



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 establish, modify and maintain activities of daily living (ADL), instrumental activities of daily living (IADL), leisure, and social participation on the quality of life, health and wellness, client and caregiver satisfaction for persons with dementia?

Politis, A. M., Vozzella, S., Mayer, L. S., Onyike, C. U., Baker, A. S., & Lyketos, C. G. (2004). A randomized controlled clinical trial of activity therapy for apathy in patients with dementia residing in long term care. *International Journal of Geriatric Psychiatry, 19*, 1087–1094.

PROBLEM STATEMENT (JUSTIFICATION OF THE NEED FOR THE STUDY)

State the problem the authors are investigating in this study.

Apathy is a common symptom in patients with dementia and has a negative impact for patients and caregivers. Consequences of untreated apathy for patients and caregivers include: physical deconditioning, failure of rehabilitation, ADL deterioration, uncooperative with care, combativeness, social isolation, & caregiver distress. The behavioral interventions, such as reminiscence and music therapy, developed for neuropsychiatric complications of dementia were not designed to target apathy. Most treatments for apathy, particularly non-pharmacological options, have not been evaluated in controlled trials. The authors state that their clinical observations indicate one-on-one time spent with dementia patients with apathy were associated with less irritability and more engagement with these patients. Not having objective data, the authors set out to compare this on-on-one engagement with a more formal reminiscence therapy in a controlled trial of treatment for apathy in dementia.

RESEARCH OBJECTIVE(S)

List study objectives.

The study evaluated the effectiveness of an expensive kit-based activity intervention compared to a one-on-one, unstructured interaction (time and attention control group), in reducing apathy and the effect of both interventions on overall behavioral disturbances, overall activity participation and quality of life.

Describe how the research objectives address the focused question.

Apathy has negative consequences for patients with dementia in many domains including physical deconditioning, performance on activities of daily living, resistance to care, social isolation and caregiver distress. Past research for non-pharmacological treatment of issues in dementia care have not focused on the treatment of apathy. The study looked at participation in structured leisure based activities as compared to unstructured one-to-one interactions.

DESIGN TYPE:

Randomized Controlled, parallel, partially masked (rater) 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

✓ There is large amount of literature on a wide range of non-pharmacological interventions to treat behavioral and neuropsychiatric symptoms in dementia with the majority being uncontrolled trials. There are no studies that evaluate the use of interventions to target apathy in a controlled trial.

No

SAMPLE SELECTION

How were subjects selected to participate? Please describe.

Inclusion Criteria

- Diagnosis of dementia according to DSM-IV
- Presence of apathy based on a judgment of the staff that the patient had relatively low interest and involvement in day-to-day activity at facility
- A Global deterioration scale (GDS) score of 3-5
- Ability to engage in a simple activity or a brief conversation

Exclusion Criteria

None explicitly stated.

Sample Selection Biases: *If yes, explain.*

Volunteers/Referrals

Yes

✓ Lack of formal assessment of apathy may have resulted in a selection bias by drawing in patients with whom doing activities was not very challenging on a day-to-day basis and excluded angrier, uncooperative patients.

No

Attention

Yes

✓ There was an attention and time control group but there was no untreated control group.

No

Others (list and explain):

SAMPLE CHARACTERISTICS

N= 37 residents of Copper Ridge

% Dropouts

1/37 =
0.027%

#/ (%) Male

6 (16)

#/ (%) Female

30 (84)

Ethnicity

NR

Disease/disability diagnosis

15 (60%) of the intervention group and 10 (40%) of the control group had a diagnosis of Alzheimers. Other diagnosis not reported. Residents randomized to the “kit” group were significantly better educated

NR= Not reported

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, explain.

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

Yes

No

Residents randomized to the “kit” group were significantly better educated (according to MMSE) and there was a slight tendency for the control (“one-to-one”) group to have lower (worse) scores on the Alzheimers Disease Related Quality of Life (ADRQL).

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	Geriatric Network kit is a standardized, structured activity method that attempts to provide mental stimulation with a choice of activity based on participants' interests. There are five types of activities in the kit: geography, fun foods, farm animals, vegetables and musical instruments.
Setting	A well-lit private location, usually the patients room where there are comfortable chairs.
Who Delivered?	Activity therapist
Frequency?	30 minutes, 3 times/ week
Duration?	4 weeks

Group 2

Brief Description	Therapist introduces self to participant and asks if the participant would like to spend some time together. Participant is then asked to talk about some of their interests. Questions are asked of the participant about their past and interests. Participant can choose an activity that might include discussion, puzzles, artwork and reading or a mixture of these activities. Visits are unstructured, relaxed interaction.
Setting	Unspecified comfortable and private setting
Who Delivered?	Activity therapist
Frequency?	30 minutes 3 times/ week
Duration?	4 weeks

Intervention Biases: *Explain, if needed.*

Contamination

Yes

No

Co-intervention

Yes

No After randomization, no psychoactive medication changes were made during the course of the study.

Timing

Yes Since there is no formal measure of apathy, changes in groups may have been due to short course of apathy.

No

Site

Yes Facility was known to already have a substantial amount of simulating, background activity therefore the specific advantage of either treatment may not have been as noticeable as it would have been in a less stimulating environment.

No

Use of different therapists to provide intervention

Yes

No Same activity therapist was used for all interventions; this therapist was required to meet with her supervisor (one of the investigators) to ensure consistent delivery of each intervention.

