



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.



ELSEVIER

Contents lists available at ScienceDirect

## Geriatric Nursing

journal homepage: [www.gnjournal.com](http://www.gnjournal.com)

Special issue on Infectious Disease: From Prevention to Management

## The impact of COVID-19 in an assisted living community

Barbara Resnick, PhD, CRNP<sup>a,\*</sup>, Elizabeth Galik, PhD, CRNP<sup>a</sup>, Sarah Holmes, PhD, MSW<sup>a</sup>, Rachel McPherson, BS, PhD(c)<sup>b</sup><sup>a</sup> University of Maryland School of Nursing, 655 West Lombard Street, Baltimore MD 21201, United States<sup>b</sup> University of Maryland School of Medicine, Department of Epidemiology, Baltimore, MD 21201, United States

## ARTICLE INFO

## Article history:

Received 31 July 2021

Accepted 3 August 2021

Available online 10 August 2021

## Keywords:

COVID-19

Cognition

Physical function

assisted living

## ABSTRACT

The purpose of this study was to use routinely collected resident assessment data from a single site to evaluate the impact of COVID-19 restrictions on cognition, physical function and behavioral symptoms of residents with dementia. Specifically, it was hypothesized that controlling for age and sex, there would be a decline in cognition and function and an increase in behavioral symptoms at 12 months post implementation of COVID-19 restrictions. Twelve residents from a single memory care site with required Resident Assessments completed prior to and 12 month post initiation of the pandemic and associated quarantines were included. No significant change was noted in function or behavioral symptoms but there was a statistically significant decline in cognition over the 12 month period. Although this study did not support our hypothesis, the findings supported some prior research also noting little significant change among the majority of individuals over the course of the pandemic regardless of regulations.

© 2021 Elsevier Inc. All rights reserved.

## Introduction

There are over 30,000 assisted living communities in the United States and close to a million residents living in these communities.<sup>1</sup> Nationally, over half of the residents in assisted living communities are 85 years of age or older, have multiple comorbid conditions and over 70% have dementia.<sup>2–4</sup> More than one-third of these residents display behavioral and affective symptoms commonly associated with dementia (e.g., apathy, agitation, inappropriate/disruptive vocalizations, aggression, wandering, repetitive behaviors, resistiveness to care, depression, anxiety, mood lability, and sexually inappropriate behaviors).<sup>2,4</sup> In addition, residents have significant physical, functional, and psychosocial challenges that affect their quality of life, ability to make choices, ability to function and safely care for themselves. Regulations for assisted living communities are state based although generally care is provided by personal care assistants who are not certified nursing assistants or geriatric nursing assistants.<sup>5</sup> Staffing requirements mandate that communities should have a sufficient number of staff to meet the needs of residents.<sup>6,7</sup>

There is a wide range in the size of communities with some as small as three to four residents and others having 500 or more residents.<sup>8</sup> There is also heterogeneity in the type of residents cared for with regard to cognitive and functional impairments and severity of medical illnesses, and a wide range of available services (e.g.,

recreational activities, access to medical care, or podiatry services).<sup>9</sup> Regulations around management of infectious diseases are state based and the majority of states require no infection control education or policies in assisted living communities.<sup>10,11</sup>

## Impact of COVID-19 on residents

Residents in assisted living communities were greatly impacted by COVID-19 with regard to the number of positive cases of COVID-19 as well as the many restrictions implemented to prevent the spread of disease within these communities. By October, 2020 there were 39 states that publicly reported COVID-19 cases in assisted living communities and 22% of these communities had one or more COVID-19 cases, 27,965 cases among residents and 17,799 among staff.<sup>12</sup> Of these cases there were 5.47 deaths in residents and 46 deaths among the staff which accounted for 4.1% and 0.1% of all COVID-19 associated deaths in the general population.<sup>12</sup>

There are many reasons for the high rates of COVID-19 in these communities including staff knowledge about infectious disease, insufficient personal protective equipment, inadequate or unfair sick leave policies that required sick employees to work increasing exposure of disease to residents and other staff, and no requirements for testing or inadequate testing protocols and resources.<sup>13</sup> In response to the growing risk and increasing numbers of COVID-19 positive cases, the primary focus of care became the prevention of disease spread and obtaining resources for staff and residents such as personal protective equipment and other relevant supplies.<sup>14</sup> Guidelines

\*Corresponding author.

