NURSING HOME RESIDENTS (IN)DEPENDENCE: THE ROLE OF FALLS, INTRINSIC AND EXTRINSIC FACTORS

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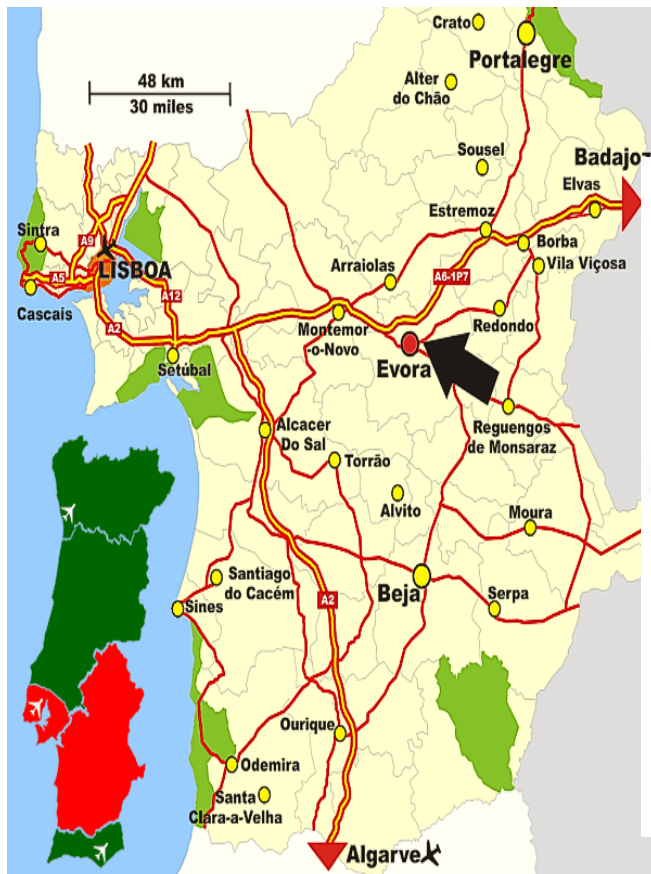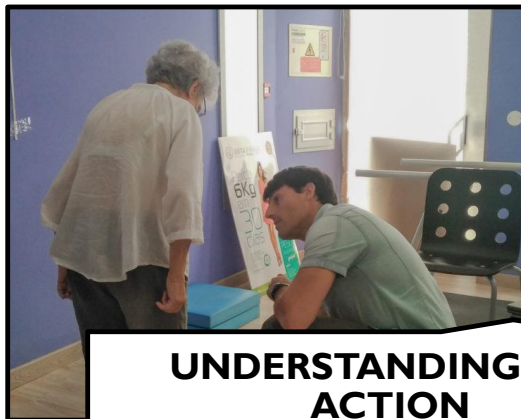
FELISMINA MENDES, PhD

WE ARE FROM…

Ageing Safety in Alentejo – *Understand for Action* (ESACA) Refª: ALT20-03-0145-FEDER-000007

UNIVERSIDADE DE ÉVORA
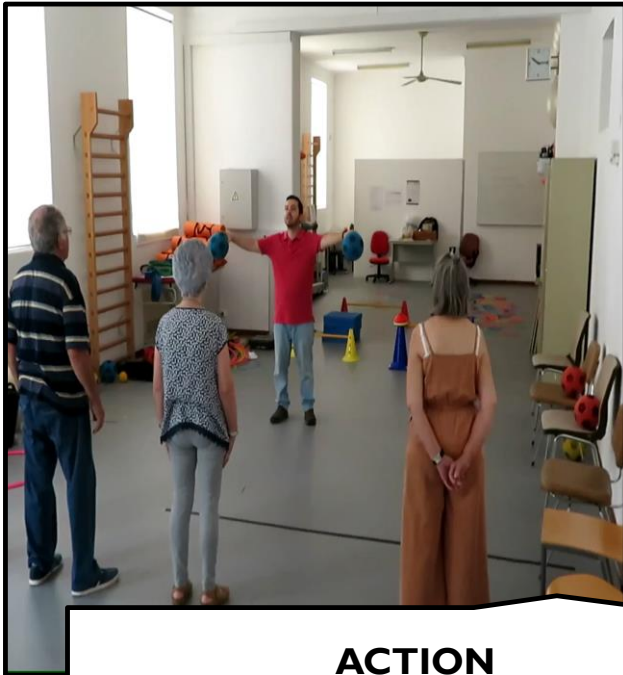
UNDERSTANDING FOR ACTION

Project Aims

- Promote a safety ageing

- Understand and prevent falls

- Understand and prevent violence

AGEING SAFETY IN ALENTEJO (PREVENTING FALLS AND VIOLENCE AGAINST THE ELDERLY) – *UNDERSTAND FOR ACTION* (ESACA) REFª: ALT20-03-0145-FEDER-000007

ACTION

Project Aims

- Reduce individual and social cost of falls an violence on older adults

LIVING IN NURSING HOMES: (IN)DEPENDENCE AND RISK FACTORS - THE STUDY

- In order to response to the international recommendations advocating an active and successful ageing for worldwide population (WHO, 2002).

