals such as the American Medical Association (AMA), the American Psychological Association (APA), and their partners in government, including the Office of the Surgeon General, and the New Freedom Commission on Mental Health influence the choices the individual has when seeking help with social connection and SIL. Corporations and Insurance Companies (Payors).

What: ***What are potential actionable approaches to improving social connectedness?***

There are a variety of potential solutions that can be considered preventive measures to reach individuals that may foster social connection and reduce SIL risk. The following are illustrative examples. These include both solutions that have been tested and those that currently lack substantial evidence but hold promise. In all cases, approaches should be evaluated for implementation readiness which includes feasibility, acceptability, effectiveness, and sustainability.

Treatment Approaches. Individual clinical interventions, such as cognitive behavioral therapy (CBT), and social skills training can potentially be used to reduce isolation and loneliness, and potentially reduce health risk. For example, a meta-analysis of 106 randomized controlled trials of interventions aimed at patients (individuals) within clinical settings (the health care sector) found that patients randomized to receive some kind of psychosocial support in addition to standard treatment had a 20% increased odds of survival relative to controls. These techniques have also been used to treat comorbid psychological conditions that have been shown to increase risk for SIL such as depression and anxiety, among others. For example, CBT can help certain individuals who struggle with maladaptive social cognition - misattributions and negatively biased perceptions of self and others that exacerbate feelings of loneliness, as well as treat depression and social anxiety (risk factors for SIL) (5,6).

Social Prescription. Social prescription is the practice of connecting individuals in need with community programs and aid, a promising intervention that can reach individuals to increase social connectedness and reduce their feelings of SIL. Social prescribing has the potential to reduce the strain on examiners, use of primary care services, and feelings of SIL in individuals (7,8).

Behavioral and Self-Guided Approaches. There are several approaches individuals can take without a health care professional but can be facilitated with training, guidance, or available resources from the health sector. For example, there is promising evidence that behavioral approaches, lifestyle changes, mindfulness practices, gratitude, creative expression, and quantity and quality time spent in nature are being associated with greater social connection or reduced SIL (9–12). Here are a few examples:

- **Mindfulness**. Mindfulness-specific techniques, such as the learning to monitor present-moment experiences with orientations of acceptance–have been shown to be an effective technique in reducing daily-life loneliness in adults (9). Training individuals to accept their circumstances and focus on the present is a successful mindfulness activity that mitigates risk factors that occur from feelings of social isolation and loneliness. An umbrella review of randomized controlled trials found mindfulness to be an intervention that was statistically significant in reducing loneliness (10).

- **Gratitude.** Gratitude has also been demonstrated to have a strong negative correlation with feelings of SIL. Increasing gratitude for existing social relationships and practicing appreciatory exercises increases happiness and life satisfaction (11). Gratitude has many benefits, including reducing feelings of SIL. Increases in gratitude can be achieved through a variety of self-guided practices, such as journaling and savoring.

- **Lifestyle behavioral approaches.** A variety of studies have linked greater social connection to health-relevant behaviors and lifestyle factors including physical activity, quantity and quality of sleep, among others, and may hold promise to prevent SIL. Physical activity programs targeting individuals may strengthen social connection and reduce SIL among individuals. Increases in physical activity have also shown promises to reduce feelings of social isolation (12).

Educational approaches. Raising awareness of the protective health effects of social connection and health risks associated with social isolation and loneliness is another promising approach that should be pursued. Education can occur in a variety of health settings.

Technological approaches. With advances in information and communication technologies, including access to the internet, social media, and other devices may be used to increase social connectedness, all stakeholders may consider technology as a method to deploy any one of these social connection or SIL-focused interventions, particularly for populations that may be harder to access. Given the diversity of the types of social technology tools and approaches there is mixed evidence of their effectiveness; however, researchers are starting to explore the efficacy of some of these technology-based interventions like those leveraging communication technologies and computer and internet interventions (13,14). Technological interventions may include devices (e.g., iPads, social robots, voice activated AI), applications (e.g., Pyx), and environments (e.g., smart home integrations like Facebook Portal, surveilled community spaces).

How is policy relevant to social connectedness for individuals?

Policies trickle down. Policy solutions are often derived from top-down approaches in which stakeholders at broader levels of the socio-ecological model may influence individuals directly. Whether it is a policy to screen individual patients for social isolation and loneliness or a health plan that offers incentives to individuals for living a healthy lifestyle, policies that each stakeholder sets eventually trickles down to the individual.

Policy opportunities. There are a number of policy opportunities to improve access to self-care and healthcare services that promote social connectedness. Examples include:

- Removing federal and state barriers that impede access to mental & behavioral health care services provided through telehealth and other remote communication technology (RCT) for those socially isolated and/or lonely.
- Require or incentivize assessment of social connection and/or screening of SIL by Medicare and Medicaid providers.
- Authorize additional grant funding for community mental, behavioral, and clinical health organizations to sustain provision of care and services for vulnerable populations and to provide additional workforce protections.
- Further expanding coverage of school-based health clinics for Medicaid payment for families and communities to address social connection and SIL.

1.2 Interpersonal Relationships

What you will find in this section

1.2 Interpersonal Relationships Summary

Key Stakeholders

Individuals, Healthcare professionals, Health system administrators, Technology companies.

Potential Approaches to Consider

Clinical approaches, peer-to-peer, sharing and connecting through health information, healthy parenting programs, couples counseling and family therapy.

Questions to Consider:

Entities interested in implementing social connectedness interventions at the interpersonal level should ask themselves:

- What is the quality of the interpersonal social connection being made? Are there measures in place to evaluate this?
- What is the user experience/how will it be measured?
- Do I have a follow up plan for the intervention?

1.2 Interpersonal Relationships

Efforts to foster social connectedness or address SIL can benefit by recognizing that individuals are situated within relationships and networks. Individuals may have multiple interpersonal relationships, including relationships with peers, family members and partners, work colleagues, neighbors, and others. These relationships make up an individual's social network and are known to influence human behavior and contribute to our feelings of social connectedness or isolation and loneliness. Thus, approaches that target both interpersonal relationships (e.g., peer, parenting, partner, healthy relationships programs) and social networks more broadly are also vital to consider.

Who: ***Who are the major stakeholders who should be concerned and responsible for taking action to improve social connectedness?***

Individuals. Individuals may take action to strengthen and improve their own interpersonal relationships (e.g., family, peers, co-workers) and can advocate for diverse and accessible solutions for social isolation and loneliness.

Healthcare professionals. Healthcare professionals that either currently, or have the potential to, reach patients within the context of their interpersonal relationships may play a key role. Primary care professionals (physicians, nurse practitioners, etc.), therapists, counselors, social workers, community workers, health educators, and other health care professionals often work with patients and their partner, family members, caregivers, or peer support.

Health system administrators. Health system administrators have the influence and opportunity to change health policies. This applies to administrators of hospitals, assisted living facilities, and nursing homes that have the chance to change visitation and medical record access policies that would impact their patients and loved ones.

Technology companies. Many people turn to information and communication platforms, such as YouTube, Zoom, Twitter, Facebook, Marco Polo, and Discord, for interpersonal connections; so the companies building such technologies can potentially play a role in solutions focused on interpersonal relationships. These platforms have the potential to support social interactions that deepen existing relationships and foster new connections.

