

## Special Article

## Why are Elderly at Higher Risk and what should be done for them During the COVID-19 pandemic?

**Canan Birimoglu Okuyan, PhD**

Department of Nursing, Sakarya University of Applied Sciences, Sakarya, Turkey  
Division of Geriatric Medicine, Western University, London, Ontario, Canada

**Mehmet A. Begen, PhD**

Ivey Business School, Epidemiology and Biostatistics-Schulich School of Medicine and Dentistry, Western University, London, Ontario, Canada

**Correspondence:** Canan Birimoglu Okuyan, Western University, London, Ontario, Canada; Sakarya University of Applied Sciences, Sakarya, Turkey; E-mail: cbirimog@uwo.ca; cananbirimoglu@subu.edu.tr

### Abstract

Coronavirus disease 2019 (COVID-19) is caused by an enveloped RNA virus seen in humans and animals. This rapidly progressing disease has become a pandemic and it has direct adverse effects on humans and healthcare systems around the world. Based on initial findings and observations gathered during the COVID-19 pandemic around the world, this disease mainly affects elderly people with Alzheimer's or dementia, those with risk factors such as hypertension, diabetes or cardiovascular disease (CVD), and individuals with respiratory tract diseases or disorders due to ageing, physiologic changes and underlying potential health conditions. Understanding the present and potential effects of the pandemic on elderly may assist to improve their care and quality of life. These factors may also affect individuals and health professionals providing care for elderly. In this paper, we aim to discuss why elderly people are at higher risk, what should they pay attention to and what should be done for them during the COVID-19 pandemic.

**Key words:** COVID-19, pandemic, elderly people, healthcare

### Introduction

Coronavirus disease 2019 (COVID-19) is caused by an enveloped RNA virus observed in various degrees in humans and animals. The virus is transmitted through droplets and may cause severe clinical symptoms like fever, respiratory distress and cough (Wang et al., 2020).

This rapidly progressing disease has become a pandemic and it has direct adverse effects on humans and healthcare systems. One of the groups which have been affected the most by this pandemic is elderly individuals requiring care and support. Elderly with Alzheimer's or dementia are dependent on caregivers for living and they are among the most defenseless individuals in the society even in normal and before pandemic times (Brown et al., 2020). Furthermore, based on initial observations and experiences gathered during the first year of the COVID-19 pandemic, in addition to elderly with

Alzheimer's or dementia, the disease also affects the following groups the worst: those with risk factors like hypertension, diabetes or cardiovascular disease (CVD), and individuals with respiratory tract diseases or disorders due to aging, physiologic changes and underlying potential health conditions. All of these groups face greater risk and more challenges due to the COVID-19 pandemic (Brown et al., 2020; Jimenez-Pavon et al., 2020).

The mean incubation duration for the disease is 11.5 days for individuals aged over 70 years, while it is 14 days among younger people (Zhu et al., 2020). The Coronavirus, is believed to be much more infectious than the flu and there is no immunity yet. Furthermore, there is no known treatment or medication for it (McIntosh et al., 2020). Vaccines have been developed for the virus at a very fast pace over the last year and many countries are now trying to vaccinate their citizens as much as and as quickly as possible,

however supply and distribution challenges have slowed down these efforts and it seems it will be a while before a majority of world population will be able to be vaccinated (Jean-Jacques and Bauchner, 2021). Although, elderly is among the first group to be vaccinated, for the time being and even after vaccination, the best way to prevent transmission to this group and in fact to anyone is practicing physical distancing, using a mask and following public health guidelines.

Understanding the present and potential effects of the pandemic on the elderly may assist in increasing their care and quality of life. These points may also affect individuals (including family members) and health professionals providing care for elderly. In this article, we aim to discuss why elderly people are at higher risk during and provide suggestions on what should/can be done for them during the COVID-19 pandemic.

