FOCUSED QUESTION

What is the evidence on the effect of home modification interventions on self-rated ability in safety, difficulty, and independence for people aging with disabilities?


CLINICAL BOTTOM LINE:

This study evaluated the impact of home modifications on everyday life for people in Sweden and found that home modifications have a direct effect on tasks specifically targeted by the home modifications that were made. The applied home modifications categories in the study included modifications to the shower, toilet, elevators, ramps, handrails, and automatic door openers. Occupational therapists (OTs) need to consider the effect of home modifications on client performance of tasks of everyday life. The study showed self-rated ability of difficulty decreased for 6 tasks (get in and out of home, bath/shower, grooming, transfer to toilet, walk one block, and move in and out of bed). Self-rated ability in safety improved for 10 tasks related to self-care in the bathroom, transfers, instrumental activities, and leisure. There were no significant differences in self-rated independence; however, the population was older than 40 years and had a fairly high initial rating of independence. Inclusion of home modifications in OT intervention may provide increased ability for those who are aging and for those with disabilities to remain in their homes. Further research needs to be done to compare the self-rated changes of recipients of home modifications and therapist-rated assessment of changes.

Findings from this study may be incorporated in occupational therapy education to teach and guide students on the best intervention approaches regarding the effects of home modifications to improve activities of daily living (ADLs), self-efficacy, and safety awareness. However, because little research has been done on this topic, it also is important to further the knowledge and continue gathering information through additional research.

The strengths of this study were that it provides a good base of support for future research and insight on how home modifications affect tasks of everyday life.

Weaknesses were that the study did not have a large sample size and the population was limited to Sweden and the health services provided there, resulting in limited ability to generalize to aging in place in the United States or other dissimilar populations.
Research needs indicated by the authors were to broaden the assessments of ability in everyday life for people living in their own home to provide sufficient information concerning problems and needs in everyday life, and to detect improvements attributable to home modifications.

RESEARCH OBJECTIVE(S)

The objective of the study was to examine the effect of home modification interventions on people aging with disabilities as measured by self-rated ability in everyday life activities.

Specific research questions were:

1) Is there a difference in self-rated ability (independence, difficulty, and safety) in everyday life after receiving home modification (and, if so, what)?

2) On what tasks in everyday life do home modifications have an effect?

DESIGN TYPE AND LEVEL OF EVIDENCE:

Nonrandomized controlled trial
Level II
Pretest–posttest design

Limitations (appropriateness of study design):

Was the study design type appropriate for the knowledge level about this topic? *Circle yes or no, and if no, explain.*

YES/NO

SAMPLE SELECTION

How were subjects selected to participate? Please describe.

Participants were recruited from an Agency for Home Modification (AHM) in a large city in Sweden. Recruitment was conducted through collaboration between the researchers and the OTs and physical therapists (PTs) working at the AHM. The OTs and PTs identified potential participants whose applications for home modifications had been received and who met the inclusion criteria. Individuals whose application had been approved and were scheduled to receive their home modifications within 4 weeks were recruited for the intervention group. Individuals whose applications were received within the last month and were waiting for their application to be investigated by the AHM were recruited for the comparison group.

Inclusion Criteria

40 years of age or older, living in a community-based dwelling, able to communicate in Swedish and actively participate in the study, having problems in everyday life, and requesting home modification related to at least one of the following areas: getting in and out of the home, mobility indoors, or self-care in the bathroom

Exclusion Criteria

Reduced cognitive status (Mini Mental State Examination score below 19), and depression (Center for Epidemiologic Studies–Depression scores of 24 or above)
SAMPLE CHARACTERISTICS

Participants at baseline, $N = 114$; participants taking part in the follow-up, $N = 105$

% Dropouts: Dropout rate = 8% Reasons were: 2 died, 2 were too ill, 1 decided not to apply for the home modification, 1 moved, and 3 declined to participate without explanation

#/(%) Male: 34 (32%) #/(%) Female: 71 (68%)

Ethnicity: NR; study was conducted in Sweden

Disease/disability diagnosis: Aging with disabilities

Check appropriate group:

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<tr>
<th>Group</th>
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INTERVENTION(S) AND CONTROL GROUPS

Group 1: Intervention

Brief Description: The intervention group comprised individuals recruited from a pool of applicants to the AHM who had been approved and were scheduled to receive home modifications within 4 weeks.

Setting: Research assistants collected data in the participants’ homes.

Who Delivered?: AHM provided the home modifications.

Frequency?: Home modifications were done once.

