

Technological advancements to address elderly loneliness: practical considerations and community resilience implications for COVID-19 pandemic

Kristina M. Conroy, Srikrupa Krishnan, Stacy Mittelstaedt and Sonny S. Patel

Abstract

Purpose – Loneliness has been a known severe public health concern among the elderly population during the COVID-19 pandemic. This paper aims to discuss the practicalities of using emerging technologies to address elderly loneliness and its implications and adaptations to the outbreak of coronavirus disease–2019.

Design/methodology/approach – The authors draw on examples from the literature and their own observations from working with older adults, to provide an overview of possible ways technology could help this population in the current COVID-19 pandemic.

Findings – Technological advancements have offered remarkable opportunities to deliver care and maintain connections despite the need to stay physically separated. These tools can be integrated into crisis communications, public health responses and care programs to address loneliness among the elderly. However, it must be done strategically and informed by the type of loneliness at play, environmental factors, socioeconomic and technological literacy.

Practical implications – Care-providing organizations and policymakers should consider the risk of loneliness while responding to COVID-19 outbreak, particularly within elderly populations. As a part of a broader plan, technological solutions and low-tech approaches can make a difference in mitigating loneliness. Solutions should be accessible to and usable by older adults. Provision of equipment, training and guidance may be necessary to execute a technology-centric plan; for some communities and individuals, approaches that do not rely on advanced technology may be more effective.

Originality/value – Technological advancements can be a valuable tool in addressing known public health concerns, such as loneliness among the elderly populations. However, the use of this tool should be governed by the specific situation at hand, taking into consideration individual needs and environmental factors, especially the compounded effects caused by the coronavirus pandemic. Different technological programs and approaches are appropriate for different types of loneliness. For example, online therapy such as internet-based cognitive behavior therapy may mitigate loneliness caused by fear and online interaction such as videoconferencing may relieve loneliness caused by lack of social engagement.

Keywords Loneliness, Resilience, Technology, Older people, Mental health, COVID19

Paper type Research paper

Introduction

Since the outbreak of coronavirus disease–2019 (COVID-19), the initial public health response for elderly populations has been focused on reducing community spread and increasing physical distance (“social distancing”). Aiming to reduce exposure and alleviate pressure on health-care facilities, these measures manifested as stay-at-home orders, temporary closures of non-essential businesses, cancellation of social activities and events

Kristina M. Conroy is based at Harvard University, Cambridge, Massachusetts, USA.

Srikrupa Krishnan is based at the Coronavirus Visualization Team, New York City, New York, USA. Stacy Mittelstaedt is based at AgingNext, Claremont, California, USA.

Sonny S. Patel is based at Harvard T H Chan School of Public Health, Harvard University, Boston, Massachusetts, USA.

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and limited-to-no visitation permitted in living facilities such as nursing homes. This response may have created a decrease in resilience and an increase of social isolation and loneliness among the elderly population ([Patel and Clark-Ginsberg, 2020](#)). Prior to the pandemic, loneliness has been a known severe public health concern among this vulnerable population, also affecting their use of health-care resources ([Gerst-Emerson and Jayawardhana, 2015](#)).

Given the known correlations between loneliness, disease and mortality ([Rico-Urbe et al., 2018](#)), the impact of physical distancing measures on loneliness must be factored into the equation in public health responses. The elderly are also particularly vulnerable for other factors that could increase loneliness, such as 47.5% of those above 75 years live with at least one disability in USA ([U.S. Census Bureau, 2018a](#)) and only 28.2% of people above 65 years have a bachelor's degree or higher ([U.S. Census Bureau, 2018b](#)). Both lower education and disability can contribute to risk of loneliness ([Yanguas et al., 2018](#)). The older population is also at a high risk of contracting COVID-19 and progressing to a life-threatening state ([Ritchie et al., 2020](#)). For example, in a recent study of primary care records of 17,278,392 British adults, [Williamson et al. \(2020\)](#) found that increasing age was strongly associated with risk of death because of coronavirus (e.g. the UK patients older than 80 years old were found to be 20 times more likely to die from COVID-19 than those UK patients between 50 and 59 years old). To protect vulnerable populations from a dangerous disease such as COVID-19, physical distancing is necessary; to better protect them from both COVID-19 and other health risks, physical distancing must be accompanied by other interventions to prevent or alleviate loneliness and to continue to provide health care for other conditions.