E-mail address: [Resnick@umaryland.edu](mailto:Resnick@umaryland.edu) (B. Resnick).

**Table 1**  
Regulations required for assisted living facilities during COVID-19 pandemic.

Recommendations
(1) restrict visits to include only essential visits by family or contractors;
(2) restrict activities and visitors with potential for exposure;
(3) actively screen individuals entering the building and restrict entry to those with respiratory symptoms or possible exposure to COVID-19;
(4) require all individuals entering the building to wash their hands at entry;
(5) establish processes to allow remote communication for residents and others;
(6) prohibit all staff from international travel;
(7) follow the Centers for Disease Control guidance and not allow staff who have signs and symptoms of a respiratory infection to work, provide staff with training on infection control and prevention procedures, frequently disinfect equipment and workspaces and limit sharing of equipment between residents and areas of the community, communicate these recommendations to all individuals entering the communities, provide proactive communication to residents, family members, visitors, vendors, and staff; follow the guidance of the Centers for Medicare and Medicaid Services related to transfers of residents with suspected or confirmed COVID-19 to a hospital, and acceptance of residents diagnosed with COVID-19 from a hospital.

for prevention of COVID-19 prevention varied state by state and were updated in Maryland as shown in Table 1 to help assisted living communities prevent the number of cases contracted among residents and staff.

There was some variability as well in terms of how rigidly assisted living communities interpreted and implemented the guidelines.<sup>11</sup> Differences were based on the environments of the individual communities and options for social distancing. For example, some communities allowed for certain types of resident interactions and activities with social distancing (e.g., watching a movie, playing cards, eating in a communal dining area but sitting at separate tables). Some communities implemented policies that limited a resident's ability to walk freely in the hallways or to access outside areas for walking while others allowed the residents to ambulate in the halls and in designated outside areas.<sup>15</sup>

### The psychosocial impact of COVID-19 regulations and restrictions

Although research has been limited, there is some evidence that activities such as early social distancing, shutting down of communal areas and enhanced environmental cleaning and disinfection of high touch surfaces and adequate hand hygiene helped decrease widespread transmission of COVID-19 in assisted living communities.<sup>16</sup> Almost twelve months post implementation of these changes, concerns are being raised about the impact of the regulations on residents' clinical and psychosocial outcomes due to subsequent social isolation, lack of touch and limited interaction with family and friends.<sup>17–22</sup> While helping to keep residents in these communities free of COVID-19 it is not clear what impact restrictions had objectively on residents in terms of changes in cognitive status, physical function and behavioral symptoms particularly in the 70% of residents across all states in assisted living communities with some level of cognitive impairment.<sup>2,4</sup>

The studies that have been done to evaluate the impact of COVID-19 associated restrictions on older adults have focused mainly on cognitively intact, community dwelling older adults and results have been inconsistent. In one survey<sup>19</sup> of community-dwelling older adults 40% reported feelings of social isolation, 54% loneliness, 62% worsening depression, and 57% anxiety. These participants were resilient, however, and reported that they tolerated the social isolation better over time. Other studies with community dwelling older adults reported higher depression, greater loneliness, and more anxiety following the onset of the pandemic.<sup>23–25</sup> Conversely some older adults reported benefits associated with the restrictions from COVID-19 such as using the internet to connect with friends and family, and

engaging in better self-care and hobbies.<sup>25</sup> Other older adults reported no worsening of mental wellbeing.<sup>26</sup>

