

**Decade
of healthy
ageing**

ADVOCACY BRIEF:

Social isolation and loneliness among older people



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Decade of healthy ageing

Social isolation and loneliness among older people: advocacy brief

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Advocacy brief: Social isolation and loneliness among older people

Summary

- ⊙ Social isolation and loneliness among older people are growing public health and public policy concerns which have been made more salient by the COVID-19 pandemic.
- ⊙ Social isolation and loneliness among older people are widespread. For instance, 20–34% of older people in China, Europe, Latin America, and the United States of America are lonely.
- ⊙ Social isolation and loneliness are harmful. They shorten older people's lives, and damage their mental and physical health and quality of life.
- ⊙ But they can be reduced:
 - Through face-to-face or digital interventions such as cognitive behaviour therapy, social skills training and befriending;
 - By improving infrastructure [e.g. transport, digital inclusion, built environment] and promoting age-friendly communities;
 - Through laws and policies to address, for instance, ageism, inequality and the digital divide.
- ⊙ A strategy for reducing social isolation and loneliness among older people should aim to:
 - Implement and scale up effective interventions to reduce social isolation and loneliness;
 - Improve research and strengthen the evidence for what works; and
 - Create a global coalition to increase the political priority of social isolation and loneliness among older people.



Human beings are fundamentally social animals. To have survived for millennia as hunter-gatherers in often harsh environments, individuals depended for their lives on strong bonds with a tightly knit social group. High-quality social connections are essential for our mental and physical health and our well-being – at all ages.

Social isolation and loneliness have serious consequences for longevity, health and well-being. In older age, social isolation and loneliness increase the risks of cardiovascular disease, stroke, diabetes, cognitive decline, dementia, depression, anxiety and suicide. They also shorten lives and reduce the quality of life. Life transitions and disruptive life events [such as retirement; loss of a spouse, partner or friends; migration of children or migration to join children; and disability or loss of mobility], which are more likely to affect older people, put them at particular risk [1, 2].

Until recently, however, social isolation and loneliness, including among older people, were neglected social determinants of health. In some countries, these problems have started to be considered pressing public policy and public health issues. The COVID-19 pandemic and the attendant physical distancing measures have increased the salience of these topics [3–5]. For instance, in 2018, the United Kingdom Government appointed a "loneliness minister" and published "A connected society – a strategy for tackling loneliness" [6]. In 2021, Japan followed suit, partly in response to the pandemic; the Prime Minister added a "loneliness minister" to his cabinet and created an inter-ministerial task force to address the issue [7]. In the United States of America in 2020, the National Academies of Sciences, Engineering and Medicine published a consensus report entitled "Social isolation and loneliness in older adults: opportunities for the health care system" [2].

Several windows have opened for international, regional and national policies,

described below, to change the way in which social isolation and loneliness are addressed. One of the most prominent is the United Nations Decade of Healthy Ageing 2021–2030 [8], which includes four interconnected action areas for safeguarding the health and well-being of older people, their families and their communities: [i] change how we think, feel and act towards age and ageing; [ii] ensure that communities foster the abilities of older people; [iii] deliver integrated care and primary health services tailored to older people; and [iv] ensure access to long-term care for older people. Although social isolation and loneliness occur throughout the life-course, this advocacy brief focuses on older people.

What we know about social isolation and loneliness among older people

We know enough to state with confidence that social isolation and loneliness are widespread among older people in most regions of the world, that they have serious consequences for their physical and mental health and longevity and that we should, therefore, invest in effective interventions and strategies to reduce social isolation and loneliness in this population. Many questions and uncertainties remain, however, which should be addressed by the research community [2, 9, 10].

Social isolation and loneliness are distinct but related concepts. "Loneliness" is the painful subjective feeling – or "social pain" – that results from a discrepancy between desired and actual social connections [11–13]. "Social isolation" is the objective state of having a small network of kin and non-kin relationships and thus few or infrequent interactions with others. Some studies have found only a weak correlation between social isolation and loneliness [14–16]: socially isolated people are not necessarily lonely and vice versa. How lonely a person feels depends partly on their own and their culture's expectations



of relationships [17]. For some aspects of the problem – such as its scale, distribution and trends – more evidence is available on loneliness than on social isolation.

The scale of social isolation and loneliness

Although there are currently no global estimates of the proportion of older people in the community who are experiencing loneliness and social isolation, estimates for some regions and countries are available. For instance, 20–34% of older people in 25 European countries [18] and 25–29% in the USA [10] reported being lonely. A study in 2021 indicated a prevalence of loneliness of 25–32% in Latin America, 18% in India but only 3.8% in China [19]. Other estimates of the prevalence of loneliness among older people, however, were 29.6% in China [20] and 44% in India [21] – on a par with or higher than in the rest of the world. Few comparable estimates of the prevalence of social isolation are available. Those available are 24% in the USA [22], 10%–43% in North America [23] and 20% in India [24].

Differences in methods may account for some of the differences in the estimates, such as the type of measure used, the mode of data collection [e.g. face-to-face or self-administered questionnaires], the representativeness of the sample and the inclusion criteria [e.g. older people in institutions, homeless people, and ethnic minorities] [10, 19, 25]. In general, there are few comparable estimates for low- and middle-income countries [19]. Although there are many instruments for measuring social isolation and loneliness, there is no standard, international, widely used, cross-culturally valid measure of the two concepts [19, 26, 27].

The prevalence of loneliness among people living in long-term care institutions appears to be higher than that in the community. A review of 11 studies – three in middle-income and eight in high-income countries – indicated that 35% of older people in residential and nursing care

homes were very lonely. All four studies that made direct comparisons between care-home residents and people living in their own homes in the community reported a higher prevalence of loneliness in care homes [28].

Age and loneliness

It is not clear whether loneliness increases or decreases with age. Some studies show a U-shaped curve along the life-course, loneliness being more prevalent at younger and older ages [18, 29–31]. Others suggest a steady decrease in loneliness through life [25, 32], sometimes with an increase after 75 years [33]. Yet others suggest that the relation between loneliness and age is non-linear and fluctuates during the life-course [34–36]. A nationally representative study in the USA, for instance, found peaks in the oldest and young adults and in those aged 50–60 years [34].

Gender and loneliness

A recent review of 575 studies on gender differences in loneliness indicated similar levels in males and females across the lifespan. Males were slightly more lonely in childhood, adolescence and young adulthood [with the largest differences], but these small gender differences disappeared in middle adulthood and at older age [37]. Loneliness among older women is a concern, as life changes such as widowhood and relocation, which are associated with greater vulnerability to social isolation and loneliness, affect women more than men [38].

Recent trends

It is not known whether global rates of loneliness among older people are increasing overall. A review of 25 studies in China found large increases in loneliness between 1995 and 2011, which were correlated with increasing rates of urbanization, divorce, unemployment and social inequality [38]. In a study in the USA, the prevalence of loneliness increased



by 7% between 2018 and 2019 [39, 40]. In contrast, no increase in the rate of loneliness among older people in recent decades was found in Sweden [41], and studies in Finland and Germany suggest that loneliness may have decreased [42, 43]. The increasing longevity and ageing of the global population could nonetheless result in more older people experiencing loneliness and social isolation [Box 1].

Social isolation and loneliness shorten lives

A review conducted in 2015 indicated that social isolation and loneliness were associated with a 29% and 26% increased likelihood of mortality, respectively. Both significantly predicted premature mortality, and equivalently so, and middle-aged adults may be at greater risk of mortality than older adults when they are socially isolated or lonely [50, 51].

The relation between social isolation and loneliness and mortality [and the other negative health outcomes described below] might be causal, but it is difficult to demonstrate [2, 52, 53]. Social isolation and loneliness affect mortality similarly to well-established risk factors such as obesity, lack of physical activity, smoking, other forms of substance abuse and poor access to health care [2, 50].

