

## REVIEW ARTICLE

## COVID-19 in the geriatric population

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**Objectives:** The global COVID-19 pandemic has caused rapid and monumental changes around the world. Older people, who already experience higher rates of social isolation and loneliness, are more susceptible to adverse effects as a result of the social distancing protocols enacted to slow the spread of COVID-19. Based on prior outbreaks, we speculate the detrimental outcomes and offer solutions.

**Methods:** Reviewing the literature on the detrimental effects of social isolation and loneliness and higher mortality in the older population. Utilizing psychological study outcomes from prior major outbreaks such as in SARS, Ebola, H1N1 influenza, and Middle East respiratory syndrome offer predictions and the susceptibility in the geriatric age group.

**Results:** Organizations such as the WHO, Centers for Disease Control, and American Association of Retired Persons have put measures in place to provide networking on a local, regional, and national level. These efforts are designed to start mitigating such detrimental effects. A necessary follow-up to this pandemic will be gathering data on unique populations such as the geriatric community, to better mitigate adverse outcomes given the certainty that COVID-19 will not be the last global viral outbreak.

**Conclusions:** The results of worsened social isolation and loneliness is associated with significantly increased morbidity and mortality in the geriatric population. Various solutions including virtual interactions with loved ones, engaging in physical activity, continuing any spiritual or religious prayers remotely, and community services to provide aid for the older population are all efforts to minimize social isolation and loneliness.

**KEYWORDS**

COVID-19, geriatric population, loneliness, mitigation, social isolation

**1 | INTRODUCTION**

More than 50 million Americans are 65 and older; nearly 1 in 6. Of those, about 1.3 million live in nursing homes and 1 million live in an assisted living home.<sup>1</sup> Based on preliminary data from the Centers for Disease Control (CDC), the novel coronavirus disease 2019 (COVID-19) has been found to disproportionately affect the older population with a significantly higher mortality rate (8 in 10 deaths are in patients  $\geq 65$  years old).<sup>2</sup> This is not necessarily surprising, given a number of comorbid conditions that are more frequently found in older patients, including chronic obstructive pulmonary disease (COPD), obesity, and

diabetes have been shown to be related to higher mortality rates in COVID-19 cases.<sup>3-6</sup> In order to combat COVID-19, given the lack of vaccination or rigorously proven medical therapies beyond supportive care, the United States (and many other affected countries) has promoted a policy of isolation to disrupt transmission termed "social distancing."<sup>7</sup> This policy has created an older population in isolation at home or in a facility, and may have downstream repercussions to older people's wellbeing. Psychological consequences include anxiety, a feeling of anger, emotional disturbance, stress, irritability, poor concentration, depression, and post-traumatic stress disorder (PTSD). During previous pandemics, those kept in quarantine or isolation

ranging 2 days to 30 days experienced such psychological toll. A study on 6231 South Korean residents placed in quarantine for 2 weeks during the 2015 Middle Eastern Respiratory Syndrome (MERS) pandemic found 19.3% experienced depression.<sup>8</sup> An additional study by Jeong et al included 1656 isolated people for 2 weeks and found 16.6% had feelings of anger, and 7.6% had symptoms of anxiety. After removal from isolation, feelings of anger and symptoms of anxiety still persisted for four to 6 months however improved to 6.4% and 3.0%, respectively.<sup>9</sup> Similarly, a web-based survey by Hawryluck et al in quarantined people during the SARS pandemic demonstrated a high prevalence of symptoms of PTSD and depression in 28.9% and 31.2% of respondents, respectively. The study also found a significant increase in PTSD symptoms in those quarantined for a longer duration of >10 days than those <10 days. Interestingly, all respondents described a sense of isolation.<sup>10</sup> This article evaluates the effects of previously utilized social isolation policies on older populations and reviews the current solutions on how to mitigate the negative aspects of those effects.

## 2 | THE REALITY

Social isolation is defined as having a low quantity and quality of contact with others; it is objective and can be measured using observations of an individual's social network.<sup>11</sup> Yet, prior to understanding the effects of social isolation, an important distinction must first be made between social isolation and loneliness. While social isolation is an *objective* separation, loneliness is a *subjective* separation; someone could be surrounded by supportive family members but still experience the feeling of loneliness.<sup>12</sup> And while these are two distinct entities that are inherently difficult to study, literature suggests that they are related, just not directly overlapping.<sup>13</sup>

