Perceived and actual fall risk and behaviours / psychological variables in older people

Presentation by Kim Delbaere

www.NeuRA.edu.au
1. Fear of falling as a fall risk factor

2. Assessment of fear falling

3. Fear of falling interventions
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
Concept

Perceived fall risk vs. Actual fall risk

- Vigorous
- Risk takers
- Anxious
- Frail
Fear of falling: good vs bad?

Pearson's $R = 0.19$

$F_{1,499} = 17.14$

$p < 0.001$
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

Fear of falling induces gait adaptations through changes in gait speed, step length, and single support time. The graph shows a decrease in these parameters as the environment becomes more challenging, indicated by lower percentages for Fearful subjects compared to Not fearful subjects. The environment factors include floor light and height, with dimmed conditions showing more pronounced differences.

- **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.
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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<tbody>
<tr>
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<td>No</td>
<td>No</td>
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<td>Yes</td>
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<tr>
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<td>Confidence</td>
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<td>Fear / avoidance</td>
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<tr>
<td>Icon-FES</td>
<td>Concern</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

2. Falls efficacy Scale International (FES-I)
   • [www.profane.eu.org](http://www.profane.eu.org)
   • Fear is operationalised 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:
Inventories

3. Iconographical Falls efficacy Scale (Icon-FES)
   • Concern about falling on 10/30 daily activities
     – Including indoor, outdoor, social, risky ADL
     – Using pictures as visual cues
   • Item score range:

   ![Emojis](image.png)
   1. Not at all concerned
   2. Somewhat concerned
   3. Fairly concerned
   4. Very concerned

   • Refs:
Getting dressed

Not at all concerned
Somewhat concerned
Fairly concerned
Very concerned
1. Fear of falling as a fall risk factor

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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
Vigorous

Anxious

Stoic

Aware

Intervention

Nothing

Mainly psychological + Standard falls prevention

Mainly physical falls prevention

Both psychological and physical falls prevention

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Falls prevention - exercise

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

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Falls prevention - exercise

Exercise modalities

<table>
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<tr>
<th>Exercise Overall</th>
<th>Moderate to high balance</th>
<th>High dose</th>
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<tr>
<td>RR=1</td>
<td>RR=0.82 (0.75-0.91)</td>
<td>RR=0.80 (0.66-0.97)</td>
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<td>18%</td>
<td>27%</td>
<td>20%</td>
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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