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The Effects of Occupation-Based Activities on
Problem Behaviors and Quality of Life of People with Dementia

May 2018

This evidence project, submitted by

Kelly Souza and Nicole Utt

has been approved and accepted

in partial fulfillment of the requirements for the degree of
Master of Science in Occupational Therapy from the University of Puget Sound.

Project Chairperson: Tatiana Kaminsky, PhD, OTR/L

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Dean of Graduate Studies: Sunil Kukreja, PhD

Key words: Occupation, activity, dementia, quality of life, problem behavior, agitation

Abstract

Cathryn Schaffer and Sonia Nurkse, occupational therapists in an inpatient rehabilitation unit at Good Samaritan of Multicare in Puyallup, WA, proposed a research question: Can occupation-based activities be used to improve quality of life and/or reduce problem behaviors in adults with dementia-related cognitive impairment? Five databases were searched for articles published from 2007 to 2017, resulting in 23 articles that met search criteria. Interventions that did not take extensive time, training, or resources were included with the intention that they would be easily incorporated into a caregiver or health professional's routine. Multiple interventions were found that address problem behaviors and/or quality of life including social interaction, activity individualization, object interaction, and general occupations. Each of these interventions had moderate to strong evidence that they reduced the occurrence of problem behaviors and limited to mixed evidence supporting their efficacy on improving quality of life, though individualization of activities seemed to have the most evidence as effectively reducing problem behavior occurrences.

Results of the critically appraised topic review were summarized into an in-service presentation for inpatient rehabilitation staff of a Multicare hospital. This in-service informed staff regarding the potential to implement these interventions and strategies to educate caregivers of people with dementia about what they can do to reduce occurrence of problem behaviors and increase quality of life of care recipients. A caregiver pamphlet was created with activity ideas and tips to communicate with and engage a person with dementia in activity. The impact of the in-service and pamphlet was assessed with a survey completed by in-service attendees, which yielded positive results: 86% stated they would probably or definitely use the caregiver handout, and 71% said they were somewhat to very comfortable individualizing activities. We recommend future in-services regarding this research in other settings such as long-term care facilities, adult family homes, or to be available as caregiver information sessions.

Executive Summary

Cathryn Schaffer and Sonia Nurkse, collaborating occupational therapists from an inpatient rehabilitation unit at Good Samaritan of Multicare in Puyallup, WA presented the question, “Is there evidence that occupational engagement throughout leisure or down time is effective in reducing maladaptive behaviors, decreasing agitation, preventing cognitive decline, or reducing caregiver burden with individuals with cognitive decline as compared to minimal stimulation throughout the day?” This question was inspired by the collaborators’ experiences with patients with cognitive impairment and the necessity for keeping them in line of sight for safety. When these patients are kept in line of sight, they are often unoccupied, and problem behaviors can occur. Problem behaviors are common, persistent, and impactful upon the quality of life of both the individual with dementia and caregivers (Livingston et al., 2014). In this study, problem behaviors as a result of dementia were defined to include agitation, aggression, passivity (versus engagement), wandering, repetitive questioning, and negative affect.

After an initial search of the literature, a vast number of results were found. The topic was further refined to only include occupation-based interventions that target either quality of life or problem behaviors and that did not require extensive time, training, or resources. The inclusion criteria were narrowed to examine occupation-based interventions that best fit the scope of occupational therapy, and that address quality of life or problem behaviors in a simple and time efficient manner. This aims to benefit both the individual with dementia and the care provider. We also wanted to identify interventions that could be utilized by family caregivers after discharge, and therefore did not require a medical background or extensive training.

The purpose of this literature review is to assess the impact of occupation-based activities on quality of life and problem behaviors in adults with dementia-related cognitive impairment, in order to identify specific interventions that caregivers or healthcare workers could easily implement or fit into daily routines without extensive training or resources.