The prevalence of loneliness is difficult to understand, and a variety of tools have been developed to assess for loneliness including the de Jong Gierveld (dJG) Loneliness scale and UCLA Loneliness scale.<sup>14,15</sup> Perissinotto et al. showed that 29% of respondents over 75 years old were lonely, while the American Association of Retired Persons (AARP) found about 25% of respondents over 70 years old were lonely; both using the UCLA Loneliness Scale.<sup>16,17</sup> The 25% to 29% range seen in the United States is comparable to studies from across Europe and Asia.<sup>18,19</sup>

In addition to their prevalence, both social isolation and loneliness are associated with considerable morbidity and mortality.<sup>20,21</sup> In fact, a recent meta-analysis found loneliness and social isolation to be related to an increased mortality rate at 26% and 29%, respectively.<sup>22</sup> To place this in perspective, they are approximately equivalent to smoking 15 cigarettes per day and surpass obesity. There have been demonstrable findings of significant negative consequences on one's mental and physical health from social isolation and loneliness including high blood pressure, cognitive decline, Alzheimer's disease, coronary heart disease, obesity, anxiety, depression, and even death.<sup>23</sup>

The supposed scientific rationale behind this is that loneliness and social isolation alters immune cells promoting inflammation and

### Key Points

- Days to weeks of isolation or quarantine are critical to mitigate the spread of a pandemic, however, longer durations were associated with an increased prevalence of psychiatric distress
- Social isolation and loneliness are associated with considerable morbidity and mortality in the older population.
- Based on prior pandemics, stressors during quarantine include fears of infection, frustration, inadequate supplies, and inadequate information
- Recognizing those more vulnerable and providing support may help mitigate the long-term repercussions of social distancing.

increased neuroendocrine-related alterations in myeloid cell populations.<sup>24</sup> Another systematic review showed an association of loneliness with higher interleukin-6 and social isolation linked with an elevated C-reactive protein.<sup>25</sup> An epidemiologic study amongst all races found a strong correlation between social isolation and all-cause mortality during a 30-year follow up period.<sup>26</sup> The theory underlying these repercussions are proposed to be from multiple etiologies. Social isolation affects one's psychological well-being, possibly leading to increased stress and poor coping mechanisms. It may also alter healthy behavioral practices with physical activity, sleep hygiene, and even medical adherence leading to overall poor outcomes.<sup>26</sup>

In terms of COVID-19, it is crucial to understand that these social isolation and loneliness issues are the *baseline* for the older population. How additional social distancing recommendations will enhance social isolation and loneliness is still to be determined. A recent review article by Brooks et al. studied 24 papers concerning quarantine in previous outbreaks including those with SARS, Ebola, H1N1 influenza, MERS, and equine influenza, found significant consequences to psychiatric health including emotional disturbance, depression, stress, low mood, irritability, insomnia, and PTSD across all age ranges. Stressors during quarantine include fears of infection, frustration and boredom, inadequate supplies, and inadequate information with long term or post quarantine stressors including financial and stigmatization (compared to those who were not quarantined).<sup>24,27</sup> Older persons may be more susceptible to many of these stressors as suggested by multiple studies in the general population showing social factors, level of education, self-esteem and social support needed to buffer individuals from traumatic episodes which may be lacking in this population.<sup>28-31</sup> Literature from the SARS outbreak in Hong Kong where quarantine measures were deployed shows that the older population were more likely to be overwhelmed by the negative news inducing deeper fears, anxiety and inspiring less confidence in life, again confirming that the older are disproportionately affected.<sup>32</sup>

While we are still in midst of the COVID-19 pandemic, it is clear that there are also secondary effects of prolonged social isolation in

regards to older patients. For instance, labor and financial disruptions may be more problematic for those needing regular home services.<sup>33</sup> Caregivers of older persons must now balance supporting them with school age children given the significant numbers of schools closed across the country. For those living in facilities, many nursing homes and assisted living facilities have now banned visitors. Studies have shown that holding hands, hugging, massaging have all been effective in lowering blood pressure, reducing physical pain, and indirectly building immunity; all of which are now carefully avoided.<sup>34</sup>

Even older people with good social support may have downstream repercussions because they often depend on social gatherings, religious or spiritual congregations, and community involvement for their physical and mental health. Social interaction helps stimulate and maintain brain health and therefore may have deleterious effects from prolonged social distancing. While every person handles moments of uncertainty very differently, the older population are especially vulnerable. An individualized assessment and approach is necessary to mitigate long-term effects of social distancing.

### 3 | SOLUTIONS

The most widely adopted strategy to date to control COVID-19 has been social isolation measures, with all the positive and negative effects they entail. How best to mitigate the negative effects of social distancing on older patients is crucial, and there are already some preliminary measures being put in place.

