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Review Article

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Examining Approaches to Address Loneliness and Social Isolation among Older Adults

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Abstract

Background: Loneliness and social isolation are important determinants of health with impacts comparable to those of other health risk factors. Older adults are especially at risk, when late-life transitions impact social connectedness and social networks, with subsequent effects on quality of life and physical and mental health.

Purpose: Our primary purpose is to summarize a streamlined yet thorough literature review to support our discussion and perspective on the growing need for expanded intervention options targeting loneliness and social isolation among older adults. In doing so, we will describe existing and emerging intervention approaches, utilizing specified strategies, designed for this need.

Methods: A specifically targeted review of literature, rather than a broad systematic review, was conducted to meet our purpose and tailor results to our primary areas of interest. This review was targeted and tailored as such because we were primarily interested in several specific categories of approaches to address loneliness and social isolation, as described in the results. An online search was utilized to identify publications describing existing and emerging intervention solutions, utilizing specified approaches and targeting older adults.

Results: An initial search returned over 5,000 publications; thus, additional criteria were used to narrow these results and identify the most relevant publications for our purpose. The majority of interventions included take one of several approaches identified as an area of interest for this review: telephone-based, community involvement/volunteering, online/digital solutions, or resilience training. Our review and discussion focuses on these specified categories of existing interventions and considers emerging approaches with potential promise. The results and summary provided demonstrate a need for further widespread application and development of these intervention options.

Conclusions: Loneliness and social isolation are common among older adults, impacting their overall health and quality of life. These issues have become important determinants of health; thus further work is warranted in order to further develop and deliver emerging intervention approaches holding promise for older populations.

Keywords

Loneliness; Social isolation; Loneliness interventions; Telephone-based interventions; Older adults; Seniors

Introduction

Loneliness and social isolation are distinct concepts, yet are often examined together in research and have overlapping definitions. Loneliness is generally defined as the discrepancy between an individual's desired and actual social relationships; a "mismatch" between existing relationships and relationship standards [1-5]. Loneliness is considered subjective and tends to be associated with the quality of relationships versus their quantity [2,4,6]. In contrast, social isolation is an objective view or measure of one's social interactions, relationships, and social support, or lack of engagement with others, determined by the quantity of social relationships [2,7]. It has been described as the distancing of an individual psychologically and/or physically from desired relationships, a loss of place within groups, and a deficiency of quality relationships [7,8].

Loneliness is common among adults age 65 years and older, especially those age 80 and above, with prevalence ranging from about 30% to 60% [3,8-21]. Elsewhere, studies confirm that loneliness is also a serious concern in many countries outside the US [9,10,14,16,17,19,22-27]. Similarly, social isolation is estimated in various studies, both within and outside the US, to be between 17% and 43% of older adult populations generally age 60 or above [7,8].

Loneliness and social isolation have gained increasing attention as social determinants of health, with impacts comparable to or even greater than those of several other health risk factors, such as smoking, alcohol consumption, physical inactivity, and obesity [8]. Research supporting the impact of loneliness is growing, suggesting that loneliness leads to depression, sleep problems, hypertension, functional decline, and cognitive impairments among other suboptimal outcomes [3]. In addition, social isolation has been associated with various negative health outcomes, namely higher mortality, increased risk of dementia and poor mental health, disability, poor self-rated health status, and reduced quality of life [8]. Furthermore, research suggests that socially isolated older individuals are further at concurrent increased risk for severe loneliness, especially when late-life transitions (e.g., retirement, loss of a spouse, decreased mobility) begin to impact social roles and connectedness [2,28]. It has been established that both a lower quality (loneliness) and quantity (isolation) of social relationships negatively impact physical and mental health outcomes [1,8,28,29]. While any proven direct links to specific physical health conditions are unclear, loneliness has been shown to impact mental health primarily through an increased risk of depression, which subsequently has negative implications for physical health. In addition, moderate to severe loneliness is associated with dissatisfaction with healthcare providers [3].