Relevant terms were used to search five databases (CINAHL, PubMed, PsycINFO, Sound Ideas, and OT Seeker) of published articles between 2007 and 2017 resulting in 674 article hits. Twenty-three of

these hits met search criteria and were included for critical review. Studies were excluded if they did not report outcome measures of either problem behaviors or quality of life. Studies included were rated based on quality and rigor of research, and results were separated by intervention type and evaluated for effects on quality of life and problem behaviors. Multiple interventions were found that address problem behaviors and/or quality of life including social interaction, activity individualization, object interaction, and general occupations. Each of these interventions had moderate to strong evidence in reducing occurrence of problem behaviors and limited to mixed evidence supporting improvement of quality of life.

Results of the critically appraised topic review were summarized into an in-service presentation for inpatient rehabilitation staff of a Multicare hospital. This in-service informed staff regarding the potential to implement these interventions and strategies to educate caregivers of people with dementia about what they can do to reduce occurrence of problem behaviors and increase quality of life of person with dementia. A pamphlet was created with activity ideas and tips to communicate with and engage a person with dementia in activity. A survey was given to attendees of the in-service presentation to monitor the likelihood that they would use the information presented and the pamphlet and to gauge their level of comfort in activity individualization with clients with dementia. Fifty-seven percent said they would probably use the caregiver handout, 28% said they would definitely use, and 14% were unsure. Seventy-one percent of in-service attendees said they were somewhat to very comfortable individualizing activities. We recommend future in-services regarding this research to be implemented in other settings such as long term care facilities, adult family homes, or to be available as caregiver informational sessions.

The implementation of these findings may give healthcare providers and caregivers tools and strategies to decrease occurrences of distressing problem behaviors and to increase the quality of life of the person with dementia. This has the potential to indirectly decrease caregiver burden and allow occupational therapists to treat dementia holistically through the continuum of care.

CRITICALLY APPRAISED TOPIC (CAT) PAPER**Focused Question:**

Can occupation-based activities be used to improve quality of life and/or reduce problem behaviors in adults with dementia-related cognitive impairment?

Collaborating Occupational Therapy Practitioners:

Sonia Nurkse, MOT, OTR/L and Cathryn Shaffer, MSOT, OTR/L

Prepared By:

Nikki Utt, OTS and Kelly Souza, OTS

Chair:

Tatiana Kaminsky, PhD, OTR/L

Course Mentor:

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Date Review Completed:

January 24, 2017

Clinical Scenario:

Two inpatient rehabilitation occupational therapists are treating patients with cognitive impairments due to dementia, including Alzheimer's disease. Many of these patients must remain in continuous line of sight due to safety concerns from problem behaviors that come with their cognitive impairment (C. Shaffer & S. Nurkse, personal communication, September 12, 2017). The clinicians are concerned that patients' time between treatment sessions may be spent seated in a chair near the nursing desk without anything to engage them. When unoccupied, patients have a tendency toward problem behaviors such as wandering, questioning, and agitation. The clinicians shared that they are worried that inactivity leads patients to be more depressed, sleep more, and decline further cognitively. Often, caregivers are placed with the responsibility to care for these individuals with little knowledge of how to prevent, reduce, or manage problem behaviors. While there are interventions available to reduce the incidence of problem behaviors, they are not always appropriate to teach caregivers to implement in their homes or facilities due to needing to be administered by a skilled therapist. The collaborating therapists are seeking evidence about whether or not activity engagement can be effective in managing problem behaviors or improving QOL in people with dementia and Alzheimer's Disease. They also want to know what types of activities to encourage caregivers to use. The hope is that these interventions and programs will help improve the quality of life of these patients with dementia and decrease the burden placed on caregivers.

Review Process

Procedures for the selection and appraisal of articles

Inclusion Criteria:

Articles were included if (1) they measured at least one target problem behavior or quality of life as an outcome, (2) they included a description of the activities implemented, (3) they were published from 2007 to 2017, and (4) they addressed interventions that could be used by caregivers without extensive training or health professional experience. The targeted problem behaviors included agitation, aggression, passivity (versus engagement), wandering, and negative affect. Studies discussing problem behavior reduction in general were also included.