What: What are potential approaches to improving social connectedness?

Clinical approaches. Clinical approaches, such as individual therapy, emotion-focused couples therapy, group therapy, family therapy, may potentially be used to strengthen interpersonal relationships, reduce conflict, strain, or maladaptive relationship patterns. Increasing access to trained mental health professionals who specialize in relationship therapies can help to strengthen relationships among couples, family, caregivers, and peers.

Peer to peer. Peer to peer interventions focus on putting people in touch with other individuals who either may also be experiencing social isolation and loneliness or who may have a shared health experience. These interventions may be effective in reducing loneliness and depression among diverse older adults in an urban setting and increasing survival among medical patients (15).

Sharing and connecting through health information. Programs where health information is recorded and shared over applications, can increase interpersonal health awareness and connection between individuals. Individual risk assessment can and is used by various technology and in-person navigation programs that identify persons at risk of social isolation or loneliness and connect them to programs that offer support, connection, and skill development.

Healthy parenting programs. Programs that help new parents build and model healthy relationships could potentially aid in reducing social isolation and loneliness. By addressing social and emotional health within the family unit, individuals may gain protective factors against SIL (16).

Couples counseling and family therapy. This intervention would include Marriage and Family Therapists (MFT) or similar clinical providers that offer professional guidance in building and strengthening relationships, both in and outside of familial structures. This form of therapy and counseling allows partners and family members to address past trauma and enhance communication through heightening respect, dissolving barriers and increasing understanding and compassion within the relationship (17) All of these purposes of couples and family therapy allow the therapist to work with families in improving their interpersonal relationships and decrease symptoms and chances for SIL within homes.

How: How is policy relevant to social connectedness at the interpersonal level?

Health facility visitation. Policies among clinical facilities regarding the quantity and quality of visitation a patient can receive can potentially bolster social support and reduce SIL. As an example, the importance of visitation was underscored during the COVID-19 pandemic as many patients significantly suffered as a result of restrictions (18). Whether acute or long-term care, hospitals, nursing homes, assisted living facilities, and other residential treatment centers, facilities need to carefully consider policies concerning visitation (19). Visitation during recovery or illness is vital to maintaining connections to social support and reduce risk of SIL, a determinant of worse physical and mental health outcomes, and improve the health of patients. When in-person visitation is challenging or not possible, setting should evaluate policies on essential visitation and/or use of tools to help facilitate communication with family, friends and caregivers.

Involvement of Family or Caregivers. Family members or caregivers can potentially be directly involved in a patient's treatment or prevention regimens. Research has demonstrated that such support from spouse, family, or other caregivers significantly increases treatment adherence leading to better health outcomes (20). Existing policies that may be barriers to such involvement should be carefully evaluated and if appropriate be modified or eliminated, while policies that may facilitate such involvement may be instituted.

Parental Involvement. The family healthcare setting is an environment for which there is an opportunity to provide new parents with education and resources about creating healthy relationships, maintaining connections with their network (family and friends), as well as building current and new connections with and through their children's network (e.g., other parents of their children's friends). Therefore, policies could set internal processes and procedures to provide this education. Healthcare professionals, like pediatricians, could orient parents towards healthy parenting programs and other programs that can improve social connections. Addressing SIL within a family unit has the potential for a greater impact as a child's levels of loneliness may be predicted by that of their parent's loneliness levels (21). Early relationships and social bonding create the foundation for forming secure relationships later

Parental Involvement (Cont.). in life, thus policies that promote early social bonding (e.g., lactation support) and early intervention for addressing and preventing adverse childhood experiences (ACES) should also be considered.

Technology. Care management platforms are regularly used by healthcare payers to identify high risk individuals for various interventions.

1.3 Communities

1.3 Communities Summary

Key Stakeholders

Neighborhood associations, local municipalities, health plans and payers, local media.

Potential Approaches to Consider

Designating and training local leaders, fostering engagement, providing space to gather, online communities, group interventions, ACH models.

Questions to Consider:

Entities interested in implementing social connectedness interventions at the community level should ask themselves:

- What is the prevalence of social disconnection in my community today?
- How can I employ the strategies listed in this section to improve social connectedness among people in my communities?
- How can community members themselves be encouraged to advocate for and foster a better environment for social connection?
- Do I have evidence of interventions that could improve social connection in my community?
- How will I measure the success of interventions in my community?
- Do I have a sustainability plan for the intervention?

1.3 Communities

Efforts to foster social connectedness and address social deficits can benefit from recognizing that individuals are situated within various communities. A person's connection with others who share similar beliefs, attitudes, goals and geographical location influences their behavior and contributes to their opportunities to achieve social connectedness. Thus, approaches that target social connection on the community level are needed.

Who: ***Who should be concerned and responsible for taking action to improve social connectedness?***

Neighborhood organizations. Community centers (e.g., libraries, recreational centers, parks, etc.), non-profit organizations (e.g., YMCA, boys and girls clubs, etc.), neighborhood leaders, or other associations such as homeowner's associations, rental management companies, condo boards, and care coordinators are key examples of community-driven stakeholders.

Local municipalities. Local municipal leadership members, boards, and Area Agencies on Aging play key roles in distributing and ensuring access to health and public health services and resources for community members.

Health plans and payers. Health plans such as UnitedHealth Group, Anthem, Aetna, Cigna, and Humana, are among potential stakeholders that can help to address social determinants of health (SDoH) and social connectedness within communities. For example, each of these stakeholders can play a role in the Accountable Communities for Health (ACH) models. Health plans may also address social connectedness within a community through specialized programs, such as the UnitedHealthcare Catalyst, an initiative bringing together public housing authorities and community-based organizations to better understand and address the unique health needs of the community and design custom interventions based on those needs. Health groups may also engage in community philanthropic work around social connectedness.

Local media. Local newspapers, TV stations, news, magazines and online outlets are examples of media that can raise awareness of social isolation and loneliness in the community, and can highlight community based organizations that offer resources and services directed toward lonely and isolated individuals. Their role could include raising awareness of unique social needs experienced by subgroups of the population that differ by age, race/ethnicity, gender, sexual orientation, living arrangements (community-dwelling versus institutional care facilities), and health or disability.

What: What are potential approaches to improving social connectedness?

Designating and training local leaders. Community-based organizations often have the critical community-specific knowledge and connections to educate community members about public health issues and train local leaders. who advance awareness of the health consequences of loneliness and social isolation in the specific populations where they have a presence, and could also be trained to identify resources and services for community residents. Local citizens, with their community knowledge and experience, may already be aware of individuals who are suffering from social isolation and can take action in a timely manner, perhaps connecting individuals with existing health systems, providing easier access for those who need resources.

Fostering engagement. Involving community groups in socially engaging activities may prevent or reduce SIL in a mutually beneficial, efficient way. This can be accomplished through the involvement of special interest groups, clubs, and volunteering. Research suggests that volunteering contributes to feelings of social connectedness and has other benefits, including better self-reported well-being (22,23). Increased connection within community groups will, among other things, increase social capital by strengthening relationships that result in higher rates of reciprocal support.

