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Functional Decline In Older Nursing Home Residents In Europe: The SHELTER Study

Antonio Cherubini
IRCCS-INRCA, ITaly

CONFLICT OF INTEREST DISCLOSURE

I have no potential conflict of interest to report

Disability is an important outcome for older nursing home (NH) residents, closely linked to their quality of life and to higher health care costs.

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Predictors of Functional Changes in Italian Nursing Home Residents: The U.L.I.S.S.E. Study

Table 2

Mixed-Effects Logistic Regression Model of Demographic, Clinical, and Staffing Variables Associated With ADL Decline

Variable	Beta	SE	OR (95% CI)	*P*
Intercept	2.10	0.542		.002
Sex	0.01	0.109	1.01 (0.81–1.25)	.472
Age	0.01	0.006	1.01 (0.96–1.06)	.055
Antipsychotics	0.26	0.104	1.30 (1.06–1.60)	.016
Depression	0.37	0.113	1.45 (1.16–1.81)	.005
Geriatrician	−0.51	0.198	0.60 (0.41–0.88)	.015
Nurse HPRW*	−0.61	0.196	0.55 (0.37–0.80)	.006

*OR refers to NHs with higher vs those with lower than median nurse HPRW.

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AIM OF THE STUDY:

To identify independent predictors of functional decline in older NH residents, taking into account both resident and facility characteristics.

METHODS

We evaluated 1760 older (> 65 years) NH residents

participating in the SHELTER* study (57 NH in 8 countries) , followed up to 12 months.

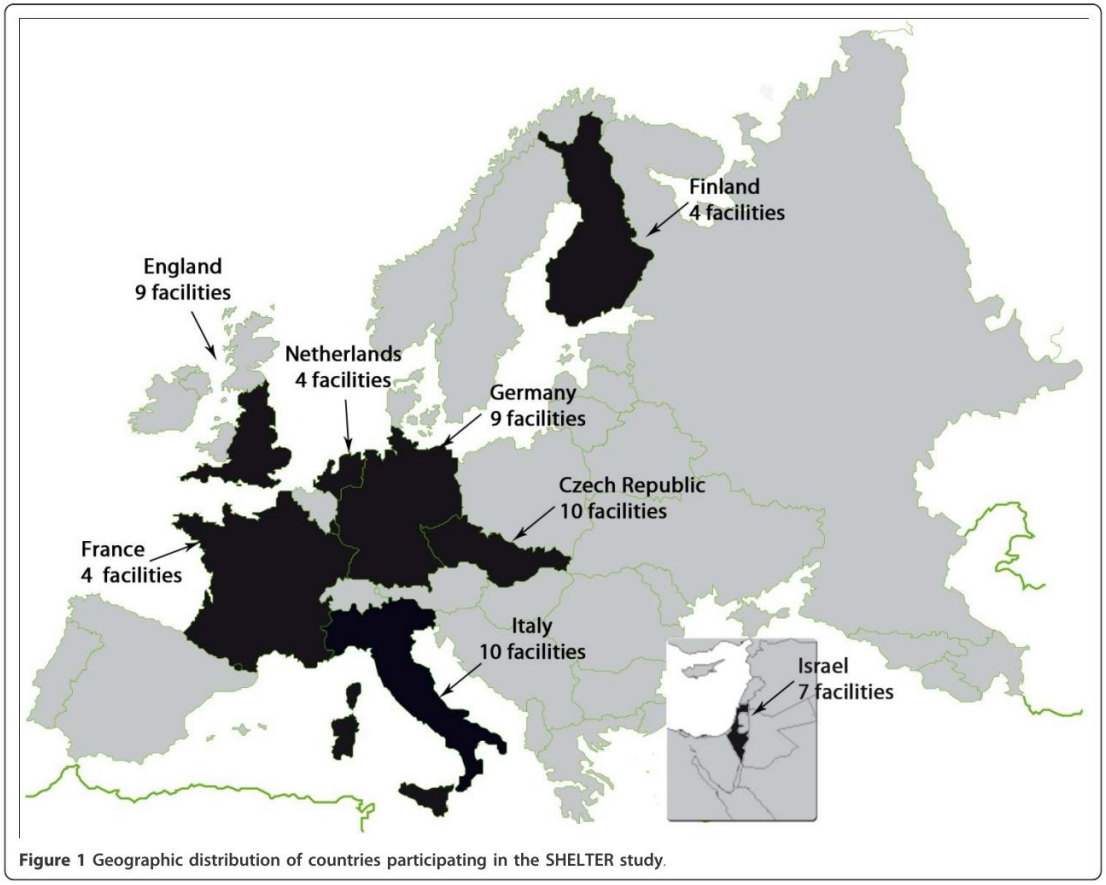

Figure 1 Geographic distribution of countries participating in the SHELTER study.