As the COVID-19 pandemic continues, practitioners and organizations aiming to serve the elderly population will need to adapt their services and interventions according to new medical guidelines and requirements. The need for technological tools to alleviate the detrimental effects of isolation should not be considered as the sole response. The need for safe and responsible in-person interaction will continue to be a mitigating factor in combating isolation. Technological advancements can be a valuable tool in addressing known public health concerns, such as loneliness. However, the use of this tool should be governed by the specific situation at hand, taking into consideration individual needs and environmental factors. The aim of this paper is to discuss the practicalities of using emerging technologies to address elderly loneliness and its implications and adaptations to the COVID-19 pandemic.

Loneliness and COVID-19

While many studies have communicated the biological and psychological underpinnings of loneliness in the elderly and proposed a multitude of interventions, it remains unclear how to address the issue during these times of physical distancing and coping with uncertainty. Studies have shown that social disconnectedness predicted significantly higher depression and anxiety symptoms ([Newman and Zainal, 2020](#)) It is therefore imperative to evaluate interventions and consider alternative approaches, such as cultural and holistic ones to better understand the root causes of social disconnectedness and loneliness.

Loneliness, already at epidemic proportions among the older adult population globally ([Berg-Weger and Morley, 2020](#)), is also multifaceted and complex. There are multiple causes of loneliness, different types of loneliness and diverse factors that affect loneliness, such as economic status, living arrangements, familial ties, accompanying health conditions and surrounding infrastructure. Interventions aimed at mitigating loneliness should take into consideration these variables, including during times of physical distancing, especially if using disaster risk reduction interventions ([Clark-Ginsberg and Patel, 2020](#)).

As such, it may be worthwhile to undertake a preliminary assessment that would include:

- determining the type of loneliness for the population of interest;
- performing a needs assessment, including holistically identifying factors that could protect or harm; and
- assessing the overall ecosystem to effectively determine which intervention would be most impactful.

Determining the type of loneliness will involve making a distinction between:

- social loneliness; and
- emotional loneliness.

While social loneliness alludes to the negative feelings resulting from absence of social integration, emotional loneliness alludes to the perceived lack of an attachment figure ([Hawkley and Cacioppo, 2010](#)).

There is likely to be an increasing emergence of social loneliness because of the current pandemic and the physical distancing measures. This type of loneliness could be exacerbated by other variables aside from a reduction in social activity. Social loneliness may be a manifestation of a diminished capacity for self-regulation owing to increased and subconscious surveillance for social threat ([Hawkley and Cacioppo, 2010](#)). Loneliness is also associated with a reduction in effort to maintain positive emotions ([Hawkley and Cacioppo, 2010](#)). During the current pandemic, a plethora of information and uncertainty about the virus and responses to it are further propagated by the media. Income, education and disability statuses are also some of the known predisposing factors that can affect mental health and fuel the feeling of loneliness ([WHO, 2014](#)). Creating a sociodemographic profile to identify any such correlations or, perhaps, causations would provide insights as to whether there are any implications of traditional and digital media and technological tools in shaping behavior patterns. An environmental evaluation will enable an understanding of the possible impact of external factors such as residential complex and governmental regulations.

Understanding the context of the elderly community and implications of COVID-19 in this community will govern the type of intervention to adapt and deploy whether it be:

- generalized digital health-promoting interventions that involve health messaging with translational services to track, monitor and inform mental health or/and merely enhance online social presence and network;
- integration of technology and behavior-based interventions such as online reminiscence theory or online cognitive behavior therapies, which focus more on changing biased perceptions; or
- macro-level policy changes in health systems that offer proactive and supplementary-targeted support for vulnerable populations.

Interventions and technology

Loneliness associated with reduction of social contact and activity

If the problem at hand is the deprivation of social contact because of physical distancing measures, it may be optimal to use rudimentary telecommunication methods to improve social skills, social support and online interactions through telephone or videoconferencing depending on access to and literacy in digital resources and assistive technology ([Faife, 2007](#); [Fitzsimons, 2010](#); [McCaig et al., 2012](#)). The absence of normal social activities affects elderly adults in multiple ways, beyond just the loneliness caused by lack of social

interaction. Disruptions of routines, such as attending a daily or weekly exercise session, may cause a loss of structure in general and impact medication schedules, self-care, hygiene, hydration and sleep – all of which may further exacerbate loneliness and other health problems (David, 2020). Both social interaction and the reestablishment of some routines could be assisted by technology.