Although separate constructs, the main characteristics associated with loneliness and social isolation are similar, including lower socioeconomic status, poor health, poor quality sleep, physical inactivity, living alone, less frequent contact with family/friends, and caregiving [1,7,21,30,31]. Other characteristics include increasing age, depression, low optimism, functional and/or cognitive limitations, and hearing and/or vision impairments [1-3,7,8,13-16,21,27,30,32]. Furthermore, lonely individuals tend to have lower feelings of self-worth or purpose in life and are self-conscious in social situations, further increasing their risk of social isolation [2,4,33,34].

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Despite research support for the significant impacts of loneliness and social isolation on health outcomes, overall evidence of proven success in targeted interventions has been inconsistent or limited by small sample sizes and generalizability. Thus, as these issues gain increasing attention with particular concern for older adults, further consideration of viable existing interventions and continued development and delivery of emerging approaches designed specifically to address these needs is warranted. This focused review and discussion adds a contribution to the existing literature in this area with a narrower scope and streamlined purpose of reviewing available options and describing those emerging approaches that may be practical and hold potential promise for further use with older populations.

Statement of Purpose

Our primary purpose is to summarize a streamlined yet thorough literature review to support our discussion and perspective on the growing need for expanded intervention options targeting loneliness and social isolation among older adults. In doing so, we will describe existing and emerging intervention approaches, utilizing specific highlighted strategies designed to mitigate this need.

Methods

Inclusion and exclusion criteria

We primarily used the PubMed database and a Google search as resources to identify publications describing our areas of interest. Initially, our search terms included the following in order to narrow results adequately to fit our purpose: Loneliness among Older Adults, Social Isolation among Older Adults, Interventions for Loneliness, Interventions for Social Isolation, Loneliness Interventions for Older Adults, Social Isolation Interventions for Older Adults, Online Loneliness, Online Social Isolation, and Solutions for Social Isolation. Each of these general search terms returned a very large number of results many of which were outside the scope of our focus or unrelated to our primary purpose. However, these initial results provided an overview of various commonly used intervention approaches for loneliness and social isolation. Thus we were able to determine four categories into which to divide existing approaches in order to further narrow our focus: 1) telephone-based interventions; 2) community involvement; 3) online and digital solutions; and 4) resilience training. Once a decision was reached to focus on these four categories, publications describing alternative intervention approaches outside of these areas were excluded in order to maintain emphasis on the categories identified.

For a subsequent general PubMed search, therefore, the following revised search terms were utilized: Loneliness among Older Adults, Social Isolation among Older Adults, Telephone Interventions for Loneliness, Telephone Interventions for Social Isolation, Telephone Support Lines for Older Adults, Loneliness Interventions for Older Adults, Social Isolation Interventions for Older Adults, Volunteering for Loneliness, Volunteering for Social Isolation, Community Involvement for Loneliness, Online Loneliness, Online Social Isolation, Digital solutions for Social Isolation, Resilience Training for Loneliness, and Resilience Training for Social Isolation.

Next, we narrowed the results of this streamlined search with PubMed's advanced search feature using the Medical Subject Headings ("MeSH") terms filter in order to better identify publications most relevant to our purpose. MeSH is the vocabulary thesaurus used for indexing articles within PubMed. Titles and selected abstracts, based on the relevancy of their titles, were then evaluated and reviewed to determine if each publication met our criteria. Furthermore, several additional abstracts were reviewed if their titles did not adequately identify the content of the publication. Inclusion criteria included original research and literature review publications with a title and/or abstract that fit our scope and purpose, as well as those focusing on older adult (i.e., 50+) populations. In addition, we considered for inclusion those publications describing interventions or initiatives using one of the four approach categories previously identified.

Meanwhile, exclusion criteria included publications with very old publication dates, unless they provided definitions or important background information. Studies focusing strictly on younger populations, employee-focused populations, or other specific groups were typically excluded, as were those detailing intervention approaches outside our scope of selected approaches. Studies published in languages other than English were excluded; many selected studies were conducted in the US, although a number of international publications providing relevant information were included as long as they were written in English.

