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 effectiveness of interventions designed to establish, modify, or maintain routines on the occupational performance, quality of life, health and wellness, and client and caregiver satisfaction of persons with Alzheimer's disease?

McCurry, S. M., Gibbons, L. E., Logsdon, R. G., Vitiello, M., & Teri, L. (2003). Training caregivers to change the sleep hygiene practices of patients with dementia: The NITE-AD project. *Journal of the American Geriatrics Society, 51,* 1455–1460.

PROBLEM STATEMENT (JUSTIFICATION OF THE NEED FOR THE STUDY)

State the problem the authors are investigating in this study.

Sleep disturbances affect daytime behaviors of patients, and cause physical and psychological stress for their caregivers, and sometimes result in institutionalization decisions. For these reasons, management of sleep disturbances is viewed as a treatment priority in dementia. Nonpharmacological treatments are preferable and have been found to be effective in some institution-based studies. They have not been well researched in home-care settings in which family caregivers would be implementing the interventions.

RESEARCH OBJECTIVE(S)

List study objectives.

The objective was to determine if caregivers can be trained to use sleep hygiene (e.g., reducing daytime sleep and improving the sleep environment and nighttime routine) recommendations in patients with dementia residing in the community.

Describe how the research objectives address the focused question.

Part of the study's individual protocol for sleep hygiene includes the institution of bedtime and waking routines.

DESIGN TYPE:

Randomized Controlled Trial

Level of Evidence:

Level 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

How were subjects selected to participate? Please describe.

The method of participant recruitment is not reported in this paper.

Inclusion Criteria

All participants met the NINCDS-ADRDA criteria for probable or possible Alzheimer disease confirmed in writing by their primary care physicians.

Exclusion Criteria

NR

NR = Not reported

Sample Selection Biases: *If yes,* e*xplain.*

Volunteers/Referrals

Yes	✓
No	

Attention

Yes	
No	✓ Caregivers in the control group received the same number of sessions as those in the intervention group, with a focus on nondirective, supportive caregiver intervention and education.

Others (list and explain):

SAMPLE CHARACTERISTICS

N = 22

% Dropouts	*N* = 3		
#/ (%) Male	14 (64%)	#/ (%) Female	8 (36%)
Ethnicity	NR		
Disease/disability diagnosis	Probable or possible AD, MMSE scores mean: 10.7 ± 7.8; at least one sleep problem on the Neuropsychiatric Inventory Nighttime Behavior scale; all were ambulatory, had no primary sleep disorder or severe chronic illness that could be causing sleep problems, lived with a caregiver		

Check appropriate group:

< 20/study group ✓	20–50/study group	51–100/study group	101–149/study group	150–200/study group

Sample Characteristics Bias: *If no*, e*xplain.*

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.

Group 1

Brief Description	Intervention group: 10 patients and their caregiver were given in-home sessions, written materials, and individualized program of sleep hygiene techniques. Specific sleep hygiene recommendations were negotiated with the caregiver, and follow-up sessions involved problem solving with the caregiver to implement the sleep hygiene recommendations.
Setting	In homes of patients/caregivers
Who Delivered?	Geropsychologist

Frequency?	6-one hour sessions
Duration?	2 months

Group 2

Brief Description	Control group: 12 patients and their caregivers were given in-home sessions, along with written materials on age and dementia-related sleep disturbances, but specific, individualized recommendations on sleep hygiene were not provided. The focus was on nondirective, supportive caregiver interventions.
Setting	In homes of patients/caregivers
Who Delivered?	Geropsychologist
Frequency?	6 one-hour sessions
Duration?	2 months

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 ✓

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

Name of measure:

Daily sleep logs

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

Sleep hygiene adherence

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?

Daily for approximately 2 months

Name of measure:

Other measures mentioned include: • Wrist actigraphy (to measure sleep-wake activity) • Epworth Sleepiness Scale (caregivers' ratings of patient daytime sleepiness) • Pittsburgh Sleep Quality Index (caregivers' self-ratings of their own sleep) • Cornell Depression Scale (to measure patient depression) • Center for Epidemiological Study – Depression (for caregiver self-ratings of depression) All of these other measures are described and baseline data is presented. However, only sleep hygiene adherence is presented in the results as an outcome.

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

See above

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?

N/A

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 [✓]

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.

- Based on sleep diary information, patients were considered "target" subjects if they needed to make changes in their bedtime, rising time, or daytime napping schedules. All patients were assumed to benefit from daily walking. Analyses calculated for "target" subjects in each area of sleep hygiene using Wilcoxon rank sum test.
- Consistency of bedtime achieved in 83% of intervention vs. 38% of control subjects ($p = 0.0024$); rising time consistency was 96% vs. 59% ($p = 0.0092$); reduction of patient napping 70% vs. 28% ($p = 0.0066$); institution of walking program 86% vs. 7% ($p < 0.0001$).

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

No ✓ Since the analyses are based on "target" subjects only, it is difficult to know the differences between all members of the 2 groups.

CONCLUSIONS

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

The authors conclude that it is feasible to train caregivers to implement sleep hygiene recommendations with the intervention that involved specific, individualized suggestions and assistance to implement changes. There was a statistically significant difference between groups in the adoption of routines designed to improve sleep.

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.

Occupational therapists working in home-care environments with clients with dementia and their caregivers should inquire about routines related to sleep as part of the assessment process, and support caregivers to set and address goals in this area of daily routine as required. For example, usual bed and rising times, daytime sleeping, and daily walking may all influence nighttime sleep routines and be appropriate for interventions. Caregivers who identify goals related to sleep and daytime routines may need support from occupational therapists to change these routines. In this study, caregivers needed support and individualized suggestions to make the changes, and those in the control group who received information but not specific individualized interventions were significantly less likely to implement or adhere to the needed strategies. For example, the authors report that caregivers needed assistance in developing strategies to keep the client with dementia awake during daytime hours.

Occupational therapists, occupational therapy assistants, and occupational therapy students may require more information about sleep routines for people with dementia in order to help caregivers identify areas that need to be addressed and to develop strategies to do so. As well, sleep routines need to be considered as part of the occupational therapy home care program for clients with dementia and their caregivers.

This study provides insight into the feasibility of implementing sleep hygiene interventions as one way of adding routines to the daily lives of people with dementia and their caregivers. Although this study did not report on the actual consequences of implementing the sleep hygiene intervention, those results are presented in a more recent study. In the future, it would also be valuable to measure the impact of such daily routines on the quality of life, caregiver burden, and rates of institutionalization. While it is hypothesized that improved nighttime sleep and the establishment of routines could help to reduce caregiver stress, improve quality of life, and prevent or delay institutionalization, these hypotheses have not yet been rigorously studied.

This work is based on the evidence-based literature review completed by Lori Letts, PhD, OT Reg. (Ont.), Mary Edwards, MHSc, OT Reg. (Ont.), Julie Berenyi, BHSc (OT), 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.)

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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.