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METHODS

Multi-item summary scales embedded in the interRAI LTCF were used to measure residents characteristics:

Cognitive status was assessed using the 7-point MDS Cognitive Performance Scale (CPS). a score of 2 or higher is equivalent to a diagnosis of dementia with scores ranging from 0 (intact) to 6 (very severe impairment).

The MDS Depression Rating Scale was used to assess the presence of depressive symptoms and a score ≥ 3 was used to diagnose depression.

Polypharmacy was defined as the regular use of 5 or more drugs.

METHODS

To evaluate functional status, the seven point MDS Activities of Daily Living (ADL) Hierarchy scale was used in the SHELTER study. However, in order to make results comparable with our previous findings in the ULISSE population **we recoded the MDS Hierarchy scale in the ADL Long Form scale of the MDS.**

This scale is the most sensitive to change over time of the 3 principal summary MDS-ADL scales.

METHODS

Each ADL item has 6 possible categories of response: the categories of response for each MDS-ADL self-performance item range from 0 (total independence) to 4 (total dependence).

The MDS Long-Form ADL scale is a sum of the responses to all the 7 individual ADL items and has a score ranging from 0 to 28 .

A decline in functional status has been defined as an increase of at least 1 point in the MDS Long-Form ADL scale during the follow-up.

METHODS

The data were analyzed to test for significant differences between NH residents who have experienced or not ADL decline.

Mixed-effects logistic regression model was used for taking **into account the nested data structure arising from repeated measurements of patients within countries.** For each observation, e.g. each episode of ADL decline, each patient and each nursing home a set of covariates was also recorded. **Country effect was estimated** as a random intercept; demographic, clinical, and organizational features variables were estimated as fixed effects.

RESULTS

We analyzed the data of 1760 NH residents with 12 months follow-up. Age distribution was 84.5 ± 7.8 and 1331 (75,6%) were female.

Distribution of NH Residents according to country

Country	N (%)
Czech Republic	162 (9.2%)
Germany	322 (18.3%)
England	244 (13.9%)
Finland	288 (16.4%)
France	272 (15.5%)
Israel	119 (6.8%)
Italy	202 (11.5%)
Netherlands	151 (8.6%)
Total	1760 (100,0%)

RESULTS

Variables	Residents without ADL decline (n=869) (% or median ± IQ)	Residents with ADL decline (n=891) (% or median ± IQ)	Total sample (n=1760) (% or median ± IQ)	*p*-value
Age	84.8 (79.0-89.9)	85.2 (80.1-89.5)	*85.0 (79.5-89.7)*	**.053**
Age>85 years	48.8	51.6	*50.2*	.234
Gender (Female)	74.5	76.8	*75.6*	.258
BMI	24.7 (21.1-28.5)	24.4 (21.5-27.9)	24.6 (21.4-28.1)	.461
Cognitive status				
CPS (0-6)	2.0 (0-3)	2.0 (1-4)	*2 (1-4)*	**<.001**
CPS 0-1	42.1	30.8	*36.4*	
CPS 2-4	39.1	46.0	*42.6*	**<.001**
CPS 5-6	18.8	23.2	*21.0*	
ADL 28	12 (3-18)	9 (4-15)	*10 (4-17)*	**.003**
Polypharmacy (≥5 drugs)	76.1	76.7	*76.4*	.770
Multimorbidity (≥2 diseases)	80.4	82.4	*81.4*	.274

RESULTS

Multivariate analysis

Variables	B	S.E.	Sig.	OR	95% C.I.for OR	
					Lower	Upper
Age	0,007	0,007	0,305	1,007	0,994	1,020
Sex	0,090	0,119	0,448	1,095	0,867	1,382
CPS 2-4 (ref CPS 0-1)	0,676	0,124	<0,001	1,965	1,542	2,504
CPS 5-6 (ref CPS 0-1)	0,892	0,160	<0,001	2,440	1,785	3,337
Baseline ADL 28	-0,064	0,009	<0,001	0,938	0,922	0,954
Urinary incontinence	0,467	0,129	<0,001	1,596	1,239	2,055
Geriatrician	-0,412	0,140	0,003	0,662	0,503	0,872
Nurse available during night	-0,711	0,297	0,016	0,491	0,275	0,878

CONCLUSIONS

Disability is probably the most important outcome for nursing home residents and besides resident characteristics also facility characteristics, e.g. the presence of a geriatrician, are relevant to influence functional decline.

Acknowledgment

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