Fear of falling in older people
new findings from recent international research

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Catholic University Leuven

www.NeuRA.edu.au

1. Fear of falling as a fall risk factor
2. Assessment of fear falling
3. Fear of falling interventions
I’m getting a bit older and I feel that I am not as stable on my feet any more. The other day my sister had a bad fall and broke her wrist. She has always been the better one! I don’t want to imagine what would happen if I would break my hip after a fall … I think I would not be able to cope by myself anymore.

Fear of falling

• Important psychological factor associated with falls in older people (since 1982)

• Prevalence
  – 29-92% in older people who have already fallen
  – 12-65% in older people who have NOT fallen
  – Women > men
  – Increases with age

• Many associated factors
Fear of falling: good or bad?

- Frailty
- Poor QOL
- Depression
- Sedentary life style
- ADL avoidance
- Confidence
Fear of falling: good or bad?
Fear of falling: good or bad?
Fear of falling: good or bad?

The perfect balance
- Awareness
- Realistic appraisal of balance ability and falls risk

Concept

Perceived fall risk

Actual fall risk

Anxious
Frail
Vigorous
Risk takers
Longitudinal study design

500 independent-living older adults

Screening

Questionnaires, physical tests and neuropsych battery

Perceived falls risk

Actual falls risk

12 months follow-up

Monthly questionnaire on falls for one year
Three-monthly questionnaire on concern about falls for one year

Fear of falling: good vs bad?

Pearson's $R=0.19$

$F_{1.499}=17.14$

$p<0.001$

Perceived falls risk (FES-I) vs Actual falls risk (PPA)
Disparity

**subjective** perception of fall risk  

*versus*

**objective** physiological fall risk

Results from Classification and Regression Tree analysis

- **Fallers (33%)**
  - **Low actual (40%)**
    - Fallers (25%)
  - **High actual (60%)**
    - Fallers (38%)

- **Low perceived (29%)**
  - Fallers (20%)
- **High perceived (11%)**
  - Fallers (39%)
- **Low perceived (20%)**
  - Fallers (34%)
- **High perceived (40%)**
  - Fallers (41%)

Vigorous  |  Worrier  |  Battler  |  Aware
Conclusion

• Many elderly people under or over estimate their risk of falling

• Disparities between perceived and physiological fall risk influence the probability of falling
  – Worriers have a higher falls rate despite low actual risk
  – Battlers have a low perceived risk despite high actual risk + slightly lower falls rate

• Fear of falling leads to falls, independent of physiological fall risk factors

Worrier

• Similar fall risk
• Similar activity levels

• Psychological profile: neurotic personality traits, i.e. increased vulnerability to develop irrational fears
• More likely to be female
• Older
• Worse self-perceived health
• More medications
• More depressive symptoms
• Lower quality of life
Experiment

Walking on floor (near the edge)

Walking on height without safety harness

Fear of falling induces gait adaptations

%  

Floor light  Floor dimmed  Height light  Height dimmed

Gait speed  Step length  Single Support time

Not fearful  Fearful
Fear of falling induces gait adaptations

Cautious gait:

- Decreases walking stability and could therefore increase fall risk rather than protect against it

<table>
<thead>
<tr>
<th>Floor</th>
<th>Height</th>
<th>Light</th>
<th>Dimmed</th>
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<tbody>
<tr>
<td>60%</td>
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<tr>
<td>80%</td>
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<td></td>
</tr>
<tr>
<td>70%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60%</td>
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</tbody>
</table>

Battler

- Lower levels of fear of falling
- Less previous falls
- Psychological profile: emotionally stable, less reactive to stress, happy and satisfied with life
- Younger
- Better self-perceived health
- Better quality of life
- More planned exercise
1. Fear of falling as a fall risk factor

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Conceptualizations

1. **fear of falling** = continuous concern regarding falls which may limit ADL
2. **falls efficacy** = perceived ability to confidently undertake ADL without falling

<table>
<thead>
<tr>
<th>Concept</th>
<th>Indoor</th>
<th>Outdoor</th>
<th>Social</th>
<th>Risky</th>
<th>Items</th>
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<tr>
<td>Single item</td>
<td>Fear</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>1</td>
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<tr>
<td>Multiple items</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>FES</td>
<td>Efficacy</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>10</td>
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<tr>
<td>MFES</td>
<td>Efficacy</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>14</td>
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<tr>
<td>FES-I</td>
<td>Concern</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>7 / 16</td>
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<tr>
<td>ABC</td>
<td>Confidence</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>16</td>
</tr>
<tr>
<td>SAFFE</td>
<td>Fear / avoidance</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>14</td>
</tr>
<tr>
<td>Icon-FES</td>
<td>Concern</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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</table>
Questions