Social isolation and loneliness damage older people's health and quality of life

There is strong evidence that social isolation and loneliness increase the risks of older adults for physical health conditions such as cardiovascular disease and stroke and for mental health conditions such as cognitive decline, dementia, depression, anxiety, suicidal ideation and suicide [2, 43, 54–57]. There is also evidence, although it is not as strong, that social isolation and loneliness increase the risks of other health conditions [e.g. type-2 diabetes mellitus, high cholesterol] and limit mobility and activities of daily

Box 1. Living arrangements, loneliness and social isolation of older people

"Living alone" is defined as occupying a one-person household. Most studies show that living alone is a risk factor for both social isolation and loneliness, with some mixed results [44–48].

Not only population ageing but also social and economic changes are reshaping the context in which older people live, including the size and composition of their households and their living arrangements. The changes also include decreased fertility; changes in patterns of marriage, cohabitation and divorce; higher educational levels of younger generations; continued rural-to-urban and international migration; and rapid economic development [49].

Globally, more older people live alone. In western Europe and the USA, intergenerational residence has decreased dramatically, and most older people now live either in single-person households or in households consisting of a couple only or a couple and their unmarried children. In many less developed countries, despite the persistence of traditional family structures and cultural norms that favour multi-generational households, a slow shift is occurring towards smaller families and different types of household, including living alone [49].

Globally, more older women than men live alone. Between 2006 and 2015, older women were twice as likely as older men to live alone [24% vs 11%]. The gender gap was widest in Europe and Northern America [37% vs 18%], followed by Australia and New Zealand [33% vs 18%]. Whereas, globally, 15% more older men than older women lived with a spouse [38% of men, 23% of women], the gap was wider in Europe and North America [56% vs 33%] [49].



living [2, 57]. Social isolation and loneliness are also risk factors for violence and abuse against older men and women, the prevalence of which, at least in the USA, appears to have increased during the COVID-19 pandemic [2, 58]. Some more limited evidence indicates that social isolation and loneliness worsen the quality of life of older adults [2, 57].

The effect of social isolation on mortality has been studied more extensively than that of loneliness, while the effect of loneliness on health has been studied more extensively than that of social isolation. The relative effects of each on health are, however, complex and not fully understood. Little attention has been paid to the discordance between social isolation and loneliness [e.g. high social isolation but low loneliness] and its impact on health [2, 59, 60].

Currently, three plausible causal mechanisms have been proposed for the effects of social isolation and loneliness on health [Fig. 1]. First, they lead to excess stress reactivity, and, in the absence of the stress-buffering effect of social support, the physiological systems of lonely and isolated individuals may absorb more of the stressors encountered in daily life [2, 10, 61, 62]. Secondly, they result in inadequate or inefficient physiological repair and maintenance processes. For example, social isolation and loneliness affect the quality and quantity of sleep, which influence a variety of physical health conditions [e.g. cardiovascular disease, diabetes]; and poor sleep is associated with increased mortality [2, 61]. Thirdly, some, albeit mixed, evidence indicates that social isolation and loneliness lead to behavioural risk factors, such as lower physical activity, poorer diet, poor adherence to medical treatments and more smoking and alcohol consumption [2, 10, 57, 61].

The costs of social isolation and loneliness

Social isolation and loneliness appear to impose a heavy financial burden on society, but the extent of the burden is not well understood. A review of studies on the economic costs of loneliness at all ages included only four studies on the costs of social isolation and loneliness in older people and addressed the costs of health and/or long-term care in high-income countries [63]. In a study in the United Kingdom, the excess costs for health and long-term care due to loneliness was estimated to be GBP 11 725 per person over 15 years [64]. Lonely older people are more likely to visit their doctor for social contact rather than for medical treatment, thus increasing medical costs [65, 66]. In the USA, an estimated US\$ 6.7 billion in annual federal spending has been attributed to social isolation among older adults [67].

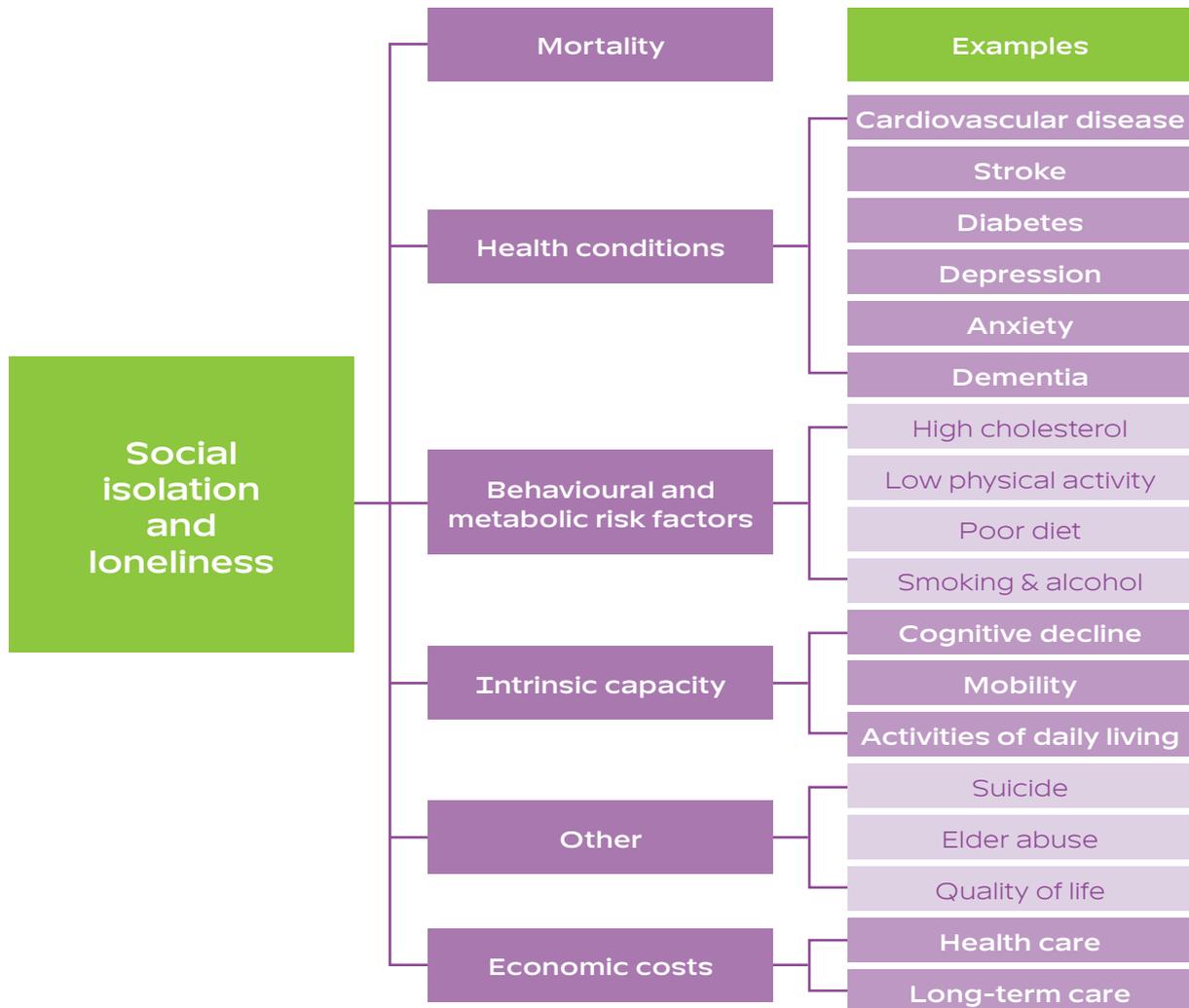
Why are older people at risk of social isolation and loneliness?

