



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

reducing the risk of contamination for manual nosocomial infections, especially bacterial.⁹

In terms of prevention, even if transmission through hands must be combated by regular hand washing, its relative weight is likely to be less than that of transmission by respiratory droplets.

References

1. World Health Organization. Coronavirus disease (COVID-19) dashboard. Available at: <https://covid19.who.int>. Accessed October 6, 2020.
2. Williamson EJ, Walker AJ, Bhaskaran K, et al. Factors associated with COVID-19-related death using OpenSAFELY. *Nature* 2020;584:430–436.
3. Gouvernement français. Suivi de l'épidémie de COVID-19 en France [French Government, Epidemic monitoring of COVID-19 in France]. Available at: <https://dashboard.covid19.data.gouv.fr>. Accessed October 6, 2020.
4. World Health Organization. Transmission of SARS-CoV-2: Implications for infection prevention precautions. Available at: <https://www.who.int/publications-detail-redirect/modes-of-transmission-of-virus-causing-covid-19-implications-for-ipc-precaution-recommendations>. Accessed October 6, 2020.
5. van Doremalen N, Bushmaker T, Morris DH, et al. Aerosol and surface stability of SARS-CoV-2 as compared with SARS-CoV-1. *N Engl J Med* 2020;382:1564–1567.
6. Aboubakr HA, Sharafeldin TA, Goyal SM. Stability of SARS-CoV-2 and other coronaviruses in the environment and on common touch surfaces and the influence of climatic conditions: A review. *Transbound Emerg Dis* 2020 Jun 30; 10.1111/tbed.13707. [Epub ahead of print].
7. Woloshin S, Patel N, Kesselheim AS. False negative tests for SARS-CoV-2 infection—challenges and implications. *N Engl J Med* 2020;383:e38.
8. Wilson N, Corbett S, Tovey E. Airborne transmission of COVID-19. *BMJ* 2020;370:m3206.
9. Zerbib S, Vallet L, Muggeo A, et al. Copper for the prevention of outbreaks of health care-associated infections in a long-term care facility for older adults. *J Am Med Dir Assoc* 2020;21:68–71.e1.

Claire Coutureau, MD
Madeline Pascard, MD
Lukshe Kanagaratnam, MD, PhD
Damien Jolly, MD, PhD
*Unité d'Aide Méthodologique
CHU de Reims
Reims, France*

Christophe de Champs, MD, PhD
*Equipe Opérationnelle Hygiène
CHU de Reims
Reims, France*

*Laboratoire de Bactériologie
CHU de Reims
Reims, France*

<https://doi.org/10.1016/j.jamda.2020.10.029>

Mental Health Status of the Older Adults in Japan During the COVID-19 Pandemic



The pandemic of coronavirus disease 2019 (COVID-19) has had a serious impact worldwide. Abnormal situations such as the fear of being infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), restrictions on going outdoors, abundant financial losses, fewer opportunities of communicating with close friends, and conflicting messages from authorities could cause anxiety or

depression moods in all ages.^{1,2} Older people infected with COVID-19 have been reported to be at an increased risk of death and exacerbations, thereby requiring mechanical ventilation and extracorporeal membrane oxygenation (ECMO). Herewith, older people are more anxious and frightened of COVID-19 than young adults. A study reported that social isolation and loneliness during the COVID-19 pandemic could worsen older adults' anxiety and depression³; however, differences in older adults' mental health prior to and during the COVID-19 pandemic have not been thoroughly studied yet. Therefore, this study investigated the effects of the COVID-19 pandemic on older adults' mental status.

A preliminary analysis for our questionnaire survey named Toyoyama town complex intervention project promoting "Exercise," "Nutrition improvement," and "Going out" (TENGO project) was conducted. In this study, the physical, mental, and social status of community-dwelling older adults were examined every 6 months starting from October 2018. The study protocol was approved by the local ethics committee (approval no. 2018-0221) and written informed consent was obtained from all participants. The present analysis included the responders in December 2019 and July 2020. Depression and apathy during the first wave of COVID-19 pandemic were examined using the 15-item Geriatric Depression Scale (GDS-15) and apathy scale in the questionnaire.^{4,5} The score ranges of the GDS-15 and apathy scale were respectively 0 to 15 points and 0 to 42 points, with higher scores indicating more severe symptoms. Baseline characteristics used in the study included age, sex, comorbidities, living conditions, economic, and frailty status. Economic status was graded as follows: good economic status with no anxiety, fair economic status with minor anxiety, poor economic status with some anxiety, and severe economic status with anxiety, whereas the frailty status was graded using the Kihon checklist, having 0 to 3 points for robust, 4 to 7 points for prefrail, and 8 or more points for frail. The changes in the GDS-15 and apathy scale between December 2019 and July 2020 were assessed using generalized estimation equations that were adjusted with the above-mentioned baseline characteristics. Two subgroups, including individuals who are aged <75 years and who are aged ≥75 years were analyzed using the same methods. Two-sided $P < .05$ was set as significant, and all analyses were conducted using the R software (version 3.6.1, R Foundation for Statistical Computing, Vienna, Austria).

Overall, 519 participants with valid responses were analyzed. Age at baseline was 74.8 ± 5.3 years, and 259 participants (49.9%) were male. Among them, 149 (28.7%) were prefrail and 68 (13.1%) were frail. Depression and apathy scores both significantly deteriorated in July 2020 compared with December 2019. Depression score values increased from a GDS-15 score of 2.94 ± 3.27 to 3.62 ± 3.41 with an estimated change of 0.21 (95% confidence interval 0.12–0.31). Apathy scores also escalated from 13.65 ± 6.70 to 15.20 ± 6.98 with an estimated change of 0.11 (95% confidence interval 0.06–0.15) (Table 1). In subgroup analyses, both the GDS-15 score and apathy scale were significantly increased in those aged <75 years, whereas those aged ≥75 years showed significant change only in the GDS-15 score.