Residents in a Japanese Continuing Care Retirement Community were noted to decrease time spent walking following cancellation of all in-community events and this continued to decrease over the quarantine period.<sup>15</sup> Another study including long term care communities reported that residents without cognitive impairment were more affected than those with cognitive impairment in terms of experiencing loneliness, depression and other behavioral problems.<sup>27</sup> For residents with cognitive impairment there may be comfort associated with ongoing interaction with regular staff but increased confusion and concern seeing these individuals with masks and shields.<sup>28</sup> Given that evidence suggests the best ways to optimize cognition and physical function, and minimize behavioral symptoms among older adults with dementia are through positive social interactions and motivation-based approaches,<sup>19,23–25</sup> it is likely that COVID-19 restrictions have had a negative impact on residents with dementia. Restrictions and changes in environments and policies may have negatively impacted residents' ability to optimize function and physical activity. The purpose of this study was to use routinely collected resident assessment data from a single site to evaluate the impact of COVID-19 restrictions on rates of infections, cognition, physical function and behavioral symptoms of residents with dementia. Specifically, it was hypothesized that controlling for age and sex, there would be a decline in cognition and function and an increase in behavioral symptoms at 12 months post implementation of COVID-19 restrictions. This pilot study can help identify the impact of COVID-19 restrictions and guide development of preventive interventions that will optimize function and physical activity for residents during future pandemic situations.

## Methods

### Design

This was a descriptive study using data from the required Maryland Resident Assessment Tool to compare changes in residents in an assisted living community during the first year of the COVID-19 pandemic (March 2020 to March 2021). The study was reviewed and designated as non-human subjects research by a University based Institutional Review Board.

### Setting

A single memory care assisted living community with 41 beds was included in this study with 24 residents living in the community during the study period. Starting in March of 2020 the community from which data was obtained required that: (1) staff wore appropriate personal protective equipment; (2) staff and residents were tested weekly; and (3) staff were not allowed to work if symptomatic or exposed to COVID-19. Residents were not required to wear masks, were allowed to ambulate freely on the unit, some socially distanced activities continued in a limited fashion and they ate in a communal dining area although sat alone at tables spaced 6 feet apart. When permitted by state guidelines, outdoor visits with guests were allowed but all inside visits were restricted.

### Measures

Descriptive information was obtained from the required Maryland Resident Assessment Tool<sup>6</sup> and included sex, age, race and ethnicity. The Maryland Resident Assessment Tool that was completed most closely prior to March 2020 was used as the pre COVID-19 assessment data and the Maryland Resident Assessment Tool completed

most closely after March 2021 was used as the post COVID-19 assessment.

The Resident Assessment Tool must be completed in Maryland on all residents by a registered nurse within 48 h of admission, at least annually, and within 48 h of a significant change of condition and after each non-routine hospitalization. A significant change of condition is defined as a shift in a resident's health, function, or psychosocial condition that either causes an improvement or deterioration in the resident. Guidance for completion of the Resident Assessment Tool is provided in the Assisted Living Program regulations (COMAR 10.07.14) and was designed to provide the registered nurse, referred to also as the delegating nurse, and the assisted living manager with the necessary resident-based information to provide or arrange for services that meet the needs of the resident in the assisted living program.<sup>29</sup> Sections of the Resident Assessment Tool include descriptive information, medical history, medications, communicable disease, vital signs, neurological status (including cognition), evaluation of eyes, ears and throat, musculoskeletal assessment including activities of daily living (bathing, dressing and mobility), skin, respiratory and circulatory assessments, diet, elimination, substance abuse, psychosocial or behavioral symptoms (e.g., wandering, depression, anxiety, agitation), health care decision making capacity, and ability to self-administer medications. Relevant sections of the Resident Assessment Tool<sup>6</sup> were used that addressed cognition status, physical function, and behavioral symptoms.

*Cognition*

Cognition was based on three items from the Resident Assessment Tool. For each item the nurse is to indicate the frequency or severity of the problem. The first item is based on orientation and whether or not the resident was oriented to Person (yes or no);

Place (yes or no); or Time (yes or no) with a score range of 0 to 3. The second item addresses how the resident answers questions with options including readily, slowly, inappropriately, or no response. This item ranges from 0 to 3. The third item evaluating cognition was based on memory and whether or not this was adequate, forgetful or if there was significant loss. This item could range from 1 to 3. The total cognition score ranged from 0 to 9 with higher scores indicative of better cognition.