- It is important to develop and implement strategies for successful ageing for old persons living in nursing homes.

(IN) DEPENDENCE IN NURSING HOMES

People in nursing homes are generally **frailer** than older adults living in the community.

They are usually **older,** have more **chronic conditions,** and have more **difficulty walking.**

They also tend to have thought or **memory problems**,

Care home residents are **3 times more** likely to **fall** than their community dwelling peers and **10 times more** likely to sustain a **significant injury** as a result (Cooper, 2017)

Between half and three-quarters of nursing home residents fall each year. (CDC, 2012).

Dependence on nursing home

Difficulty with activities of daily living, and to **need help** getting around or taking care of themselves.

Cooper, R (2017) Reducing falls in a care home *BMJ Quality Improvement Reports* 2017;6:u214186.w5626. doi:10.1136/bmjquality.u214186.w5626
CDC , 2012Falls in Nursing Homes cdcinfo@cdc.gov

LIVING IN NURSING HOMES: (IN)DEPENDENCE AND RISK FACTORS - STUDY

Objetives:

- To determine the main factors explaining (in)dependence on basic daily life activities (BADL) of nursing home residents.

Questions?

- Which are the key factors determining dependence?
- Are they fragility indicators as
  - Chronic health conditions
  - cognitive function?
  - or physical fitness?
- Are falls occurrence?
- or fear of falling?

METHODS

Design

This crossectional study

enrolled 132 Portuguese older adults

Nursing home residents

≥ 65 years old

Protocol

- Questionnaire

- Physical proofs

Measurements

- BADL (Barthel Index),
- Falls occurrence (y/n),
- Fear of falling (FES-I),
- Sleeping quality (Epworth scale),
- Cognitive impairment (MMSE),
- Physical fitness: balance (Tinetti Balance Assessment Tool); strength, flexibility, agility and double task (Senior Fitness Test + TUG in DT), body composition: BMI, body lean and fat mass (stadiometre and bioimpedance scale);
- Environment hazards (questionnaire).

RESULTS

Participants

84.2± 6.9 years,

70.5% women.

Low level schooling	(1-4 years 59.1%;
	>= 5 years 3.8%,
	illiterate 37,1%

Widowers (65.9%)

Single 21.2%;

Married 9.1%

Other 3.8%

Comorbidities (on average 3 health conditions) and pluri pharmacy

Most common:

- 1-Hyperetnsion
- 2-Cardivascular diseases
- 3-Arthtrosis y osteoporosis
- 4-Diabetes
- 5-Depression
- 6- Pulmonary diseases
- 7- Dizziness
- 8- Cancer
- 9- Cerebrovascular

RESULTS

Self reported problems

- Dizziness   65   (52.0%)
- Hearing   52   (41.6%)
- Vision   54   (43.6%)
- Balance   70   (56.0%)
- Nocturia   78   (62.4%)
- Incontinence   33   (26.6%)
- Feet problems   **45   (36.0%)**

Falls

- Falls in last year - Prevalence 39.4%

- Recurrent fallers - Prevalence 22.0%
- (>= 2 events /year)

- Fall Location:
  - Out of home   16 (55.2%)
  - Inside home   13 (44.8%)

- Fear of Fall (FES-I)   30 (24.4%)

RESULTS

Independence - Barthel Índex

	Mean (SD)	Median	Mn/Mx
Women	17.738 (2.130)	18.00	10 - 20
Men	18.545 (2.359)	19.00	9 - 20

	Serious dependency	4 (3.3%)
Dependency levels	Moderate dependency	84 (70.0%)
	Independent	32 (26.7%)

RESULTS
Risk factors for independence (BADL)

Univariate linear regression selected **the variables explaining Independence (BADL)** as:

    Balance,

    Agility,

    Double Task,

    Strength and

    Fear of falling (R²range: 7.4 - 22%)

in which **a poor result was associated to a higher dependence** level, $p < 0.05$.

	β	p	R² (%)
Balance	0.123	0.0001	13.3
Agility	-0.093	<0.001	19.9
Double Task	-0.044	0.008	7.6
Fear of falling	-0.052	0.03	7.4
Strength	0.189	<0.01	15.0

β - Data are univariate coefficients; R² - coefficient of determination.

Falls occurrence and Cognitive State did not predicted in independence (BADL)

Determinants Risk factors for independence (BADL)

However, multivariate linear regression selected

- **upper limb strength**

- **fear of falling**

as the **main factors explaining (in)dependence** (R^2 42,0% p <0.05).

	β	p	R^2 adjust (%)
Upper Limb Strength	0.249	<0.001	42
Fear of falling	**-0.057**	**0.005**	

β - Data are multivariate coefficients; R^2 - coefficient of determination.