The results showed that the COVID-19 pandemic had worsened depressive mood and apathy among the community-dwelling older adults. The results were remarkable especially in adults aged <75 years. Yamada et al reported the results of an online-based survey revealing that daily physical activity among community-dwelling older adults has decreased during the COVID-19 pandemic.⁶ Higher physical activity is important in maintaining mental health⁷; however, those who were less fit were found to have little deterioration in mood, despite a reduction in their physical activity. Individuals aged ≥75 years might be less affected by COVID-19 because their baseline physical activity was lesser than that of individuals aged <75 years. Additionally, this study

The authors declare no conflicts of interest.

This work was supported by the Center of Innovation (COI) program of Japan Science and Technology (JST) Agency (grant number JPMJCE1317).

Table 1
Mental Health Changes Between Before and During the COVID-19 Pandemic

	December 2019	July 2020	Raw Score Change	Estimated Change (95% CI)	P Value
Overall (n=519)					
GDS-15	2.94 ± 3.27	3.62 ± 3.41	0.72 ± 3.45	0.214 (0.117-0.311)	<.001
Apathy Scale	13.65 ± 6.70	15.20 ± 6.98	1.63 ± 6.88	0.106 (0.061-0.150)	<.001
Aged <75 y (n=246)					
GDS-15	2.46 ± 3.06	3.34 ± 3.25	0.87 ± 3.31	0.300 (0.152-0.447)	<.001
Apathy Scale	12.94 ± 6.34	14.97 ± 7.21	2.17 ± 6.28	0.156 (0.098-0.215)	<.001
Aged ≥75 y (n=273)					
GDS-15	3.38 ± 3.39	3.87 ± 3.54	0.57 ± 3.57	0.144 (0.016-0.272)	.027
Apathy Scale	14.29 ± 6.97	15.42 ± 6.76	1.12 ± 7.38	0.061 (−0.004-0.126)	.067

CI, confidence interval.

Data are shown in mean ± standard deviation or estimated value (95% CI). Estimated changes and 95% CIs are calculated with generalized estimating equations. Models are adjusted for sex, comorbidities, living conditions, economic status, and frailty status.

suggests that adults aged <75 years, who are usually considered to be relatively robust, are at high risk for worsened depressive mood and apathy. Pfefferbaum et al¹ noted that mental abnormalities in this situation may have continuous effects like post-traumatic stress disorder and suggested the risk of the current lack of mental health screening systems. Therefore, it is warranted to establish a system that could promptly screen and support the mental health of older adults and other mentally vulnerable populations.

Acknowledgments

We thank Taeko Nagatomo, Sae Oozeki, and other Toyoyama town officials for helping with data preparation and Tomomi Morita for helping with data cleaning.

References

1. Pfefferbaum B, North CS. Mental health and the Covid-19 pandemic. *N Engl J Med* 2020;383:510–512.
2. Centers for Disease Control and Prevention. Coping with stress. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-stress-anxiety.html>. Accessed October 21, 2020.
3. Kotwal AA, Holt-Lunstad J, Newmark RL, et al. Social isolation and loneliness among San Francisco Bay area older adults during the COVID-19 shelter-in-place orders. *J Am Geriatr Soc* 2020 Sep 23;10.1111/jgs.16865. [Epub ahead of print].
4. Almeida OP, Almeida SA. Short versions of the geriatric depression scale: A study of their validity for the diagnosis of a major depressive episode according to ICD-10 and DSM-IV. *Int J Geriatr Psychiatry* 1999;14:858–865.
5. Starkstein SE, Mayberg HS, Preziosi TJ, et al. Reliability, validity, and clinical correlates of apathy in Parkinson's disease. *J Neuropsychiatry Clin Neurosci* 1992;4:134–139.
6. Yamada M, Kimura Y, Ishiyama D, et al. Effect of the COVID-19 epidemic on physical activity in community-dwelling older adults in Japan: A cross-sectional online survey. *J Nutr Health Aging* 2020;24:948–950.

7. Choi KW, Chen CY, Stein MB, et al. Assessment of bidirectional relationships between physical activity and depression among adults: A 2-sample mendelian randomization study. *JAMA Psychiatry* 2019;76:399–408.

Kosuke Fujita, MSc
Aiko Inoue, PhD
Masafumi Kuzuya, PhD
*Institute of Innovation for Future Society
Nagoya University
Nagoya, Aichi, Japan*

*Department of Community Healthcare and Geriatrics
Nagoya University Graduate School of Medicine
Nagoya, Aichi, Japan*

Chiharu Uno, MSc*
*Institute of Innovation for Future Society
Nagoya University
Nagoya, Aichi, Japan*

* Address correspondence to Masafumi Kuzuya, PhD, Institute of Innovation for Future Society, Nagoya University, Department of Community Healthcare and Geriatrics, Nagoya University Graduate School of Medicine, 65 Tsurumai-cho, Showa-ku, Nagoya, Aichi 466-8550, Japan.

E-mail address: kuzuya@med.nagoya-u.ac.jp

Chi Hsien Huang, PhD
Hiroyuki Umegaki, PhD
Joji Onishi, PhD
*Department of Community Healthcare and Geriatrics
Nagoya University Graduate School of Medicine
Nagoya, Aichi, Japan*

<https://doi.org/10.1016/j.jamda.2020.11.023>