Exclusion Criteria:

Articles were excluded if they (1) used non-occupation-based interventions including musical, Montessori, or sensory activities; (2) did not report at least one of the target outcomes; (3) needed to be conducted in a group setting; or (4) used interventions that were unable to be worked into the daily routine of caregivers due to the number of resources or hours of training required. Examples of interventions requiring unreasonable resources include programs involving extensive training time with health professionals or the use of robotics, theater lessons, animal assisted therapy, or clown visits.

Search Strategy

Categories	Key Search Terms
Client Population	dementia OR Alzheimer
Intervention	activity, leisure, occupation, social, meaningful activity, non-pharmacological
Comparison	N/A
Outcomes	quality of life, wellbeing, behavior reduc*, agitation, aggression

Figure 1. Key Search Terms. This figure displays which terms were entered into databases searched.

Databases and Sites Searched
CINAHL, OTSeeker, PsycINFO, PubMed, Sound Ideas

Quality Control/Review Process:

Searches were conducted in CINAHL, PubMed, OTSeeker, Sound Ideas, and PsycINFO electronic databases using various combinations of the key terms described in Figure 1, searching only in the title and abstract and requiring that “dementia” or “Alzheimer” be in the title. Search terms were determined by the two principal investigators with input from the project chair. The two investigators conducted the searches and review, with each searching separate databases. These searches produced 674 hits. Articles were first reviewed by title for fit with inclusion and exclusion criteria, resulting in 126 remaining articles for abstract review. 14 articles included in systematic reviews that were within the date range and passed title review were also assessed further.

A review of abstracts and full-text articles resulted in further exclusion of 76 articles: 22 were rejected for measuring outcomes outside the scope of this study, 14 for not having an intervention or adequate description of the activities used, 11 for requiring skilled training to provide the intervention, 10 for not using occupation-based activities, 6 were rejected for requiring unreasonable resources, 4 for not applying to the target population, and 2 for requiring a group setting. One study was also excluded because it described a protocol for a not-yet completed study, and three systematic reviews were excluded because they did not contain any relevant studies beyond those discussed in other systematic reviews. The completed study of the protocol was found in our searches and is included for appraisal. Further, three articles were excluded because they could not be accessed by the researchers. After removal of 41 duplicates, 23 articles remained for appraisal. Those articles that appear in both systematic reviews and the quantitative tables are noted with an asterisk. The two primary investigators appraised the final 23 articles by completing a critically appraised topic table, determining the levels of evidence according to AOTA and the Research Pyramid, and assessing quality using the PEDro Scale.

Results of Search**Table 1. Search Strategy of databases.**

Search Terms	Date	Database	Initial Hits	Articles Excluded	Total Selected for Review
(TI (dementia OR Alzheimer)) AND (AB (leisure OR occupation)) AND (AB ("quality of life" OR wellbeing OR behavior reduc* OR agitation OR aggression)) Limiters: human subjects; 2007 - 2017	11/7/17	CINAHL	19	17	2
(TI (dementia OR Alzheimer)) AND (AB activity) AND (AB ("quality of life" OR wellbeing OR behavior reduc* OR agitation OR aggression)) Limiters: human subjects; 2007 - 2017	11/7/17	CINAHL	179	171	8
((Dementia[Title] OR alzheimer's[Title])) AND (behaviors[Title/Abstract] OR agitation[Title/Abstract]) AND (occupation engagement[Title/Abstract] OR activity engagement[Title/Abstract] OR leisure[Title/Abstract])	11/7/17	PubMed	14	12	2

