



## **AOTA Critically Appraised Papers Series**

# **Evidence Exchange**

*\*A product of the American Occupational Therapy Association's Evidence-Based Literature Review Project*

### **CRITICALLY APPRAISED PAPER (CAP)**

**Lewin, G., San Miguel, K. D., Knuiman, M., Alan, J., Boldy, D., Hendrie, D., & Vandermeulen, S. (2013). A randomized control trial of the Home Independence Program, an Australian restorative home-care programme for older adults. *Health and Social Care in the Community*, 21(1), 69–78. <http://dx.doi.org/10.1111/j.1365-2524.2012.01088.x>**

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#### **CLINICAL BOTTOM LINE:**

There has been a worldwide shift from viewing aging as a dependent stage of life to one that increasingly encourages independence and a more active lifestyle for older adults. In Australia, where this study was conducted, restorative care that embraces active aging was not yet considered an essential component of home health care on the national level. However, restorative home care has been gaining more recognition as increasing importance is placed on independence and self-management in older adults.

The researchers of this study explored whether older adults' participation in restorative home care programs reduced the need for ongoing personal care. Participants were randomized into either a Home Independence Program (HIP) or basic home care services. The HIP consisted of three visits per week for 12 weeks or until goals were met, whichever occurred first. The program focused on optimizing functioning, preventing or delaying further functional decline, promoting healthy aging, and encouraging self-management of chronic diseases. The control group of basic home care services consisted of three personal care visits a week to assist with bathing/showering and house cleaning. By analyzing routinely collected service data from each group, outcomes were compared to see whether participants continued to need ongoing service after 3 months, and again after 12 months. Results showed that the HIP significantly decreased the odds of needing ongoing service at both 3 months and 12 months.

A subgroup also was examined on functional status and quality of life measures to determine any changes in activities of daily living (ADL) and instrumental activities of daily living (IADL) independence. No differences were found before or after the intervention with the exception of an increased dependency in IADLs in the control group. However, at both 3 and 12 months, when these measures were broken down into specific activities and analyzed, findings showed that a significantly smaller portion of the HIP group needed assistance with bathing/showering, which was the most common reason for referral.

This study contributes to the body of evidence supporting the use of restorative home care programs to decrease the need for ongoing care and increase independence in older adults.

Implications suggest that adoption of a new paradigm shift in home care could decrease the current demand for ongoing home care services and help older adults live independently longer.

## RESEARCH OBJECTIVE(S)

List study objectives.

Examine the effectiveness of the Home Independence Program (HIP), a short-term, restorative home care program for older adults, in decreasing the need for ongoing home care services.

## DESIGN TYPE AND LEVEL OF EVIDENCE:

Level I: Randomized controlled trial

## SAMPLE SELECTION

How were subjects recruited and selected to participate? Please describe.

Study participants included older persons living in Perth, Australia who were referred for home care services, and who were eligible to receive Home and Community Care (HACC)-funded home care program.

## Inclusion Criteria

- Eligibility for the HACC program was determined through the need for assistance in one or more tasks of daily living due to a continuing disability, excluding persons needing acute or post-acute care.
- The inclusion criteria for the study included older adults aged 65 years and older, given a referral for personal care, and able to communicate in English.

## Exclusion Criteria

- The exclusion criteria included older adults diagnosed with dementia or diagnosis of other progressive neurological disorders and older adults receiving palliative care.

## SAMPLE CHARACTERISTICS

N = (Number of participants taking part in the study)

750

#/ (%) Male 245 (32.7%)

#/ (%) Female 505 (67.3%)

Ethnicity NR

Disease/disability diagnosis

Older adults who require assistance in one or more tasks of daily living

## INTERVENTION(S) AND CONTROL GROUPS

*Add groups if necessary*

### Group 1:

Brief description of the intervention	<p>The goal of the HIP was to optimize participant’s functioning, delay or prevent further functional decline, encourage healthy aging, and support self-management of chronic diseases.</p> <p>The focus of these services and types of intervention were specific to each older adult in his or her home. They included:</p> <ul style="list-style-type: none"> <li>• The promotion of active engagement in a range of daily activities using task analysis and redesign, work simplification, and assistive technology where appropriate</li> <li>• Strength, balance, and endurance programs for improving or maintaining mobility</li> <li>• Chronic disease self-management</li> <li>• Fall prevention strategies</li> <li>• Medication, continence, and nutrition management</li> <li>• Improvement or maintenance of skin integrity.</li> </ul>
How many participants in the group?	310
Where did the intervention take place?	Treatment was delivered in each participant’s home
Who Delivered?	Personnel delivered the HIP intervention in each participant’s home through Silver Chain, a large health and home care provider in Western Australia that provides a wide range of nursing and home-care services.
How often?	Three visits per week
For how long?	Participation in the HIP lasted until individual goals were met or for up to 12 weeks, whichever occurred first. If participants in the HIP needed continued assistance from home care services at the end of the participation period (12 weeks), this was arranged. The study spanned 12 months.

