Greater Manchester Falls Prevention Awareness Week:

Online Bitesize Lunchtime Learning session

Tuesday 19th September

12:05-12:20pm
Digital Technologies to Prevent Falls in People Living with Dementia
(Dr Charlotte Eost-Telling, The University of Manchester)

12:20-12:35pm
Falls Prevention Collaboration: Rochdale
(Elaine Stott, Your Trust, Rochdale)

12:35-12:50pm
Effectiveness of Dance Interventions of Falls Prevention in Older Adults
(Dr Kimberly Green, The University of Manchester)

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DOING HEALTH DIFFERENTLY

#FallsPreventionAwarenessWeek

#ThinkFalls

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Funding acknowledgement and disclaimer
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Digital technologies to prevent falls in people living with dementia: A rapid systematic review of systematic reviews

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Background:

- Falls £4.4bn / yr additional cost for health and care services
- People living with MCI or dementia more than twice as likely to fall, and nearly four times as likely to have recurrent falls


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- Higher risk of fall related injury and outcomes after injurious fall are worse.

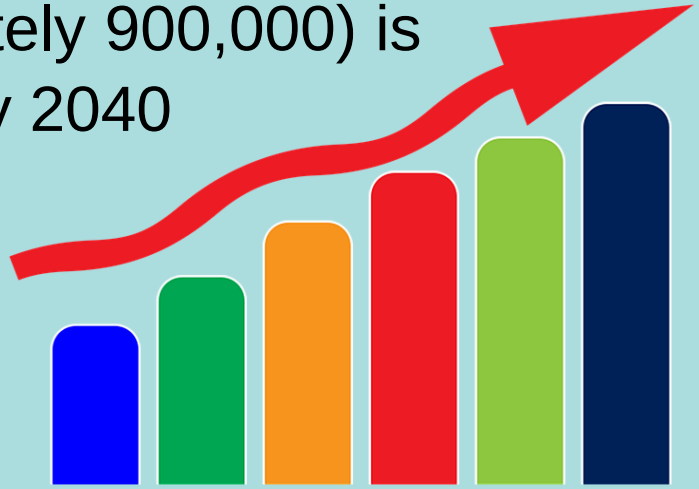
MCI / Dementia Falls risk factors

- Cognitive
  - Visual / spatial processing
  - Depression
  - Memory
- Behavioural
  - Risky behaviour / impulsivity
  - Judgement impaired
- Physical
  - Balance and muscle weakness
  - Medicines
  - Mobility
  - Sensory loss

Review question:

- *"What is the evidence that digital technologies can reduce falls and fall risk for people living with dementia?"*

- People currently living with dementia in the UK (approximately 900,000) is predicted to rise to over 1 million by 2025 and 1.6 million by 2040
- Technology rapidly evolving but little known about which technologies are most effective
- Some evidence for people who are cognitively intact, but critical gap in evidence for those with MCI or PlwD

