higher mortality rate than the general population, resulting in a 10-20 years reduced life expectancy, that appears to be widening. This is mainly attributable to physical diseases. There exists a large body of evidence showing that these people are more likely to develop a wide variety of physical diseases, such as cardiovascular diseases, type 2 diabetes mellitus, and respiratory tract diseases[3]. The risk for obesity, which is an important associated factor for mortality in patients with COVID-19, can be more than four times higher in people with schizophrenia and about one and a half times higher in those with major depressive disorder or bipolar disorder, compared to the general population[3].

Recent studies have shown that people with severe mental illness are at a heightened risk of morbidity and mortality from COVID-19. We therefore argue that they should also be prioritized in vaccine allocation. A case-control study with over 61 million patients found that people who were recently diagnosed with schizophrenia, bipolar disorder, major depressive disorder or attention-deficit/hyperactivity disorder showed very high odds ratios (5.7 to 7.6) of being infected with COVID-19, as compared to patients without mental disorders, even after adjustment for age, gender, ethnicity and the aforementioned medical conditions. These people are also at increased risk for COVID-19 complications, as reflected in higher rates of hospitalization and death[4]. Other recent studies[5,6] have confirmed these data.

To put these findings into perspective with the example of the US: in 2017, there were an estimated 11.2 million adults aged 18 or older in the US with severe mental illness. Taking into account a mortality rate of 8.5% that has been found among COVID-19 patients recently diagnosed with a severe mental illness, this means that about 1 million of patients with severe mental illness in the US would die if all were affected by COVID-19.

Severe mental illness is known to be positively correlated with many environmental variables which are themselves risk factors for COVID-19 infection, such as socioeconomic deprivation, working in unsafe environments, living in overcrowded settings or being homeless, institutionalization and confinement. Furthermore, stigmatization, discrimination, erroneous beliefs and negative attitudes associated with severe mental illness, as well as system factors, act as barriers to the recognition and management of physical diseases in people with severe mental illness[7]. Finally, persons suffering from a severe mental illness have more difficulties in following and applying the confusing and constantly changing rules and obligations that are established in relation to the fight against COVID-19[4,8]. It thus becomes clear why severe mental illness is a major risk factor for COVID infection and negative COVID-19 related outcomes.

In light of this knowledge, and taking into account the second and third ethical principles that should guide vaccine allocation, we consider it paramount that persons with severe mental illness should also be prioritized to guarantee that they receive a COVID-19 vaccine during the first phase of its distribution. It is our responsibility as psychiatrists in this global health crisis to advocate for the needs of our patients with governments and public health policy bodies, as a position paper by the World Psychiatric Association recently stated[9]. In addition, public health bodies should develop and implement targeted programs to ensure that these patients and their health care providers are made aware of these increased risks as well as of the benefits of vaccination.

Marc De Hert[1,2], Victor Mazereel[1,3], Johan Detraux[3,4], Kristof Van Assche[5]

[1]Department of Neurosciences, Center for Clinical Psychiatry, KU Leuven, Leuven, Belgium; [2]Antwerp Health Law and Ethics Chair, University of Antwerp, Antwerp, Belgium; [3]University Psychiatric Center KU Leuven, Leuven-Kortenberg, Belgium; [4]Department of Neurosciences, Public Health Psychiatry, KU Leuven, Leuven, Belgium; [5]Research Group Personal Rights and Property Rights, Faculty of Law, University of Antwerp, Antwerp, Belgium

1. US National Academies of Sciences, Engineering, and Medicine. Framework for equitable allocation of COVID-19 vaccine. Washington: National Academies Press, 2020.
2. Emanuel BEJ, Persad G, Kern A et al. Science 2020;369:1309-12.
3. De Hert M, Correll CU, Bobes J et al. World Psychiatry 2011;10:52-77.
4. Wang Q, Xu R, Volkow ND. World Psychiatry 2021;20:124-30.
5. Li L, Li F, Fortunati F et al. JAMA Netw Open 2020;3:e2023282.
6. Lee SW, Yang JM, Moon SY et al. Lancet Psychiatry 2020;7:1025-31.
7. De Hert M, Cohen D, Bobes J et al. World Psychiatry 2011;10:138-51.
8. Shinn AK, Viron M. J Clin Psychiatry 2020;81:20com13412.
9. Stewart DE, Appelbaum PS. World Psychiatry 2020;19:406-7.

DOI:10.1002/wps.20826

A pandemic of social isolation?

On March 11, 2020 the World Health Organization declared COVID-19 infection a global pandemic, prompting closures and other restrictions across the world. A substantial proportion of the world population was suddenly homebound, giving us all a small glimpse into the experiences of the approximately 6% of US older adults who were already homebound. Further closures and restrictions have been implemented worldwide in relation to the second wave of the infection. This raises questions about the effects that social isolation may have on our mental and physical well-being.

Public health concerns about social isolation and loneliness were growing internationally even prior to the pandemic. In 2018, the UK appointed a Loneliness Minister and published a national strategy for tackling loneliness. In the US, the National Academies of Sciences, Engineering, and Medicine released, just two weeks prior to the declaration of the pandemic, an expert consensus report on the relevance of social isolation and loneliness in older adults for the health care system[1]. Nonetheless, social isolation and loneliness have generally been underrecognized and underappreciated relative to the evidence supporting their public health importance[2].