DISCUSSION

Others studies reported the same characteristics of Nursing Home Residents, they:

Are mainly women, widowers, have low level literacy (Imaginário et al, 2018)

Self reported health problems; have comorbidities diagnosed by a doctor, have average 3 health conditions, took medications (Ministério da Saúde, 2018)

Experienced a fall (39,4%) (Reis, et al, 2015) and are recurrent fallers (22%)

Reported fear of falling

They have mainly moderate dependence in BADL and women have low average scores

Imaginário, C., Machado, P., Rocha, M., Antunes, C., & Martins, T. (2017). Atividades de vida diária como preditores do estado cognitivo em idosos institucionalizados. *Revista Portuguesa de Enfermagem de Saúde Mental* (18), 37-43. doi: 10.19131/rpesm.0190
Ministério da Saúde (2018), Retrato da Saúde, Portugal. Ministério da saúde; Lisboa **ISBN** 978-989-99480-1-3

DISCUSSION

- The results suggest that older adults' intrinsic factors, **physical fitness** (balance, agility , double task, strength and upper limb strength) (Ahlqvist, et al , 2015)

- and **fear of falling** (Merrill et al, 2016)

   explains more their (in)dependence (Silva et al , 2015; Hornyak, et al, 2016)

   … rather than cognitive impairment, environmental factors, falls occurrence or chronic conditions.
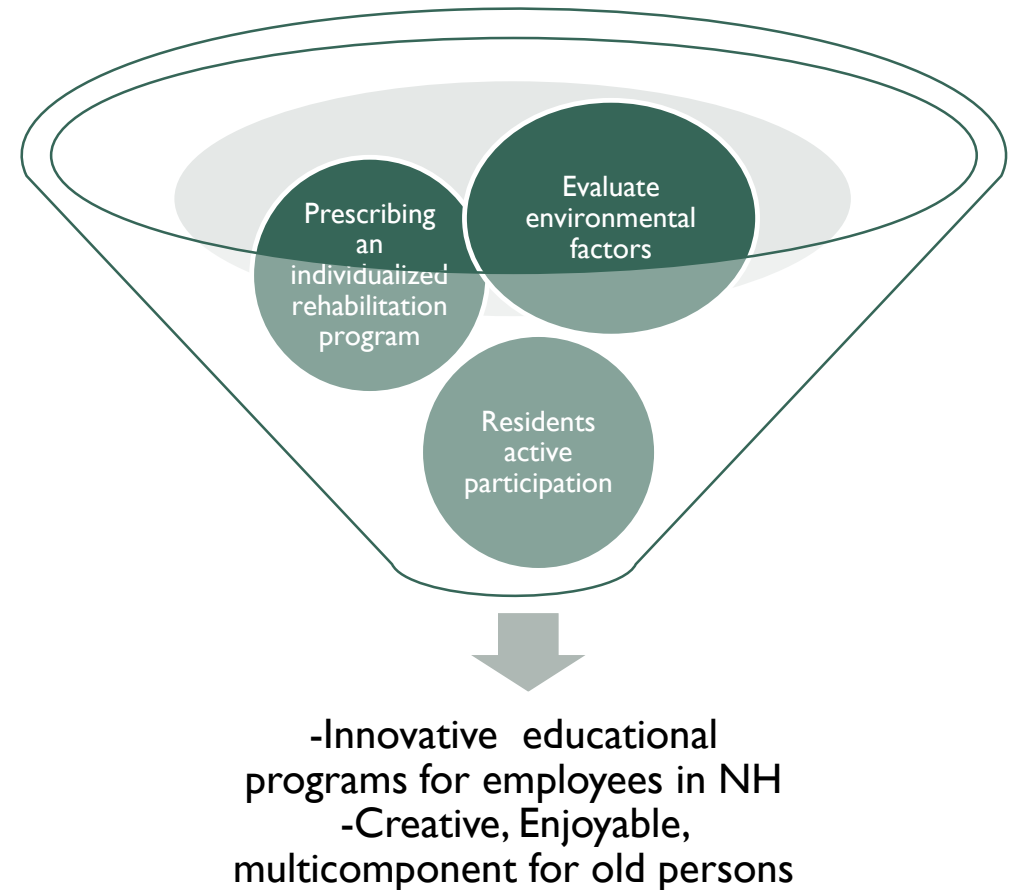
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Ahlqvist, Anette; Nyfors, Hanna & Suhonen, Riitta (2014) *Nursing Open* 79-97.

CONCLUSIONS - CHALENGES

How to Encourage Independence in Nursing Home residents ?

- A more comphreensive Assessment procedures including upper limbs strength and fear of falling

- Design personalized programs for independence competences.

  - Individualized activities

  - Group activities

- Interventions designed for the maintenance of nursing home residents independence should consider these results

Prescribing an individualized rehabilitation program

Evaluate environmental factors

Residents active participation

-Innovative educational programs for employees in NH
-Creative, Enjoyable, multicomponent for old persons

Thank you for your attention!

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