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.

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Letters to the Editor

When Safety Measures Do Harm: Retraumatization of Trauma Survivors Living in Long-Term Care During the COVID-19 Pandemic

To the Editor:

There is a pressing need to uncover the untold stories of retraumatization experienced by trauma survivors residing in congregate living settings in Canada during the COVID-19 pandemic. Beyond disproportionate death tolls, we know that safety measures imposed in long-term care (LTC) homes, such as visitor restrictions and group activity cancellations, had many negative effects on residents' health and well-being. "Confinement syndrome" has been used to describe the significant and likely irreversible physical, cognitive, psychological, and functional declines associated with sensory deprivation and a lack of social engagement.[1–3] One subgroup of older adults especially vulnerable to these effects—and about whom more research is needed—are trauma survivors.

Research outside of Canada has given some attention to understanding how COVID-19 measures may have retraumatized trauma survivors and underscores the need for similar research in Canada.

For instance, in Europe, a team of psychoanalysts call the enforcement of COVID-19 quarantine measures a "warlike situation" and describe high levels of panic, anxiety, and fatigue among patients from the former Yugoslavia.[4] Likewise, older Spaniards who lived through the Spanish Civil War and postwar dictatorship have been overwhelmed by government officials' use of words like "fighting" and "surviving" when referring to the COVID-19 pandemic because this language brings back traumatic memories of war and postwar hardships, which many are having to cope with in isolation.[5]

Similarly, Israeli researchers have identified that restrictions placed on social interactions at the start of the pandemic were triggering early life losses for care home residents, many of whom are Holocaust survivors.[6] In response to concerns about retraumatization, visiting resumed inside Israeli care homes after 4 weeks, though at reduced capacity.[7] This reversal contrasts sharply with the 6-month-long visitor restriction policies enforced in many LTC homes in Ontario, Canada.[2]

At the same time, comparable research in Canada cannot ignore our colonial context and the resulting intersections between trauma, race, and ethnicity. For example, Indigenous populations in Australia (particularly those with lived experience of being confined to missions and reserves under colonial policies) experienced declines in well-being during stay-at-home and lockdown orders led to declines in well-being due to disconnection from family, community, culture, and country—core tenets of Indigenous culture and identity.[8] In Canada, one study found that immigrants living in LTC whose primary language was non-English were at higher risk of hospitalization.[9] Research conducted before the pandemic in the United States found that black and Hispanic LTC home residents had diminished social engagement compared to their White counterparts.[10] The same is likely true in Canada.

In short, this brief survey of the existing research highlights the urgent need for similar studies in Canada. Above all, we must uncover resident, particularly BIPOC, stories to understand how their past and present lived experiences shaped health outcomes during the pandemic—and how they may do so in future pandemics. Such research should ensure consistent collection and analysis of race-based data, and data from those residents whose traumas stem from lived experiences with racism and cultural isolation. These residents likely bore the greater burden of the pandemic and more profound effects of "confinement syndrome." Understanding their experiences is necessary to ensure that all Canadians have equal access to high-quality health care.

In the end, given Canada's disastrous outcomes during the COVID-19 pandemic, all LTC and retirement homes should be working to adopt trauma-informed practices to minimize the retraumatization of residents in future pandemics. It is hoped that the research recommended above will further this goal by providing insights into the effects of isolation on trauma survivors as well as marginalized communities. Proper resident care in Canada's LTC sector cannot afford otherwise.

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Co-Occurring Dehydration and Cognitive Impairment During COVID-19 in Long-Term Care Patients

To the Editor:

COVID-19 is associated with high morbidity and mortality in nursing home (NH) residents.[1–3] Although most of the literature on COVID-19 has focused on the pathogenesis and management of hypoxic respiratory failure from pneumonia, less well described are geriatric complications such as dehydration, delirium, and falls. The objective of this study was to describe the frequency of dehydration and intravenous hydration during COVID-19 in NH residents and examine its interaction with delirium, dementia, and other complications.

Methods

The study setting was a 514-bed NH in New York City. Subjects were all symptomatic NH residents with a positive COVID-19 PCR or antibody test between March 1 and June 1, 2020. We reviewed medical, nursing, and other clinical notes to ascertain illness and treatment characteristics up to 30 days after symptom onset. Dehydration was defined as any blood urea nitrogen (BUN)—creatinine ratio greater than 20.[4] Free water deficit[4] was calculated in those with sodium (Na) > 145 mmol/L.