Providing spaces to gather. Thoughtful social infrastructure and the creation of supportive gathering spaces within a community can serve to strengthen social connection (24). The safety of a neighborhood may influence how freely older adults feel they can immerse themselves in community life (25). Urban planning can include the development of walkable areas, gathering places, recreational facilities, and even design traffic flow a to enhance a sense of safety and provide the physical space necessary for gathering (26,27). Healthy

Providing spaces to gather (Cont.). Places by Design's report on Socially Connected Communities (28) recommends that public spaces be co-designed with communities, be accessible for people of different physical abilities, and bring people of the same or different generations together into the same space to foster social connection.

Online communities. Online communities may provide an additional method of providing safe spaces, particularly in cases where direct, in person intervention or the required social support may be less accessible. Social media and other online based communities (e.g. Facebook groups, Discord, Meetup.com, Patientslikeme.com, etc.) are platforms intended to create space for connection, that may have potential particularly among communities of patients with rare or stigmatizing conditions that otherwise may encounter barriers to finding support groups.

Group interventions. Most group interventions are participatory, involving individuals' participation in group-based activities, as well as forming mutual relationships with each other. Group interventions within the health sector cover a broad variety of activities from group exercise programs to peer support groups for those with a chronic condition. There is some evidence to suggest that these programs are effective in reducing peoples' sense of loneliness and isolation (29) and improve health outcomes including survival (30).

ACH models. Accountable Communities for Health (ACHs) are "cross-sectoral alliance[s]" of healthcare providers, insurers, public health entities, and other relevant stakeholders that work together to implement plans designed to increase the population health and health equity of a specific region (31). ACHs identify where social determinants of health needs are unmet and match those individuals to services that can meet their needs (32). Social connectedness is now getting recognized as an established social determinant of health, making its integration into current ACH models both logical and necessary (33).

How: How is policy relevant to social connectedness in the community?

Budgeting to promote community health objectives. Many obstacles, like informational and monetary divisions among organizations, exist for public sector managers to find creative and innovative ways to coordinate agencies and funding streams. Communities can resolve

such obstacles through “braiding and blending.” Braiding refers to lacing together funds from multiple sources to support a common goal or idea such that each individual funding source maintains its sources to support a common goal or idea such that each individual funding source maintains its specific program identity. For example, funds could be braided together for a youth/adolescent mental health block grant, a grant program focused on social connection for all populations, and a grant for advancing social determinants of health. While each grant funding mechanism is focused on different populations, you can “braid” the funding streams together to focus on a singular idea of youth social isolation and loneliness. That is, although one grant funding mechanism may be focused on social connection for all populations, portions of the grant may be used for programming focused on youth populations. When braiding funds, organizations should be aware of the various requirements from each funding source, such as use of funds or performance metrics associated with the funds. Blending refers to mixing together funds from multiple sources to support a common goal or idea such that each individual funding source loses its program-specific identity; blending funds typically requires statutory authority, whereas braiding typically does not. For example, it is possible to blend funds from three separate statutory allocations and, through legislative permission, re-focus the funds on a new subject-matter, such as SIL community-based programming. Blending funds generally does not require organizations to separately track grant requirements from the variety of sources of funds.

Invest in community-based organizations and community health workers. County and city officials could invest state and federal grant funding directly into community-based organizations and community health workers. In some cases, federal statute provides funding directly to CBOs (like the federal Older Americans Act), in other cases the funding mechanisms from the state or federal government are much broader. In cases where the funding is broader, local government officials should direct state or federal grant funds to CBOs. Funds can be used to train community health workers to screen for and refer people to SIL interventions. Funding can also be directed to community-based organizations that emphasize evaluating the efficacy of such interventions.

Access to community space for gathering and recreational activities. County and city governments play an important role in increasing access to community spaces to gather collectively or engage through recreational activities, like youth or adult sporting leagues. Such recreational activities have demonstrated decreased instances of depression and increased instances of social connection (34,35). Participation in recreational activities provides diverse populations an opportunity for physical activity and improved physical health in addition to social and mental health. There are several different policy options that can be made at the community level by county and city governments to increase participation, such as shared use agreements, and master development programs, which reference current layout and guidance for future growth (36,37).

Urban planning for public health and wellbeing. An essential aspect to consider in the policy making of a community is urban planning. Urban planning determines ease of access to healthcare services, physical activity opportunities, and levels of crime, employment, and air quality (38). Displacement and other negatives in urban planning policies can disrupt social networks and can affect physical and mental well-being of long-term residents in a neighborhood (39). Changing an urban landscape impacts residents directly (and indirectly) by affecting their levels of community engagement as well as how easily they can participate in multigenerational interactions. Intergenerational engagement can link young people with the needed emotional support and enable the aging population to maintain a sense of purpose, hence making such programs mutually beneficial (40).

1.4 Society

1.4 Society Summary

Key Stakeholders

Professional organizations, Media outlets, Technology companies and online influencers, Government entities, Non-governmental organizations (NGOs), Multinational organizations.

Potential Approaches to Consider

Public health awareness campaigns, Media narratives, National strategy and policies.

Questions to Consider:

Entities looking to promote social connection and/or address societal SIL should consider the following set of questions:

- What is the political feasibility level of the approach?
  - Is there bipartisan support? What is the funding support/priority like?
- Large-scale approaches can have complex stakeholders. Am I engaging with the most relevant ones in a meaningful way i.e. seeking feedback, organizing together, etc.?
- Are there robust evaluation techniques and a strategic plan? Are my relevant terms defined? How am I measuring success? Who will be performing this evaluation and when?
- Have I considered follow up strategies?
  - Am I able to change the intervention once on the ground if tweaks are needed?

1.4 Society

Efforts to foster social connectedness or address social deficits may benefit from recognizing that individuals are situated within a society sphere. Broad societal factors such as norms and policies create a climate in which social connectedness is encouraged or inhibited. Strategies at this level include efforts to promote societal norms of inclusivity, encourage diversity, and reduce stigma as well as explicit policies within the health care system and national public health policies that may promote or remove existing barriers to social connection.

Who: Who should be concerned and responsible for taking action to improve social connectedness?

Professional organizations. Professional organizations that develop public facing information and treatment guidelines such as the American Medical Association, American Psychological Association, American Association of Colleges of Nursing, American Dental Association, American Public Health Association, and their counterparts in government, including the Office of the Surgeon General and the New Freedom Commission on Mental Health can develop public health initiatives that influence the broader health environment and have the ability to incorporate social connection and SIL into the current standards.

Media outlets. Major media outlets and broadcasting corporations such as News Corp, New York Times Co, Netflix, Walt Disney, and Comcast Corp are primary media stakeholders that have the potential to influence the societal norms of what is acceptable in society that can then go onto shape social connectedness, isolation, and loneliness.

Technology companies and online influencers. Similar to above, major technology companies, such as Meta, YouTube, TikTok, and Amazon, as well as online influencers leveraging these technologies (e.g., celebrities and public figures) can be key stakeholders for influencing social connection and SIL outcomes at the societal level. Policies within these organizations and influencers creating content at scale across these platforms may influence norms and practices of what is acceptable behavior in society that can influence social connectedness, isolation, and loneliness. These companies also serve as critical platforms for awareness campaigns and for the scaling and

Technology companies and online influencers (Cont.). dissemination of SIL resources. Health specific applications (e.g. Worry Watch, Daylio, MoodKit, and ActivityTracker) who have made it more normative for people to track and be aware of their physical, mental, and emotional health are also players at this level.