Results of search

Our initial search returned over 5,000 results related to our search topics. Thus to further narrow the results and identify publications most closely aligned with our needs, PubMed's advanced search feature was utilized as described previously. Table 1 lists the number of articles returned through this advanced search strategy, grouped based upon search terms used. Notably, since a few terms returned a large number of publications, results were further narrowed with an additional search filter: MeSH Major Topic. The terms streamlined through this process included "Loneliness among Older Adults" and "Social Isolation among Older Adults"; the numbers of publications determined with this final search appear in Table 1.

After reviewing titles and abstracts and applying inclusion/exclusion criteria, publications determined most relevant for our needs were selected. The final number of references ultimately included as citations totals 80, with the majority published in 2005 or later. Publications were grouped based on their content and by the main search terms used to identify them. The distribution of final references selected in each search category is shown in Table 2, with several overlapping phrases combined as single categories.

Summary of findings

As a primary purpose, we intended to provide a discussion and perspective on the growing need for expanded loneliness and social isolation intervention options for older adults, focusing on approaches within different categories designed for this need. Thus we subdivided existing interventions identified in our search of literature into the following categories based on their subject matter, emphasis, or method of delivery: 1) telephone-based interventions; 2) community involvement; 3) online and digital solutions; and 4) resilience training.

Telephone-based interventions

Telephone-based intervention approaches can provide older adults with opportunities for social connections. Telephone services are often relatively easy to implement, offer a wide reach, and require fewer resources than in-person interventions. In addition, they do not require participants to leave their homes, a potential barrier to the success of in-person programs designed for older adults who may also

have mobility limitations. Existing initiatives described in the literature include a telephone intervention targeting blind seniors, which utilized hour-long weekly phone calls for eight weeks. Researchers reported an increased number of social activities and reduced loneliness among participants compared to controls [35]. Another trial of weekly caregiver-to-caregiver telephonic support resulted in self-reported improved coping skills, caregiving competence, and confidence, along with decreased burden and loneliness [36]. Elsewhere, a telephone support program via peer dyads at various durations demonstrated improved morale and loneliness among participants [37].

Meanwhile, broader efforts have also begun to explore the use of telephone-based approaches with older individuals [38,39]. For instance, an existing one-on-one, telephone support charitable initiative across the UK focuses on interacting with at-risk lonely and socially isolated seniors. Known as the Silver Line, this 24-hour, 7-days a week confidential telephone "befriending" hotline is funded entirely by donations and targets lonely older adults (age 65+) in the UK[38]. A trained Silver Line resource team screens callers, while the weekly 30-minute calls are staffed by volunteers who offer friendship, support, and information about local services. In 2013, the Centre for Social Justice conducted and published an independent evaluation of the Silver Line, reporting that many callers experienced benefits from the service [40].

Community involvement

In-person approaches focusing on community involvement primarily through volunteering have been used in efforts to address loneliness and social isolation with older adult populations [41-43]. In some programs, the volunteers recruited to serve older adults are also older peers with the goal of having them relatable to participants. For example, friendly visitor programs, in which senior volunteers visit other community-dwelling older adults, have been associated with improved social connectivity and reduced loneliness [8, 42]. Volunteer programs to address loneliness have also been implemented on a larger scale. For instance, Meals on Wheels America (MOW) is a widely known, successful outreach initiative targeting homebound and socially isolated seniors. MOW is a large national organization supporting older adults throughout the US; relying on volunteers, often seniors themselves, MOW delivers meals to those who cannot prepare their own meals or who have trouble leaving their homes [44]. The AARP Foundation and Brown University School of Public Health conducted a pilot study to examine the impacts of MOW delivery on homebound older adults. Findings revealed that seniors who received meals daily showed the greatest improvements in health and quality of life compared to those who received meals just once a week. In addition, the daily meal group reported greater decreases in worrying and improved feelings of loneliness [45].