((dementia[Title] OR alzheimer's[Title])) AND (occupation engagement[Title/Abstract] OR meaningful occupation[Title/Abstract] OR activity engagement[Title/Abstract] OR leisure[Title/Abstract])) AND (behavior[Title/Abstract] OR quality of life[Title/Abstract] OR agitation[Title/Abstract])	11/7/17	PubMed	50	49	1
(TI (alzheimer's OR dementia)) AND (AB (occupation engagement OR activity engagement OR meaningful OR leisure)) AND (AB (behaviors OR quality "of" life OR agitation))	11/9/17	PsycINFO	127	123	4
TI (dementia or Alzheimer) AND AB (social OR "meaningful activity") AND AB (behavior OR "quality of life" OR agitation OR aggression) Limiters: human subjects; 2007 - 2017	11/12/17	CINAHL	195	192	3
(dementia OR alzheimer) AND (leisure OR occupation OR activity OR social) Limiters: 2007 - 2017	11/12/17	Sound Ideas	41	41	0
[Title/Abstract] like 'dementia OR alzheimer' AND [Title/Abstract] like 'leisure OR occupation OR activity OR social OR engage' Limiters: hand-searched for articles published 2007 - 2017	11/13/17	OT Seeker	17	17	0
TI (dementia or Alzheimer) AND AB non-pharmacological AND AB (BPSD OR behavior OR "quality of life" OR agitation OR aggression) Limiters: human subjects; 2007 - 2017	11/18/17	CINAHL	32	32	0
Total number of articles used in review from database searches: 20					

Table 2. Articles from reference tracking.

Article	Date	Total articles from relevant categories published 2007 - 2017	Articles Excluded	Total Selected for Review
Kong, Evans, & Guevara (2009)	11/19/17	1	1	0
Letts, Edwards, Berenyi, Moros, O'Neill, O'Toole, & McGrath (2011)	11/23/17	2	2	0
Livingston, Kelly, Lewis-Holmes, Baio,	11/19/17	3	3	0

Morris, Patel...& Cooper (2014)				
Testad, Corbett, Aarsland, Lexow, Fossey, Woods, & Ballard (2014)	11/19/17	5	4	1
Zetteler (2008)	11/23/17	3	1	2
Total number of articles used in review from reference tracking = 3				

Total number of articles used in review from database searches = 20

Total number of articles used in review from reference tracking = 3

Total number of articles used in review from UPS Master's Thesis = 0

Total number of articles used in CAT = 23

Summary of Study Designs of Articles Selected for the CAT Table

Pyramid Side	Study Design/Methodology of Selected Articles	Number of Articles Selected
Experimental	_5_Meta-Analyses of Experimental Trials _2_Individual Randomized Controlled Trials _3_Controlled Clinical Trials _3_Single Subject Studies	13
Outcome	_2_Meta-Analyses of Related Outcome Studies ___Individual Quasi-Experimental Studies _1_Case-Control Studies _4_One Group Pre-Post Studies	5 (+2 both E1/O1)
Qualitative	___Meta-Syntheses of Related Qualitative Studies _2_Small Group Qualitative Studies ___brief vs prolonged engagement with participants ___triangulation of data (multiple sources) ___interpretation (peer & member-checking) ___a posteriori (exploratory) vs a priori (confirmatory) interpretive scheme ___Qualitative Study on a Single Person	2

Descriptive	___Systematic Reviews of Related Descriptive Studies _1_ Association, Correlational Studies ___2_ Multiple Case Studies (Series), Normative Studies ___Individual Case Studies	3
<u>AOTA Levels</u> I- # of articles - 9 II- # of articles - 3 III- # of articles - 6 IV- # of articles - 2 V- # of articles – 1 And 2 qualitative articles, which are not included in AOTA levels of evidence.		<i>TOTAL number of articles - 23</i>

[Note: Only interventions and outcomes within the scope of this review are included in the results tables.]

Table Summarizing *QUANTITATIVE* Articles:

Author, Year, Journal, Country	Study Purpose	Study Design, Evidence Level, PEDro	Participants, Sample Size, IC and EC	Interventions & Outcome Measures	Summary of results	Limitations
Individualized activity						
<p>Gitlin & Winter et al., 2008</p> <p><i>American Journal of Geriatric Psychiatry</i></p> <p>USA</p>	Examine the effect of the use of the Tailored Activity Program at home on neuropsychiatric behaviors of people with dementia.	Prospective two-group controlled pilot study. AOTA - I Pyramid - E3 PEDro – 6/10	60 CGs & PWD PWD: 88% F, 77% white, mean age 65 yrs, mean MMSE 11.6, dependent in multiple ADLs/IADLs CGs: 62% spouses IC: speak English; PWD = dementia dx or MMSE < 24, can do at least 2 self-care activities; CGs = > 21 yrs, live with PWD, care 4+ hrs/day. EC: SCZ, bipolar, ABI, hrs/day, non-responsive, terminal illness, >3 hospitalizations in past yr.	<p>IV: Personalization of activities for PWD and CGs educated to implement activities at home vs waitlist controls (received same intervention and were retested 4 mos later).</p> <p>DV: Behavior frequency (shadowing, questioning, agitation, argumentation) measured by Agitated Behaviors in Dementia Scale; QOL via QOL Scale</p>	<p>After intervention, frequency of behavioral occurrences decreased ($p = .009$). Shadowing ($p = .003$), repetitive questioning ($p = .023$), and reported agitation ($p = .014$) and argumentative behaviors ($p = .010$) decreased in both treatment and control groups.</p> <p>No difference in QOL ($p = 0.095$).</p>	Ratings of behavior were subjective and reported by CGs, so there may have been bias. Only significant results were discussed and non-significant findings were only reported in tables, showing possible bias in presentation of results.
<p>*Kolanowski & Litaker et al., 2011</p> <p><i>Journal of American Geriatrics Society</i></p> <p>USA</p>	Test main and interactive effects of Need-Driven Dementia-Compromised Behavioral Model, or effect of personalization of activities on behavioral symptoms.	RCT AOTA - I Pyramid - E2 PEDro - 8/10	128 SNF residents, mean age 86 yrs, 75% F. IC: English speaking, 65+ yrs, dementia dx, MMSE 8-24, BPSD, no new psychoactive drugs during study. EC: delirium, progressive/unstable illness, seizures, CVA, substance abuse, ABI, MI before memory loss.	<p>IV: Activities tailored to: FL (n=32), PSI (n=33), FL and PSI (n=31), and active control (n=32). 2x2 factorial design; FL (tailored to or difficult) X PSI (tailored to or opposite).</p> <p>DV: agitation (CMAI), passivity (PDS), affect (PGCARS), engagement, mood (DMPT)</p>	<p>PSI alone improved engagement (on task ($p = .005$), participation ($p = .000$)), affect (alertness ($p = .003$), attending ($p = .024$)). FL tailoring didn't improve outcomes, more passivity was observed. FL+PSI tailoring improved affect (pleasure ($p = .035$)), less passivity was observed, and agitation increased. Mood worsened when activities weren't tailored.</p>	No p values reported for between-groups comparisons. Confounding variables may have affected results such as staff turnover and quality of care. There was limited follow-up in study.