Government entities. Government political entities who have the most influence over shaping laws and policies can systematically help increase social connectedness. Key players in the U.S. in this space tend to sit at different levels including:

- **Congress** (e.g., the Senate Committee on Health, Education, Labor, and Pensions, the Senate Subcommittee on Healthcare, and the House Subcommittees on Health)
- **Executive branch** (e.g., Department of Health and Human Services and the Center for Disease Control and Prevention)
- **State and local levels** (e.g., State health departments, local health departments)

Non-governmental organizations (NGOs). NGOs such as Friends for Good, WaveLength, and the Foundation for Social Connection are key stakeholders at the societal level because they work for solutions and raise awareness at a national level rather than in specific communities. These organizations may also work in partnership with each other or other stakeholders to address SIL at various intersections.

Multinational organizations. The World Health Organization (WHO), the primary authority with the United Nations on international public health, is responsible for leading global health issues, including shaping the health research agenda. As such they have the ability to make a call and raise their profile of SIL on the international stage. The World Bank may also be considered a stakeholder at this level as they have the potential to fund various types of initiatives and strategies to address SIL and strengthen community infrastructure.

What: *What are potential approaches to improving social connectedness?*

Public health awareness campaigns. Public awareness campaigns, which address norm setting, could serve as a pathway for societal level entities and similar stakeholders to intercede for social connectedness. Public awareness campaigns have the power to influence perceptions, attitudes, and behavior. Targeted messaging to

various audiences can benefit from engaging public health communication specialists and audience needs in design. Further, implementations of public awareness campaigns should be evaluated for impact. The following are illustrative examples of existing campaigns:

- The UK's "Let's Talk Loneliness" campaign (41). The Let's Talk nationwide campaign provides a space for individuals to learn about how they can take action to feel more socially connected and less lonely as well as help others who may be struggling.
- Far from Alone, created by the Humana Foundation, is a national campaign focused on reducing the stigma of loneliness through building community and driving conversations around this topic. They also provide resources and highlight partners working to address social connection and loneliness (42).

Media narratives. Content created and distributed by major media stakeholders may go beyond explicit awareness campaigns to depict healthy or unhealthy social interactions or relationships that normalizes or destigmatizes aspects of social connection, isolation, and loneliness that may shift public attitudes and norms of behavior. The following are illustrative examples:

- The Science and Entertainment Exchange hosted by the National Academy of Sciences is an example of how content can provide storylines in film and TV that provide subtle, but powerful, messages based on scientific evidence (43).
- In 2020, Dr. Vivek Murthy, the 19th and 21st Surgeon General of the United States, wrote a book titled Together: The Healing Power of Human Connection in a Sometimes Lonely World which emphasizes the importance of social connection and detrimental health impacts of loneliness. As a public figure, his work has the potential to shape public attitudes and behavior.
- All the Lonely People, a documentary by the Clowder Group about loneliness and resiliency, is an example of how the media can bring this topic into the mainstream and destigmatize loneliness.

Advocacy. Advocating social connectedness as a health policy priority with governmental and national stakeholders can have the potential to develop a chain reaction and spur broad reaching federal policy change and serve as a norm setting function. The UK was the first country to create a Minister of Loneliness and establish a national strategy addressing loneliness (44). Some key points in their plan include adding SIL in the "Family and Relationships Test" which is required for all new policy creation and funding provided for charities

doing work related to social isolation and loneliness as well as additional government financing for these efforts. Similar national strategies may be a promising approach elsewhere.

How: ***How is policy relevant to social connectedness at the societal level?***

National priority setting. To promote social connection and reduce SIL at the societal level, the U.S. federal government could institute the development of an Inter-Departmental and Agency National Coordinator of Social Isolation and Loneliness, modeled after the UK's Minister of Loneliness. The inter-departmental agency would aim to lead and coordinate administrative efforts, identify, and leverage current federal and state resources, and make recommendations to cabinet officials and the White House to encourage and facilitate social connection. The government could also leverage its resources to further the scientific investigation of social connection and SIL such as commissioning a Government Accountability Office (GAO) report on the state of social connection and SIL in the United States. This office would aim to provide non-partisan information on a variety of important national topics, such as cybersecurity and race in America. A report on social connection and SIL would fit within their purview.

Medicare and Medicaid. Standardizing Medicare and Medicaid benefits to cover more social connection and SIL interventions would have a broad societal impact. In 2021, the two programs combined have about 140 million enrollees, making their reach vast and full of potential. Currently under Medicaid, benefits and coverage of SIL interventions are a patchwork across all fifty states making certain interventions, particularly the implementation of technology interventions, inaccessible to some populations (45). Standardizing Medicaid benefits nationally to include SIL interventions would provide more people with access to solutions. For the Medicare population, a vast majority of the interventions being covered are covered under Medicare Advantage plans through special supplemental benefits for the chronically ill (SSBCI). SSBCI can cover anything from congregate meals to non-emergency medical transportation, all of which foster social connection and lead to better health outcomes. To improve social connection within the Medicare program, lawmakers should promote SIL services in the Medicare Fee-for-Service program.

Inclusion of social connection, isolation and loneliness indicators in the electronic health record. Adopt policies at a national level that use and develop ramification of the current taxonomies such as the ICD-9 CM for various levels of social isolation and loneliness to be screened for, diagnosed, referred and billed for through commercial insurance and government-run health insurance programs like Medicare, Medicaid, Veterans healthcare, and Defense Department health care.

CROSS CUTTING CONSIDERATIONS WITHIN THE FRAMEWORK

The themes presented here cut across all levels of the SOCIAL framework. These considerations are relevant to all levels, and encompass more nuance than can be fully addressed within this report. This section provides a basic explanation for some of these themes to consider, but is not comprehensive.

A Lifespan / Life Course Approach

As we presented here, social connection is relevant to an individual's health across the life from conception to death. Thus, the cells within figure 2 can be further broken down by each developmental stage where there may be additional gaps and opportunities for the development of evidence and action. Each developmental phase of life may have unique opportunities for social connection or challenges and risks for experiencing social isolation and loneliness.

Levels of influence across socio-ecological model

Sectors	Individual	Interpersonal	Community / Organizational	Societal
Health	1.1.1 Infancy 1.1.2 Childhood 1.1.3 Adolescence 1.1.3 Adulthood 1.1.4 Middle Adulthood 1.1.5 Older adulthood	1.2.1 Infancy 1.2.2 Childhood 1.2.3 Adolescence 1.2.3 Adulthood 1.2.4 Middle Adulthood 1.2.5 Older adulthood	1.3.1 Infancy 1.3.2 Childhood 1.3.3 Adolescence 1.3.3 Adulthood 1.3.4 Middle Adulthood 1.3.5 Older adulthood	1.4.1 Infancy 1.4.2 Childhood 1.4.3 Adolescence 1.4.3 Adulthood 1.4.4 Middle Adulthood 1.4.5 Older adulthood
Transport	2.1	2.2	2.3	2.4
Housing	3.1	3.2	3.3	3.4
Work	4.1	4.2	4.3	4.4
Nutrition	5.1	5.2	5.3	5.4
Environment	6.1	6.2	6.3	6.4
Education	7.1	7.2	7.3	7.4
Arts & Leisure	8.1	8.2	8.3	8.4

Figure 3 The SOCIAL Framework can be further segmented within each focus area by stages of life (Holt-Lunstad, 2022)(65).