*Physical function*

Physical function was based on nine items from the Resident Assessment Tool: range of motion, mobility, eating, bathing, dressing, and bowel and bladder function. It is recommended that the nurse, as much as possible, determine the resident's function by direct observation. When this cannot be done, the nurse may complete this portion of the assessment based on evaluation by a health care provider, or by direct discussion with someone who has seen the resident and can accurately describe and define his or her functional capabilities and limitations. Range of motion was noted to be full or limited, mobility was described as impaired or normal, activities of daily living included eating, bathing and dressing and were described as requiring total care, some assistance or describing the resident as completely independent, and bowel and bladder function was described as daily incontinence, occasional incontinence or being normal. Scores for function ranged from 3 to 12 with higher scores indicating more independent function.

Behavioral symptoms were based on the behavioral section of the Resident Assessment Tool as shown in Table 2. For each behavior the nurse indicates whether it never occurs = 1; occurs occasionally (at least 2-3 times per week) = 2; occurs regularly (daily) = 3; or is continuous (ongoing with no breaks between episodes) = 4. Total

**Table 2**  
Description of behavioral symptoms based on the resident assessment tool.

Psychosocial: Behavioral Symptoms Scoring Key: N for Never (never occurs) = 1; O for Occasional (at least 2-3 times per week) = 2; R for Regular (daily) = 3; and C for Continuous (ongoing with no breaks between episodes) = 4 [range 12 – 48 with higher scores indicative of more behavioral symptoms]					
	N	O	R	C	Items with Specific Guidance Within the Resident Assessment Tool for Tool Completion
Receptive/Expressive Aphasia					
Wanders					Wandering is described as moving about without purpose, looking for a nonexistent place or trying to actively leave.
Depressed					
Anxious					
Agitated					Agitation is defined as excessive motor activity, usually non-productive, which is repetitive and difficult for the resident to control. This includes the inability to sit still, pacing, hand wringing, picking or pulling at clothing or other objects, rocking back and forth, restlessness/ fidgeting, facial contortions that are not drug induced, shouting, low tolerance for frustration, irritability and physical or verbal outbursts that may or may not be disease related. It is accompanied by feelings of tension.
Disturbed Sleep					
Resists Care					The resident with dementia who refuses to bathe or shower when first approached, but will take the bath or shower upon being approached again in a few minutes or at a later time that same morning or evening should not be considered as resisting care.
Disruptive Behavior					Inappropriate social behavior is described as behavior that is not generally accepted and may include, but is not limited to, any of the following: urinating in inappropriate locations; unwanted sexual advances or conduct; disrobing; hoarding; or rummaging in others' belongings.
Impaired Judgment					Examples of behaviors that may reflect impaired cognition or judgment may include, but are not limited to: touching a hot stove or surface, or going outside in cold weather without a coat without recognizing the danger.
Unsafe Behaviors					Examples of unsafe behaviors such as: trying to take a wheelchair down a flight of steps, wandering into dangerous areas without understanding the risks.
Hallucinations					
Delusions					
Aggression					
Dangerous to Self or Others					Examples of behaviors that may present a risk to the individual or others may include, but are not limited to: unsupervised smoking, lighting fires in trash cans, combative or aggressive behaviors.

behavior scores range from 12 to 48 with higher scores indicative of more behavioral symptoms.

### Data analysis

Descriptive statistics were done to describe the sample using SPSS Version 27. Repeated measures analysis was done to evaluate changes over the 12 month period of the pandemic. There was no association between the demographic variables and outcome variables and so these were not controlled for. A significance level of  $p \leq .05$  was used for all analyses.

