



Considerations about cognitive communication deficits following COVID-19

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Cognitive communication abilities involve mental processes that enable humans to communicate and interact with each other successfully. These abilities involve orientation, attention, memory, problem-solving, executive functions, and language. During the COVID-19 period, due to risk factors such as weak interaction with family and, more critically, ventilator use for oxygen compensation, some patients have suffered from cognitive communication disorders.

Since early 2020, the world has faced a pandemic threat caused by the new coronavirus, COVID-19, which first began in Wuhan, China, in December 2019, and is considered a severe threat to public health.¹ One crucial but often overlooked feature of this virus is its deleterious effect on communication on various levels (ranging from restrictions in social life to direct consequences of the disease). Appropriate diagnosis of communication deficits and implementation of communication therapies in these patients to reduce respective symptoms are thus required. This also includes consideration of interventions focused on non-verbal communication, because a relevant number of COVID-19 patients suffer from pre-existing diseases affecting verbal communication skills, such as dementia.

A severe consequence of COVID-19 is acute respiratory distress syndrome (ARDS), which affects approximately 31% of COVID-19 patients admitted to hospital, according to an early study from China.² Patients who survive ARDS require adequate treatment after discharge from the intensive care unit (ICU)³ and ARDS survivors show a high prevalence of cognitive impairment. Moreover, patients with pre-existing cognitive impairments have an increased likelihood of a more severe disease-related cognitive decline.⁴ Post-ICU COVID-19 patients often suffer from voice problems and swallowing difficulties, as well as memory, attention, visuospatial, psychomotor, and executive function deficits, and thus cognitive problems.^{5, 6} Major cognitive communication problems following ICU admission, including thinking and judgment deficits, can persist for 5–15 years after discharge. Delirium is present in 60–80% of all patients discharged from an ICU. Early evidence from COVID-19 patients suggests that when delirious symptoms are reduced, respective cognitive communication impairments may become more apparent, and some patients may require inpatient rehabilitation.⁷ The recognition and treatment of respective symptoms is essential because cognitive communication impairments are associated with a significantly reduced quality of life and social isolation, as well as reduced social adjustment and stress reactions caused by their impact on interactions in daily activities.⁸

Due to the critical effect of cognitive impairments on communication (both verbal and non-verbal), we recommend a screening test, such as the Montreal Cognitive Assessment, and when possible a comprehensive assessment of cognitive abilities at admission and discharge from the ICU for COVID-19 survivors to avoid the oversight of such essential symptoms. Also, long-term consequences at the cognitive/central nervous system levels should not be ignored.

Treatment of cognitive communication skill deficiencies should be an essential component of rehabilitation programs, which should start as early as possible to enhance the quality of life in COVID-19 survivors. These rehabilitation activities may not be fully implemented in a subgroup of patients profoundly affected by COVID-19, that is, patients in long-

term care facilities, due to social isolation because of restrictions on family caregivers, and the limited availability of care staff. Moreover, the use of masks and face shields as an essential precondition for rehabilitative activities in patients affected by COVID-19 interferes with natural communication involving facial expression. At the same time, residents in long-term care facilities do not always understand the use of masks, and natural communication treatment requires an average of at least 45 min per day, which is not available in this setting. In those cases, attention should be focused on training staff members to reduce communication barriers and encourage communication between family members and the affected individual using other methods. The use of emotion-based communication using personally meaningful materials (e.g., music, pictures) could be helpful.⁹ Augmentative and alternative communication (AAC) has been shown to have a positive impact on the communication of individuals with dementia. Generally, AAC includes unaided and aided systems. Unaided systems do not require specific tools, such as gestures and facial expressions, while aided systems include technological (e.g., computer technology, such as digital life story aids) and non-technological (e.g., memory books and communication wallets) items. In COVID-19 patients admitted to the ICU who suffer from related problems, these rehabilitation techniques should be seriously considered. Furthermore, AAC can be used for a long time after discharge if survivors are not able to communicate well.¹⁰

Communication is central to human nature and equilibrium. The COVID-19 pandemic has shown that communication deficiencies can have a deleterious impact on patients who have suffered from the disease's acute stage, as well as those impacted by the extraordinary distancing and sanitary measures put in place to control virus propagation. Special attention should be paid to post-acute-stage cognitive communication abilities and communication-supporting conditions for those living in extreme social isolation conditions.

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Disclosure statement

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References

1. Wang C, Pan R, Wan X *et al.* Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *Int. J. Environ. Res. Public Health* 2020; **17**: 1729.
2. Zhou F, Yu T, Du R *et al.* Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: A retrospective cohort study. *Lancet* 2020; **395**: 1054–1062.
3. Stam HJ, Stucki G, Bickenbach J. Covid-19 and post intensive care syndrome: A call for action. *J. Rehabil. Med.* 2020; **52**: jrm00044.
4. Sasanejad C, Ely EW, Lahiri S. Long-term cognitive impairment after-acute respiratory distress syndrome: A review of clinical impact and pathophysiological mechanisms. *Crit. Care* 2019; **23**: 352.
5. Mao L, Jin H, Wang M *et al.* Neurologic manifestations of hospitalized patients with coronavirus disease 2019 in Wuhan, China. *JAMA Neurol.* 2020; **77**: 1–9.
6. Clunie GM, Kinshuck AJ, Sandhu GS, Roe JWG. Voice and swallowing outcomes for adults undergoing reconstructive surgery for laryngotracheal stenosis. *Curr. Opin. Otolaryngol. Head Neck Surg.* 2017; **25**: 195–199.
7. Rawal G, Yadav S, Kumar R. Post-intensive care syndrome: An overview. *J. Transl. Int. Med.* 2017; **5**: 90–92.
8. Dubey S, Biswas P, Ghosh R *et al.* Psychosocial impact of COVID-19. *Diabetes Metab. Syndr.* 2020; **14**: 779–788.
9. Townsend A. COMPAS: A path to person-centred communication for people living with dementia. Centre for Aging and Brain Health

- Innovation. [Cited 8 June 2020.] Available from URL: <https://www.cabhi.com/blog/compas-a-path-to-person-centred-communication-for-people-living-with-dementia/>
10. May AA, Dada S, Murray J. Review of AAC interventions in persons with dementia. *Int. J. Lang. Commun. Disord.* 2019; **54**: 857–874.

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