Using a similar in-person approach, the UK mail provider Jersey Post has piloted a "Call & Check" program, in which postal workers provide friendly visits, appointment reminders, and prescription drop-offs to older residents upon request. In addition, workers use a basic five-item checklist to assess overall health and well-being; potential issues identified can then be referred to a care provider or family member to address [46]. Finally, Canada's Red Cross Friendly Visiting Program has shown potential in targeting homebound older adults at risk for loneliness and social isolation [47]. This pilot program attempts to help seniors remain in their homes as long as possible by reducing social isolation through trained volunteers who visit regularly, offering companionship while also checking on their health and safety.

Similarly, community involvement approaches have attempted to bring older adults together in other ways. Senior centers in many local communities in the US offer social gatherings, day trips, exercise classes, and other activities to bring seniors together. Elsewhere, "befriending" and mentoring programs have been attempted in efforts to improve loneliness and social isolation [48-51]. Befriending is an approach used in various settings to engage socially isolated individuals or those lacking social support [50]. These programs aim to increase social contact and expand social networks to ultimately reduce feelings of loneliness and improve well-being [51]. As one example, the Palo Alto Medical Foundation started the LinkAges program, a community-based social support initiative, to address loneliness and social isolation. The program uses technology and intergenerational connections to help older adults engage in their communities and continue living independently through various offerings via a multi-dimensional approach [52].

Online and digital solutions

As older adults become increasingly familiar with the internet, online and digital approaches for loneliness and social isolation are emerging. According to Pew Research Center Survey data, among those age 65 and older, internet use grew over 150% from 2009-2011, with over 70% of these individuals using the internet daily [53]. Social media use is also climbing within this population: over 60% of individuals age 50-64 and half of those age 65+ use Facebook [53]. In fact, one large meta-analysis revealed that computer and internet programs have improved loneliness among older adults in various studies [54]. Furthermore, online training programs have shown similar effects on loneliness among various older populations [55-60].

The recent growth in internet use among older adults has subsequently led to the option of social media, mobile application, and other potential digital solutions for loneliness. Social media websites for both general and older audiences are gaining popularity among older adults [61]. These websites aim to create social connections and networks based on common interests or activities, regardless of geographic location. The world of digital connectivity is also expanding with newer concepts, as at-home interactive tools have reached the market. New devices are able to respond to voice commands and questions, provide answers, and interact with the user through a voice response. For some older adults who are technically savvy, especially those who live alone, this technology may provide a sense of engagement with another "individual," even though that individual is digital. Amazon and Google both offer variations of these interactive devices that "talk" to the user, answer questions about weather, sports, or other topics, play continuous music upon request, and otherwise engage the user.

Resilience training

The field of resilience research has begun to come to a consensus on defining resilience as a process or skill that can be developed or improved, rather than a static personality trait [62,63]. Social resilience, more specifically, refers to the capacity to sustain positive relationships and endure and recover from social stressors [60]. Research demonstrates that high levels of resilience can protect against the effects of loneliness and social isolation, in addition to the benefits of resilience in adapting to other stressors and improving health outcomes [62-64].

Multidimensional resilience interventions focusing on loneliness and social isolation have been attempted on small scales but primarily with younger or military populations, although the strategies utilized

could be translatable to older adults' needs as well. For instance, one intervention with Army soldiers randomized to a resilience training program demonstrated decreased loneliness and enhanced social cognition [64]. These effects were seen immediately after the intervention as well as longer term. Elsewhere, social resilience training interventions have been utilized across the military with reported success in reducing adverse outcomes such as post-traumatic stress disorder (PTSD) [65]. Finally, one review of suicide interventions identified 19 studies among older adults (age 60+) that appeared to hold promise for reducing the risk factors of social isolation and depression through increased resilience [66].

Discussion

As previously described, we chose a limited yet focused literature review methodology as it best fit our needs and purpose for a targeted overview of relevant literature rather than a traditional systematic review of all research related to loneliness and social isolation. As stated, our primary purpose is to summarize this review to support a discussion and unique perspective on the need for expanded intervention options for older adults experiencing loneliness and social isolation. Thus we searched and extracted selected publications related to relevant intervention approaches in order to address our overall interest and primary goal.