### Results

There were a total of 24 residents living in the community and of these 20 (83%) had dementia and 12 individuals had Resident Assessment Tools completed prior to and 12 months post the COVID-19 pandemic. Over the course of the year there were 2 out of the 24 residents (8%) that were COVID-19 positive and were quarantined in an area within the facility for COVID positive residents. Of the 12 included participants the mean age was 90.42 years old ( $SD=5.69$ ), the majority were female (75%) and all were white and non-Hispanic. Overall the residents had mild dementia with the majority being described as forgetful ( $N=9$ , 75%). With regard to function, the residents were all ambulatory although the majority had some impairment noted with their ambulation ( $N=8$ , 67%). All of the residents were able to eat independently although the majority needed some assistance with bathing and dressing ( $n=11$ , 92%). As shown in Table 3, the score for baseline function was 9.08 ( $SD=2.35$ ) out of 12 possible points and 12 month follow up showed a non-significant change to 8.58 ( $SD=2.27$ ). Cognition at baseline was 8.00 ( $SD=.60$ ) and at 12 months showed a significant decrease to 7.00 ( $SD=1.12$ ,  $F= 13.20$ ,  $p=.01$ ). Lastly, the mean number of behavioral symptoms at baseline was 45.17 ( $SD=1.64$ ) and this remained essentially the same at 12 months at 45.75 ( $SD=1.86$ ).

### Discussion

The stated hypothesis was only partially supported by this study. The findings suggest that there were minimal if any changes in residents with dementia during the COVID-19 pandemic despite restricted visitation and limiting some social engagement. There was, however, a one point decrease in cognition but this could be related to normal disease progression in this population. Evaluation of cognition was based on the assisted living assessment form used in Maryland and not determined by reliable and valid cognitive testing. The items included in this measure would not be likely to pick up mild cases of dementia or frontal lobe related issues. This explains the high scores among the participants who were evaluated, likely based on other criteria, to be eligible for a memory care unit. There is no data to support what would be a normal trajectory of change in the symptoms included in the assessment (i.e., orientation, ability to answer questions, and a subjective nursing report of memory as adequate, forgetful or having significant loss). It might be helpful for future clinical work and research to compare these assessments in assisted

living with standardized cognitive tests such as the AD8,<sup>30</sup> Clinical Dementia Rating Scale,<sup>31</sup> the Functional Activities Questionnaire,<sup>32</sup> and/or the Montreal Cognitive Assessment.<sup>33</sup>

Our findings related to behavioral symptoms are consistent with a study done in the Netherlands that included assisted living residents. The findings from that study noted that residents with dementia experienced less exacerbation of loneliness, depression and other behavioral problems than those without dementia.<sup>27</sup> As the pandemic continued and there were longer periods of time for restrictions in social interactions there were increased concerns noted about the psychological impact of the pandemic and what might happen in future pandemics. There has been some speculation that prolonged restrictions, particularly restrictions from family visitors, can result in devastating outcomes for older adults including death.<sup>34,35</sup> Rigorous cost-benefit analysis of restrictions needs to be considered in terms of loss of life versus impact on quality of life among residents in assisted living.

Although this study only included a small sample from a single site, the findings provide some suggestions for care management in future pandemics. Given the low incidence of COVID-19 noted it may be safe to allow residents to avoid mask wearing and to engage in some limited interactions and activities such as eating in the dining room area and continuing with small group activities while staying physically distanced during these activities. Staff should wear masks and other protective equipment as indicated by state regulations<sup>11</sup> and follow regulations deemed appropriate by the Centers for Disease Control. Such things as allowing outside visitors, which typically were restricted during the pandemic, could be considered if these individuals were provided with training in disease prevention procedures and tested for evidence of infection prior to entry. When deciding on guidelines for disease prevention careful consideration needs to be given to the size and spatial design of the community (e.g., adequate space to allow communal activities with social distancing), the type of staffing implemented (e.g., do staff only work in that community; do staff live in the community), and the individual needs of the resident.

### Study limitation and conclusion

This study was limited given that it was a single site and included only a small number of residents, and thus the results may not be generalizable to all assisted living communities across the country. The Resident Assessment Tool provides a wealth of data but it is based on subjective input from the delegating nurse and there is no evidence of reliability and validity of this tool. The findings do provide an example, however, of the ways in which we can use the Resident Assessment Tool to learn more about the impact of the COVID-19 pandemic, the impact of state based regulations or other types of local disasters or future pandemics. Although the hypothesis was not supported, this study supported some prior findings also noting little significant change in behavior among individuals with dementia over the course of the pandemic regardless of regulations. Future research is needed to continue to explore the impact that the pandemic had on residents in assisted living communities and their families so that we can be prepared for ongoing instances in which such pandemics occur as well as learn how to best prevent the spread of any infection in these communities.