We compared the occurrence of delirium, falls, hospitalization, and death between residents with dehydration and those without using chi-square tests. We quantified the association between dehydration and cognitive impairment from dementia and/or delirium using multivariable logistic regression, using SPSS version 24 (IBM, Inc). Institutional review board approval was obtained from the NH and affiliated medical school.

Results

Among 314 NH residents with symptomatic COVID-19, the most common symptoms documented were fever (79%), cough (59%), loss of appetite (43%), and shortness of breath (28%) (Table 1). Among 261 residents with COVID-19 who had BUN and creatinine measured, the mean maximum BUN-creatinine ratio was 23.9 (SD = 9.2, range 4.6-58.5), and 154 (59%) had dehydration according to a threshold of 20. Among those who had Na measured, 45 residents (18.2%) had Na levels >145 mmol/L and the calculated average free-water deficit was 2.92 L (SD = 1.67; range 0.93-6.86).

Table 1
Features of COVID-19 in Nursing Home Residents Between Symptom Onset and 30-Day Follow-Up

Features (n = 314 Except Where Indicated)	n (%) or Mean (SD)
Symptoms, n (%)	
Fever ≥ 99°F	250 (79.6)
Cough	187 (59.6)
Loss of appetite	133 (42.4)
Shortness of breath	86 (27.4)
Diarrhea	25 (8.0)
Vomiting	20 (6.4)
Sore throat	18 (5.7)
Headache	12 (3.8)
Geriatric syndromes, n (%)	
Delirium	105 (33.4)
Fall (≥1)	82 (26.0)
Weight loss (≥5%)	76 (24.2)
Pressure sore (≥1 stage 2 or greater)	36 (11.4)
Dehydration* (BUN-creatinine ratio >20), n (%)	154 (59.0)
Free-water deficit† (L), mean (SD)	2.92 (1.67)
IV fluids received (any), n (%)	163 (51.9)
Duration of IV fluids (d), mean (SD)	4.9 (4.3)
Hospital transfer, n (%)	289 (9.2)
Mortality‡, n (%)	38 (13.7)

*Among those with laboratory values available (n = 261).
†Free water deficit = fraction total body water (male = 0.5; female = 0.45) × weight (in kilograms) × [sodium/140 − 1]; only calculated for n = 39 with BUN-creatinine ratio > 20, Na level > 145, and available weight.
‡Among those with known vital status (n = 279).

The relative risk of dehydration in residents with either moderate-severe cognitive impairment or COVID-19–associated delirium was 1.37 relative to residents with neither [95% confidence interval (CI) 1.11-1.59; $P = .003$]. This relationship remained significant after adjusting for demographic and clinical characteristics. Intravenous (IV) fluids were provided to 113 residents in the nursing home for an average of 4.9 days (SD = 4.3; range 1-31). Along with 50 who received IV fluids in the hospital prior to admission to the nursing home, the total number who received IV fluids during their COVID-19 illness was 163 (51.9%).

In bivariate associations, dehydration was significantly associated with higher risk of falling (relative risk 1.65, 95% CI 1.06-2.58; $P = .022$) and death (relative risk 2.39, 95% CI 1.09-5.25; $P = .022$). Overall, 90.8% of residents with COVID-19 were managed in the NH and 9.2% were transferred to the hospital. Mortality within 30 days was 13.7%.

Discussion

In this study, 59% of NH residents with symptomatic COVID-19 experienced dehydration. Dehydration was much more common in this group than in a prepandemic NH cohort who had urinary, skin, and respiratory infections, in which 9.1% experienced dehydration.[5] Reasons for the greater incidence of dehydration with COVID-19 include (1) higher and more persistent fever, a known risk factor for dehydration in NH residents,[6] and (2) difficulty maintaining oral hydration, even with human assistance, from acute declines in alertness and strength. Dehydration was clinically significant as demonstrated by the frequent requirement for IV fluids and the association between dehydration and increased falls and death.

Almost all cases of COVID-19 in this study were managed in the NH, including those with dehydration. Prior work has suggested that NH residents with infection may be better managed in the NH than in the hospital when consistent with goals of care, with fewer pressure sores, and lower mortality.[7] Overall 30-day mortality in

Findings from this manuscript were presented at the Annual Scientific Meeting of the American Geriatrics Society, May 13, 2021.