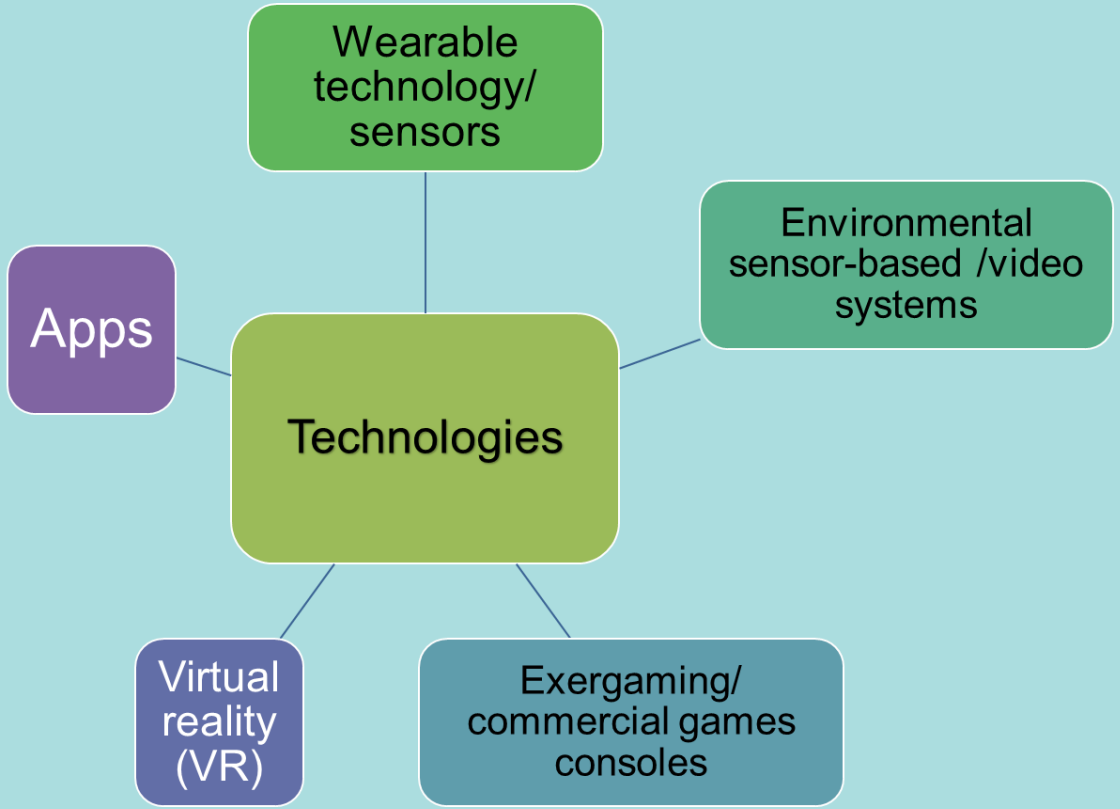


Methodology

Followed a rapid systematic review of reviews approach

Inclusion:

- People of any age living with dementia or MCI.
- Community and supported living/residential care settings
- Any digital health technology focused on falls
- Outcomes - Falls (ProFaNE definition), fear of falling, fall risk (balance measures)
- Systematic reviews with or without meta-analysis
- Identified 7 systematic reviews which met our inclusion criteria



Included technologies:

Technologies were classified using the FARSEEING taxonomy:

- All studies included in this review were classified as Systems

We included digital technologies across a range of uses

- Prediction, e.g. falls risk assessment
- Detection, e,g. alarm systems
- Monitoring, e.g. fall event recording research tools
- Prevention, e.g. detectors to identify if a person is out of bed and alerts the carer

Wearable technology / sensors:

Two systematic reviews:

- Dementia care homes
  - Sensors primarily worn at lower back, trunk, waist, or chest.
  - Measured balance and stability
  - Wearable sensors are acceptable tool to distinguish between fallers / non-fallers
  - Both reviews rated as critically low

Environmental sensor-based systems / video systems:

Two systematic reviews:

- Digital care technologies: bed sensors, sensor nightlights, teleassistance services and electronic support bracelets.

- Community dwelling / long term care home
  - Reported falls rates
  - Variable findings
  - Reviews rated low / critically low

Exergaming and Commercial Games consoles:

Two systematic reviews:

- Technology used included ‘Wii-Fit’, ‘Wii balance board’ and ‘FitForAll’ platforms

- Community and assisted living facilities
  - Analysis of MCI or AD subgroups from 3 RCTs showed a significant effect size on measures of balance
  - But small number of dementia studies/ participants – unable to draw robust conclusions
  - Reviews rated as low / critically low

Virtual reality:

www.freepik.com

One systematic review:

- Community dwelling
  - Measured posture and falls
  - AD+ falls history significantly:
    - Worse postural stability
    - Longer lag in cognitive strategies for postural correction
    - Delayed reactions to falling
  - Review rated as low

Apps:

No systematic reviews found

Conclusions:

- Limited evidence based on small studies with short follow up
- Much evidence was indirect
- More robust methodology needed for real-world applicability
- People living with dementia / MCI have higher falls risk, but often excluded from studies:
  - No reviews reported inclusion of users (or caregivers / staff)
  - No reviews reported consideration of wider context, including aspects of equity
- Effectiveness of technology to reduce falls and falls risk of people living with dementia / MCI yet to be established.
- Insufficient good quality evidence to recommend which technology is best

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Falls Prevention Collaboration: Rochdale

Elaine Stott
Your Trust
(Rochdale)

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Effectiveness of Dance Interventions on Falls Prevention in older adults

Dr Kimberly Lazo Green, University of Manchester

Presented on behalf of my co-authors: Yang Yang, Ukachukwu Abaraogu, Claire Eastaugh, Fiona Beyer, Gill Norman, and Chris Todd

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"constant movement in a controlled, fluid, repetitive way through all three spatial planes or dimensions (3D) (forward and back, side to side, and up and down)"

Background

- Dance is enjoyable and sociable form of exercise
- There is evidence to suggest that
  - Dance has physical and mental health benefits for older adults
  - Dance may improve falls-related risk factors amongst older adults, but not to prevent falls
  - Tai Chi prevents falls, but other forms e.g. Qi Gong and dance are less studied
- Lack of strong evidence in cost effectiveness

Methods

Population

Adults aged 50 years and over

Healthy, at risk of falls, or have co-morbidities

Intervention

Studies that are experimental, quasi-experimental, or non-experimental in nature with an element of dance within the intervention