A complex range of individual, relationship, community, societal and system level factors put people at risk of social isolation and loneliness [68–70]. Identifying risk factors at these four nested and interacting levels helps to make sense of the many interventions and strategies which target these risk factors to reduce social isolation and loneliness [Fig. 2].

At the level of the individual, physical factors such as having heart disease, stroke or cancer can increase the risks of both social isolation and loneliness, although the relation is often bi-directional [2]. Decreases in intrinsic capacity, such as sensory impairment and hearing loss, increase the risks, as do psychiatric disorders such as depression, anxiety and dementia [2]. Certain personality traits – such as neuroticism [i.e. negative affect], disagreeableness and low levels of conscientiousness – increase the risk of loneliness, and these are partly genetically determined [71–73].



Fig. 1. Consequences of social isolation and loneliness



The absence of supportive relationships and difficult or unfulfilling relationships can increase loneliness. Life transitions and disruptive life events such as retirement and bereavement can increase the risks of both social isolation and loneliness among older people [2, 10, 69].

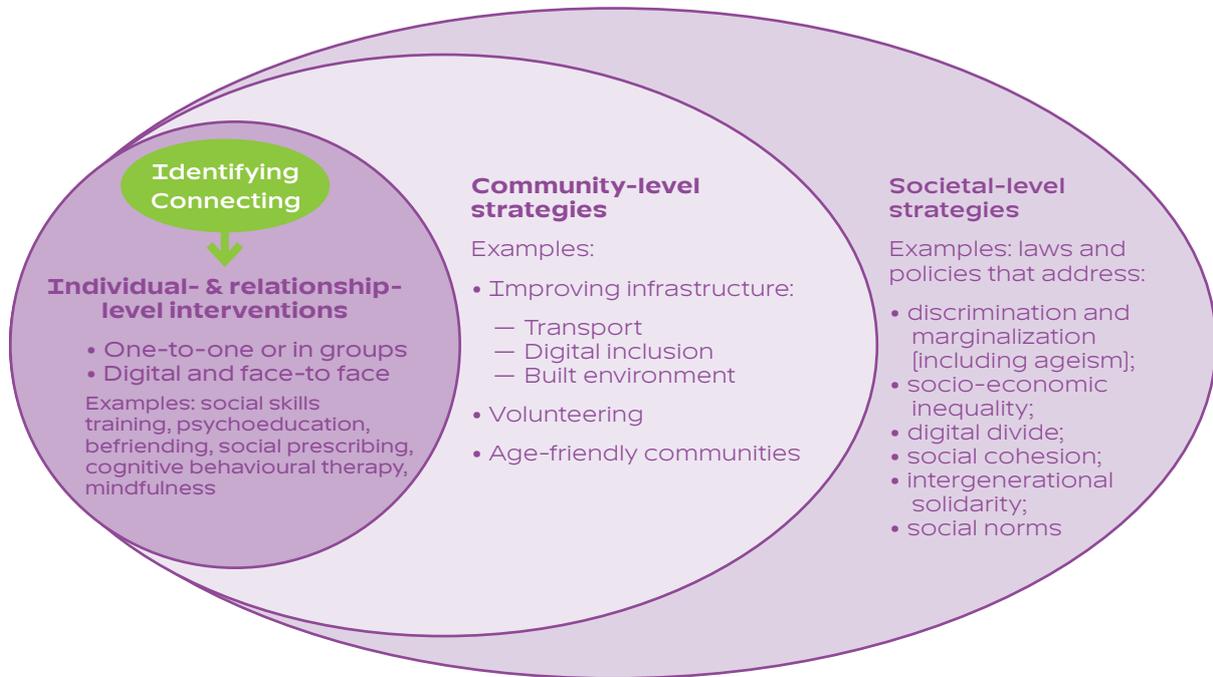
Social groups at greater risk of social isolation and loneliness, which are sometimes poorly served by mainstream services, include ethnic minorities; lesbian, gay, bisexual and trans+ people; people with physical and learning disabilities and long-term health conditions; care-givers;

and older people in residential and nursing care [2, 74]. Being an immigrant is also a risk factor, as immigrants tend to have fewer – especially long-standing – social ties and less social integration and often face language and communication barriers [2, 74].

At community and societal levels, lacking socio-economic resources, limited education, inadequate transportation, lack of access to digital technology, poor housing, ageism, marginalization and remote residence can all lead to loneliness and social isolation [2, 10, 69, 75].



Fig. 2. Interventions and strategies to reduce social isolation and loneliness



Sources: references 1, 69, 70, 74

What works to address social isolation and loneliness?

Many interventions and strategies have shown promise, but we do not yet know which are the most effective and for whom. Fig. 2 suggests that various sectors must be involved for a population-level impact on social isolation and loneliness, e.g. health, social work, information and communications technology, transportation and housing; and stakeholders such as government, older people, civil society organizations, practitioners, academia and the private sector must act at multiple levels at the same time.

As for strategies to address other health and social problems, however, current evidence for what works to reduce social isolation and loneliness is primarily

for individual- and relationship-level interventions, with little evidence for community- or societal-level interventions [1, 2, 74, 76, 77]. Furthermore, social isolation and loneliness can occur at any age, and interventions and strategies to address them starting earlier may be needed [78].

Identifying and connecting: Before older people who are socially isolated and lonely can be offered help, they must be identified and connected to services [see Fig. 2]. The health sector has an important role to play in identifying older people at risk of or already experiencing loneliness. "Connector services" reach those at risk of loneliness and social isolation, understand their predicament and support them in accessing appropriate services and interventions, including to overcome practical and emotional barriers stemming from ageism and stigmatization. Connector services include outreach services



[e.g. knocking on doors in the community], guided conversations and motivational interviews. Evidence for how well such services work is, however, limited [74].

Individual- and relationship-level interventions: Interventions at this level are based on three main mechanisms: [i] maintaining and improving people's relationships, [ii] supporting people to develop new relationships and [iii] changing how people think and feel about their relationships [74, 79].

Many studies and at least 24 reviews have evaluated the effectiveness of interventions at the individual- and relationship-levels [80]. Although some of the findings are encouraging, there is too little high-quality evidence to identify the most effective type conclusively [2, 10, 81-84]. Interventions for maladaptive social cognition with cognitive behavioural therapy appear promising for reducing loneliness. "Maladaptive social cognition" refers to inflexible, inappropriate expectations, thoughts and feelings that people have about their relationships, particularly hypervigilance – increased attention and surveillance – for social threats, such as rejection or exclusion [17, 85, 86].

Interventions for social isolation and loneliness among older people can be delivered either one-to-one or in groups and either digitally or face to face. They include social skills training; psychoeducation [providing information and support to better understand and cope]; peer-support and social activity groups; "befriending" services, which offer supportive relationships either in person or over the phone, usually by volunteers; social prescribing, which helps patients to access local non-clinical sources of support; cognitive behavioural therapy; mindfulness training; psychopharmacology, including anti-depressants; and coalitions and campaigns to increase awareness of the issues [2, 80, 82].

The evidence for effective interventions has several serious limitations, which

should be addressed in future research [see Box 2]. Few randomized controlled trials have been conducted; the samples are often too small; interventions often do not address loneliness among the most vulnerable older adults; and few studies have been conducted in low- and middle-income countries [2, 10, 80, 82-84]. Also, social isolation and loneliness are often not clearly distinguished [particularly in reviews] and are sometimes conflated into a single concept. It cannot be assumed that interventions that work for one will necessarily work for the other [2, 80, 83].

Features of interventions that appear to be the most promising include an educational approach, the involvement of the individuals targeted in designing the intervention and a strong theoretical basis [2, 10, 80, 82-84]. Lonely people appear to be more interested in connecting with others when they pursue activities based on shared interests [e.g. exercise groups] than in meeting for purely social reasons [74, 89]. Preliminary evidence also suggests that interventions that increase social contact [e.g. befriending and peer-visiting] may be particularly cost-effective [63].