Videoconferencing apps (such as Facetime) and services (such as Zoom) have grown in popularity during the COVID-19 pandemic, for both business and social activities. To address loneliness, these programs can be used in place of previous in-person visits from friends, family and volunteers. Online group meetings could be orchestrated through videoconferencing programs, as well. Group online activities, such as “attending” a spiritual service (Rote *et al.*, 2013), yoga (Belam, 2020; Louie, 2014) or playing an online game (Nguyen *et al.*, 2017) or new music technology (Court-Jackson, 2011), may decrease feelings of loneliness while also providing cognitive stimulation and routine.

Additional technological innovations, such as one-touch computer for the technologically illiterate (Abrams *et al.*, 2020) and the Nextdoor app which facilitates assistance to neighbors (Campaign to End Loneliness, 2020), have emerged during this time of physical distancing. The Campaign to End Loneliness (2020) urges friends, family and neighbors to call the elderly individuals in their life regularly to check in and encourages use of WhatsApp groups, Facebook and Twitter to stay in touch and generate social networks. These resources can help elderly people feel more connected, cared for and secure.

Loneliness associated with increased perception of threat

If the loneliness is a manifestation of perceived threat or fear, it may be more beneficial to use psychosocial approaches and one-on-one sessions with professionals. This loneliness could be rooted in an increased perception of isolation brought on by the general societal focus on activity restrictions and physical distancing. Feeling overwhelmed by the uncertainty, the indeterminate duration of the situation and frightening reports in the media, along with feeling like there is no one to talk to, may also increase sensations of loneliness. Psychologically rooted loneliness fuelled by COVID-19 could also stem from unnecessary additional self-isolation out of fear of contagion.

With this type of loneliness, the impact of psychosocial approaches and therapies has been shown to be effective (Hawkey and Cacioppo, 2010). Cognitive behavior therapy (Masi *et al.*, 2011), cognitive enhancement programs (Winningham and Pike, 2007) and mindfulness-based stress reduction (MBSR) (Creswell *et al.*, 2012) are a few examples of interventions that are traditionally carried out in person to mitigate feelings of loneliness. There has been some indication that these programs are also effective when administered digitally, such as through a smartphone app (Tsai *et al.*, 2020) and internet-based cognitive behavioral therapy on a computer (Käll *et al.*, 2020). There is a potential for technological adaptation of other approaches, such as MBSR, as patients receiving these interventions are often asked to practice at home; once the skills are learned, they can be practiced independently.

Advancements in privacy protections for videoconferencing programs such as Zoom and Cisco Webex also create opportunities for the continuation of one-on-one specialist sessions. Greater confidence in using these programs for health purposes via telehealth services may be achieved by using digital versions that meet governmental and medical privacy regulations, such as Health Insurance Portability and Accountability Act of 1996. Medical practitioners should also recognize the need for their patients to be able to see them in this virtual setting. Investment in telemedicine should include camera-ready equipment and physicians must be willing to use it with an understanding the importance of this visual connection can mean to their elderly population.

The barrages of information on television, internet and other channels can be overwhelming and an instigating factor in threat-based loneliness. These same media channels can also help to mitigate it along with improving access to information, which could reduce the social exclusion (Hislop, 2010). Some elderly people have a sense of solidarity from hearing that others are going through the same things, whether physical distancing or worrying about the disease. This experience of togetherness helps them feel less alone (David, 2020). Additionally, offering authoritative information sources, such as a health-care app run by a trusted medical organization, could help to tune out the noise and feel more secure in obtaining facts and guidance. Behind the scenes, technology can be used to determine how media is affecting mental and behavioral health, while also identifying the best channels to provide information and support (Call, 2020).

