IMPACT OF HOME MODIFICATIONS ON THE PROMOTION OF AGING IN PLACE BY IMPROVING PHYSICAL PERFORMANCE IN OLDER ADULTS: A SYSTEMATIC REVIEW

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OVERVIEW

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INTRODUCTION

- **Aging in place**
  - Phenomenon and preference for older adults to remain living in the community for as long as possible and with some level of independence
  - Enables maintenance of independence, autonomy and connection to social support
  - Provides **meaning and security** via familiarity with a place and social connections
  - **Goals:** enhance quality of life (QoL) and activity participation, application of necessary home modifications (HM), promotion of a comfortable environment
INTRODUCTION

- **Home modifications**
  - Interventions and adaptations to the physical environment that support independent living among older adults
  - May include: elimination of slip and trip hazards (e.g. throw rugs); installation of grab bars or handrails, night lights, adaptive bathroom equipment

- **Physical performance**
  - Performance of activities of daily living (ADL)
    - E.g. bathing, dressing, toileting, transferring, walking, stairs
PURPOSE

To determine the impact of home modifications on aging in place by improving physical performance in older adults
SEARCH TERMS

- “home modification” OR “home modifications” AND “aging in place” AND “physical performance”

**Databases:**
- ProQuest Journals
  - Health and Medical Complete, Nursing and Allied Health Source, Research Library
- PubMed
- ScienceDirect
- Google Scholar
INCLUSION CRITERIA

► **Search Limits:**
  ○ English
  ○ Peer-reviewed
  ○ Scholarly journals
  ○ Published between 2007-2017

► **Selection criteria:**
  ○ Older adults (≥ 65 years old)
  ○ Home modification intervention
  ○ Home setting
  ○ Physical performance outcome
Records identified through database searching (n=50)

Additional records identified through other sources (n=3)

Records after duplicates removed (n=47)

Records screened by title and abstract (n=47)

Full text articles assessed for eligibility (n=8)

Studies included (n=4)

Reasons for exclusion:
- Discussed only home modifications (n=3)
- Discussed only aging in place (n=1)
- Irrelevant (n=35)

Reasons for exclusion:
- Does not address our outcome measures (n=4)
## MINORS SCORES

<table>
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<th>Authors</th>
<th>1 Clearly Stated Aim</th>
<th>2 Inclusion of Consecutive Patients</th>
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RESULTS

- 53 articles were screened for eligibility, only 4 articles met the inclusion criteria
  - Three cohort studies (2 pre- and post-test, 1 cross-sectional) and 1 RCT
- **MINORS scores:**
  - One article scored 21/24
  - Remaining 3 articles: scores ranged from 7 to 15/16 (mean = 12/16)
- Sample sizes ranged from 12 to 234 (total = 373)
RESULTS

- Three studies implemented HM to improve ADL performance and satisfaction in the home\(^3, 4, 5\)
  - **HM**: reachers, grab bars, railings, night lights, adaptive bathroom equipment
  - **Perceived barriers in home**: high shelving, lack of handrails, accessibility to shower and toilet
- One study provided anecdotal information on behaviors and HM older adults used for accommodation of functional limitations\(^2\)
RESULTS: PHYSICAL PERFORMANCE

- **ADL difficulty**
  - 75% of participants reduced number of ADL they had difficulty performing from 3.9 ADL to 2
  - Statistically significant increase in ADL performance following HM ($p < 0.001$)

- **Physical Performance**
  - 49% of participants improved physical function
  - Average Functional Independence Measure (FIM) scores increased by 7 points
  - No significant changes in FIM score were reported, possibly due to ceiling effect
RESULTS: QoL

- Three studies reported improvement of QoL and satisfaction
  - QoL
    - QoL improved more with HM than in the control group, resulting in an 8% improvement in health-related QoL health status index value\(^5\)
    - 77.6% of participants reduced home hazards from an average of 3.3 hazards to 1.4\(^3\)
  - Satisfaction
    - “The showerhead in the master bathroom was too difficult for me to adjust, so we put in the removable showerhead on a bar where the height can be adjusted. We also remodeled the kitchen. We put in those round revolving shelves (lazy susan) in the pantry closet, they are so useful.”\(^2\), p11966
LIMITATIONS

- Databases searched
- Study design
- Small sample size
- Short study duration
- Lack of long-term follow-up
CONCLUSION

▶ Moderate preliminary evidence exists supporting home modification for the promotion of aging in place and improving physical performance in older adults

▶ Home modifications have shown to improve:
  ○ ADL performance
  ○ Patient QoL
  ○ Satisfaction and safety in the home
CLINICAL RELEVANCE

- Aging in place allows older adults to age comfortably in their home by improving QoL, environmental safety, and independence
- Clinicians should consider HM to promote aging in place and provide referrals when necessary
- HM are a feasible method to increase physical performance in older adults
  - May prolong admission to higher levels of care
FUTURE RESEARCH

- More RCTs to **strengthen evidence**
- Examine the **long-term effects** of HM and aging in place
- Examine change in physical performance following HM
- Use **objective measures** to assess QoL following HM (e.g. SF-36)
- Establish objective measures related to HM
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REFERENCES


QUESTIONS?