Loneliness and social isolation are being recognized as critical social determinants of health, yet research initiatives and generalizable interventions to directly address them have not been extensively implemented. Our findings suggest that while some interventions demonstrate promise, few interventions specifically targeting older populations have had widespread application and many lack scalability [7]. Thus practical solutions relying on emerging, innovative approaches need to be considered. Addressing loneliness and isolation as serious issues in the healthcare setting will be an important yet challenging first step in this effort. Various measurement scales are used to assess levels of these issues. However, unlike most medical conditions, no standard, widely applied clinical solutions exist for loneliness or social isolation, making them difficult to address [7,8]. Healthcare providers typically do not discuss these social issues during regular wellness exams with older patients; hence loneliness and social isolation remain outside of the purview of the medical profession. As a recommendation, physicians could help reach broader populations if screening for both loneliness and social isolation were incorporated into regular annual wellness visits [67]. Alternatively, researchers and program planners could leverage participant lists from MOW, home healthcare providers, senior center outreach programs, care coordination programs, or other similar initiatives [68]. Meanwhile, other entities could become involved to identify individuals through surveys or other population health management efforts (Table 3). However, without clinical identification of lonely, socially isolated populations, surveys may remain the primary identification tool. Simple screening tools have been validated (e.g., the University of California Los Angeles (UCLA) three-item scale for loneliness) but to date have limited use [5]. One survey methodology that has shown promise uses interactive voice response (IVR) to administer short surveys. IVR technology is relatively inexpensive and can be utilized to screen large portions of a designated population [69].

Nevertheless, progress in this area will likely depend on healthcare providers, including nurses and social workers, to recognize loneliness and social isolation among patients. Thus provider involvement delivered through annual wellness visits is a critical initiative in broadening attention to lonely and/or socially isolated populations. One step in this direction is the UK's Campaign to End Loneliness (http://www.campaigntoendloneliness.org/), which suggests potential resources for physicians to recommend to patients who may be lonely or isolated [67]. As there are no clinical solutions for these issues, recognizing loneliness and subsequently referring individuals to resources would be an important step toward viable solutions. In the US, grant funding that sponsors research exploring approaches to address loneliness and social isolation may help to fill this gap [30,70]. The intention of these efforts could be the eventual development of potentially viable interventions that Medicare or other healthcare systems could support.

The diversity of older adult populations will likely require multidimensional intervention approaches [1,2, 7,10,30]. For older adults with poor health and reduced mobility, telephone-based approaches may be attractive due to their convenience, accessibility from home, and flexibility [35-37]. However, these interventions have primarily been attempted with very small populations, and their long-term effects remain unclear. In addition, large-scale telephone support lines specifically designed to target loneliness and isolation among older adults have not been extensively implemented within or outside the US. Finally, success with these types of telephone interventions likely requires ongoing funding support through donations or other private sources. Nevertheless, telephone-based interventions could consider the incorporation of other multidimensional strategies to increase the chances of engaging participants, such as through connections to peer groups, online/digital tools, or volunteering. Finally, with the prevalence of hearing loss among older adults, telephone-based approaches may be most successful if they incorporate caption phones or other hearing support technologies to assist these individuals.

Meanwhile, individuals with lower socioeconomic status may find solutions through community involvement programs such as MOW or initiatives offered free of charge by senior centers [68]. Alternatively, older adults who have less frequent contact with their social connections, live alone, or are widowed and those who prefer personal, face-to-face contact through involvement with others or within the community may respond best to the in-person contact and networking that volunteering can provide [41-43, 47,49]. Still, these individuals may need encouragement to interact with others, potentially through an initial outreach to trigger their engagement in face-to-face initiatives, further necessitating a multidimensional approach. Furthermore, as with other approaches, it may be difficult to identify and then to recruit and engage socially isolated individuals for these programs. Meanwhile, using animals as companion pets for older adults, especially those who live alone, has been explored as another option to address loneliness [71,72]. However, interventions focusing on companion pets are difficult to scale, and in addition, questions remain about their effectiveness [71].