Evidence suggests that a significant portion of the population was already socially isolated, lonely, or both, prior to the pandemic[2]. Social isolation refers to objectively being alone, having few relationships or infrequent social contacts; whereas loneliness

refers to subjectively feeling alone, or the discrepancy between one's desired level of connection and one's actual level. While international standardization of measurement and classification is needed to provide more precise estimates of prevalence and changes over time, substantial evidence from both national and international surveys raise concern. Several surveys suggest that loneliness has increased by 20-30% during the pandemic. Loneliness can occur across age, income levels, living situations and gender; however, rates are highest among those at younger ages, with lower incomes, and with chronic health conditions[1,3]. These risk factors are similar to those identified pre-COVID[3].

In the midst of a global pandemic, the immediate dangers of a deadly novel virus are understandably being prioritized. However, social isolation and loneliness can result in both short- and long-term health effects that cannot be ignored. The lethal effects of social isolation and loneliness may be more immediate, in the case of suicide or domestic violence, or more long-term, in the case of disease-related deaths. International data from over 3.4 million people demonstrate the association of social isolation and loneliness with a significantly increased risk of death from all causes[4]. Conversely, being socially connected is protective and increases odds of survival by 50%[5].

Cumulative evidence over decades of research demonstrates that the magnitude of mortality risk related to social isolation and loneliness is comparable with or exceeds the risk associated with other known public health problems (e.g., obesity, air pollution)[2]. Further, there is compelling evidence that social isolation and loneliness significantly contribute to morbidity, particularly cardiovascular disease and stroke[1]. Furthermore, social isolation and loneliness influence problematic health behaviors, including substance use, poorer sleep and poorer eating habits. Lacking proximity to others, particularly trusted others, may result in a state of alertness both centrally and peripherally. Problematic behaviors and physiological changes may potentially exacerbate or precipitate the onset of acute events among those with pre-existing diseases[6].

Social isolation and loneliness may even influence susceptibility to the COVID-19 infection. They predict worse mental health, and individuals with mental health conditions are more likely to be socially isolated and lonely[1]. This bidirectional association is noteworthy, since an analysis of population-wide electronic health records has found that people with a mental health diagnosis are more likely to be infected and hospitalized and to die from COVID-19[7]. Furthermore, a recent paper summarizing evidence from a 35-year research program found that people experiencing interpersonal stressors such as loneliness had a greater chance of developing an upper respiratory illness when exposed to cold viruses[8].

Steps to limited social contact associated with the global pandemic are becoming more persistent in nature, and both short-term and longer-term public health concerns will emerge if the effects of social isolation and loneliness are not mitigated. We cannot take an either-or position, pitting the dangers of COVID-19 against the dangers of social isolation and loneliness. We must find a way to address both risks to promote public health.

What are actionable steps that can prevent or reduce COVID-19-related isolation and loneliness? A systems approach recognizes that individual, community and societal factors are interdependent and may all contribute to social isolation and loneliness[9], and thus each of these levels need to be considered and targeted. At the individual level, research has shown that high-quality interactions among household members, interacting with neighbors, providing support to others, and expressions of gratitude, all promote social bonds and are negatively correlated with loneliness. At the community and societal level, we have already seen changes in social norms and physical spaces, all aimed at reducing social contact, that may have longer-term public health implications if not mitigated. Community and national leaders should foster norms of support, inclusion and trust, leading to a greater sense of security, an essential component of feeling socially connected to a group.

The relevance of every sector of society not only for COVID-19-related but also for isolation-related public health risks is readily apparent. Thus, we should begin to evaluate existing local and national policies across sectors (health care, transportation, education, housing, employment, nutrition, and environment) aiming to preserve and promote the quality of social contacts. The social needs of the population need to be at the forefront of every pandemic and recovery plan.

It is not clear how long the social and health ramifications of the COVID-19 restrictions will persist. As we create our "new normal" adaptations to the pandemic, they may become more permanent. For example, remote working is becoming the norm and digital tools are increasingly being adopted or required; however, little is known about their equivalence to in-person contact and their influence on social and health outcomes. There is an urgent need for rigorous scientific evaluation of these practices and policies.

Julianne Holt-Lunstad
Department of Psychology, Brigham Young University, Provo, UT, USA

1. National Academies of Sciences, Engineering, and Medicine. Social isolation and loneliness in older adults: opportunities for the health care system. Washington: National Academies Press, 2020.
2. Holt-Lunstad J, Robles TF, Sbarra DA. Am Psychol 2017;72:517-30.
3. Bu F, Steptoe A, Fancourt D. Public Health 2020;186:31-4.
4. Holt-Lunstad J, Smith TB, Baker M et al. Perspect Psychol Sci 2015;10:227-37.
5. Holt-Lunstad J, Smith TB, Layton JB. PLoS Med 2010;7:e1000316.
6. Uchino BN. J Behav Med 2006;29:377-87.
7. Wang Q, Xu R, Volkow ND. World Psychiatry 2021;20:124-30.
8. Cohen S. Perspect Psychol Sci 2020:1745691620942516.
9. Holt-Lunstad J. Annu Rev Psychol 2018;69:437-58.

DOI:10.1002/wps.20839