



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?

Robichaud, L., Hebert, R., & Desrosiers, J. (1994). Efficacy of a sensory integration program on behaviors of inpatients with dementia. *American Journal of Occupational Therapy*, 48, 355–360.

PROBLEM STATEMENT (JUSTIFICATION OF THE NEED FOR THE STUDY)

State the problem the authors are investigating in this study.

Behavior problems resulting from cognitive deficits in dementia include agitation, aggression, irritability, apathy, perseverance, wandering, screaming, self-stimulation, aggressiveness, and running away. These problems are difficult because they are unpredictable and embarrassing for caregivers and also may be dangerous for the person with dementia.

RESEARCH OBJECTIVE(S)

List study objectives.

Verify whether the sensory integration program developed by Ross and Burdick (1981) improves the behavior and functioning of institutionalized patients with dementia

Describe how the research objectives address the focused question.

Sensory integration is thought to utilize sensory input to promote the assimilation of simplified stimuli and contribute to the organization of an adapted response to improve the client's quality of interactions with others and the capacity to manipulate and use common objects in everyday life.

DESIGN TYPE:

Randomized control trial (RCT)

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

✓ One previous study looked at using sensory integration methods with people with dementia, but the sample size was small and validity of measurement tools not well established. An RCT design is appropriate when studying effectiveness of treatment intervention.

No

SAMPLE SELECTION

Inclusion Criteria

- Age 60 or older
- Fulfilled the criteria for dementia established in the DSM-III-R
- Scored lower than 75 (out of 100) on the Modified Mini Mental Status (Teng & Chui, 1987)
- Had at least one disruptive behavior
- Were physically able to attend the sensory integration sessions

Exclusion Criteria

None listed

Sample Selection Biases: *If yes, explain.*

Volunteers/Referrals

Yes

No

Attention

Yes

No

✓ Due to dementia, subjects were unaware of study's intent

Others (list and explain):

SAMPLE CHARACTERISTICS

N= 40

% Dropouts	<input type="text" value="7.5% (3)"/>	
# (%) Male	<input type="text" value="12 (30%)"/>	# (%) Female <input type="text" value="28 (70%)"/>
Ethnicity	<input type="text" value="Not mentioned; study took place in Quebec City"/>	
Disease/disability diagnosis	<input type="text" value="Dementia"/>	

Check appropriate group:

<20/study group	20–50/study group <input checked="" type="checkbox"/>	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

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	<p>Sensory Integration: Conducted in a room close to care units. Followed five steps set out by Ross and Burdick (1981): a) opening session reality orientation; b) activities emphasizing bodily responses (gross proprioceptive and vestibular movements); c) sensory stimulations (taste, smell, touch, sight, hearing); d) cognitive stimulations for organizing thought (memory, concentration, judgment); and e) closing the session (socialization, pleasure, relaxation).</p> <p>Subjects were invited to join the group and receive the different stimuli offered by the structured activities and materials</p>
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Setting	From 3 different institutions: A long-term-care facility, a psychogeriatric unit of a nursing home, and another nursing home where patients with dementia are not segregated
Who Delivered?	Doctoral student (first author)
Frequency?	Three 45 minute sessions/week were planned. On average, only 1.7 sessions were given per subject per week.
Duration?	10 weeks

Group 2

Brief Description	Control: Continued to participate in the usual leisure activities of their institution
Setting	From 3 different institutions: A long-term-care facility, a psychogeriatric unit of a nursing home, and another nursing home where patients with dementia are not segregated
Who Delivered?	Not reported
Frequency?	Not reported
Duration?	10 weeks

Intervention Biases: Explain, if needed.

Contamination

Yes Since control and study group participants were residents of the same facilities, contamination may have occurred.

No

Co-intervention

Yes

No

NR

NR = Not reported

Timing

Yes

No

Site

Yes

No

Use of different therapists to provide intervention

Yes

No

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

Name of measure:

Revised Memory and Behavior Problems Checklist (RMBPC)

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

Frequency of disruptive behavior and caregiver response to the behavior: 53 items that describe 53 behaviors—17 items related to depression, 13 related to memory problems, 7 related to psychomotor slowness, and 16 related to other disruptive behaviors. One scale measures frequency of problem and another scale was adapted to measure the degree of upset or bothersomeness.

Is the measure reliable (as reported in article)?

Yes Test–retest reliability was done on the French translation showing coefficients of 0.77(frequency) and 0.90 (reaction) (Hebert, Bravo, & Girouard, 1993)

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?

Pre- and post-intervention

Name of measure:

Psychogeriatric Scale of Basic Activities of Daily Living (PSBADL)

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

Task Oriented Behavior: Measures the level of assistance required for activities of daily living (ADL) by objectively measuring the degree of executive cognitive functions in the activities of bathing, dressing, grooming, continence, and eating. 25 items are the basic operations for accomplishing the tasks of the above mentioned five activities and remeasured in terms of the type of help required. Scores range from 0 (totally dependent) to 25 (totally independent)

Is the measure reliable (as reported in article)?

Yes Test-retest reliability ($r=0.967$)

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?

Pre- and post-intervention (10 week duration)

Measurement Biases

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

Yes

No While the RBMPC was blind, for the PSBADL, caregivers who had to prepare the study participants for their sessions were interviewed.

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

No

✓ Authors report that tools were not sufficiently sensitive and that other dimensions, such as communication and postural tone, could have been measured.

RESULTS

List results of outcomes relevant to answering the focused question

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

Include effect size if reported

Study group showed significant decrease in the frequency of disruptive behaviors ($t=3.16$, $p=0.004$), a decrease of the caregivers' reactions to the behaviors ($t=5.80$, $p=0.0001$), and an improvement of the level of assistance required in ADL ($t=2.91$, $p=0.009$). Participants in the control group had similar changes, but these were not statistically significant except for the reaction to the disruptive behavior ($t=2.15$, $p=0.05$)

Analysis of covariance (ANOCOVA) showed the intervention program had no significant effect on the behaviors of the group.

At pretest, the study group had a high frequency of disruptive behavior, and therefore appeared to have a significant decrease in disruptive behavior due to the intervention; however, it was calculated to be due to regression toward mean.

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

Yes

No

✓ Not to detect small or medium effect sizes

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

Yes

No

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

Yes

No

CONCLUSIONS

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

Efficacy of the sensory integration program in diffusing the occurrence of disruptive behaviors and improving functional performance could not be verified.

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.

The idea of using sensory stimulation with people with dementia is sound and the concept of the activities is within the scope of occupational therapy practice. The authors note a number of limitations of the study: Contamination effect on caregiver attitudes, frequency of sessions (may not have been frequent enough), small sample size, the need to consider other outcome measures, and stage of dementia. They recommend further studies be done. This study does not provide evidence of the effectiveness of sensory integration.

References

Hebert, R., Bravo, G., & Girouard, S. (1993). Fidelite de la traduction francaise de trois instruments de'evaluation des aidants naturels de malade dements [Reliability of the French translation of three instruments designed for evaluation of caregivers of demented patients]. *Canadian Journal on Aging, 12*, 324–337.

Ross, M. & Burdick, D. (1981). *Sensory integration: A training manual for therapists and teachers for regressed, psychiatric and geriatric patient groups*. Thorogare, N.J.: Slack

Teng, E. L. & Chui, H. C. (1987). The Modified Mini Mental State (3MS) Examination. *Journal of Clinical Psychiatry, 48*, 314–317.

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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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