### **Why are elderly people at higher risk during the COVID-19 pandemic?**

Chronic diseases increase with aging and these may increase the risk of catching COVID-19. Especially elderly patients who have diseases like Alzheimer's and dementia may not be able to follow the guidelines developed for COVID-19 prevention such as hand hygiene, covering nose and mouth to reduce COVID-19 transmission, monitoring COVID-19 symptoms, preserving physical distance and self-isolating at home alone (Chen et al., 2020a). Additionally, individuals with mild cognitive disorder or mild dementia may lack motivation due to lack of interest or depression and may not abide by these guidelines. Elderly people with more severe levels of dementia even may not be able to understand or remember most of these recommendations due to short-term loss of memory or severity of general cognitive disorder. Additionally, behavioral and psychological symptoms of dementia may weaken isolation efforts. Though the outcomes related to COVID-19 show variability, the age factor seems to be the most significant risk factor to influence severity of the symptoms, disease progression and mortality rates, and age appears to be the most important factors related to poor prognosis with hospitalization and death (Chen et al., 2020a; Livingston and Bucher, 2020; Wu et al., 2020). Nearly 9 out of 10 elderly individuals aged 70 and over who were COVID-19 positive in Italy experienced such negative outcomes of

COVID-19 (Livingston and Bucher, 2020). Increased morbidity and mortality are expected in elderly individuals with Alzheimer's or dementia due to specific implications of these diseases. In other words, individuals with dementia have higher probability of diabetes and pneumonia compared to individuals without dementia (Montero-Odasso et al., 2020). As a result, these symptoms are associated with poorer outcomes in individuals with COVID-19. Over thousand COVID-19 cases in China, more than 90% developed pneumonia (Fu et al., 2020). However, death due to pneumonia even when not linked to COVID-19 is stated to be two times higher for individuals with dementia compared to those without it (Foley et al., 2015).

Another factor that increases COVID-19 risks for elderly are weakened immune system and increased multimorbidity (Sohrabi et al., 2020). During this pandemic, elderly is more susceptible to infection, have increased risk of catching COVID-19 and have higher probability of experiencing complications of COVID-19. The most important and frequent symptom of COVID-19 is fever (Chen et al., 2020b). However, it may be necessary to change the definition of fever for elderly adults. Elderly are observed to have rapid fever increases, so it appears to be necessary to take greater care with temperature measurements and increase the frequency (Livingston and Bucher, 2020). It is already necessary to wear all available personal protective equipment when present in the same environment (where physical distancing cannot be followed) with others and this is even more important when elderly is present to reduce any chance of an infection. According to a WHO report, the death rate due to COVID-19 was 21.9% among those over 80 in China (Wu et al., 2020), while 70% of COVID-19 related deaths in Italy were above the age of 70 (Chen et al., 2020b), and this rate was 50% for those over 65 in Turkey (Wu et al., 2020). These rates show that COVID-19 has a surprising degree of higher risk for elderly. On the other hand, surviving cases like 103-year old Zhang Guangfen who was admitted to Liyuan Hospital in Wuhan on the 1st of March and discharged after amelioration are promising for this group.

### **What should be done for elderly during the COVID-19 pandemic?**

If an elderly person has any cold or flu like symptoms, they should take it seriously. COVID-

19 may begin like a cold or mild flu; however, symptoms' severity may rapidly worsen in elderly. The most important disease symptoms are fever, cough and shortness of breath. Extreme care should be given if there is contact with any individual who is COVID-19 positive, and under any of these circumstances elderly individual should call their doctor or health unit without delay (Chen et al., 2020b). It is harder for elderly to keep up with fast developing and changing rules and information about the pandemic, and regular follow-ups with the health unit may be the easiest and most effective solution. Furthermore, this would also ensure the most current and accurate information is obtained. However, constant hearing and reading negative news related to the COVID-19 pandemic may increase worry and uneasiness among elderly.

Additionally, 30% of elderly individuals have age-related cognitive disorder (Geiger et al., 2015). Social isolation, age-related cognitive disorders and worrying news may cause emotional problems and anxiety in the elderly and their families. Most are faced with additional loneliness and anxiety due to staying in nursing home facilities and social isolation. The lack of regular interaction with family members (due to physical distancing and other reasons) during the pandemic may negatively affect psychology, increase the care load and cause unknown falls or degradation of health in elderly individuals (Santini et al., 2020). When possible, family members and friends should make regular in-person visits (with physical distancing guidelines followed) and video/phone calls to keep in touch with elderly relatives and friends and support their well-being.

We now below discuss a list of guidelines to reduce the chance of catching COVID-19.

-Telehealth is one of the most important technologies in this pandemic and keeps patients and caregivers safer. When available and possible, telehealth should be actively implemented in all health systems.