<p>Rapp & Mell et al., 2013</p> <p><i>Journal of the American Medical Directors Association</i></p> <p>Germany</p>	<p>Test effect of activity therapy guidelines to treat behavioral symptoms of PWDs in nursing homes.</p>	<p>Cluster-randomized controlled trial AOTA - I Pyramid - E2 PEDro - 8/10</p>	<p>268 total PWD from 18 NH. 57 AD, 62 vascular dementia, 6 Lewy body dementia, 3 FTD, 166 dementia NOS. IV group: $N = 136$; age $M = 81.34$ yrs, 123 women, MMSE $M = 9.22$, CMAI $M = 52.94$. Control group: $N = 122$; mean age 81.91 yrs, 98 women, mean MMSE 8.56, mean CMAI 53.86. IC: dementia dx EC: none</p>	<p>IV: NH staff given training on behavioral symptoms of dementia. Individualized activities twice a wk for 45 minutes (e.g. drawing, use of basic instruments such as scissors, knitting, use of kitchen utensils and therapy dough, and musical instruments). Control: treatment as usual DV: agitation via CMAI</p>	<p>10 month follow-up: significant difference in mean agitation with intervention NHs having less agitation after adjustment for age, gender, and baseline dementia severity ($p = 0.009$). Aggressive behavior increased in control and decreased in IV group ($p = 0.012$). Physically non-aggressive and verbally agitated behaviors not different between groups ($p = 0.977$ and 0.357).</p>	<p>Large dropout rates (74 people) due to death, moving out of facility, or withdrawal of consent. Control facilities also offered group activities, so some control participants received activity therapies, though they were not individualized according to this protocol.</p>
<p>Cohen-Mansfield & Marx et al., 2015</p> <p><i>American Journal of Geriatric Psychiatry</i></p> <p>Israel</p>	<p>Compare non-pharmacological interventions for people with behavioral symptoms of dementia.</p>	<p>Exploratory multiple treatment within subjects study. AOTA - III Pyramid - E4 PEDro - 4/7</p>	<p>89 participants from Maryland NHs. Mean age 85.9 yrs, 73% F, 83% white, 61% widowed. IC - Lived at NH (nursing home) for > 3 wks, identified by staff as having behavior symptoms several times a day, age > 60, dementia dx. EC - life expectancy > 3 mos, bipolar, SCZ, mental retardation dx, expected to leave NH within 4 mos, score on MMSE > 25.</p>	<p>IV: Trial phase = 3 wks testing activities addressing specific problem behavior. Individualized tx phase = 2 wks activity with most effect on behavior. Activities: care (toileting, covering in blankets), theme (reading or videos), manipulative (puzzles, ball tossing), sensory stimulation (hand massage, fabric book, music), movement activities (walking, going outside), artistic, and work activities. DV: agitation and interest via CAR</p>	<p>Greater behavior change in individualized tx phase than trial phase ($p = 0.044$). Tx phase: care, ball toss, food or drink, going outside, coloring/painting, walking, folding towels, sewing, family video had most impact on behavior. Least impact from fabric book and robotic animal. Overall: one-on-one more effective at decreasing problem behavior than nonsocial or simulated social IV.</p>	<p>Small number of participants used each intervention, so low power for detecting differences between activities. Study was exploratory and looked for trends, not precise differences. Potential bias from choice and delivery of interventions by the same person. Participants received multiple interventions which may have cause cumulative effects.</p>

<p>de Vocht & Hooegeboom et al., 2015</p> <p><i>Dementia and Geriatric Cognitive Disorders</i></p> <p>Netherlands</p>	<p>Assess effects of daily one-to-one 30 min individualized interaction on behavior and QOL of care-dependent PWD.</p>	<p>Pre-post using video recording. AOTA - III Pyramid - O4 PEDro - 3/6</p>	<p>18 care-dependent PWD in nursing home. 3 died during study, so final $N = 15$. Mean age 88.8 yrs, 86.7% women, mean CDS score 19. IC: CDS score of 25 or lower; care dependent due to dementia. EC: none</p>	<p>IV: daily one-to-one 30 min individualized interaction with a nurse for 16 wks. Activities selected based on PWD preferences (e.g. hand massage, singing, playing with dolls).</p> <p>DV: behavior via video observation (including eye contact, response to speech, cooperation, inactivity, questioning), QOL via Qualidem scale, and interviews with care providers and relatives to assess impact on QOL.</p>	<p>Behaviors: From baseline to 11 wks, increases in maintained eye contact and cooperation with $p < 0.01$ and increases in responses to speech, asking questions, and inactivity/sleeping at $p = 0.01$. Some relatives noticed positive mood change, while some did not notice changed behavior. Head nurses reported clients were more relaxed and less agitated with longer lasting effects for some residents. QOL: No significant differences ($p = 0.11$ to 0.88).</p>	<p>Small sample size and few family members interviewed.</p>
<p>O'Connor & Clemson et al., 2016</p> <p><i>Disability and Rehabilitation</i></p> <p>Australia</p>	<p>Describe the results of the TAP in 2 people with FTD.</p>	<p>2 case studies with pre/post-test design AOTA - V Pyramid - D3 PEDro - 3/7</p>	<p>Selected from 7 FTD dyads that received TAP IV from 2013-2014. Mrs. V.: age 51 yrs, bvFTD dx 6 mos prior to study, limited engagement in activities, limited to no motivation for engagement, 12/30 on MoCA, severe on FRS, 4.2/6.0 on LACLs. Mr. W.: 62 yrs old, FTD primary progressive aphasia semantic subtype, 2/30 on MoCA, severe on FRS, 4.4/6.0 on LACLs.</p>	<p>IV: 4 mos TAP = activities tailored to abilities, interests, and roles; OT trains CG to increase PWD's participation in TAP over 8 home visits. Mrs. V: watching a music DVD; playing Wii sports; assisting with meal preparation; feeding the dog. Mr. W.: sorting nuts/bolts, playing cards, coins, or colored paper; color by numbers; washing the car.</p> <p>DV: behavioral symptoms via NPI-C</p>	<p>Mrs. V.: Decreased hallucinations (4%), dysphoria (5%), apathy (2%), disinhibition (25%), and irritability (10%). All improved 1% to 15% in severity. Mr. W.: Decreases in freq of agitation (22%), anxiety (3%), and disinhibition (5%). Disinhibition severity worsened by 14% while others improved. Increases in freq of delusions (2%), apathy (5%), and dysphoria (5%) with all increasing in severity. No change in aggression freq and 1% increase in severity.</p>	<p>Only frontotemporal dementia type was included, so cannot be generalized to other dementia types. Limited generalizability for FTD due to small sample size. Behavioral symptoms were subjective measurements and may have been biased.</p>