Considerations for implementation

None of these technology-based interventions is effective if the elderly do not know how to use them, do not want to use them or are not able to obtain them. Assistance (and patience) from family, caregivers or volunteers to set up resources, such as video calling and teach their elderly person how to use it may be an essential first step in many cases. Organizations, such as assisted living facilities or health-care centers, could also offer the service to help coordinate online social schedules. For instance, they could ask family members to have a video call at a certain time each week or create online social activities for groups of residents. Community-based approaches and social connections can help improve technology adoption and reduce feelings of loneliness and social disconnectedness (Barke, 2017).

With poorer people typically suffering more under COVID-19 (United Nations, 2020) and facing greater degrees of loneliness (Trad et al., 2020), accessibility to devices such as smartphones must be taken into consideration. Focusing on loneliness interventions that require expensive equipment may miss a significant portion of the target population. Likewise, many services currently aimed at mitigating loneliness depend on electricity and internet – and a high bandwidth at that. Developing countries and rural areas, in particular, may not have the infrastructure to support video calls over the internet. In these cases, loneliness interventions should be conceptualized according to the infrastructure and economic capacity of the people they are intended to reach. Regular landline phone calls, for example, may have to replicate some of the information and engagement services that are available through apps and websites.

Another way to overcome the access barrier may be to provide technology to elderly people, whether through health insurance programs, government programs or living facilities. For example, an inexpensive device optimized for videoconferencing could be provided to people identified as at risk for loneliness. If such a device were designed to be intuitive and simple to use – pre-loaded with a small number of programs such as videoconferencing and health-care resource apps – it could greatly increase the efficacy of efforts to reach vulnerable populations through these programs. Of course, with the pandemic already causing financial strain, such provision of technology may be unfeasible for governments and health-care providers. With a strong plan outlined, organizations could ask donors to support their efforts to address elderly loneliness during such challenging times.

Ultimately, policy changes on a state- or nation-wide level are recommended to ensure continued and sustained care for those more severely impacted by the pandemic. For example, behavioral health resources could be integrated as a key component of crisis communication and medical response. Technology could also be used to assess and identify high-risk populations to better target funds and resources; modeling and data analytics can identify at-risk groups and can also predict the best communication channels for reaching these groups (Call, 2020).

Conclusion

While health-care providers and citizens continue to grapple with the COVID-19 pandemic, concern for the quality of life and health of elderly populations must remain a priority. Despite the irrefutable need to enact strict measures such as physical distancing to “flatten the curve” and protect the most vulnerable from the disease, these measures can have detrimental side effects. Particularly in a long-term pandemic like this one, caregivers must find ways to address loneliness and deliver the same quality of medical care during this “new normal.”

Technological advancements have offered remarkable opportunities to deliver care and maintain connections despite the need to stay physically separated. These tools can be integrated into crisis communications, public health responses and care programs to address loneliness among the elderly. However, it must be done strategically and informed by the type of loneliness at play, environmental factors, socioeconomic and technological literacy. Taking these elements into consideration will help decision-makers to develop a strong, effective approach.

Importantly, while technology is a key piece to addressing loneliness during the COVID-19 pandemic, it cannot be the sole solution. Meal delivery volunteers, police patrol volunteers and other community volunteers should be engaged to provide in-person, physically distanced, “doorway” visits to provide an on-going sense of community involvement and a “real” connection to other people. Low-tech solutions such as phone calls and printed literature will still be necessary alongside new creative approaches to most effectively serve the older population. As one of the tools in the toolbox, technological advancements have already helped to address loneliness; hopefully, greater attention to the problem of loneliness will inspire new ideas for incorporating and developing new technology for the elderly.

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About the authors

Kristina M. Conroy is a Communications Manager at Harvard University, Cambridge, Massachusetts, USA.

Srikripa Krishnan is a Data Scientist and Advisory Board Member at Corona virus Visualization Team, a non-profit organization consisting of crowd-sourced student network of data scientists and analysts, developers and communicators working to better visualize and share the impacts, present and future, of COVID-19.

Stacy Mittelstaedt is a Director of Volunteers for AgingNext, a non-profit organization that provides free or low-cost programs, services and resources to over 15 aging communities in Los Angeles and San Bernardino counties in California, USA.

Sonny S. Patel is an NIH Fogarty Global Health Scholar and Fellow at Harvard T.H. Chan School of Public Health, Boston, Massachusetts, USA. Sonny S. Patel is the corresponding author and can be contacted at: spatel@hsph.harvard.edu

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