



AOTA Critically Appraised Topics and Papers Series
Alzheimer's Disease

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

CRITICALLY APPRAISED PAPER (CAP)

Focused Question

What is the evidence for the effect of interventions designed to modify and maintain perceptual abilities on the occupational performance of persons with dementia?

Pomeroy, V. M. (1993). The effect of physiotherapy input on mobility skills of elderly people with severe dementing illness. *Clinical Rehabilitation*, 7, 163-170

PROBLEM STATEMENT (JUSTIFICATION OF THE NEED FOR THE STUDY)

State the problem the authors are investigating in this study.

People with dementia often have impairments associated with their mobility. This study was designed to investigate whether the provision of physiotherapy input improves or maintains mobility skills in elderly people with a dementing illness.

RESEARCH OBJECTIVE(S)

List study objectives.

Assess whether providing environmental stimulation, specifically by physiotherapy intervention, improves or maintains the mobility skills of elderly people with a severe dementing illness.

Describe how the research objectives address the focused question.

Mobility is a critical piece of occupational performance that can promote many other options for occupational performance. However, if mobility is maintained in an older adult with dementing illness, this also could increase the caregiver stress if wandering is a result. The inclusion of body movement as part of the intervention relates to the area of perception (body awareness) in the focused question.

DESIGN TYPE:

Randomized crossover design: Patients were randomly allocated to physiotherapy treatment followed by no-treatment phase, or vice versa.

Level of Evidence:

I

Limitations (appropriateness of study design):

Was the study design type appropriate for the knowledge level about this topic? *If no, explain.*

Yes

No

SAMPLE SELECTION

Inclusion Criteria

- Diagnosis of dementia recorded in medical notes by a psychiatrist
- Resident in a long-stay psychiatric facility
- Needing 1–2 people for transfers
- Weight bearing not prevented by hip/knee contractures
- Score of below 18 on mobility scale
- Nursing report that the patient was not able to stand and walk alone
- Medically fit to participate

Exclusion Criteria

- Other neurological diagnosis
- History of alcoholism
- Severe arthritis or heart disease

Sample Selection Biases: *If yes, explain.*

Volunteers/Referrals

Yes

No

Attention

Yes

No

Others (list and explain):

SAMPLE CHARACTERISTICS

N= 24

% Dropouts	8 (33%)		
# (%) Male	8 (33%)	# (%) Female	16 (66%)
Ethnicity	Not mentioned; study took place in the United Kingdom		
Disease/disability diagnosis	Dementing illness		

Check appropriate group:

<20/study group	20–50/study group ✓	51–100/study group	101–149/study group	150–200/study group
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Sample Characteristics Bias: If no, explain.

If there is more than one study group, was there a similarity between the groups?

Yes

No Initially there was a difference in mobility scores between the groups, but the authors state that the crossover format ensured the elimination of this initial difference from the results, as each subject acted as their own control.

Were the reasons for the dropouts reported?

Yes

No

INTERVENTION(S)—Included are only those interventions relevant to answering the evidence-based question.

Add groups if necessary

Group 1

Brief Description	Control: No intervention
Setting	Not described
Who Delivered?	
Frequency?	
Duration?	6 weeks

Group 2

Brief Description	<p>Physio treatments: Music and movement, body awareness, and individual functional/mobility training.</p> <p>Music and movement was designed to arouse attention and increase muscular activity. Emphasized trunk mobility and control and proceeded to standing with support of 1–2 helpers.</p> <p>Body awareness group was based on sensory stimulation—passive/assisted movement to major joints and massage techniques to facilitate “normal” posture; use of a ball to encourage reaching, kicking, and pushing.</p> <p>Functional mobility training provided on an individual basis. Aim to improve/maintain movement in joints, flexibility of soft tissue, and functional movement. Included passive movements.</p>
Setting	Not specifically described, but study occurred in a long-term psychiatric facility
Who Delivered?	Not specified; physiotherapist implied
Frequency?	3 sessions per week for at least 30 minutes
Duration?	6 weeks

Intervention Biases: *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

NR

NR = Not reported

MEASURES AND OUTCOMES—Included are measures relevant to answering the focused question.

Name of measure:

Southampton Assessment of Mobility

Outcome(s) measured (what was measured?):

Sit to stand, standing balance, gait, stand to sit

Is the measure reliable (as reported in article)?

Yes

No

NR

Is the measure valid (as reported in article)?

Yes

No

NR

How frequently was the measure used for each group in the study?

Measurement (video) taken 1 week before first treatment, at crossover point, and at endpoint of study. Study period was 15 weeks.

Measurement Biases

Were the evaluators blinded to treatment status? *If no, explain.*

Yes

No

Recall or memory bias *If yes, explain.*

Yes

No

Others (list and explain):

Limitations (appropriateness of outcomes and measures) *If no, explain.*

Did the measures adequately measure the outcome(s)?

Yes Videotapes were independently reviewed by three senior physiotherapists experienced in elder care; blind to whether treatment had been received or not.

No

RESULTS

List results of outcomes relevant to answering the focused question

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

Include effect size if reported

There was wide variation in individual mobility scores, but results indicated improved mobility scores during the treatment phase and decreasing during the control phase. Statistical analyses of changes in mobility scores between treatment and control phases indicates a probable treatment effect $-0.05 > p > 0.01$ (Wilcoxon signed ranks test).

Was this study adequately powered (large enough to show a difference)? *If no, explain.*

Yes

No

Were appropriate analytic methods used? *If no, explain.*

Yes

No

Were statistics appropriately reported (in written or table format)? *If no, explain.*

Yes In both written and table format

No

CONCLUSIONS

State the authors' conclusions that are applicable to answering the evidence-based question.

Despite the severity of the cognitive impairment of subjects (all subjects were severely cognitively impaired), a significant improvement in mobility score occurred following physiotherapy intervention.

Were the conclusions appropriate for the Study Design (Level of Evidence)? *If no, explain.*

Yes

No

Were the conclusions appropriate for the statistical results? *If no, explain.*

Yes

No

Were the conclusions appropriate given the study limitation and biases? *If no, explain.*

Yes

No

IMPLICATIONS FOR OCCUPATIONAL THERAPY

This section provides guidance about clinical practice, program development, and other implications of the study findings as they relate to the focused question.

Study shows that even people with severe cognitive impairment can benefit from the intervention that focused on body awareness, movement, and mobility. Study does not address long-term effect of intervention (i.e., whether gains are maintained). Relatively high rate of non-completion (33%) may be a result of natural progression of the disease or an indication that the intervention was too strenuous. With severe cognitive decline and maintained mobility, there may be increased caregiver stress if wandering is an issue.

This work is based on the evidence-based literature review completed in August 2005 by Lori Letts, PhD, OT Reg. (Ont.); Jacqueline Minezes, BSc (OT), OT Reg. (Ont.); Julie Berenyi, BHSc (OT) OT Reg. (Ont.); Mary Edwards, MHSc, OT Reg. (Ont.); Kathy Moros, BHSc (OT), OT Reg. (Ont.); Colleen O'Neill, BSc (OT), OT Reg. (Ont.); and Colleen O'Toole, MSc (OT), OT Reg. (Ont.).

CAP Worksheet adapted from: Critical Review Form – Quantitative Studies ©Law, M., Stewart, D., Pollack, N., Letts, L., Bosch, J., & Westmorland, M., 1998, McMaster University. Used with permission.

For more information about the Evidence-Based Literature Review Project, contact the American Occupational Therapy Association, 301-652-6611, x 2052.



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