Following the March 13, 2020 declaration of a national emergency by President Donald Trump, the CDC released guidelines for isolation aimed at nursing homes and assisted living facilities. These guidelines called for the restriction of all visitation except for compassionate care/end of life situations, restriction of all volunteers and non-essential healthcare personnel (HCP), and cancellation of group activities and communal dining.<sup>35</sup> Likewise, the Department of Veteran Affairs (VA) began prohibiting outside visitors to its 134 nursing homes and 24 spinal cord injury centers.<sup>36</sup> Various facilities on the east coast have implemented infection plans that include the physical distancing of 6 ft and also actively providing methods for communication such as FaceTiming with a given iPad if one did not already own a smartphone or other capable electronic device. Another nursing home in Florida launched a fundraising drive to purchase “smart display” devices like the Amazon Echo Show. The AARP has also launched a Community Connections website aimed at providing a searchable directory of mutual aid organizations designed to provide key daily services for the older population while maintaining social distancing.<sup>37</sup> The National Association of Area Agencies on Aging (N4A) has also instituted a similar resource guide.<sup>38</sup>

The World Health Organization encourages the public to support older adults through networks of family/friends and health professionals, especially those already affected by cognitive deficits including dementia who may feel more withdrawn during a quarantine.<sup>39</sup> The Inter-Agency Standing Committee (IASC) have summarized mental health and psychosocial support (MHPSS) considerations during

this outbreak of COVID-19. Specifically, for older adults, it is important to provide continuous emotional support, as well as simple facts and information related to the outbreak, such as how to reduce transmission.<sup>40</sup> In a world already filled with isolation and loneliness, the Health in Aging offers practical advice to share with elders. The first one includes consuming news in moderation, as the news is constantly being updated and can be emotionally overwhelming. The second piece of advice is to encourage outdoor activities while being mindful of maintaining 6 ft away from others. Next is to stay connected to family and friends via smartphones and computers. For those without internet access or the inability to utilize a smartphone, making daily phone calls and even writing letters is helpful. The last piece of advice is to ensure prescriptions are being refilled and medications are being taken daily.<sup>41</sup> Maintaining any spiritual/religious affiliation via virtual events have been adopted in many locations as well. Free classes online, live streaming of prayer services, and community gatherings on Zoom have become popular.

Moving forward, any major incident, including COVID-19, should have a post-event health surveillance analysis done. After the World Trade Center incident, a Disaster Health Registry was created to monitor those directly and indirectly involved. It has helped identify the extent of physical and mental health conditions after the health survey was administered in 2003. Simple, workplace “psycho-educational” interventions were also highly effective in reducing future mental health problems, such as anxiety amongst employees.<sup>28</sup> In Yoon et al's 2016 case report after MERS, they discuss how South Korea set up a proactive regional government agency of health professionals to reach out to (all) people under quarantine *twice daily* compared to the national government agency that would only contact those infected or family of the deceased resulting in identifying and treating FAR more patients through the proactive regional approach.<sup>8</sup> The anticipated anxiety due to an increased loss of loved ones and outbreaks in residential living facilities would benefit from a comprehensive assessment similar interventions. Very little follow-up research has been done on the older population specifically. Given the possibility of a repeat pandemic, learning from COVID-19 in the present is vitally important in better preparing for the future.

### 4 | CONCLUSION

While social isolation is used to blunt the deadly effects of COVID-19 long enough for an anticipated vaccine, the negative effects of these policies are already being seen. Unfortunately, as experience with previous outbreaks has shown us, the older are uniquely susceptible to the downside of many of the very policies designed to help slow COVID-19. Experts agree that the longer this pandemic goes on, the higher the psychological costs may be. As one psychiatrist from Liberia during the 2008 Ebola outbreak had quoted, “any mental health response to the outbreak begins well behind the starting line.”<sup>42</sup> That starting line has already passed for COVID-19. It is imperative that we use our current knowledge to attempt to catch up, and gather information so that moving forward, we may better mitigate the damage.

## CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

## AUTHOR CONTRIBUTIONS

Concept and design: Justin Roy, Rohit Jain, Reshma Golamari, Rama Vunnam, Nitasa Sahu Drafting the article and Revisions: Justin Roy, Rohit Jain, Reshma Golamari, Rama Vunnam, Nitasa Sahu.

Final approval of the version to be published: Justin Roy, Rohit Jain, Reshma Golamari, Rama Vunnam, Nitasa Sahu.

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## DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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