Elsewhere, emerging online and digital options are beginning to demonstrate potential for addressing loneliness and social isolation among older individuals [53-55,57-61,73,74], and may be the most scalable, generalizable approach to reach larger populations through the use of technology. Going forward, technology will likely play an increasing role in this field [53]. Approaches utilizing internet use among older adults focus on improving social connections with a convenient, flexible methodology that may be attractive to those who are lonely or have limitations that inhibit their ability to participate in face-to-face activities. Similarly, at-home interactive

Table 1: Number of articles returned through advanced "MeSH terms" search on PubMed.

Search Terms/Phrases	Number of References Returned
Loneliness among older adults	765
Social isolation among older adults	1,418
Telephone interventions for loneliness	2
Telephone interventions for social isolation	11
Telephone support lines for older adults	11
Loneliness interventions for older adults	102
Social isolation interventions for older adults	175
Volunteering for loneliness	27
Volunteering for social isolation	115
Community involvement for loneliness	39
Online loneliness	59
Online social isolation	139
Digital solutions for social isolation	1
Resilience training for loneliness	3
Resilience training for social isolation	15

Table 2: Number of final references selected for inclusion, by major topic category.

Major Topic Category	Number of References	Range of Years Published
Loneliness among older adults	21	1980-2016
Social isolation among older adults	10	2002-2015
Telephone interventions for loneliness/ Telephone interventions for social isolation/ Telephone support lines for older adults	6	1982-2016
Volunteering for loneliness/ Volunteering for social isolation/ Community involvement for loneliness	15	1998-2016
Online loneliness/Online social isolation/ Digital solutions for loneliness/social isolation	15	1999-2016
Resilience training for loneliness/ Resilience training for social isolation	5	2011-2016
(General) Loneliness interventions for older adults/ (General) Social isolation interventions for older adults	8	1990-2017
Total	**80**	**1980-2017**

devices may provide a sense of engagement for those who live alone and are technically savvy [75-78]. However, the lasting benefits of online and digital solutions, as well as their success in engaging older individuals over the long term, remain unclear. As with telephone-based interventions, online or digital approaches may need to integrate several components in a multidimensional approach to target individuals who are difficult to reach and desire some type of personal connection. Developing technologies could be a component of digital outreach, such as through the use of computers or personal tablets to allow delivery of personal "tele-health" communications or problem-solving therapy [73,74]. An interface such as "Skype," for instance, could further support the convenience and accessibility of digital approaches and reach larger numbers of older adults in various geographic locations, while also incorporating personal contact through video conferencing.

New concepts emerging in the world of digital connectivity also provide unique options and deserve further consideration for interventions. Several companies now offer home interactive devices known as "smart speakers" or virtual "home assistants" that respond to voice commands or prompts, answer questions, and interact with the user through voice responses [75,76]. Other newer options include digitally based robotic animals or "companion toys" that respond to voice prompts. These originated from concepts for children's toys, yet there is growing interest in their potential use with older adults as well [77,78].

Table 3: Needs for further development of loneliness and social isolation interventions.

Primary Need	Potential Solutions	Specific Examples
Identification	Care coordination and population health management initiatives	Disease/case management program participants
	Participant lists from other outreach initiatives	Meals on Wheels, home healthcare providers, and senior centers
	Physician screening	UK Campaign to End Loneliness
	Surveys	Short health surveys using IVR technology
Potential Funding Sources	Aging/elder organizations	AARP Foundation
	Medicare or private insurers	Mental healthcare benefits
	Private organizations	Robert Wood Johnson Foundation
	Research grants	Funding for loneliness work sponsored by universities or healthcare agencies
Promising Intervention Approaches (Existing and Emerging)	Telephone-based	Call-in support lines, nurse help lines
	In-person community involvement	Meals on Wheels, volunteering, senior centers, and befriending/mentoring
	Online and digital solutions	Social media websites, tele-health communications, Skype-based programs, and digital home devices/pets
	Resilience training	Social resilience training classes or programs

Although online and digital approaches are a viable option with growing popularity, some at-risk older adults who would benefit from interventions, such as those age 80+, may not have the technical or computer skills required to participate in these programs. Additionally, initiatives using digital tools or devices that are not self-explanatory could require training to use, as well as funding sources to supply devices and technological support to large numbers of participants. Thus it may be challenging to incorporate more expensive options, such as interactive home devices, into larger interventions. Therefore, outside of the consumer market, the problem of securing funding for these interventions remains, and requires further attention to move forward.