Duration?: Data collection for baseline was conducted about 5 months after the application for home modifications. The follow-up was conducted about 2 months after the home modifications were made. Length of time to complete home modifications was not reported.

Group 2: Comparison/Control

Brief Description: The comparison or control group was recruited from a pool of applicants who had applied for home modifications, but their applications had not yet been reviewed.

Setting: Research assistants collected data in participants’ homes.

Who Delivered?: No intervention was provided.

Frequency?: No intervention was provided.

Duration?: Data collection for baseline was conducted 2 months after the application for home modifications. The follow-up occurred 2 months after baseline.
Intervention Biases: *Circle yes or no and explain, if needed.*

Contamination

YES [ ] NO [ ]

Co-intervention

YES [ ] NO [ ]

Timing

YES [ ] NO [ ]

Site

YES [ ] NO [ ]

Use of different therapists to provide intervention

YES [ ] NO [ ]

MEASURES AND OUTCOMES

Client-Clinician Assessment Protocol (C–CAP) Part I (Swedish version). The C–CAP consists of three parts; however, only Part I was used in this study. Part I assessed self-rated independence, difficulty, and safety in ADLs. Part I was conducted as a structured interview in collaboration with the client, who self-rated his or her ability in 18 tasks. For each of the 18 tasks, the clients responded to 3 questions concerning how they perceive their independence (4-point scale), difficulty (5-point scale), and safety (3-point scale). The scales are presented to the client in both verbal and written form. The 3 scales are scored separately and the items are not added together. The measure has internal scale validity and reliability was NR. Self-rated ability in everyday life was measured at baseline and 2-month follow-up.

Measurement Biases

Were the evaluators blind to treatment status? *Circle yes or no, and if no, explain.*

YES [ ] NO [ ] The evaluators knew which group the study participants were in.

Recall or memory bias. *Circle yes or no, and if yes, explain.*

YES [ ] NO [ ]

Others (list and explain):

Psychometric properties of the Swedish C–CAP were investigated; however, only internal scale validity was reported.

RESULTS

The groups did not differ on demographic variables, but the intervention group requested a significantly larger number of home modifications related to getting in and out of the home (*p* < 0.001). Research question (RQ) 1 asked whether there would be a difference in participant self-
rated ability (independence, difficulty, and safety) in everyday life after home modifications were done. At baseline, the self-rated independence mean was higher for the comparison group than the intervention group, signifying that comparison group participants rated themselves as more able than intervention group participants. No significant differences were found in self-rated independence between baseline and follow-up for the intervention group or the comparison group. Significant differences were found between baseline and follow-up in self-rated difficulty \( (p = .001) \) and safety \( (p = .001) \) for the intervention group, indicating that they felt safer and had less difficulty in everyday life after home modifications. The effect size for the difficulty scale was 0.32 and 0.40 for the safety scale. There were no significant differences between follow-up and baseline for self-rated difficulty or safety for the comparison group.

RQ 2 followed up on RQ 1, asking whether there was a difference on self-rated ability and on what tasks home modifications had an effect. The difficulty and safety scales, on which intervention group participants had significant mean differences in self-rated ability between baseline and follow-up, were further investigated to identify whether there were any significant differences in the task challenges. Between baseline and follow-up, for self-rated difficulty, there were statistically significant \( (p < 0.05) \) differences for 6 tasks: get in and out of home, bath/shower, grooming, transfer to toilet, walk one block, and move in and out of bed. Between baseline and follow-up for self-rated safety, there were statistically significant \( (p < 0.05) \) differences for 10 tasks related to self-care in the bathroom, transfers, instrumental activities, and leisure.

Was this study adequately powered (large enough to show a difference)? Circle yes or no, and if no, explain.

**YES/NO**

Were appropriate analytic methods used? Circle yes or no, and if no, explain.

**YES/NO**

Were statistics appropriately reported (in written or table format)? Circle yes or no, and if no, explain.

**YES/NO**

**CONCLUSIONS**

Results indicated that home modification interventions have a greater effect on tasks directly related to the home modifications completed. Home modifications led to decreases in self-rated difficulty and increases in self-rated safety. No effect was found on functional independence in the same tasks. The authors expressed concern about the use of ADL assessments as outcome measures in rehabilitation, specifically, whether the level of independence alone is an acceptable and complete outcome measure with which to detect improvements in everyday life.
This work is based on critical appraisal of the article completed by Brittany N. Aaron, MSOT, and Rebecca I. Estes, PhD, OTR/L, CAPS, Faculty Advisor, University of South Alabama.


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