

Increased mortality in hip fracture patients living alone. A NOREPOS study

Table 1. Characteristics of 34,837 Norwegian hip fracture patients aged 50–79 years at time of fracture by living situation (alone/with a partner) and gender. The NOREPOS Hip Fracture Database (2002-2013) with mortality follow-up from the National Population Register to 31 Oct. 2014.

		Men (n=12,770)		Women (n=22,067)	
		Living alone (36.6%)	Living with a partner (63.4%)	Living alone (43.0%)	Living with a partner (57.0%)
Number of hip fractures		4,734	8,199	9,573	12,696
Number of person-years		18,564	35,117	47,409	63,196
Number of deaths		2,667	3,805	4,724	4,413
Number of deaths<1 year after fracture		937	1,360	1,218	1,281
Mean age at time of hip fracture in years (SD ^a)^b		68.2 (8.2)	69.6 (7.9)	71.8 (7.1)	70.2 (7.4)
Mean number of children (SD ^a)^c		1.3 (1.5)	2.3 (1.3)	1.9 (1.5)	2.4 (1.4)
Education level, N(%)^c	<12 years	2,048(43.3)	2,541(31.1)	4,503(47.0)	5,193(40.9)
	12 years	2,146 (45.3)	4,180 (51.0)	4,018(42.0)	5,938(46.7)
	>12 years	461 (9.7)	1,413(17.2)	940(9.8)	1,503(11.8)
Urbanization category, N(%)^c	Rural	353(7.5)	596(7.3)	588(6.1)	901(7.1)
	Semirural	1,086(22.9)	2,060(25.1)	1,970(20.6)	3,224(25.4)
	Urban	3,295(69.6)	5,544(67.6)	7,015(73.3)	8,571(67.5)
Marital status, N(%)^c	Married	90(1.9)	7,524 (91.8)	129(1.35)	11,951(94.1)
	Previously married	2,710(57.1)	452(5.5)	7,951 (83.1)	572(4.5)
	Never married	1,943(41.0)	224(2.7)	1,493(15.6)	173(1.4)
Fractures occurring in winter, N(%)	October-March	2,622(55.3)	4,812(58.7)	5,289(55.3)	7,137(56.3)
Charlson comorbidity level, N(%)^d	0	1452(52.5)	2,397(52.5)	3,573(56.6)	4,255(61.4)
	1	714(25.9)	1,096(23.4)	1,676(26.5)	1,679(24.2)
	2	599(21.7)	1,075(23.5)	1,067(16.9)	999(14.4)

All comparisons significant at p<0.05, except fractures occurring in winter (women)

Minor variations in numbers due to missing in some covariates

^a Standard deviation

^b Range: 50-79 years

^c From the 2001 Housing and Population Census (Statistics Norway)

^d From the NORHip database. Subset of hip fracture patients 2002-2008: 7,333 men; 13, 249 women.

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Table 2. Hazard ratios with 95% confidence intervals ^a for mortality after hip fracture in persons living alone vs. living with a partner (reference), according to time after hip fracture. 34,837 patients 50-79 years at the time of fracture. The NOREPOS Hip Fracture Database (2002-2013) with mortality follow-up from the National Population Register to 31 Oct. 2014.				
	Number of deaths	Adjusted for age at Census ^b	Adjusted for age at Census ^b , education level ^b	Adjusted for age at Census ^b , education level ^b , urbanization degree ^b and number of children ^b
Men				
0-30 days post fracture	650	1.30 (1.11, 1.51)**	1.25 (1.06, 1.46)**	1.25 (1.05, 1.48)**
1-12 months post-fracture	1,647	1.28 (1.16, 1.41)***	1.27 (1.15, 1.40)***	1.28 (1.16, 1.43)***
>1 -5 years post-fracture	2,854	1.42 (1.32, 1.53)***	1.39 (1.29, 1.50)***	1.36 (1.26, 1.48)***
>5 -12 years post fracture	1,321	1.62 (1.45, 1.81)***	1.58 (1.41, 1.77)***	1.59 (1.41, 1.78)***
Women				
0-30 days post fracture	601	1.14 (0.97, 1.34)	1.13 (0.96, 1.33)	1.13 (0.96, 1.33)
1-12 months post-fracture	1,898	1.18 (1.07, 1.29)***	1.17 (1.07, 1.28)**	1.15 (1.05, 1.26)**
>1 -5 years post-fracture	4,002	1.34 (1.25, 1.42)***	1.32 (1.24, 1.41)***	1.29 (1.21, 1.37)***
>5 -12 years post fracture	2,636	1.26 (1.17, 1.36)***	1.24 (1.15, 1.34)***	1.22 (1.13, 1.32)***

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**** $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$***

^a Flexible parametric survival analysis

^b From the 2001 Housing and Population Census (Statistics Norway)