- Physical distancing rules should be followed and at least 2 meters distance should be available between other individuals. Avoid crowded environments.

- Hands should be washed well and frequently; avoid touching the face, especially the 'T region' of eyes, nose and mouth (Lu et al., 2020).

- Stock food and material required for at least 2

weeks in case one has to stay at home and quarantine.

- When possible and advised by health authorities, it is important to stay at home and avoid travel unless necessary.

- Follow public health guidelines at all times such as observing physical distancing, wearing a mask and washing hands.

- While at home, take daily preventive precautions:

✓ Wash hands frequently and for at least 20 seconds with soap. If you have no soap and water, use hand disinfectant containing at least 60% alcohol.

✓ Avoid touching surfaces like public elevators, handshaking or door handles.

✓ Avoid touching your face especially mouth, nose and eyes.

✓ Perform routine cleaning in your house.

✓ When a visitor comes to the house, greet them from 2m distance.

✓ If you have a caregiver who frequently visits or comes from outside, ask if they have washed their hands. If the person(s) you live with displays COVID-19 symptoms, limit shared areas.

✓ Get information from reliable sources.

✓ Stay away from poorly-ventilated areas and crowds, especially.

✓ Request food from a family member, social connections or order online.

- Avoid using public transport vehicles when/if possible.

- Make sure you have any medication needed ready at home, refill when needed.

- Prepare a plan for if you get sick. If you have COVID-19 symptoms, contact your health unit and communicate by telephone or e-mail, ask for help from your friends, family or neighbors.

-Monitor your symptoms and emergency warning signs.

Take note of potential COVID-19 symptoms like fever, cough and shortness of breath.

If you feel symptoms are getting worse, seek medical aid immediately.

#### Emergency warning symptoms of COVID-19

- Difficulty breathing or shortness of breath
- Permanent pain or pressure in the chest
- Confusion
- Bluish color of the lips or face (Chen et al., 2020a; Huang et al., 2020; Montero-Odasso et al., 2020).
- If you get sick, remain at home and immediately call your health unit and give them information about your symptoms.
- To cope with the stress during the COVID-19 pandemic, read books, pray, do social activities like puzzles or crosswords, keep in touch remotely with your family members and friends.
- Attach greater importance to bodily health by taking deep breaths and healthy and balanced eating.
- As you are recommended to stay at home during the pandemic, this situation may cause a risk of low muscle mass. As a result, regular exercise is important.
- Take care to get sufficient amount and quality sleep.
- Don't be shy about sharing your worries and how you feel with people you trust.
- If you live alone, plan a daily telephone call with a friend, family member or caregiver.
- Obtain medical drugs and material you may need for wound care, oxygen or regularly used medication.
- Stock food which will not degrade or negatively affect your health (Montero-Odasso et al., 2020; Lu et al., 2020).

#### **Conclusion**

COVID-19 pandemic has been seriously disrupting daily life, economy and healthcare systems of all countries in the world. There is no known treatment for COVID-19 and vaccines are slowly being administered in most countries at the moment. Although elderly is among the first to be vaccinated, the emergence of coronavirus variants, timing and supply availability of vaccines and lack of treatment options make it still important to focus on preventive strategies, keeping social (safe and mostly remote) interactions and well-being (mentally and

physically). Furthermore, development of nonpharmacological interventions and virtual technologies offering home-based cognitive training or physical exercise may also help elderly during the pandemic. Moderate intensity exercise may strengthen the immune system and hence it is recommended to have several sessions and perform at least 15-30 minutes of aerobic exercises and resistance training sessions per week (Jimenez-Pavon et al., 2020). Nonpharmacologic activities like social groups, walking a line on the ground within the house, carrying mild and moderate weight objects, doing dance or balance exercises and pet therapy are quite useful, especially for elderly (Jimenez-Pavon et al., 2020). However, all these recommendations above are much more challenging to apply and practice for patients with Alzheimer's or dementia, as they may not be able follow instructions and/or use electronic devices or software.