1.1.1 Infancy is a critical developmental period where attachment bonds are formed that can influence relationships and health outcomes throughout life. Thus, an awareness of the effects of poorly formed bonds in infancy and its effects later in life is important. Certain practices, such as skin-to-skin contact have been found to be vital for regulation and social bonding, resulting in better short and long-term health outcomes (46,47).

1.1.2 Childhood. Early childhood experiences are widely known to have long-term consequences on health. Strategies focused on social connection and SIL should pay close attention to the developmental implications of intervening in young populations. Social interaction is very important at all stages of life, but may be especially important with children and youth as social connection and SIL can influence developmental processes and could continue to impact them later in life, such as predisposing them to depression (48) and other long-term physical health outcomes (49). This emphasizes the need for additional research and additional solutions for addressing SIL in this critical life stage to prevent additional adverse health consequences.

1.1.3 Adolescence and Young Adulthood. As individuals progress through adolescence and early adulthood, many experience rapid changes in their social environment and relationships that come with their own sets of potential new opportunities for social connection, as well as potential experiences that lead to social isolation and loneliness. These may include:

- Transitioning to independence from family of origin, exploration of substance use/misuse,
- School challenges (e.g., performance, focus on achievement, anxieties related to bullying/gun violence)
- Mental health disorders (e.g., most susceptible/vulnerable, most likely to be diagnosed around this time)
- Physical & emotional development (e.g., hormone/biological changes, puberty, brain development/impulsivity; emotional development/regulation)
- Family dynamics/dysfunction/structure (e.g., communication, single-parent, family support, parenting styles)
- Identity exploration and realization (challenges related to being a minority in terms of race, sexual orientation, gender, etc.)
- Peer victimization / interpersonal conflict (e.g., bullying)

Further distinctions may also be considered between adolescence and “emerging adulthood” (aged 18-25) –a developmental period associated with identity development, strong peer influence, and moving towards adulthood (52).

1.1.4 Middle Adulthood Circumstances such as lack of partnering, parenthood, and caregiving that may be more prevalent in middle adulthood have specific SIL considerations. Living/being alone after the dissolution of a relationship may increase loneliness, and divorce in middle adulthood may affect loneliness into older age. Parenthood may also increase one's levels of social isolation as new parents are

1.1.4 Middle Adulthood (Cont.) often no longer participating in the same activities or social networks as they were before their child was born (50). The experience of pregnancy and childbirth may also increase levels of loneliness among new parents (50). There is evidence that parental loneliness may be different from other forms of loneliness and has direct and intergenerational impacts on parent and child health (20). Further, parents who face more challenging parental issues, such as a child with a chronic illness or disability, are more likely to be negatively impacted by loneliness. Middle aged individuals may provide care for aging relatives, parents, or a partner. Caregivers may experience SIL as a result of withdrawing from previous activities and social networks in order to care for the recipient (51) and can negatively impact health. Thus, effective family based interventions and support for caregivers may be essential opportunities to prevent and mitigate risk for SIL and associated health consequences.

1.1.5 Older Age. Older populations often experience a variety of losses that may predict SIL. Factors like living alone, chronic disease, death of family or a loved one, and physical limitations can contribute to isolation and loneliness (52–54). As age increases, so too does risk for physical, functional, and cognitive decline, all risk factors for SIL. Perceptions of control have been shown to predict change in loneliness in older adults, highlighting the subjective nature of loneliness (55).

Key Questions to Consider:

- Are my strategies appropriate and inclusive of all ages or stages of life?
- Are my strategies sensitive or tailored to potential developmental characteristics that may influence the acceptability, accessibility or effectiveness?
- How can I expand my current strategies to include other age groups, or intergenerational approaches?
- How might generational differences influence my approach over time, even if my age group remains consistent?

Inclusion, Diversity, Equity, and Access (IDEA)

Inclusion, diversity, equity, and access (IDEA) are essential to the SOCIAL framework. IDEA has the potential to both improve the outcomes of social connection and SIL interventions as well as protect against existing health disparities (56). Health disparities are a prominent feature of the health landscape in the U.S., including in the SIL space, and thus any intervention needs to account for those disparities. Certain groups, such as LGBTQ+ individuals and racial/ethnic minorities, often experience these disparities in the form of worse health outcomes (57) and may be at a higher risk for SIL (33). Marginalized and vulnerable groups are often under-represented in both basic and intervention research, making addressing disparities even more challenging. When designing and implementing approaches, stakeholders should include considerations of IDEA into their process at the individual, interpersonal, community and societal level. Seeking feedback from the communities they seek to serve, as well as representation of people with a range of experiences, knowledge, and identities on their design and policy teams may help reach IDEA goals. If taken into account, IDEA can enable a more holistic approach, increasing the chances that all groups are understood and reached.

Language. Another important IDEA consideration is language. Language barriers have been identified as an important predictor of health outcomes by contributing to miscommunication, poorer satisfaction, compromising quality of healthcare and patient safety (58). Language may be particularly relevant to public health awareness campaigns and other broad reaching interventions. Campaigns and interventions focused on social connection or SIL should provide content in a variety of commonly spoken languages to ensure equitable access. Furthermore, linguistic marginalization has been identified as a contributing factor to health disparities. The use of jargon or conversely infantilizing or talking down to patients, have each been demonstrated to contribute to poorer medical adherence and worse health outcomes. Thus, health care and public health approaches to social connection and SIL should take steps to overcome such linguistic barriers.

Digitization of healthcare. From care coordination platforms and tech-smart diagnostic tools to telemedicine and consumer health apps, the past few decades have seen a dramatic rise in digital health technologies (67). Digitization has the potential to expand the reach of healthcare, physically and conceptually. By reaching populations with less access and exploring topics, such as social connectedness and SIL, there are opportunities that have yet to be fully integrated into our health systems.

Technology reliant interventions across all levels may benefit from considering issues of access in their implementation. Rural populations, communities of color, and those who are less tech literate may have reduced access to broadband and the tools needed for a tech based SIL intervention; thus, when designing and implementing these solutions, careful thought should be given to who the target population is and how access can be improved (72).

Key Questions to Consider:

- Are my strategies or efforts inclusive? Are there groups that may be over or under-represented in my current strategy?
- Who do I want to reach that my current efforts may be missing?
- Do some groups benefit more from my strategy than others?

Modality

The modality refers to the methods or tactics used in any strategy or intervention. The modality, or the way a strategy is approached, should be considered an important factor in determining a strategy's effectiveness. Modality can impact acceptability, accessibility and scalability, all factors that can influence the success of any social connection or SIL strategy. For example, modalities could include whether an approach is done in-person or remote, individually or in a group, whether it involves peers, family members or professionals. Research is still trying to disentangle what modality may be most effective for whom and in what context, given research suggests that intervention type may vary in its effectiveness among some groups. For example, some studies suggest that group activities may be more effective than one-to-one social support for some groups but not among youth (59,60).

While certain intervention modalities may work better on average for certain populations (e.g., adolescents (53–55) or those physically isolated), multiple types of interventions are needed to match the needs of diverse individuals within population segments (34).