Outcome

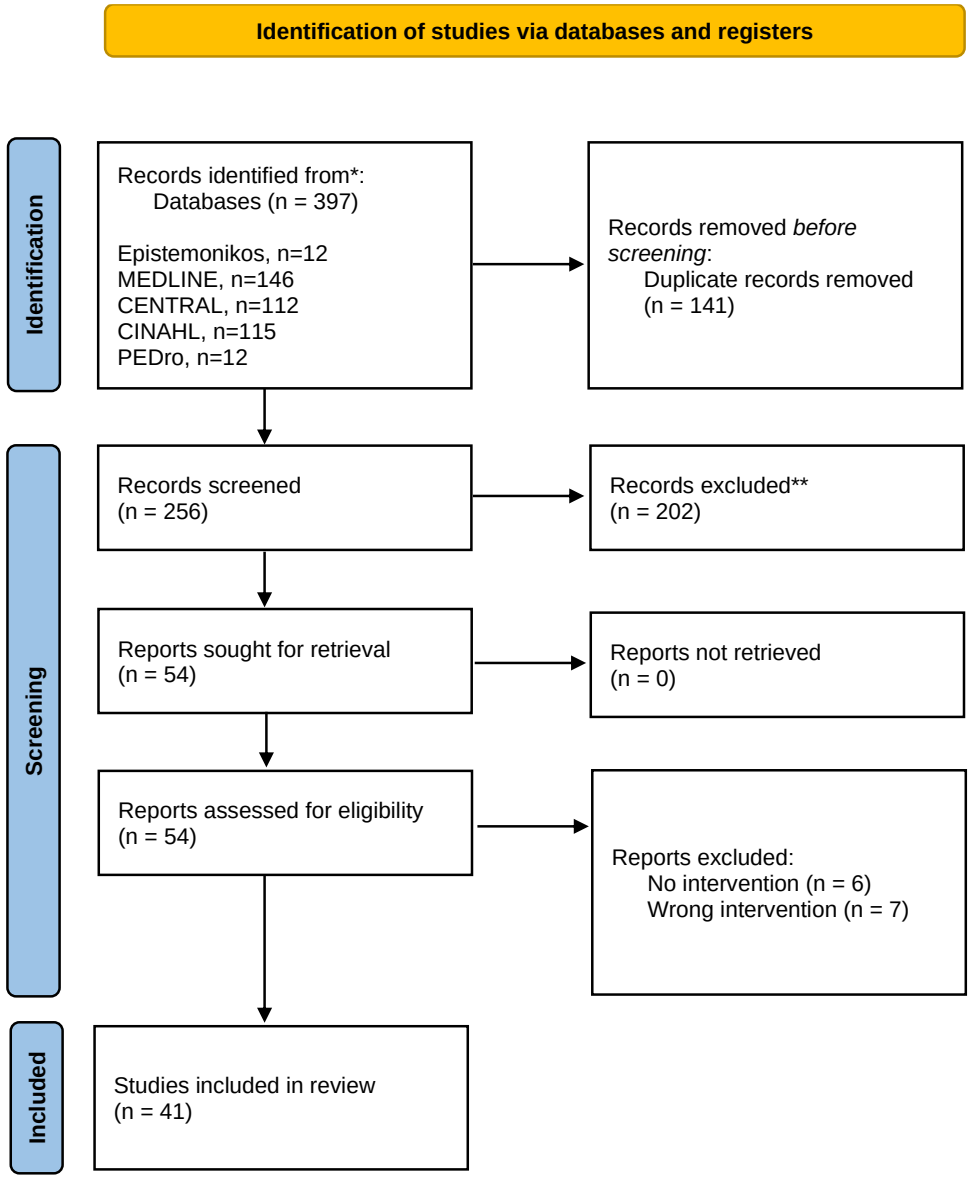
Falls, risk of falls, concerns about falling

Proxy markers for falls risk (functional measures, strength, and health-related quality of life) and cost effectiveness

- We conducted a rapid systematic review and meta-analysis of literature on dance interventions and falls prevention
- Cochrane Risk of Bias (RoB) and ROBINS-I tools were used
- GRADE tool provides an overall rating on certainty of evidence

Results

- 41 studies were included, with 20 randomised studies and 21 non-randomised studies
- Types of dances:
  - Ballroom and Latin, N=15
  - Dance-based exercises, N=11
  - Cultural dance, N=8
  - Dance-based therapy, N=2
  - Low impact dance, N=5



Key findings

There is very low certainty of evidence for all findings. We are uncertain about the effect of dance interventions in improving falls.

Primary outcomes: The overall certainty of evidence is very low. Direction of effect is inconsistent, various measures were used.

Proxy measures: Meta-analysis was possible only for four functional measures, non-significant and heterogenous. Very low certainty of evidence.

Cost effectiveness: High risk of bias. At best should be considered exploratory and needs a robust RCT.

Conclusions

- There is very low certainty on whether dance can prevent falls
- There is insufficient evidence of low quality to recommend dance as an alternative to strength and balance training if the aim is to prevent falls
- No robust evidence on the cost-effectiveness of dance interventions
- Further research is warranted

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Thank you!

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Thank you for attending the session ☺

The recording and slides from today will be available soon.

For any questions and feedback, please do email me on:
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