#### **References**

- Brown EE, Kumar S, Rajji TK, Pollock BG and Mulsant BH. (2020) Anticipating and Mitigating the Impact of the COVID-19 Pandemic on Alzheimer's Disease and Related Dementias. *Am J Geriatr Psychiatry* 28: 712-721.
- Chen J, Qi T, Liu L, Ling Y, Qian Z, Li T, Li F, Xu Q, Zhang Y, Xu S, Song Z, Zeng Y, Shen Y, Shi Y, Zhu T and Lu H. (2020a) Clinical progression of patients with COVID-19 in Shanghai, China. *J Infect* 80: e1-e6.
- Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, Qiu Y, Wang J, Liu Y, Wei Y, Xia J, Yu T, Zhang X and Zhang L. (2020b) Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet* 395: 507-513.
- Foley NC, Affoo RH and Martin RE. (2015) A systematic review and meta-analysis examining pneumonia-associated mortality in dementia. *Dement Geriatr Cogn Disord* 39: 52-67.
- Fu L, Wang B, Yuan T, Chen X, Ao Y, Fitzpatrick T, Li P, Zhou Y, Lin YF, Duan Q, Luo G, Fan S, Lu Y, Feng A, Zhan Y, Liang B, Cai W, Zhang L, Du X, Li L, Shu Y and Zou H. (2020) Clinical characteristics of coronavirus disease 2019 (COVID-19) in China: A systematic review and meta-analysis. *J Infect*.
- Geiger SS, Fagundes CT and Siegel RM. (2015) Chrono-immunology: progress and challenges in understanding links between the circadian and immune systems. *Immunology* 146: 349-358.
- Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, Zhang L, Fan G, Xu J, Gu X, Cheng Z, Yu T, Xia J, Wei Y, Wu W, Xie X, Yin W, Li H, Liu M, Xiao Y, Gao H, Guo L, Xie J, Wang G, Jiang R, Gao Z, Jin

- Q, Wang J and Cao B. (2020) Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet* 395: 497-506.
- Jean-Jacques M and Bauchner H. (2021) Vaccine Distribution-Equity Left Behind? *JAMA* 325: 829-830.
- Jimenez-Pavon D, Carbonell-Baeza A and Lavie CJ. (2020) Physical exercise as therapy to fight against the mental and physical consequences of COVID-19 quarantine: Special focus in older people. *Prog Cardiovasc Dis* 63: 386-388.
- Livingston E and Bucher K. (2020) Coronavirus Disease 2019 (COVID-19) in Italy. *JAMA*.
- Lu CW, Liu XF and Jia ZF. (2020) 2019-nCoV transmission through the ocular surface must not be ignored. *Lancet* 395: e39.
- McIntosh K, Hirsch MS and Bloom A. (2020) Coronavirus disease 2019 (COVID-19): Epidemiology, virology, clinical features, diagnosis, and prevention.
- Montero-Odasso M, Goens SD, Kamkar N, Lam R, Madden K, Molnar F, Speechley M and Stranges S. (2020) Canadian Geriatrics Society COVID-19 Recommendations for Older Adults. What Do Older Adults Need To Know? *Can Geriatr J* 23: 149-151.
- Santini ZI, Jose PE, York Cornwell E, Koyanagi A, Nielsen L, Hinrichsen C, Meilstrup C, Madsen KR and Koushede V. (2020) Social disconnectedness, perceived isolation, and symptoms of depression and anxiety among older Americans (NSHAP): a longitudinal mediation analysis. *Lancet Public Health* 5: e62-e70.
- Sohrabi C, Alsafi Z, O'Neill N, Khan M, Kerwan A, Al-Jabir A, Iosifidis C and Agha R. (2020) World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19). *Int J Surg* 76: 71-76.
- Wang C, Horby PW, Hayden FG and Gao GF. (2020) A novel coronavirus outbreak of global health concern. *Lancet* 395: 470-473.
- Wu JT, Leung K, Bushman M, Kishore N, Niehus R, de Salazar PM, Cowling BJ, Lipsitch M and Leung GM. (2020) Estimating clinical severity of COVID-19 from the transmission dynamics in Wuhan, China. *Nat Med* 26: 506-510.
- Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, Zhao X, Huang B, Shi W, Lu R, Niu P, Zhan F, Ma X, Wang D, Xu W, Wu G, Gao GF, Tan W, China Novel Coronavirus I and Research T. (2020) A Novel Coronavirus from Patients with Pneumonia in China, 2019. *N Engl J Med* 382: 727-733.