• Are you concerned about falling?
  – No, a little, quite a lot, very much

• Are there ADL that you are not confident doing because of fear of falling?
  – E.g. Reaching

• Do you avoid certain ADL because you are afraid of falling?
  – E.g. shopping, taking a bath/shower

• Do you avoid certain situations because you are afraid of falling?
  – E.g. going to the markets on a crowd day

Inventories

1. Falls Efficacy Scale (FES) by Prof. Mary Tinetti
   • Fear was operationalised as “low perceived self-efficacy or confidence at avoiding falls”
   • 10 daily activities essential to independent living
     – Activities that require some position change or walking
     – Safe and non-hazardous activities, mainly indoor
   • Item score range: 1 (high efficacy) to 10 (lower efficacy)
   • Total score range: 10 to 100
   • Refs:
Inventories

2. Falls efficacy Scale International (FES-I)
   - www.profane.eu.org
   - Fear is operationally defined as concern about falling
   - 7/16 daily activities
     - Including indoor, outdoor, social ADL
   - Item score range: 1 (not at all concerned about falling) to 4 (very concerned)
   - Interpretation
     - 16-19: Low levels of concern
     - 20-27: Moderate levels of concern
     - 28-64: High levels of concern
   - Refs:

3. Iconographical Falls efficacy Scale (Icon-FES)
   - www.NeuRA.com.au
   - Concern about falling on 10/30 daily activities
     - Including indoor, outdoor, social, risky ADL
     - Using pictures as visual cues
   - Item score range:
     - Not at all concerned
     - Somewhat concerned
     - Fairly concerned
     - Very concerned
   - Refs:
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A problem we need to consider ...

Can we do harm by reducing fear of falling in older people during intervention strategies?

Probably NOT

High levels of fear of falling are likely to be dysfunctional and should be reduced
Clinical implications

- The presence of fear of falling is likely to be a sign that something is wrong:
  - The person has an accurate perception of falls risk
  - The person is spiralling into a vicious circle of general frailty through depression or other psychological factors

- Lower levels of fear of falling are likely to be protective of falls:
  - The person has an low actual falls risk
  - The person has a positive attitude to life and has engaged him/herself in falls preventative activities

“Neither falling nor fear of falling should be considered inevitable accompaniments of aging. Rather, they are specific entities, with specific risk factors which may be amenable to intervention.”

Tinetti et al., J Gerontol 1993; 49: 35-8

“(…) the most successful approach to [falls] prevention, rehabilitation, or geriatric evaluation and management may combine simultaneous attempts to improve both efficacy and physical skills.”

Tinetti et al., J Gerontol Med Sci 1994; 49: M140-7

“Community-based tai chi, home based exercise, and home-based fall-related multifactorial interventions have shown to reduce fear of falling in community-living older people.”

Zijlstra et al., JAGS 2007; 55: 603-7

“A multicomponent cognitive behavioral intervention showed positive and durable effects on fear of falling and associated activity avoidance in community-dwelling older adults.”

Zijlstra et al., JAGS 2007; 55: 603-7
Vigorous
Intervention
Nothing

Anxious
Intervention
Mainly psychological + Standard falls prevention

Stoic
Intervention
Mainly physical falls prevention

Aware
Intervention
Both psychological and physical falls prevention

Falls prevention - exercise

“The handle on your recliner does not qualify as an exercise machine.”
Falls prevention - exercise

Exercise modalities

<table>
<thead>
<tr>
<th>Exercise</th>
<th>Moderate to high balance</th>
<th>High dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>RR=1</td>
<td>RR=0.82</td>
</tr>
<tr>
<td></td>
<td>18%</td>
<td>(0.75-0.91)</td>
</tr>
<tr>
<td></td>
<td>27%</td>
<td>(0.59-0.91)</td>
</tr>
<tr>
<td></td>
<td>20%</td>
<td>(0.66-0.97)</td>
</tr>
</tbody>
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Falls prevention - CBT

- Cognitive restructuring of misconceptions around falls
  - E.g. education on commonness of fear of falling

- Behavioural activation, graded exposure
  - E.g. first time together with someone else

- Problem solving
  - E.g. install a handrail next to the bath tub

- Assertiveness training
  - E.g. ask for assistance
Acknowledgements

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1. Fear of Falling Study:
   • Falls and Balance Research Group, UNSW
   • Chief Investigators: Prof. Stephen Lord, Prof. Jacqueline Close, Dr. Richard Fitzpatrick

2. Memory and Ageing Study of the Brain and Ageing Program
   • School of Psychiatry, UNSW