### Group 2:

Brief description of the intervention	<p>Group 2 participants were randomly assigned to the standard Home and Community Care (HACC) program, which is the home care program all participants were originally referred to through Silver Chain. No alterations were made to the standard HACC program home care services for this control group.</p> <p>Once eligibility was met and participants were assigned to the HACC group, a HACC care coordinator visited each participant’s home to assess individualized needs, complete a plan of care, and</p>
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	<p>establish the beginning of direct care.</p> <p>The most common care plans included providing assistance with bathing/showering and house cleaning.</p>
How many participants in the group?	395
Where did the intervention take place?	Treatment was delivered in each participant's home.
Who Delivered?	Personnel delivered the HACC intervention in each participant's home through Silver Chain, a large health and home care provider in Western Australia that provides a wide range of nursing and home care services.
How often?	3 hours of personal care per week
For how long?	Length of the HACC program was not reported. However, participation in standard home-care services continues for as long as the individual needs the services. The study spanned 12 months.

Intervention Biases: Check yes, no, or NR and explain, if needed.

Contamination:

<p>YES <input checked="" type="checkbox"/></p> <p>NO <input type="checkbox"/></p> <p>NR <input type="checkbox"/></p>	<p><i>Comment:</i> The key components of HIP may have been inadvertently incorporated into the control group, as HIP's aim of independence and "re-ablement" has been incorporated into Silver Chain's mission over the previous few years. As a result of this, home care personnel may have encouraged their clients to perform tasks more independently and therefore improved their client's functional independence even though a formal referral for HIP services might not have been given. However, if participants who were randomized to receive the HIP program were not participating in the program for any reason, they were reassigned to the traditional HACC home care services.</p>
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Co-intervention:

<p>YES <input type="checkbox"/></p> <p>NO <input checked="" type="checkbox"/></p> <p>NR <input type="checkbox"/></p>	<p><i>Comment:</i> Participants receiving palliative care were excluded from taking part in this study. However, it is unknown if the participants were receiving other intervention such as medication changes at the time of this study, which could affect the results.</p>
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Timing:

<p>YES <input type="checkbox"/></p> <p>NO <input checked="" type="checkbox"/></p> <p>NR <input type="checkbox"/></p>	<p><i>Comment:</i> Treatment was delivered until the participant met his or her individualized goals or for up to 12 weeks for the intervention group. Collection and analysis of data for ongoing care needed at 3- and 12-month intervals provided sufficient time to determine if the HIP program was more likely to increase service outcomes than the usual HACC program.</p>
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Site:

YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> NR <input type="checkbox"/>	<i>Comment:</i> Treatment was delivered in each participant's home, which remained consistent in both groups throughout the entire study. However, the differences in home environment among all participants (i.e., the physical environment in the home such as physical spacing, lighting, accessibility in the bathroom) could have a possible effect on the participants' ability to optimize functioning in that setting.
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Use of different therapists to provide intervention:

YES <input type="checkbox"/> NO <input type="checkbox"/> NR <input checked="" type="checkbox"/>	<i>Comment:</i> This information was not reported
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## MEASURES AND OUTCOMES

Complete for each measure relevant to occupational therapy:

Measure 1:

Name/type of measure used:	Service Data Collection
What outcome was measured?	To determine if the individual was receiving ongoing, continued care services, which was the primary outcome
Is the measure reliable?	YES <input type="checkbox"/> NO <input type="checkbox"/> NR <input checked="" type="checkbox"/>
Is the measure valid?	YES <input type="checkbox"/> NO <input type="checkbox"/> NR <input checked="" type="checkbox"/>
When is the measure used?	The measure was given at 2 intervals: at 3 months and 12 months after the start of the program

Measure 2:

Name/type of measure used:	The Primary Assessment Form: A tool used and developed for use by community care providers in Western Australia
What outcome was measured?	Measures ADLs and IADLs scales based on the Modified Barthel Index and the Lawton and Brody Scale. Higher score indicates more assistance in ADL and/or IADL.
Is the measure reliable?	YES <input type="checkbox"/> NO <input type="checkbox"/> NR <input checked="" type="checkbox"/>
Is the measure valid?	YES <input type="checkbox"/> NO <input type="checkbox"/> NR <input checked="" type="checkbox"/>
When is the measure used?	The measure was given at 3 intervals: at the initial delivery of services and at 3 and 12 months following the start of the program.

### Measurement Biases

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

YES <input checked="" type="checkbox"/>	<i>Comment:</i> The research assistants, who were blinded to the study, conducted interviews to collect data during the study. During the interview, participants
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NO <input type="checkbox"/>	often would talk about the type of assistance they were receiving from the home care company, inadvertently alerting the research assistant of their group assignments
NR <input type="checkbox"/>	

Recall or memory bias. Check yes, no, or NR, and if yes, explain.