Tech-based modalities are becoming increasingly more common. Given the sheer number of people integrating various forms of technology into their social lives already, and the ability of technology to afford new opportunities (e.g., tracking, opportune timing, unprecedented scale, access to harder to reach populations), technology remains a promising area to consider in the deployment of interventions, and research to understand intervention impact. However, these opportunities also comes with significant challenges (e.g., privacy concerns, limitations in access, potential for exploitation, unintended harms). Furthermore, research is still evaluating the efficacy of tech-based interventions, and more research is needed to understand all the dimensions at play here, in addition to the impact of technology for everyday social connection and SIL (13,14,61–63). Thus, these new technology opportunities should be carefully evaluated for potential limitations and issues of access.

Key Question to Consider:

- How might the acceptability, accessibility, scalability, and effectiveness of my strategy or approach differ across modalities?

Evidence / Application

Within every cell of the SOCIAL framework are opportunities for evidence and application. Thus, stakeholders should consider how they may best reach individuals, interpersonal relationships, communities, and society. Strategies, approaches, and interventions should be evidence-based and rigorously evaluated. There are several approaches that can be considered. For example, the Multiphase Optimization Strategy (MOST) may be considered for building and evaluating interventions to identify active program components delivered at optimal doses (64). Such approaches have the potential to produce more potent interventions. Evaluating what strategies work best, for whom, and in what context, may benefit from partnerships between scientists and academic institutions with various stakeholders.

Evidence. There are several potential sources of evidence needed within each cell of the SOCIAL framework including the following:

- Basic research (development of new knowledge to predict and understand causal associations).
- Applied research (research focused on finding solutions)
- Translational research (identification of successful research findings and discoveries to be translated in ways that benefit humans)

Evidence (Cont.).

- Evaluation research (evaluation of intervention integrity and uptake, and of impact on social connectedness and risk of loneliness and isolation)

Action. There are several potential types of action needed within each cell of the SOCIAL framework including the following:

- Assessment (individual and population risk)
- Development of prevention efforts (primary, secondary, tertiary)
- Documentation and dissemination of evidence-based interventions
- Advocacy for evidence-based policies

Digitization of health data. Digitization has the potential to expand the sources that can link social connection and SIL to objective health data. For example, The Gravity Project is working to create data standards for coding and sharing social determinants of health (SDoH) information, including social support and SIL, so it can be used across platforms. The digitalization of these assessments in the electronic health record has the potential to quantify and facilitate solutions for SIL and provides an avenue for key policy choices, such as the creation and sharing of SDoH codes.

Key Questions To Consider:

- What is the available evidence supporting my organization's area of focus? How can the available evidence inform my strategy, approach, or intervention?
- Is my organization appropriately measuring its potential impact of current efforts and strategies?
- How can my strategies or intervention be more effective? Is it more effective among some groups than others?
- Are the effects of my strategy generalizable to other groups or populations?
- If my strategies are effective, can the benefits be sustained over time? Is the strategy sustainable over time?
- Can my strategy be more efficient by either making the effects more potent or requiring fewer resources?
- Can my organization expand what is known by supporting research?

What are potential funding streams?

Public Sector

Government budgets. Funding for interventions undertaken by the government itself will likely come from annual government budgets. These budgetary sources of funding have the potential to provide the consistent flow of funds year to year for interventions thereby making them more viable; however, if such interventions are not prioritized, then they will likely be underfunded and potentially fail.

Governmental grants/contracts. Those looking to implement solutions across all levels based on public health initiatives using the socioecological framework should seek funding from the Department of Health and Human Services, National Institute of Health, and the Centers for Disease Control and Prevention as they offer grants to state and local governments as well as to nonprofit and for-profit organizations in the U.S. (45–47) If an organization is seeking a working partnership with HHS, they also have the potential to provide contracting opportunities depending on need.

Medicare and Medicaid. Medicare and Medicaid funding could be considered a viable source of funding for social connection and SIL interventions in the health space. Some forms of screenings and interventions may be best suited to be delivered through health plans and as such funding for those interventions would derive from the federal Medicare and state/federal Medicaid budget. In addition, the Medicare population and older adults are likely to be at risk for SIL and use of the program to deploy interventions presents an opportunity to target that need (32).

Local agencies. Local area agencies such as state Human Services Departments, Area Agencies on Aging, or equivalent organizations, may provide funding for policies or programs which promote social connection and combat SIL. In certain provinces of Canada, an organization titled Neighborhood Small Grants works to solidify and strengthen communities through small grants which can kickstart a series of novel community interventions (48). While we are not aware of an identical group in the USA, this structure could benefit communities and support projects geared towards social connection and isolation.

What are potential funding streams?

Private Sector

Foundations. In the private sector, there are a variety of foundations that provide opportunities for organizations seeking to impact the social connectedness space. Depending on the scope of the intervention and funds available, foundations may provide support for solutions at each level of the socioecological model. Grant databases, like YouthGiving and Grants.gov, may be helpful in identifying potential grantmakers and funders. Some potential funders and foundations are listed below:

- The RRF Foundation for Aging, the Gates Foundation, and the Robert Wood Johnson Foundation
- Foundations associated with healthcare organizations, such as UnitedHealthcare and Humana

The AARP Foundation, already active in generating SIL solutions of their own, also has limited set of grants available

Multinational. Multinational grant making organizations may also serve as funding streams for societal SIL interventions. The WHO Foundation is one example of such an organization.

Payors and/or employers. Employer health insurance plans represent a significant portion of funding for interventions at the individual level. Major payers include UnitedHealth Group, Anthem, Aetna, Cigna, and Humana. Dollars spent by companies and individual payers in conjunction with insurance groups, similar to Medicare and Medicaid, could be considered a source of funding for both interpersonal and individual interventions should they be delivered through health plans (2).

CONCLUSION

There is strong scientific evidence that social connection significantly reduces risk, while social isolation and loneliness significantly increase risk, for a variety of health and disease outcomes. This evidence demonstrates the clear medical, healthcare, and public health relevance of social connection and SIL. Thus, efforts and strategies focused on promoting and strengthening social connection and reducing SIL hold promise for improving health and well-being among individuals, interpersonal relationships, communities and society. While this evidence demonstrates significant promise, gaps within the current evidence and the limited scope of approaches suggest untapped opportunities to accelerate progress.

The SOCIAL framework provides a way to systematically identify potential stakeholders and potential actions at each level of the socio-ecological model. It goes further to identify important factors that should also be considered at every level, including the lifespan, IDEA, modalities, and evidence/application. The effectiveness and reach of any strategy may be strengthened by systematically evaluating gaps and opportunities to act across levels.