**Table 3**  
Repeated measure outcomes.

Variable	Baseline Mean (SD)	12 Month Mean (SD)	F(p)
Cognition	8.00(.60)	7.00(1.12)	13.20 (.004)
Function	9.08 (2.35)	8.58 (2.27)	.94 (.35)
Behavioral Symptoms	45.16(1.64)	45.75(1.86)	5.04(.05)

### References

- Harris-Kojetin L, Sengupta M, Park-Lee E, et al. Long-term care providers and services users in the United States: data from the national study of long-term care providers. *Natl Center Health Stat. Vital Health Stat.* 2016;(38):1–105. Series 3, Analytical and Epidemiological Studies.
- Zimmerman S, Sloane P, Reed D. Dementia prevalence and care in assisted living. *Health Aff.* 2014;33(4):658–666.



3. Caffrey C, Sengupta M, Park-Lee E, et al. Residents living in residential care facilities: United States, 2010. *NCHS Data Brief, No 91*. Hyattsville, MD: National Center for Health Statistics; 2012.. Available at: <http://www.cdc.gov/nchs/data/databriefs/db91.pdf>. Last accessed July, 2021.
4. Hawes C, Phillips C. *High Service or High Privacy Assisted Living Facilities, Their Residents and Staff: Results from a National Survey*. United States Department of Health and Human Services; 2000.. Available at: [www.aspe.hhs.gov/daltcp/reports/hshp.htm](http://www.aspe.hhs.gov/daltcp/reports/hshp.htm). Last accessed July, 2021..
5. McMullen T, Resnick B, Chin-Hansen J, Geiger-Brown J, Miller N, Rubenstein R. Certified nurse aide scope of practice: State-by-state differences in allowable delegated activities. *J Am Med Dir Assoc*. 2015;16(1):20–24.
6. Maryland's Assisted Living Regulations Available at: [www.dhmh.state.md.us/ohcq/](http://www.dhmh.state.md.us/ohcq/). Last accessed July, 2021.
7. Center for Excellence in Assisted Living. Available at [www.theceal.org/](http://www.theceal.org/). Last accessed July, 2021.
8. Khatutsky G, Ormond C, Wiener J, et al. Residential care communities and their residents in 2010: a national portrait. *DHHS Publication No. 2016-1041*. Hyattsville, MD: National Center for Health Statistics; 2016.
9. Holmes S, Resnick B, Galik E, Gruber-Baldini A, Kusmaul N. Developing and testing a model of the assisted living environment. *J Aging Environ*. In press.
10. Beeber A, Zimmerman S, Mitchell C, Reed D. Staffing and service availability in assisted living: the importance of nurse delegation policies. *J Am Geriatr Soc*. 2018;66:2158–2166.
11. Bucy T, Smith L, Winfree J, et al. Variability in state regulations pertaining to infection control and pandemic response in U.S. assisted living communities. *J Am Med Dir Assoc*. 2020;21:701–702.
12. Yi S, See I, Kent A, et al. Characterization of COVID-19 in Assisted Living Facilities – 39 States, October 2020. *Characterization of COVID-19 in Assisted Living Facilities – 39 States, October 2020*. 69. 202020202020:1730–1735. Morbidity and Mortality Weekly Report.
13. Zimmerman S, Sloane P, Katz P, Kunze M, O'Neil K, Resnick B. The need to include assisted living in responding to the COVID-19 pandemic. *J Am Geriatr Soc*. 2020;21:572–575.
14. Munanga A. Critical infection control adaptations to survive COVID-19 in retirement communities. *J Gerontol Nurs*. 2020;46(6):3–5.
15. Yamada Y, Uchida T, Ogino M, et al. Changes in older people's activities during the coronavirus disease 2019 pandemic in Japan. *J Am Med Dir Assoc*. 2020;21(10):1387.
16. Jenq G, Mills J, Malani P. Preventing COVID-19 in Assisted Living Facilities—A Balancing Act. *JAMA Intern. Med.*. 2020;180(8):1106–1107.
