Effects of an Evidence-Based Falls-Risk Reduction Program on Physical Activity and Falls Efficacy among Oldest-Old Adults

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Background
• Oldest-old adults: 85 years and older
• Population of oldest-old adults
  ▪ Fastest growing segments of the American population
  ▪ Increase from 5.7 million to 19 million by 2050
• More functional limitations, less physical activity, higher fear of falling, lower levels of falls efficacy
A Matter of Balance (AMOB)
Falls-Risk Reduction Program

- Evidence-based activity program targeting community-dwelling seniors
  - Incorporates the cognitive-behavioral theories
  - Intended to reduce the fear of falling & increase physical activity levels

- Participants vs. control group
  - Falls self-efficacy & falls management
  - Baseline vs. 6 weeks & 12 months

Purpose of Study

- To assess the changes in falls efficacy and physical activity from baseline to post-intervention
- To examine the interaction effect between physical activity improvement and time (baseline and post-intervention) on falls efficacy

Participants

- Assessed for eligibility (n = 3,276)
- Excluded (n = 2,803)
  - Not meeting inclusion criteria: younger than 85 yrs
- Meeting inclusion criteria (n = 473)
- Allocated to final analysis (n = 260)
- Not completed post intervention (n = 213)
- Completed post intervention (n = 260)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
<th>Age (mean ± SD)</th>
<th>Sex</th>
<th>Ethnicity</th>
<th>Education Levels</th>
<th>Number of sessions attended</th>
<th>Number of chronic conditions</th>
<th>Avg. days of physically active (0-7)</th>
<th>Avg. score of falls efficacy scale (5-20)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>87.84 ± 2.84</td>
<td>Male</td>
<td>White</td>
<td>Less than High School</td>
<td>Less than 5 sessions</td>
<td>1.64 ± 1.14</td>
<td>3.55 ± 2.56</td>
<td>13.58 ± 3.92</td>
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</tbody>
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Hypothesized Model

Covariates:
- Age
- Sex
- Living status
- Ethnicity
- Education
- Number of chronic conditions

Physical activity

AMOB/VLL falls-risk reduction program

Falls efficacy

Measures

- **Personal characteristics:** age, sex, race/ethnicity, education, living status, and number of chronic conditions
- **Falls Efficacy Scale:** Five items from Tennstedt et al. (1998)
  - Can you find a way to get up if you fall
  - Can you find a way to reduce falls
  - Can you protect yourself if you fall
  - Can you increase your physical strength
  - Can you become more steady on your feet
- **Physical activity:** the number of days physically active (e.g., brisk walking, bicycling, vacuuming, gardening, or anything else that causes one to breathe faster) in the previous seven days

Analyses

- **Repeated Measures Analysis of Covariates (ANCOVA)**
- **SAS Proc Mixed**
- **Two models** compared:
  - Model1: Personal characteristics & Time
  - Model2: Personal characteristics, Time, Physical activity improvement, Time* Physical activity improvement
Results

• Change in Falls Efficacy (Model 1)
  ▪ Significant increases in falls efficacy between baseline and post-intervention ($\beta = 1.98, p < .001$)

• Relationship Between Physical Activity Improvement and Falls Efficacy (Model 2)
  ▪ Significant increases in falls efficacy among physical activity improvement group between baseline and post-intervention ($\beta = 1.43, p < .05$)

Limitations

• Self-reported data
• One geographic region of the United States (i.e., Texas)
• Voluntary participation
• Measurement of physical activity
Implications and Future Research

• Falls-risk reduction programs should be developed or modified to specifically target different age groups (e.g., younger than 85 years old vs. 85 years old and over).
• Need detailed examination about the relationship between physical activity and other types of functioning (e.g., dementia).

Conclusions

• Support the effectiveness of evidence-based programs for reducing falls efficacy among oldest-old participants
• Translational research about dissemination and implementation of evidence-based programs is recommended to enhance intervention strategies for the oldest-old population