REFERENCES

1. Joseph B, Walker A, Fuller-Tyszkiewicz M. Evaluating the effectiveness of employee assistance programmes: A systematic review. Eur J Work Organ Psychol. 2018;27(1):1-15. doi:10.1080/1359432X.2017.1374245
2. Kirk AK, Brown DF. Employee assistance programs: a review of the management of stress and wellbeing through workplace counselling and consulting. Aust Psychol. 2003;38(2):138-143. doi:10.1080/00050060310001707137
3. Song H, Zmyslinski-Seelig A, Kim J, et al. Does Facebook make you lonely?: A meta analysis. Comput Hum Behav. 2014;36:446-452. doi:10.1016/j.chb.2014.04.011
4. Litt E, Zhao S, Kraut R, Burke M. What Are Meaningful Social Interactions in Today's Media Landscape? A Cross-Cultural Survey. Soc Media Soc. 2020;6(3):2056305120942888. doi:10.1177/2056305120942888
5. Cacioppo S, Grippo AJ, London S, Goossens L, Cacioppo JT. Loneliness: Clinical Import and Interventions. Perspect Psychol Sci. 2015;10(2):238-249. doi:10.1177/1745691615570616
6. Masi CM, Chen HY, Hawkley LC, Cacioppo JT. A Meta-Analysis of Interventions to Reduce Loneliness. Personal Soc Psychol Rev Off J Soc Personal Soc Psychol Inc. 2011;15(3):10.1177/1088868310377394. doi:10.1177/1088868310377394
7. Kellezi B, Wakefield JRH, Stevenson C, et al. The social cure of social prescribing: a mixed-methods study on the benefits of social connectedness on quality and effectiveness of care provision. BMJ Open. 2019;9(11):e033137. doi:10.1136/bmjopen-2019-033137
8. Reinhardt GY, Vidovic D, Hammerton C. Understanding loneliness: a systematic review of the impact of social prescribing initiatives on loneliness. Perspect Public Health. 2021;141(4):204-213. doi:10.1177/1757913920967040
9. Lindsay EK, Young S, Brown KW, Smyth JM, Creswell JD. Mindfulness training reduces loneliness and increases social contact in a randomized controlled trial. Proc Natl Acad Sci. 2019;116(9):3488-3493. doi:10.1073/pnas.1813588116
10. Veronese N, Galvano D, D'Antiga F, et al. Interventions for reducing loneliness: An umbrella review of intervention studies. Health Soc Care Community. 2021;29(5):e89-e96. doi:10.1111/hsc.13248
11. Caputo A. The Relationship Between Gratitude and Loneliness: The Potential Benefits of Gratitude for Promoting Social Bonds. Eur J Psychol. 2015;11(2):323-334. doi:10.5964/ejop.v11i2.826
12. Sunarti S, Subagyo KAH, Haryanti T, et al. The Effect of Physical Activity on Social Isolation in Elderly. Acta Medica Indones. 2021;53(4):423-431.
13. Chen YRR, Schulz PJ. The Effect of Information Communication Technology Interventions on Reducing Social Isolation in the Elderly: A Systematic Review. J Med Internet Res. 2016;18(1):e4596. doi:10.2196/jmir.4596
14. Choi M, Kong S, Jung D. Computer and Internet Interventions for Loneliness and Depression in Older Adults: A Meta-Analysis. Healthc Inform Res. 2012;18(3):191-198. doi:10.4258/hir.2012.18.3.191
15. Kotwal AA, Fuller SM, Myers JJ, et al. A peer intervention reduces loneliness and improves social well-being in low-income older adults: A mixed-methods study. J Am Geriatr Soc. 2021;69(12):3365-3376. doi:10.1111/jgs.17450

REFERENCES

16. National Academies of Sciences E, Education D of B and SS and, Division H and M, Board on Behavioral C, Policy B on HS, Adults C on the H and MD of SI and L in O. Risk and Protective Factors for Social Isolation and Loneliness. National Academies Press (US); 2020. Accessed April 1, 2022. https://www.ncbi.nlm.nih.gov/books/NBK557971/
17. Kepler A. Marital Satisfaction: The Impact of Premarital and Couples Counseling. Master Soc Work Clin Res Pap. Published online May 1, 2015. https://sophia.stkate.edu/msw_papers/474
18. Hua CL, Thomas KS. Coronavirus Disease 19 (COVID-19) Restrictions and Loneliness Among Residents in Long-Term Care Communities: Data From the National Health and Aging Trends Study. J Am Med Dir Assoc. 2021;22(9):1860-1861. doi:10.1016/j.jamda.2021.06.029
19. National Academies of Sciences E. The National Imperative to Improve Nursing Home Quality: Honoring Our Commitment to Residents, Families, and Staff.; 2022. doi:10.17226/26526
20. DiMatteo MR. Social support and patient adherence to medical treatment: a meta-analysis. Health Psychol Off J Div Health Psychol Am Psychol Assoc. 2004;23(2):207-218. doi:10.1037/0278-6133.23.2.207
21. Nowland R, Thomson G, McNally L, Smith T, Whittaker K. Experiencing loneliness in parenthood: a scoping review. Perspect Public Health. 2021;141(4):214-225. doi:10.1177/17579139211018243
22. Piliavin JA, Siegl E. Health benefits of volunteering in the Wisconsin longitudinal study. J Health Soc Behav. 2007;48(4):450-464. doi:10.1177/002214650704800408
23. Yeung JWK, Zhang Z, Kim TY. Volunteering and health benefits in general adults: cumulative effects and forms. BMC Public Health. 2017;18:8. doi:10.1186/s12889-017-4561-8
24. Matthews Ph.D. D. Palaces for the People | Psychology Today. Palaces for the People How better social infrastructure can enrich your life and save the world. Accessed April 1, 2022. https://www.psychologytoday.com/us/blog/going-beyond-intelligence/202003/palaces-the-people
25. Portacolone E. Structural Factors of Elders' Isolation in a High-Crime Neighborhood: An In-Depth Perspective. Public Policy Aging Rep. 2018;27(4):152-155. doi:10.1093/ppar/prx025
26. Malambo P, Kengne AP, Lambert EV, De Villers A, Puoane T. Association between perceived built environmental attributes and physical activity among adults in South Africa. BMC Public Health. 2017;17(1):213. doi:10.1186/s12889-017-4128-8
27. Malambo P, Kengne AP, Villiers AD, Lambert EV, Puoane T. Built Environment, Selected Risk Factors and Major Cardiovascular Disease Outcomes: A Systematic Review. PLOS ONE. 2016;11(11):e0166846. doi:10.1371/journal.pone.0166846
28. Healthy Places by Design. Socially Connected Communities: Solutions to Social Isolation | Healthy Places by Design. Accessed April 1, 2022. https://healthyplacesbydesign.org/project/socially-connected-communities-solutions-to-social-isolation/
29. Gardiner C, Geldenhuys G, Gott M. Interventions to reduce social isolation and loneliness among older people: an integrative review. Health Soc Care Community. 2018;26(2):147-157. doi:10.1111/hsc.12367
30. Smith TB, Workman C, Andrews C, et al. Effects of psychosocial support interventions on survival in inpatient and outpatient healthcare settings: A meta-analysis of 106 randomized controlled trials. PLOS Med. 2021;18(5):e1003595. doi:10.1371/journal.pmed.1003595