Digital interventions are of particular interest because of both the increase in their use during the COVID-19 pandemic and the rapidly increasing role of technology in the past 10-15 years – particularly the Internet, smart phones and social media – in mediating social relations. Digital interventions include training in use of the Internet and computers, support for video communication, messaging services, online discussion groups and forums, telephone befriending, social networking sites, chatbots and virtual artificial intelligence "companions" [90-92]. Although they have sometimes been found to be effective, the findings are often mixed or inconclusive [86, 90-96].

Digital interventions are associated with several ethical concerns, such as potential infringement on privacy, informed consent



Box 2. Opportunities for improving data and research and strengthening the evidence

Opportunities for improving data and research and addressing the many gaps and uncertainties in the evidence base for social isolation and loneliness include the following.

1. *Develop a standard, international instrument for measuring both social isolation and loneliness:* Although many measures exist, there are currently no widely used, cross-culturally valid, international instruments for measuring the two concepts [19, 26, 27].
2. *Improve understanding of prevalence, distribution and trends:* An agreed international measuring instrument would generate comparable cross-national prevalence data for better estimates of the distribution of the problem [including across the life span] and trends over time, allowing better planning and evaluation to reduce the problem.
3. *Generate better evidence for effective interventions:* The first priority is to strengthen the evidence of what works to reduce social isolation and loneliness at all levels, from the individual and relationship levels to the community and societal levels [2, 74, 84].
 - The current large but uneven evidence base should be carefully mapped to identify strengths and weaknesses, so future research can be commissioned in a more cost-efficient and strategic way.
 - In order to produce conclusive evidence, evaluations should be large, theory-based and of high quality [randomized controlled trials if possible] and should clearly distinguish between social isolation and loneliness [80, 83, 84].
 - Better understanding of digital interventions is necessary and especially of digital divides, potential harmful effects of digital interventions and whether virtual connections can supplement face-to-face social connections.
4. *Increase research in low- and middle-income countries:* More research should be conducted on all aspects of social isolation and loneliness in low- and middle-income countries: their prevalence, consequences and determinants, which may be different from those in high-income countries, and on interventions that are effective in different contexts [10, 19].
5. *Elucidate the mechanism underlying health impacts:* Research of appropriate design, e.g. prospective longitudinal and controlled experiments, should be conducted to elucidate the causal mechanisms underlying the health impacts of social isolation and loneliness, including possible bi-directionality [2, 61].
6. *Estimate costs and cost-effectiveness:* Information on the cost of the problem and the cost-effectiveness of interventions is limited. Both are critical for making a persuasive case to raise the priority of the issue.
7. *Translate evidence to make it more accessible:* High-quality evidence should be synthesized and stored on accessible databases, platforms and portals and distilled into forms likely to be used by policy- and decision-makers, such as evidence-based policy briefs, guidelines and checklists [87, 88].



and autonomy and disparities in access, including for older people with disabilities. Furthermore, the extent to which online relations can supplement face-to-face interactions and the potential harmful effects of digital interventions, particularly the risk of further isolating older people, are currently poorly understood [2]. It is important to protect the right to remain offline and develop alternatives for those who cannot or do not wish to connect digitally.

Community-level strategies: Several strategies at the community level have the potential to help reduce loneliness and social isolation. Some address the infrastructure – such as transportation, digital inclusion and the built environment – required to ensure that people can maintain their existing and form new relationships and to deliver interventions to reduce social isolation and loneliness.

Appropriate, accessible, affordable transportation is vital to keep people connected [74]. Although empirical evidence of the impact of transportation policy on social isolation and loneliness is limited, a study in the United Kingdom showed that the introduction of free bus travel for people aged 60 years and over reduced loneliness and depressive symptoms [97].

The built environment in communities can either foster or hinder social connection. The design of housing [e.g. communal areas], of public spaces [e.g. good lighting, benches, public toilets] and of restaurants, shops and cultural institutions such as libraries and museums [e.g. accessibility and inclusivity] may all affect social isolation and loneliness [74, 98].

Digital inclusion strategies, while critically important are not easy to implement. They raise the issue of several digital divides – for instance, between younger and older people, between older people [e.g. those ≥60 years and those ≥80 years], between those who cannot afford or lack the ability to use digital technology and those who can, and between higher

and lower-income countries [74, 90–92, 95]. Nonetheless, governments, policy makers and all stakeholders, including the private sector, should make information and communication technologies (ICTs) available, affordable and accessible to older people who wish to be connected and ensure that those who wish to remain offline do not suffer exclusion as a result. Furthermore, in their policies, strategies and programmes related to ICTs, they should include accessibility requirements relevant to digital information, products and services aimed at reducing social isolation and loneliness among older people. They should also provide appropriate digital knowledge and training to allow older people to adopt new technologies [99].

Several other community strategies might reduce social isolation and loneliness among older people [74]. One is volunteering, which can increase the well-being and social connections of those who volunteer and provide the personnel for interventions to address loneliness [74]. Another is promoting "age-friendly communities", which, in line with the WHO framework [100], are designed to foster healthy, active ageing. They can help raise awareness and promote collaboration across a range of key stakeholders within a local area to address social isolation and loneliness.

Societal-level strategies: Societal level strategies to reduce isolation and loneliness include laws and policies to address discrimination and marginalization [including ageism], socio-economic inequality, digital divides, social cohesion and intergenerational solidarity. They may also seek to change social norms that prevent social connection, such as prioritizing accumulation of financial rather than social capital. Evidence for the effectiveness of such measures is, however, limited [1, 74, 101].

"Social in all policies", similar to WHO's "health in all policies", has been suggested as a means of tackling social isolation



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and loneliness. Cross-cutting "social in all policies" would include social isolation and loneliness in all relevant sectors and policy areas, including transportation, labour and pensions, education, housing, employment and the environment [102]. For instance, policies could be implemented that include flexibility in the labour market, allowing older people more choice in how and when they retire. This could ease the transition from working life to retirement and promote intergenerational support, with retired workers acting as mentors to younger workers.

Policy windows

United Nations Decade of Healthy Ageing

The United Nations Decade of Healthy Ageing 2021–2030 offers a unique opportunity to intensify work on social isolation and loneliness globally. The aim of the Decade is to bring together governments, civil society, international agencies, professionals, academia, the media and the private sector for 10 years of concerted, catalytic, collaborative action to improve the lives of older people, their families and the communities in which they live [8].

The Decade also intends to achieve the pledge of the Sustainable Development Goals that no one – including older people – will be left behind. Older people make key contributions to achieving the Goals, building on what has been started in many countries. The Goals are an important process that can be used to address social isolation and loneliness among older people.

Fourth review and appraisal of the Madrid International Plan of Action on Ageing

The Madrid International Plan of Action on Ageing, adopted by the Second World Assembly on Ageing, held in Madrid, Spain, in 2002, includes a bold, comprehensive

agenda for three priorities: older people and development; advancing health and well-being into old age; and ensuring enabling, supportive environments [103]. Several of the recommendations highlight the risks posed by social isolation and loneliness and call for action. The Plan is reviewed and its implementation appraised every five years. Reducing older people's social isolation and loneliness, particularly through digital technology, has been identified as an important issue for the fourth review and appraisal, due to be completed in 2023 [104].

United Nations General Assembly Open-ended Working Group for the Purpose of Strengthening the Protection of the Human Rights of Older Persons

The Open-ended Working Group on Ageing was established by the United Nations General Assembly in 2010 to consider the international framework of the human rights of older people and to identify any gaps and how best to address them. The Group is considering the feasibility of further instruments and measures, including a convention on the rights of older persons [105]. The Group will increase awareness of social isolation and loneliness, not only as public health issues but also as moral and human rights imperatives and socio-economic necessities.

