Frequency of Neglect and Its Effect on Mortality in Long-Term Care before and during the COVID-19 Pandemic

Fréquence de la négligence et son effet sur la mortalité dans les établissements de soins de longue durée avant et pendant la pandémie de COVID-19

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Appendix 1

TABLE A1. Adjusted odds ratio between pressure ulcer and 90-day mortality among long-term care residents, before COVID-19 from January 2019 to February 2020 and during COVID-19 from March 2020 to December 2020

	Mortality			
	Pre-COVID		During COVID	
Variable	OR	(95% CI)	OR	(95% CI)
Pressure ulcer (reference = no)				
Yes	1.55	(1.45, 1.66)	1.98	(1.85, 2.12)
Age group (reference = 65–69)				
70–74	1.22	(1.02, 1.47)	1.28	(1.06, 1.54)
75–79	1.31	(1.11, 1.55)	1.42	(1.20, 1.69)
80–84	1.54	(1.31, 1.81)	1.55	(1.32, 1.83)
85+	1.63	(1.40, 1.90)	1.95	(1.67, 2.29)
Sex (reference = male)				
Female	0.74	(0.70, 0.79)	0.57	(0.54, 0.60)
CHESS score	2.11	(2.07, 2.16)	2.46	(2.40, 2.51)
Frailty (reference = robust)				
Pre-frail	2.42	(2.07, 2.84)	2.02	(1.60, 2.56)
Frail	4.30	(3.71, 5.00)	3.27	(2.61, 4.10)
Location (reference = urban)				
Rural	0.86	(0.79, 0.93)	0.87	(0.79, 0.95)

Variable	Mortality			
	Pre-COVID		During COVID	
	OR	(95% CI)	OR	(95% CI)
Region (reference = Central)				
Southwestern	0.85	(0.79, 0.91)	0.79	(0.73, 0.85)
Eastern	0.78	(0.72, 0.84)	0.85	(0.79, 0.92)
Northern	0.97	(0.89, 1.07)	0.76	(0.69, 0.84)
Ownership (reference = municipal)				
Non-profit	0.85	(0.79, 0.92)	0.92	(0.84, 0.99)
For-profit	0.89	(0.83, 0.95)	1.16	(1.08, 1.24)
COVID-19 test (reference = negative)				
Positive	--	--	1.43	(1.32, 1.54)

CHESS = Changes in Health, End-stage Disease, Signs and Symptoms; CI = confidence interval; OR = odds ratio.

TABLE A2. Adjusted odds ratio between dehydration and 90-day mortality among long-term care residents, before COVID-19 from January 2019 to February 2020 and during COVID-19 from March 2020 to December 2020

	Mortality			
	Pre-COVID		During COVID	
Variable	OR	(95% CI)	OR	(95% CI)
Dehydration				
Yes (reference = no)	1.62	(1.50, 1.75)	1.74	(1.63, 1.87)
Age group (reference = 65–69)				
70–74	1.22	(1.02, 1.47)	1.27	(1.05, 1.52)
75–79	1.31	(1.10, 1.55)	1.41	(1.18, 1.67)
80–84	1.53	(1.30, 1.80)	1.52	(1.29, 1.79)
85+	1.61	(1.38, 1.87)	1.89	(1.62, 2.21)
Sex (reference = male)				
Female	0.73	(0.69, 0.77)	0.56	(0.52, 0.59)
CHESS score	2.06	(2.01, 2.11)	2.38	(2.33, 2.43)
Frailty (reference = robust)				
Pre-frail	2.49	(2.13, 2.92)	2.12	(1.68, 2.69)
Frail	4.40	(3.79, 5.10)	3.48	(2.77, 4.36)
Location (reference = urban)				
Rural	0.86	(0.79, 0.93)	0.88	(0.81, 0.96)
Region (reference = central)				
Southwestern	0.82	(0.76, 0.88)	0.76	(0.71, 0.82)
Eastern	0.77	(0.72, 0.83)	0.86	(0.80, 0.93)
Northern	0.93	(0.85, 1.02)	0.72	(0.65, 0.79)
Ownership (reference = municipal)				
Non-profit	0.85	(0.79, 0.92)	0.92	(0.85, 1.00)
For-profit	0.90	(0.84, 0.97)	1.19	(1.10, 1.28)
COVID-19 test (reference = negative)				
Positive	--	--	1.39	(1.29, 1.51)

CHESS = Changes in Health, End-stage Disease, Signs and Symptoms; CI = confidence interval; OR = odds ratio.