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

Name of measure:

NPI (Neuropsychiatry Inventory) apathy domain and total NPI score

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

Quantifies behavioral disturbance in patients with dementia using 12 domains with a subscale for each domain. The domains include: delusions, hallucinations, agitation/aggression, depression/dysphoria, anxiety, elation/euphoria, apathy/indifference, disinhibition, irritability/lability. The apathy domain specifically includes 8 observable behaviors. The total domain score is 12 points with higher scores reflecting more severe disturbances.

Is the measure reliable (as reported in article)?

Yes

No

NR Authors only state that it is widely used to quantify behavioral disturbance in dementia.

Is the measure valid (as reported in article)?

Yes

No

NR

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

At baseline and again 2 weeks after the completion of the intervention

Measurement Biases

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

Yes Masked as to condition of treatment

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 Difficult to determine appropriateness of measure as no psychometric data on measure presented.

Name of measure:

Alzheimers Disease Related Quality of Life scale (ADRQL)

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

Measures quality of life through a behavior-based assessment of the past week. It is administered through interview of the primary care-giver on 47 items that describe behaviors associated with five domains of quality of life. Domains include: social interaction, awareness of self, feelings and mood, enjoyment of activities and responses to one's surroundings. Each item has a weight score. Weighted scores are summed and then divided by the total possible score and finally multiplied by 100. Higher scores reflect better quality of life.

Is the measure reliable (as reported in article)?

Yes Reported as reliable but no values provided

No

NR

Is the measure valid (as reported in article)?

Yes

No

NR Reported as sensitive to change, but no objective data provided

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

Measure used at baseline and again 2 weeks following completion of intervention

Measurement Biases

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

Yes (masked as to condition of treatment)

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 But difficult to evaluate due to limited reporting of psychometric properties of outcome measure

No

Name of measure:

Copper Ridge Activity Index

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

Measures activity success by quantifying three dimensions: participation (1-6 points), cueing (1-3 points); enjoyment (1-5 points). Higher scores reflect less participation, more need for cueing or greater enjoyment.

Is the measure reliable (as reported in article)?

Yes Inter-rater co-efficient was 0.92 ($p < 0.0001$) for participation; 0.69 ($p < 0.0001$) for the cueing scale, and 0.78 ($p < 0.0001$) for enjoyment indicating good reliability for these scales.

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?

Average scale ratings were collected for 4 weeks prior to the intervention, 4 weeks during the intervention and 4 weeks after the intervention

Measurement Biases

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

Yes Masked as to condition of treatment

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 However, very preliminary use of measure and more statistical data required

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 were no significant between group differences on any of the measures. There were significant within group improvements on the NPI apathy ["kit group" $z = -1.919$, $p = 0.055$; "one-to-one" $z = -2.676$, $p = 0.007$].

There were significant within group improvements on the total NPI scores ["kit group" $z = -2.526$, $p = 0.012$; "one-to-one" group $z = -2.484$, $p = 0.013$]

On the ADRQL, there was a statistically significant within group improvement on quality of life for the control ("one-to-one") group [$z = -2.166$, $p = 0.030$] but not the intervention ("kit") group [$z = -0.511$, $p = 0.61$].

On the CRAI the only difference between the groups was a modest decrease in the need for cueing in the control ("one-to-one") group [$p = 0.027$]

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

Yes

No Limited sample size may have limited the ability to detect clinically significant advantage to either intervention

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

Yes Due to the presence of outliers in the initial descriptive analysis, the Mann Whitney U test for independent samples was used to compare the two groups pre and post test on the NPI and the ADRQL. The non-parametric Wilcoxon test for related samples was used to evaluate the within group differences. For the CRAI, a repeated measures analysis of variance (ANOVA) was used to compare the two groups. Within-subjects effect sizes was estimated (η^2 or 'eta squared').

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.

In this randomized controlled trial, for the treatment of apathy in patients with dementia who live in a long-term-care facility, there was significant improvement in apathy and total neuropsychiatric disturbance over the course of the study, regardless of intervention. Comparing reminiscence based "kit" intervention to a time and attention "one-to-one" control, there was no substantive difference between the treatment groups on any of the outcome measures. If anything, the participants in the control group did slightly better, with modestly improved quality of life and reduced need for cueing in activities.

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

Yes

No Limitations such as lack of a control group with no intervention, rater bias, since raters knew participants were receiving some intervention, as well as a possible positive treatment effect impede finding clear and definitive differences between the groups

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.

There are many standardized treatment "kits" that have been well marketed but have not undergone rigorous clinical evaluation of their effectiveness. It is possible to reduce the wasteful spending of healthcare dollars by careful evaluation of these interventions to ensure their value. It is possible that well-directed personal attention may provide similar benefits.

Studies such as this will be useful in the development of best practice guidelines regarding the amount of interpersonal interactions and use of planned activity to reduce apathy and improve quality of life for dementia patients and their caregivers.

Further research in evaluating the factors that impact of various activities on the development of apathy through randomized control trials with comparison of an untreated control group may

provide illumination of the mechanism of apathy e.g. lack of external motivators or provision of context and structure for people who can not provide for themselves. Freds et al.,(1992) suggest that patients with apathy are more impaired in the six basic activities of daily living. Occupational Therapists, through activity analysis and assessment of functional abilities are well-suited to evaluate and problem solve how to maintain participation in activities of interest to the client and maintain role identification in order to reduce the impact of apathy.

Freds, S., Cohen, D., Eisdorfer, C., Paveza, G., Gorelick, P., Luchins, D., et. al. (1992). Functional status and clinical findings in patients with Alzheimer disease. *Journal of Gerontology (Medical Sciences)*, 47A , M177–M182.

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