A three-point strategy for reducing social isolation and loneliness during United Nations Decade of Healthy Ageing

1. Create a global coalition to increase the political priority

A global coalition should raise awareness about social isolation and loneliness and increase their political priority to ensure that financial, technical and human resources are invested on a



scale commensurate with the severity of the issue. As part of the United Nations Decade of Healthy Ageing, this multi-stakeholder and multi-sectoral coalition, with the engagement of older people, should strengthen collaboration among the main international, regional, national and local stakeholders.

The coalition should involve the United Nations Interagency Group on Ageing [106], which ensures inclusion of older people in the work of the United Nations system. The Group can act as an important agent to strengthen information sharing and cooperation among United Nations agencies and to raise awareness of the issue.

2. Improve research and strengthen the evidence for effective interventions.

Filling the significant gaps in our understanding of social isolation and loneliness should be a key component of the strategy. More important still will be to strengthen the evidence on effective interventions to reduce social isolation and loneliness. Box 2 lists seven opportunities for improving data and research and strengthening the evidence.

3. Implement and scale up effective interventions.

Social isolation and loneliness will be reduced only if effective interventions and strategies are implemented at scale in a multi-stakeholder, multi-sectoral effort. This will require identification of effective interventions and strategies [existing or new] and addressing all the factors required to scale them up to achieve an impact at population level, including a cycle of continuous evaluation and optimization, estimation of intervention costs and benefits, adapting interventions for scale-up, determining their reach and acceptability, developing implementation infrastructure and a workforce and ensuring sustainability [2, 107].

Social isolation and loneliness, which affect a considerable proportion of the population of older people globally, shorten their lives and take a heavy toll on their mental and physical health and their well-being. COVID-19 and the resulting lockdown and physical distancing measures have been a stark reminder of the importance of social connections in the lives of older people. The United Nations Decade of Healthy Ageing 2021–2030 offers a unique opportunity for United Nations agencies and stakeholders in all sectors to act together internationally, regionally, nationally and locally to reduce social isolation and loneliness among older people.

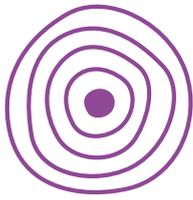


References

1. Cotterell N, Buffel T, Phillipson C. Preventing social isolation in older people. *Maturitas*. 2018;113:80–4 [<http://dx.doi.org/doi:10.1016/j.maturitas.2018.04.014>].
2. Social isolation and loneliness in older adults: opportunities for the health care system. Washington DC: The National Academies Press; 2020 [<https://www.nap.edu/catalog/25663/social-isolation-and-loneliness-in-older-adults-opportunities-for-the>].
3. Dahlberg L. Loneliness during the covid-19 pandemic. *Aging Ment Health*. 2021 [<http://dx.doi.org/doi:10.1080/O13607863.2021.1875195>].
4. Holt-Lunstad J. A pandemic of social isolation? *World Psychiatry*. 2021;20:55–6 [<http://dx.doi.org/doi:10.1002/wps.20839>].
5. Policy brief: The impact of COVID-19 on older persons. New York City [NY]: United Nations; 2020 [<https://unsdg.un.org/sites/default/files/2020-05/Policy-Brief-The-Impact-of-COVID-19-on-Older-Persons.pdf>].
6. A connected society: a strategy for tackling loneliness – laying the foundations for change. London: Her Majesty's Government; 2018 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/936725/6.4882_DCMS_Loneliness_Strategy_web_Update_V2.pdf].
7. Osaki T. As suicides rise amid the pandemic, japan takes steps to tackle loneliness. *Japan Times* [Tokyo], 21 February 2021 [<https://www.japantimes.co.jp/news/2021/02/21/national/japan-tackles-loneliness/>].
8. UN Decade of Healthy Ageing 2021–2030. Geneva: World Health Organization; 2021 [<https://www.who.int/initiatives/decade-of-healthy-ageing>, accessed 11 March 2021].
9. Fried L, Prohaska T, Burholt V, Burns A, Golden J, Hawkey L et al. A unified approach to loneliness. *Lancet*. 2020;395:114 [[http://dx.doi.org/doi:10.1016/S0140-6736\(19\)32533-4](http://dx.doi.org/doi:10.1016/S0140-6736(19)32533-4)].
10. Ong AD, Uchino BN, Wethington E. Loneliness and health in older adults: a mini-review and synthesis. *Gerontology*. 2016;62:443–9 [<http://dx.doi.org/doi:10.1159/000441651>].
11. Cacioppo JT, Cacioppo S, Boomsma DI. Evolutionary mechanisms for loneliness. *Cogn Emot*. 2014;28:3–21 [<http://dx.doi.org/doi:10.1080/O2699931.2013.837379>].
12. Perlmán D, Peplau LA. Toward a social psychology of loneliness. In: Gilmour R, Duck S, editors. *Personal relationships*. London: Academic Press; 1981:3:31–56 [<https://peplau.psych.ucla.edu/wp-content/uploads/sites/141/2017/07/Perlman-Peplau-81.pdf>].
13. Prohaska T, Burholt V, Burns A, Golden J, Hawkey L, Lawlor B et al. Consensus statement: Loneliness in older adults, the 21st century social determinant of health? *BMJ Open*. 2020;10:e034967 [<http://dx.doi.org/doi:10.1136/bmjopen-2019-034967>].
14. Coyle CE, Dugan E. Social isolation, loneliness and health among older adults. *J Aging Health*. 2012;24:1346–63 [<http://dx.doi.org/doi:10.1177/O898264312460275>].
15. Steptoe A, Shankar A, Demakakos P, Wardle J. Social isolation, loneliness, and all-cause mortality in older men and women. *Proc Natl Acad Sci U S A*. 2013;110:5797–801 [<http://dx.doi.org/doi:10.1073/pnas.1219686110>].
16. Tanskanen J, Anttila T. A prospective study of social isolation, loneliness, and mortality in Finland. *Am J Public Health*. 2016;106:2042–8 [<http://dx.doi.org/doi:10.2105/AJPH.2016.303431>].
17. Gierveld JJ, Van Tilburg TG, Dykstra PA. New ways of theorizing and conducting research in the field of loneliness and social isolation. In: Vangelisti AL, Perlman D, editors. *Cambridge handbook of personal relationships*, 2nd revised edition. New York City [NY]: Cambridge University Press; 2018 [https://research.vu.nl/ws/portalfiles/portal/71599715/2018_deJong_Gierveld_et_al_New_ways_of_theorizing_and_conducting_research_in_the_field_of_loneliness_and_social_isolation.pdf].
18. Yang K, Victor C. Age and loneliness in 25 European nations. *Ageing Society*. 2011;31:1368 [<http://dx.doi.org/doi:10.1017/S0144686X1000139X>].
19. Gao Q, Prina AM, Prince M, Acosta D, Luisa Sosa A, Guerra M et al. Loneliness among older adults in Latin America, China, and India: prevalence, correlates and association with mortality. *Int J Public Health*. 2021;66 [<http://dx.doi.org/doi:10.3389/ijph.2021.604449>].
20. Yang K, Victor C. The prevalence of and risk factors for loneliness among older people in China. *Ageing Soc*. 2008;28:305–27 [<http://dx.doi.org/doi:10.1017/S0144686X07006848>].
21. Hossain MM, Purohit N, Khan N, McKyer ELJ, Ma P, Bhattacharya S et al. Prevalence and correlates of loneliness in India: a systematic review. 2020. Pre-print. 2020 [https://advance.sagepub.com/articles/preprint/Loneliness_in_India_A_systematic_review_of_empirical_studies/11533026].
22. Cudjoe TKM, Roth DL, Szanton SL, Wolff JL, Boyd CM, Thorpe RJ. The epidemiology of social isolation: national health and aging trends study. *J Gerontol B Psychol Sci Soc Sci*. 2020;75:107–13 [<http://dx.doi.org/doi:10.1093/geronb/gby037>].
23. Nicholson NR. A review of social isolation: an important but underassessed condition in older adults. *J Prim Prev*. 2012;33:137–52 [<http://dx.doi.org/doi:10.1007/s10935-012-0271-2>].