REFERENCES

31. Accountable Communities for Health (ACH) | Prevention Institute. Accessed April 1, 2022. https://www.preventioninstitute.org/projects/accountable-communities-health-ach
32. Mongeon M, Levi J, Heinrich J. Elements of Accountable Communities for Health: A Review of the Literature. NAM Perspect. Published online November 6, 2017. doi:10.31478/201711a
33. National Academies of Sciences E. Social Isolation and Loneliness in Older Adults: Opportunities for the Health Care System.; 2020. doi:10.17226/25663
34. Babiss LA, Gangwisch JE. Sports Participation as a Protective Factor Against Depression and Suicidal Ideation in Adolescents as Mediated by Self-Esteem and Social Support. J Dev Behav Pediatr. 2009;30(5):376-384. doi:10.1097/DBP.0b013e3181b33659
35. Ullrich-French S, McDonough MH, Smith AL. Social Connection and Psychological Outcomes in a Physical Activity-Based Youth Development Setting. Res Q Exerc Sport. 2012;83(3):431-441. doi:10.1080/02701367.2012.10599878
36. Shared use agreements. County Health Rankings & Roadmaps. Accessed April 1, 2022. https://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health/strategies/shared-use-agreements
37. U.S. Department of Health and Human Services. The National Youth Sports Strategy. U.S. Department of Health and Human Services; 2019. https://health.gov/sites/default/files/2019-10/National_Youth_Sports_Strategy.pdf
38. Kochtitzky Cs, Frumkin H, Rodriguez R, et al. Urban planning and public health at CDC. MMWR Suppl. 2006;55(2):34-38.
39. Phillips D, Flores Jr. L, Henderson J. DEVELOPMENT WITHOUT DISPLACEMENT: RESISTING GENTRIFICATION IN THE BAY AREA. Causa Justa :: Just Cause Accessed April 1, 2022. //cjjc.org/publication/development-without-displacement-resisting-gentrification-in-the-bay-area/
40. Carr DC, Gunderson JA. The Third Age of Life: Leveraging the Mutual Benefits of Intergenerational Engagement. Public Policy Aging Rep. 2016;26(3):83-87. doi:10.1093/ppar/prw013
41. National Health Service UK. Loneliness - Every Mind Matters. nhs.uk. Published November 25, 2021. Accessed January 28, 2022. https://www.nhs.uk/every-mind-matters/lifes-challenges/loneliness/
42. Humana Foundation. Resources. Far From Alone. Accessed April 5, 2022. https://farfromalone.com/resources/
43. National Academy of Sciences. Exchange – NAS Science & Entertainment Exchange. Accessed April 5, 2022. http://scienceandentertainmentexchange.org/
44. Department for Digital, Culture, Media & Sport, Office for Civil Society, Prime Minister's Office, 10 Downing Street, Crouch MP T, Wright QC MP TRHJ. A Connected Society: A Strategy for Tackling Loneliness – Laying the Foundations for Change. Her Majesty's Government and the Crown - The Government of the United Kingdom; 2018. https://www.gov.uk/government/publications/a-connected-society-a-strategy-for-tackling-loneliness
45. Andrey Ostrovsky, Morgan Simko. Accelerating Science-Driven Reimbursement For Digital Therapeutics In State Medicaid Programs | Health Affairs Forefront. Accessed April 5, 2022. https://www.healthaffairs.org/do/10.1377/forefront.20201029.537211/full/

REFERENCES

46. Widström A, Brimdyr K, Svensson K, Cadwell K, Nissen E. Skin-to-skin contact the first hour after birth, underlying implications and clinical practice. Acta Paediatr Oslo Nor 1992. 2019;108(7):1192-1204. doi:10.1111/apa.14754
47. Welch MG. Calming cycle theory: the role of visceral/autonomic learning in early mother and infant/child behaviour and development. Acta Paediatr. 2016;105(11):1266-1274. doi:10.1111/apa.13547
48. Qualter P, Brown SL, Munn P, Rotenberg KJ. Childhood loneliness as a predictor of adolescent depressive symptoms: an 8-year longitudinal study. Eur Child Adolesc Psychiatry. 2010;19(6):493-501. doi:10.1007/s00787-009-0059-y
49. Caspi A, Harrington H, Moffitt TE, Milne BJ, Poulton R. Socially isolated children 20 years later: risk of cardiovascular disease. Arch Pediatr Adolesc Med. 2006;160(8):805-811. doi:10.1001/archpedi.160.8.805
50. Centre of Perinatal Excellence. Coping with Loneliness as a Parent. COPE. Accessed April 7, 2022. https://www.cope.org.au/new-parents/emotional-health-new-parents/loneliness-in-early-parenthood/
51. Family Caregiver Alliance. Caregiver Isolation and Loneliness. Family Caregiver Alliance. Accessed April 7, 2022. https://www.caregiver.org/news/caregiver-isolation-and-loneliness/
52. Czaja SJ, Moxley JH, Rogers WA. Social Support, Isolation, Loneliness, and Health Among Older Adults in the PRISM Randomized Controlled Trial. Front Psychol. 2021;12:728658. doi:10.3389/fpsyg.2021.728658
53. Smith TO, Dainty JR, Williamson E, Martin KR. Association between musculoskeletal pain with social isolation and loneliness: analysis of the English Longitudinal Study of Ageing. Br J Pain. 2019;13(2):82-90. doi:10.1177/2049463718802868
54. Medical Advisory Secretariat. Social isolation in community-dwelling seniors: an evidence-based analysis. Ont Health Technol Assess Ser. 2008;8(5):1-49.
55. Newall NEG, Chipperfield JG, Bailis DS. Predicting stability and change in loneliness in later life. J Soc Pers Relatsh. 2014;31(3):335-351. doi:10.1177/0265407513494951
56. Gomez LE, Bernet P. Diversity improves performance and outcomes. J Natl Med Assoc. 2019;111(4):383-392. doi:10.1016/j.jnma.2019.01.006
57. National Academies of Sciences E, Division H and M, Practice B on PH and PH, et al. The State of Health Disparities in the United States. National Academies Press (US); 2017. Accessed April 7, 2022. https://www.ncbi.nlm.nih.gov/books/NBK425844/
58. Al Shamsi H, Almutairi AG, Al Mashrafi S, Al Kalbani T. Implications of Language Barriers for Healthcare: A Systematic Review. Oman Med J. 2020;35(2):e122. doi:10.5001/omj.2020.40
59. Cattan M, White M, Bond J, Learmouth A. Preventing social isolation and loneliness among older people: a systematic review of health promotion interventions. Ageing Soc. 2005;25(1):41-67. doi:10.1017/S0144686X04002594
60. Eccles AM, Qualter P. Review: Alleviating loneliness in young people – a meta-analysis of interventions. Child Adolesc Ment Health. 2021;26(1):17-33. doi:10.1111/camh.12389
61. The Aspen Institute. LESSONS IN LONELINESS. Accessed April 7, 2022. https://csreports.aspeninstitute.org/Lessons-in-Loneliness/2020/report
62. Hagan R, Manktelow R, Taylor BJ, Mallett J. Reducing loneliness amongst older people: a systematic search and narrative review. Aging Ment Health. 2014;18(6):683-693. doi:10.1080/13607863.2013.875122

Foundation for Social Connection

REFERENCES

63. Victor C. INTERVENTIONS TO COMBAT LONELINESS FOR OLDER ADULTS: A REVIEW OF REVIEWS. Innov Aging. 2018;2(suppl_1):964. doi:10.1093/geroni/igy031.3571
64. Collins LM, Murphy SA, Nair VN, Strecher VJ. A strategy for optimizing and evaluating behavioral interventions. Ann Behav Med Publ Soc Behav Med. 2005;30(1):65-73. doi:10.1207/s15324796abm3001_8
65. Julianne Holt-Lunstad. Social Connection as a Public Health Issue: The Evidence and a Systemic Framework for Prioritizing the “Social” in Social Determinants of Health. Annu Rev Public Health. 2022;43:193-213.