17. Cocuzzo B, Wrench A, O'Malley C. Balancing protection from COVID-19 and the need for human touch in nursing homes. *J Am Geriatr Soc*. 2020;68(12):2749–2750.
18. Kimura M, Ojima T, Ide K, Kondo K. Allaying post-COVID-19 negative health impacts among older people: The “need to do something with others”—lessons from the Japan Gerontological Evaluation study. *Asia Pacific J Public Health*. 2020;32(8):479–484.
19. Kotwal A, Holt-Lunstad J, Newmark R, 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*. 2021;69:20–29.
20. Ryan P. Wellness industry remains resilient during pandemic restrictions. *J Active Aging*. 2020;19(3):50–54.
21. Gibbons S, Kowalewski P. COVID-19 Guidelines for assisted living facilities: lessons learned. *J Gerontol Nurs*. 2021;47(1):45–48.
22. Harden K, Price D, Mason H, Bigelow A. COVID-19 shines a spotlight on the age-old problem of social isolation. *J Hospice Palliat Nurs*. 2020;22(6):435–441.
23. Krendl A, Perry B. The impact of sheltering in place during the COVID-19 pandemic on older adults' social and mental well-being. *J Gerontol*. 2021;76(2):53–58.
24. de Maio Nascimento M. Covid-19: U3A students' report on the impacts of social isolation on physical and mental health and access to information about the virus during the pandemic. *Educ Gerontol*. 2020;46(9):499–511.
25. Whitehead B, Torossian E. Older adults' experience of the COVID-19 pandemic: a mixed-methods analysis of stresses and joys. *Gerontologist*. 2021;61(1):36–47.
26. Röhr S, Reininghaus U, Riedel-Heller S. Mental wellbeing in the German old age population largely unaltered during COVID-19 lockdown: results of a representative survey. *BMC Geriatr*. 2020;20(1). ISSN: 1471-2318 PMID: NLM33225912 AN: 147156239.
27. Van der Roest H, Prins M, Van der Velden C. The impact of COVID-19 measures on well being of older long term care facility residents in the Netherlands. *J Am Med Dir Assoc*. 2020;21:1569–1570.
28. Sitoh Y. Severe acute respiratory syndrome: effect on community and residential aged care services in Singapore. *J Am Geriatr Soc*. 2003;51:1505–1506.
29. Maryland Resident Assessment Tool Scoring Guide. Maryland Resident Assessment Tool Scoring Guide. Available at: [https://health.maryland.gov/ohcq/AL/Docs/AL\\_Forms/al\\_tool\\_guide.pdf](https://health.maryland.gov/ohcq/AL/Docs/AL_Forms/al_tool_guide.pdf). Last accessed July, 2021.
30. Galvin J, Roe C, Powlishta K, et al. The AD8, a brief informant interview to detect dementia. *Neurology*. 2005;65:559–564.
31. O'Bryant S, Waring S, Cullum C, et al. Staging dementia using Clinical Dementia Rating Scale sum of boxes scores. *Arch Neurol*. 2008;65(8):1091–1095.
32. Pfeffer R, Kurosaki T, Harrah C, Chance J, Filos S. Measurement of functional activities in older adults in the community. *J Gerontol*. 1982;37(3):323–329.
33. Nasreddine Z, Phillips N, Bedirian V, et al. The montreal cognitive assessment (MoCA): a brief screening tool for mild cognitive impairment. *J Am Geriatr Soc*. 2005;53:695–699.
34. Plagg B, Engl A, Piccoliori G, Eiendle K. Prolonged social isolation of the elderly during the COVID-19: Between benefit and damage. *Arch Gerontol Geriatr*. 2020;89:1–2.
35. Mehrabi F, Beland E. Effects of social isolation, loneliness and frailty on health outcomes and their possible mediators and moderators in community dwelling older adults: a scoping review. *Arch Gerontol Geriatr*. 2020;90... Available at: <https://www.sciencedirect.com/science/article/pii/S0167494320301138?via%3Dihub>. Last accessed July, 2021.