24. Kotian DB, Mathews M, Parsekar SS, Nair S, Binu V, Subba SH. Factors associated with social isolation among the older people in India. *J Geriatr Psychiatry Neurol*. 2018;31:271–8 [<http://dx.doi.org/doi:10.1016/j.paid.2020.110066>].
25. Barreto M, Victor C, Hammond C, Eccles A, Richins MT, Qualter P. Loneliness around the world: age, gender, and cultural differences in loneliness. *Pers Individ Diff*. 2021;169:110066 [<http://dx.doi.org/doi:10.1016/j.paid.2020.110066>].
26. De Jong Gierveld J, van Tilburg T, Dykstra P. New ways of theorizing and conducting research in the field of loneliness and social isolation. In: Vangelisti AL, Perlman D, editors. *Cambridge handbook of personal relationships*, 2nd revised edition. New York City [NY]: Cambridge University Press; 2016 [https://research.vu.nl/ws/portalfiles/portal/71599715/2018_deJong_Gierveld_et_al_New_ways_of_theorizing_and_conducting_research_in_the_field_of_loneliness_and_social_isolation.pdf].
27. Valtorta NK, Kanaan M, Gilbody S, Hanratty B. Loneliness, social isolation and social relationships: What are we measuring? A novel framework for classifying and comparing tools. *BMJ Open*. 2016;6 [<http://dx.doi.org/doi:10.1136/bmjopen-2015-010799>].
28. Gardiner C, Laud P, Heaton T, Gott M. What is the prevalence of loneliness amongst older people living in residential and nursing care homes? A systematic review and meta-analysis. *Age and Ageing*. 2020;49:748–5729 [<http://dx.doi.org/doi:10.1136/bmjopen-2015-010799>].
29. Lasgaard M, Friis K, Shevlin M. "Where are all the lonely people?" A population-based study of high-risk groups across the life span. *Soc Psychiatry Psychiatr Epidemiol*. 2016;51:1373–84 [<http://dx.doi.org/doi:10.1136/bmjopen-2015-010799>].
30. Pyle E, Evans D. Loneliness – What characteristics and circumstances are associated with feeling lonely? London: Office for National Statistics; 2018 [<https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/lonelinesswhatcharacteristicsandcircumstancesareassociatedwithfeellinglonely/2018-04-10/pdf>].
31. Victor CR, Yang K. The prevalence of loneliness among adults: a case study of the United Kingdom. *J Psychol*. 2012;146:85–104 [<http://dx.doi.org/doi:10.1080>].
32. Cigna U.S. Loneliness index. Survey of 20,000 Americans examining behaviors driving loneliness in the United States. Bloomfield [CT]: Cigna; 2018 [<https://www.cigna.com/assets/docs/newsroom/loneliness-survey-2018-full-report.pdf>].
33. Hawkey LC, Wroblewski K, Kaiser T, Luhmann M, Schumm LP. Are us older adults getting lonelier? Age, period, and cohort differences. *Psychol Aging*. 2019;34:1144 [<http://dx.doi.org/doi:10.1037/pag0000365>].
34. Hawkey LC, Buecker S, Kaiser T, Luhmann M. Loneliness from young adulthood to old age: Explaining age differences in loneliness. *Int J Behav Dev*. 2020 [<http://dx.doi.org/doi:10.1177/0165025420971048>].
35. Luhmann M, Hawkey LC. Age differences in loneliness from late adolescence to oldest old age. *Dev Psychol*. 2016;52:943–59 [<http://dx.doi.org/doi:10.1037/dev000117>].
36. von Soest T, Luhmann M, Hansen T, Gerstorf D. Development of loneliness in midlife and old age: Its nature and correlates. *J Pers Soc Psychol*. 2020;118:388–406 [<http://dx.doi.org/doi:10.1037/pspp0000219>].
37. Maes M, Qualter P, Vanhalst J, Van den Noortgate W, Goossens L, Kandler C. Gender differences in loneliness across the lifespan: a meta-analysis. *Eur J Pers*. 2019;33:642–54 [<http://dx.doi.org/doi:10.1002/per.2220>].
38. Beal C. Loneliness in older women: a review of the literature. *Issues Ment Health Nurs*. 2006;27:795–813 [<http://dx.doi.org/doi:10.1080/01612840600781196>].
39. Yan Z, Yang X, Wang L, Zhao Y, Yu L. Social change and birth cohort increase in loneliness among Chinese older adults: a cross-temporal meta-analysis, 1995–2011. *Int Psychogeriatr*. 2014;26:1773 [<http://dx.doi.org/doi:10.1017/S1041610214000921>].
40. Loneliness and the workplace: 2020 U.S. report. Bloomfield [CT]: Cigna; 2020 [<https://www.cigna.com/static/www-cigna-com/docs/about-us/newsroom/studies-and-reports/combating-loneliness/cigna-2020-loneliness-report.pdf>].
41. Nyqvist F, Cattani M, Conradsson M, Näsman M, Gustafsson Y. Prevalence of loneliness over ten years among the oldest old. *Scand J Public Health*. 2017;45:411–8 [<http://dx.doi.org/doi:10.1177/1403494817697511>].
42. Eloranta S, Arve S, Isoaho H, Lehtonen A, Viitanen M. Loneliness of older people aged 70: a comparison of two Finnish cohorts born 20 years apart. *Arch Gerontol Geriatr*. 2015;61:254–60 [<http://dx.doi.org/doi:10.1016/j.archger.2015.06.004>].
43. Hult G, Drewelies J, Eibich P, Duzel S, Demuth I, Ghisletta P et al. Cohort differences in psychosocial function over 20 years: current older adults feel less lonely and less dependent on external circumstances. *Gerontology*. 2016;62:354–61 [<http://dx.doi.org/doi:10.1159/000438991>].
44. Holt-Lunstad J. The potential public health relevance of social isolation and loneliness: prevalence, epidemiology, and risk factors. *Public Policy Aging Rep*. 2017;27:127–30 [<http://dx.doi.org/doi:10.1093/ppar/prx030>].
45. Klinenberg E. Social isolation, loneliness, and living alone: identifying the risks for public health. *Am J Public Health*. 2016;106:786–7 [<http://dx.doi.org/doi:10.2105/AJPH.2016.303166>].