TABLE A3. Adjusted odds ratio between UTI and 90-day mortality among long-term care residents, before COVID-19 from January 2019 to February 2020 and during COVID-19 from March 2020 to December 2020

	Mortality			
	Pre-COVID		During COVID	
Variable	OR	(95% CI)	OR	(95% CI)
UTI				
Yes (reference = no)	1.07	(0.97, 1.18)	1.00	(0.91, 1.12)
Age group (reference = 65–69)				
70–74	1.22	(1.02, 1.47)	1.27	(1.06, 1.53)
75–79	1.32	(1.11, 1.56)	1.41	(1.19, 1.68)
80–84	1.54	(1.31, 1.81)	1.53	(1.30, 1.80)
85+	1.62	(1.39, 1.89)	1.91	(1.64, 2.24)
Sex (reference = male)				
Female	0.73	(0.69, 0.78)	0.56	(0.53, 0.59)
CHESS score	2.14	(2.10, 2.19)	2.50	(2.45, 2.56)
Frailty (reference = robust)				
Pre-frail	2.49	(2.13, 2.91)	2.11	(1.67, 2.67)
Frail	4.50	(3.88, 5.22)	3.55	(2.83, 4.45)
Location (reference = urban)				
Rural	0.86	(0.79, 0.93)	0.88	(0.80, 0.96)
Region (reference = Central)				
Southwestern	0.85	(0.79, 0.91)	0.80	(0.74, 0.86)
Eastern	0.78	(0.72, 0.83)	0.85	(0.79, 0.92)
Northern	0.98	(0.89, 1.07)	0.76	(0.69, 0.84)
Ownership (reference = municipal)				
Non-profit	0.85	(0.79, 0.92)	0.92	(0.84, 0.99)
For-profit	0.88	(0.82, 0.94)	1.15	(1.07, 1.23)
COVID-19 test (reference = negative)				
Positive	--	--	1.39	(1.29, 1.51)

CHESS = Changes in Health, End-stage Disease, Signs and Symptoms; CI = confidence interval; OR = odds ratio; UTI = urinary tract infection

TABLE A4. Definitions of neglect index variables from the Resident Assessment Instrument – Minimum Data Set (RAI-MDS), version 2.0

Variable	RAI-MDS definition
Pressure ulcer	Pressure ulcers are defined as any lesions caused by pressure resulting in damage of underlying tissue. They present across four stages: Stage 1: A persistent area of skin redness (without a break in the skin) that does not disappear when pressure is relieved. Stage 2: A partial thickness loss of skin layer that presents clinically as an abrasion, blister or shallow crater. Stage 3: A full thickness of skin is lost, exposing the subcutaneous tissues. It presents as a deep crater with or without undermining adjacent tissue. Stage 4: A full thickness of skin and subcutaneous tissue is lost, exposing muscle or bone. The occurrence of pressure ulcers at any stage that presented within the last seven days was recorded by the health professional.
Urinary tract infection	Chronic and acute symptomatic infection(s) occurring within the last 30 days. Health professionals are advised to check this item only if there is up to date supporting documentation and significant laboratory findings in the clinical record.
Insufficient fluids	Insufficient fluid intake is defined as the lack of consumption of all or almost all liquids provided during the last three days. Liquids can include water, juices, coffee, gelatins, and soups.
Dehydration	Dehydration is defined as the point when output exceeds intake. Health professionals are advised to check this item if the resident has two or more of the following indicators: • Resident usually takes in less than the recommended 2,500 mL of fluids daily (water or liquids in beverages and water in food). • Resident has clinical signs of dehydration. • Resident's fluid loss exceeds the amount of fluids they take in (e.g., loss from vomiting, fever, diarrhea that exceeds fluid replacement).

Source: CIHI 2011