Finally, the current literature describing resilience interventions suggests that resilience has generally remained an emerging approach to loneliness and social isolation although primarily in research settings, or with small study populations, limited scalability, and application with younger or military populations. However, developing or increasing resilience within this population still appears to be a worthwhile endeavor. Thus, along with online and digital options, resilience training approaches could be recommended as an emerging option with the potential for further development of interventions.

Despite the approaches described here, a growing need to expand development of scalable applications of emerging solutions for loneliness and social isolation is apparent. This need has become increasingly important considering the rapid growth of the older adult population in the US, especially among the fastest-growing group of those aged 85 and older. Older adults are also the greatest consumers of health care; additionally, those aged 50+ represent $7.6 trillion in economic activity [79]. The most effective way to reach them may be through multidimensional initiatives incorporating a combination of the existing and emerging approaches described in this review.

Meanwhile, identification of those at increased risk for loneliness and social isolation will be a critical first step. Short, widely distributed surveys or partnerships with home care or meal delivery agencies may serve this need. Furthermore, augmenting home agency or MOW services with additional resources, such as mental health screening or counseling by sociologists or social workers, is a viable recommendation that may be an option for Medicare to eventually consider. Expanding mental healthcare services through the Medicare home healthcare benefit has been suggested as a way to better serve homebound individuals; this approach could be effective with the lonely and socially isolated, as well [80]. If Medicare, Medicaid managed care, and private healthcare plans were to incorporate this as a benefit to those receiving home health care, our view is that funding could potentially be less of a barrier to addressing loneliness within this population.

To date, resources are limited not only by a lack of awareness but also in some cases by a lack of sufficient funding to develop and implement interventions (Table 3). Physicians in the US could serve as a valuable resource if their contact with older patients included screening for loneliness and social isolation, similar to the model used in the UK [67]. This would require training of providers for awareness of these issues as well as established referral resources.

Until these issues are incorporated into payment systems, funding for loneliness and social isolation initiatives will likely need to come from research grants, private organizations, such as the Robert Wood Johnson Foundation (RWJF) [70], aging networks, employer programs, or private-public coordination. Elsewhere, employers could offer programs for those transitioning into retirement or caregiver support initiatives. Other organizations specifically dedicated to the health of older adults have begun to expand their focus to include loneliness and social isolation as important priorities. As an example, the AARP Foundation has a dedicated Isolation Impact Team to address social isolation, one of their key areas of interest among issues impacting Americans age 50 and older. The team's priorities include efforts to close the gaps in understanding social isolation, identify research needs, and recommend directions for intervention approaches targeting older populations [30]. This initiative and similar efforts will likely be required in order to expand attention to the growing need for innovative solutions for loneliness and social isolation within older populations.

Conclusions

The findings of this review and discussion of the literature describe the negative effects of loneliness and social isolation on quality of life and health outcomes among older adults. Our perspective supports a growing need to devote greater attention to these issues as well as to develop and implement expanded intervention approaches to address them. Although several promising approaches exist, scalable applications of these existing interventions targeting older populations have been limited and remain difficult to execute with larger sample sizes. Furthermore, ongoing research efforts are needed in this field to further develop newer, emerging multidimensional approaches on a larger scale that could prove successful over the longer term. In the meantime, efforts to identify the lonely and socially isolated, engage those most likely to benefit from interventions, and secure funding to develop practical intervention approaches will be critical, along with continued work to test the most effective options within a growing population of older adults.

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