46. Perissinotto CM, Covinsky KE. Living alone, socially isolated or lonely – What are we measuring? *J Gen Intern Med*. 2014;29:1429–31 [<http://dx.doi.org/doi:10.1007/s11606-014-2977-8>].
47. Smith KJ, Victor C. Typologies of loneliness, living alone and social isolation, and their associations with physical and mental health. *Ageing Society*. 2019;39:1709–30 [<http://dx.doi.org/doi:10.1017/S0144686X18000132>].
48. Sundström G, Fransson E, Malmberg B, Davey A. Loneliness among older Europeans. *Eur J Ageing*. 2009;6:267 [<http://dx.doi.org/doi:10.1007/s10389-018-0916-6>].
49. World population ageing 2020 highlights: living arrangements of older persons. New York City [NY]: United Nations Department of Economic and Social Affairs, Population Division; 2020 [https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/undesa_pd-2020_world_population_ageing_highlights.pdf].
50. Holt-Lunstad J, Smith TB, Baker M, Harris T, Stephenson D. Loneliness and social isolation as risk factors for mortality: a meta-analytic review. *Perspect Psychol Sci*. 2015;10:227–37 [<http://dx.doi.org/doi:10.1177/1745691614568352>].
51. Rico-Urbe LA, Caballero FF, Martín-Maria N, Cabello M, Ayuso-Mateos JL, Miret M. Association of loneliness with all-cause mortality: A meta-analysis. *PLoS One*. 2018;13:e0190033 [<http://dx.doi.org/doi:10.1371/journal.pone.0190033>].
52. Howick J, Kelly P, Kelly M. Establishing a causal link between social relationships and health using the Bradford Hill guidelines. *SSM Popul Health*. 2019;8:100402 [<http://dx.doi.org/doi:10.1016/j.ssmph.2019.100402>].
53. Cacioppo JT, Cacioppo S, Cole SW, Capitanio JP, Goossens L, Boomsma DI. Loneliness across phylogeny and a call for comparative studies and animal models. *Perspect Psychol Sci*. 2015;10:202–12 [<http://dx.doi.org/doi:10.1177/1745691614564876>].
54. Evans IEM, Martyr A, Collins R, Brayne C, Clare L. Social isolation and cognitive function in later life: a systematic review and meta-analysis. *J Alzheimers Dis*. 2019;70:S119–44 [<http://dx.doi.org/doi:10.3233/JAD-180501>].
55. Kuiper JS, Zuidersma M, Oude Voshaar RC, Zuidema SU, van den Heuvel ER, Stolk RP et al. Social relationships and risk of dementia: a systematic review and meta-analysis of longitudinal cohort studies. *Ageing Res Rev*. 2015;22:39–57 [<http://dx.doi.org/doi:10.1016/j.arr.2015.04.006>].
56. Lara E, Martín-Maria N, de la Torre-Luque A, Koyanagi A, Vancampfort D, Izquierdo A et al. Does loneliness contribute to mild cognitive impairment and dementia? A systematic review and meta-analysis of longitudinal studies. *Ageing Res Rev*. 2019;52:7–16 [<http://dx.doi.org/doi:10.1016/j.arr.2019.03.002>].
57. Leigh-Hunt N, Bagguley D, Bash K, Turner V, Turnbull S, Valtorta N et al. An overview of systematic reviews on the public health consequences of social isolation and loneliness. *Public Health*. 2017;152:157–71 [<http://dx.doi.org/doi:10.1016/j.puhe.2017.07.035>].
58. Chang ES, Levy BR. High prevalence of elder abuse during the COVID-19 pandemic: risk and resilience factors. *Am J Geriatr Psychiatry*. 2021 [<http://dx.doi.org/doi:10.1016/j.jagp.2021.01.007>].
59. Courtin E, Knapp M. Social isolation, loneliness and health in old age: a scoping review. *Health Soc Care Community*. 2017;25:799–812 [<http://dx.doi.org/doi:10.1111/hsc.12311>].
60. McHugh J, Kenny RA, Lawlor BA, Steptoe A, Kee F. The discrepancy between social isolation and loneliness as a clinically meaningful metric: findings from the Irish and English longitudinal studies of ageing [TILDA and ELSA]. *Int J Geriatr Psychiatry*. 2017;32:664–74 [<http://dx.doi.org/doi:10.1002/gps.4509>].
61. Das A. Loneliness does [not] have cardiometabolic effects: a longitudinal study of older adults in two countries. *Soc Sci Med*. 2019;223:104–12 [<http://dx.doi.org/doi:10.1016/j.socscimed.2018.10.021>].
62. Eisenberger NI, Cole SW. Social neuroscience and health: neurophysiological mechanisms linking social ties with physical health. *Nat Neurosci*. 2012;15:669–74 [<http://dx.doi.org/doi:10.1038/nn.3086>].
63. Mihalopoulos C, Le LK, Chatterton ML, Bucholz J, Holt-Lunstad J, Lim MH et al. The economic costs of loneliness: A review of cost-of-illness and economic evaluation studies. *Soc Psychiatry Psychiatr Epidemiol*. 2020;55:823–36 [<http://dx.doi.org/doi:10.1007/s00127-019-01733-7>].
64. Fulton L, Jupp B. Investing to tackle loneliness: a discussion paper. In: Social Finance. London: Cabinet Office; 2015 [https://www.socialfinance.org.uk/sites/default/files/publications/investing_to_tackle_loneliness.pdf].
65. Gerst-Emerson K, Jayawardhana J. Loneliness as a public health issue: the impact of loneliness on health care utilization among older adults. *Am J Public Health*. 2015;105:1013–9 [<http://dx.doi.org/doi:10.2105/AJPH.2014.302427>].
66. Zhang J, Xu L, Li J, Sun L, Ding G, Qin W et al. Loneliness and health service utilization among the rural elderly in Shandong, China: a cross-sectional study. *Int J Environ Res Public Health*. 2018;15:1468 [<http://dx.doi.org/doi:10.3390/ijerph15071468>].
67. The "loneliness epidemic". Washington DC: Health Resources & Services Administration; 2019 [<https://www.hrsa.gov/enews/past-issues/2019/january-17/loneliness-epidemic>, accessed 18 March].



68. Bronfenbrenner U. Ecological systems theory. In: Vasta R, editor. Six theories of child development: revised formulations and current issues. London: Jessica Kingsley Publishers; 1992:187–249.
69. Holt-Lunstad J. Why social relationships are important for physical health: a systems approach to understanding and modifying risk and protection. *Annu Rev Psychol.* 2018;69:437–58 [<http://dx.doi.org/doi:10.1146/annurev-psych-122216-011902>].
70. The social–ecological model: a framework for prevention. Atlanta [GA]: Centers for Disease Control and Prevention; 2021 [<https://www.cdc.gov/violenceprevention/about/social-ecologicalmodel.html>].
71. Asendorpf JB, van Aken MA. Personality–relationship transaction in adolescence: core versus surface personality characteristics. *J Pers.* 2003;71:629–66 [<http://dx.doi.org/doi:10.1111/1467-6494.7104005>].
72. Schermer JA, Martin NG. A behavior genetic analysis of personality and loneliness. *J Res Pers.* 2019;78:133–7 [<http://dx.doi.org/doi:doi.org/10.1016/j.jrp.2018.11.011>].
73. Wang B, Dong X. The association between personality and loneliness: findings from a community-dwelling Chinese aging population. *Gerontol Geriatr Med.* 2018;4 [<http://dx.doi.org/doi:10.1177/2333721418778181>].
74. Jopling K. Promising approaches revisited: effective action on loneliness in later life. London: Campaign to End Loneliness; 2020 [https://www.campaigntoendloneliness.org/wp-content/uploads/Promising_Approaches_Revisited_FULL_REPORT.pdf].
75. Global report on ageism. Geneva: World Health Organization; 2021 [<https://apps.who.int/iris/rest/bitstreams/1336324/retrieve>].
76. Kothari A, Edwards N, Yanicki S, Hansen-Ketchum P, Kennedy M. Socioecological models: Strengthening intervention research in tobacco control. *Drogues Santé Société.* 2007;6:iii1–24 [http://drogues.whc.ca/wp-content/uploads/2012/10/vol6_no1_11_ang.pdf].
77. Richard L, Gauvin L, Raine K. Ecological models revisited: their uses and evolution in health promotion over two decades. *Annu Rev Public Health.* 2011;32:307–26 [<http://dx.doi.org/doi:10.1146/annurev-publhealth-031210-101141>].
78. Victor C, Mansfield L, Kay T, Daykin N, Lane J, Grigsby Duffy L et al. An overview of reviews: The effectiveness of interventions to address loneliness at all stages of the life-course. What Works Centre for Wellbeing. 2018 [https://whatworkswellbeing.org/wp-content/uploads/2020/01/Full-report-Tackling-loneliness-Oct-2018_O151580300.pdf].
79. De Jong Gierveld J, Fokkema C, Van Tilburg T. Alleviating loneliness among older adults: possibilities and constraints of interventions. In: Safeguarding the convoy: a call to action from the campaign to end loneliness. London: Age UK; 2011:41–5 [<https://research.vu.nl/ws/portafiles/portal/2943242/2011+dJG+Fokkema%2C+vT+Alleviating+loneliness+among+older+adults.pdf>].
80. Fakoya OA, McCorry NK, Donnelly M. Loneliness and social isolation interventions for older adults: a scoping review of reviews. *BMC Public Health.* 2020;20:129 [<http://dx.doi.org/doi:10.1186/s12889-020-8251-6>].
81. Dickens AP, Richards SH, Greaves CJ, Campbell JL. Interventions targeting social isolation in older people: a systematic review. *BMC Public Health.* 2011;11:647 [<http://dx.doi.org/doi:10.1186/1471-2458-11-647>].
82. Gardiner C, Geldenhuys G, Gott M. Interventions to reduce social isolation and loneliness among older people: an integrative review. *Health Soc Care Community.* 2018;26:147–57 [<http://dx.doi.org/doi:10.1111/hsc.12367>].
83. Poscia A, Stojanovic J, La Millia DI, Duplaga M, Grysztar M, Moscato U et al. Interventions targeting loneliness and social isolation among the older people: an update systematic review. *Exp Gerontol.* 2018;102:133–44 [<http://dx.doi.org/doi:10.1016/j.exger.2017.11.017>].
84. Victor C, Mansfield L, Kay T, Daykin N, Lane J, Grigsby Duffy L et al. An overview of reviews: the effectiveness of interventions to address loneliness at all stages of the life-course. London: What Works Centre for Wellbeing; 2018 [<https://whatworkswellbeing.org/wp/wp-content/uploads/woocommerce-uploads/2018/10/Full-report-Tackling-loneliness-Oct-2018.pdf>].
85. Jarvis MA, Padmanabhanunni A, Balakrishna Y, Chipps J. The effectiveness of interventions addressing loneliness in older persons: an umbrella review. *Int J Africa Nurs Sci.* 2020;12:100177 [<http://dx.doi.org/doi:10.1016/j.ijans.2019.100177>].
86. Masi CM, Chen HY, Hawkey LC, Cacioppo JT. A meta-analysis of interventions to reduce loneliness. *Pers Soc Psychol Rev.* 2011;15:219–66 [<http://dx.doi.org/doi:10.1177/1088868310377394>].
87. Shepherd J. Evidence and guidance for better public services making the most of the evidence ecosystem. Cardiff: Cardiff University Crime and Research Institute; 2020 [https://blogs.cardiff.ac.uk/innovation/wp-content/uploads/sites/561/2020/07/Evidence-and-Guidance-for-Better-Public-Services_Shepherd-Report-2020-1.pdf].
88. White H. The twenty-first century experimenting society: the four waves of the evidence revolution. *Palgrave Commun.* 2019;5:1–7 [<http://dx.doi.org/doi:10.1057/s41599-019-0253-6>].
89. Kharicha K, Iliffe S, Manthorpe J, Chew-Graham CA, Cattan M, Goodman C et al. What do older people experiencing loneliness think about primary care or community based interventions to reduce loneliness? A qualitative study in England. *Health Soc Care Community.* 2017;25:1733–42 [<http://dx.doi.org/doi:10.1111/hsc.12438>].