YES <input type="checkbox"/>	<i>Comment:</i>
NO <input checked="" type="checkbox"/>	
NR <input type="checkbox"/>	

Others (list and explain):

The Customer Centre Operators manipulated the randomization process. Despite efforts to minimize this problem, during a debriefing session some staff members assigned participants to either the intervention group or the control group based on who they thought would “benefit” the most from each group. For example, some clients that lived alone were assigned to the intervention group so that they could remain as “independent as possible.”

## RESULTS

List key findings based on study objectives

Include statistical significance where appropriate ( $p < 0.05$ )

Include effect size if reported

### Intention to Treat Outcomes

**(HIP vs. HACC at 3 months and 12 months  $p$  value  $< .001$ )**

**HIP was found to substantially and significantly decrease the need for ongoing services at both 3 months and 12 months.**

#### HACC Group:

Ongoing care needed: 238 (63.5%) at 3 months; 151 (40.3%) at 12 months

No care needed: 63 (16.8%) at 3 months; 75 (20.3%) at 12 months

#### HIP Group:

Ongoing care needed: 103 (27.5%) at 3 months; 67 (17.9%) at 12 months

No care needed: 166 (44.3%) at 3 months; 177 (47.2%) at 12 months

### Functional and Quality of Life Outcomes

**The HACC group was found to have a significant decrease in IADL independence between baseline and 12 months ( $p = .016$ )**

#### HACC Group:

IADL independence: 39% initially; 44% at 3 months; 41% at 12 months

ADL independence: 74% initially; 79% at 3 months; 77% at 12 months

HIP Group:

IADL independence: 40.12% initially; 49% at 3 months; 48% at 12 months

ADL independence: 82% initially; 86% at 3 months; 84% at 12 months

**Further analysis of individual functional items showed a significant increase in independence of the HIP group in showering between baseline and 12 months ( $p < .001$ ).**

HACC Group:

Showering independence: 30% initially; 41% at 3 months; 43% at 12 months

HIP Group:

Showering independence: 49% initially; 69% at 3 months; 67% at 12 months

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

YES <input checked="" type="checkbox"/>	<i>Comment:</i> The researchers used chi-square tests and <i>t</i> tests to determine if the study was adequately powered. Their sample size of 375 in the main RCT groups was sufficient enough to detect a difference of 12% in service outcomes, with a 90% power and a 5% level of significance. In the subgroups, a sample size of 150 was sufficient to detect a 0.4 standard deviation in the functional measures, with a 90% power and a 5% level of significance.
NO <input type="checkbox"/>	
NR <input type="checkbox"/>	

Were appropriate analytic methods used? *Check yes, no, or NR, and if no, explain.*

YES <input checked="" type="checkbox"/>	<i>Comment:</i> The researchers used intention-to-treat (ITT) and as-treated analysis to analyze the effectiveness of the intervention. ITT analyzes the data without any of the factors that could dilute the effectiveness of the intervention. As-treated analysis analyzes the data from the experiment. Descriptive statistics were used to analyze demographic data.
NO <input type="checkbox"/>	
NR <input type="checkbox"/>	

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

YES <input checked="" type="checkbox"/>	<i>Comment:</i>
NO <input type="checkbox"/>	

Was the percent/number of subjects/participants who dropped out of the study reported?

YES <input checked="" type="checkbox"/>
NO <input type="checkbox"/>

Limitations:

What are the overall study limitations?

There were three limitations to the study. The first limitation was that there was contamination of the intervention. In the previous years, Silver Chain's mission had started to shift focus to
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emphasize re-ablement and independence of their clients. Components of the HIP intervention may have been inadvertently integrated into the control group.

Another limitation is that the randomization process was manipulated. Customer Centre Operators admitted to assigning participants to the groups that they felt would benefit the participants the most instead of following the randomization process

The third limitation is that data collection started after the participants had been receiving the intervention. Participants may have already started benefitting from the intervention by the time the researchers starting collecting data.

Although all analyses were adjusted for these cofounders, this may limit the generalizability of the results of this study.

## CONCLUSIONS

State the authors' conclusions related to the research objectives.

This study provided evidence that participation in a restorative home care program may be effective for older adults in decreasing the need for ongoing home care services. Specifically, researchers found that the HIP was likely to substantially decrease the likelihood of ongoing services at both the 3- and 12-month follow-up. As the number of aging adults continues to rise over the next 40 years, decreasing the amount of ongoing, home care services needed in this population will become increasingly important for health care providers to consider and strive toward.

Future studies should explore the effects of utilizing a restorative home care program in conjunction with community-based programs (e.g., volunteer opportunities, community gardening groups, adaptive physical activity classes) to improve the incidence of aging in place for older adults. Additionally, future researchers should utilize an enhanced randomized process (that is not controlled by human decision) for allocating participants into intervention and control groups.

This work is based on the evidence-based literature review completed by Adrienne Angeles, OTS; Shanee Ben-Haim, OTS; Amy Smith-Schwartz, OTS; and Kitsum Li, OTD, OTR/L, Faculty Advisor, Dominican University of California.

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