90. Boulton E, Kneale D, Stansfield C, Heron P, Hanratty B, McMillan D et al. Rapid review of reviews: What remotely delivered interventions can reduce social isolation and loneliness among older adults. London: EPPi Centre, University College London; National Institute for Health Research Older People and Frailty Policy Research Unit; 2020 [<https://eppi.ioe.ac.uk/CMS/Portals/O/Rapid%20Review%20Remotely%20Delivered%20Interventions%20to%20Reduce%20Loneliness%20and%20S...pdf>].
91. Chipps J, Jarvis MA, Ramlall S. The effectiveness of e-interventions on reducing social isolation in older persons: a systematic review of systematic reviews. *J Telemed Telecare*. 2017;23:817–27 [<http://dx.doi.org/doi:10.1177/1357633X17733773>].
92. Ibarra F, Baez M, Cernuzzi L, Casati F. A systematic review on technology-supported interventions to improve old-age social wellbeing: loneliness, social isolation, and connectedness. *J Healthc Eng*. 2020 [<http://dx.doi.org/doi:10.1155/2020/2036842>].
93. Chen YR, 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:e18 [<http://dx.doi.org/doi:10.2196/jmir.4596>].
94. Choi M, Kong S, Jung D. Computer and internet interventions for loneliness and depression in older adults: a meta-analysis. *Healthc Inform Res*. 2012;18:191–8 [<http://dx.doi.org/doi:10.4258/hir.2012.18.3.191>].
95. Khosravi P, Rezvani A, Wiewiora A. The impact of technology on older adults' social isolation. *Comput Human Behav*. 2016;63:594–603 [<http://dx.doi.org/doi:10.1016/j.chb.2016.05.092>].
96. Noone C, McSharry J, Smalle M, Burns A, Dwan K, Devane D et al. Video calls for reducing social isolation and loneliness in older people: a rapid review. *Cochrane Database Syst Rev*. 2020;5:CD013632 [<http://dx.doi.org/doi:10.1002/14651858.CD013632>].
97. Reinhard E, Courtin E, van Lenthe FJ, Avendano M. Public transport policy, social engagement and mental health in older age: a quasi-experimental evaluation of free bus passes in England. *J Epidemiol Community Health*. 2018;72:361–8 [<http://dx.doi.org/doi:10.1136/jech-2017-210038>].
98. Domènech-Abella J, Mundó J, Leonardi M, Chatterji S, Tobiasz-Adamczyk B, Koskinen S et al. Loneliness and depression among older European adults: the role of perceived neighborhood built environment. *Health Place*. 2020;62:102280 [<http://dx.doi.org/doi:10.1016/j.healthplace.2019.102280>].
99. Ageing in a digital world – from vulnerable to valuable. Geneva: International Telecommunication Union; 2021 [<https://www.itu.int/myitu/-/media/Publications/2021-Publications/Ageing-in-a-digital-world--from-vulnerable-to-valuable.pdf>].
100. Global age-friendly cities: a guide. Geneva: World Health Organization; 2007 [https://www.who.int/ageing/publications/Global_age_friendly_cities_Guide_English.pdf].
101. Visser MA, El Fakiri F. The prevalence and impact of risk factors for ethnic differences in loneliness. *Eur J Public Health*. 2016;26:977–83 [<http://dx.doi.org/doi:10.1093/eurpub/ckw115>].
102. Holt-Lunstad J. Social isolation and health – health policy brief. *Health Affairs*. 2020 [<http://dx.doi.org/doi:10.1377/hpb20200622.253235>].
103. Madrid plan of action and its implementation. New York City [NY]: United Nations Department of Economic and Social Affairs Ageing; 2021 [<https://www.un.org/development/desa/ageing/madrid-plan-of-action-and-its-implementation.html>].
104. Modalities for the fourth review and appraisal of the implementation of the Madrid international plan of action on ageing, 2002 – Report of the Secretary-General. New York City [NY]: United Nations Economic and Social Council; 2019 [<https://undocs.org/E/CN.5/2020/4>].
105. Open-ended Working Group on Ageing for the purpose of strengthening the protection of the human rights of older persons. New York City [NY]: United Nations Department of Economic and Social Affairs Ageing; Geneva: Office of the High Commissioner for Human Rights; 2021 [<https://social.un.org/ageing-working-group/>, accessed 15 April].
106. United Nations Inter-agency Group on Ageing. New York City [NY]: United Nations Department of Economic and Social Affairs Ageing; 2021 [<https://www.un.org/development/desa/ageing/madrid-plan-of-action-and-its-implementation.html>, accessed 20 April].
107. Milat A, Lee K, Conte K, Grunseit A, Wolfenden L, van Nassau F et al. Intervention scalability assessment tool: a decision support tool for health policy makers and implementers. *Health Res Policy Syst*. 2020;18:1 [<http://dx.doi.org/doi:10.1186/s12961-019-0494-2>].



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