Object Interaction						
<p>Conti & Voelkl et al., 2008</p> <p><i>Annual in Therapeutic Recreation</i></p> <p>USA</p>	<p>Test the hypothesis that PWD in long term care will demonstrate more alert behaviors (as opposed to passivity) during meaningful activities than traditional nursing home activities.</p>	<p>Single subject alternating treatments</p> <p>AOTA - IV</p> <p>Pyramid - E4</p> <p>PEDro - 2/6</p>	<p>3 women aged 92, 81, and 80 with suspected AD; all scored 0 on MMSE; 1 had depression and hypothyroidism and 1 had bipolar disorder all controlled by medication.</p> <p>IC: scored 3/7 or fewer on MDs "sense of initiative involvement" item, long term care status at the nursing home, dx of suspected AD, MMSE < 10, family involved in resident's life.</p> <p>EC: none</p>	<p>Control: Bingo in small group</p> <p>IV1: 1-to-1 Bingo</p> <p>IV2: 1-to-1 unique, meaningful activity (cooking, gardening, animal play)</p> <p>25 activity sessions over 11 wks; 4 control, 6 sessions each of control and both IVs, then 3 sessions of optimal treatment (treatment activity in which PWD most alert with least problem behaviors).</p> <p>DV: alert behaviors via checklist</p>	<p>Client 1: Most alert behaviors in 1:1 Bingo with most stability. Both Bingo activities showed decline over time.</p> <p>Client 2: No change in trend during meaningful activity. Most alert behaviors during small group Bingo.</p> <p>Client 3: No change in trend during 1:1 Bingo or meaningful treatment. Most alert behaviors during meaningful activity and continued in optimal treatment sessions.</p>	<p>No significant trends among participants. Unable to confirm if participants truly considered activities meaningful due to severity of cognitive impairments.</p>
<p>*Cohen-Mansfield & Libin et al., 2007</p> <p><i>Journal of Gerontology</i></p> <p>USA</p>	<p>Examine efficacy of providing individualized, nonpharmacological interventions to reduce agitation in NH residents with dementia.</p>	<p>Placebo-controlled semi-randomized trial. Buildings randomized to IV or control unless administrators insisted on choosing.</p> <p>AOTA - I/II</p> <p>Pyramid - E2/E3</p> <p>PEDro - 7/10</p>	<p>IV group: 89 PWD from 6 NH buildings.</p> <p>Control group: 78 PWD from 6 NH buildings, significantly younger ($p = 0.04$).</p> <p>80% women, mean age 86 yrs</p> <p>IC: resident of selected facilities</p> <p>EC: resident < 3 wks, agitation < several times per day, no dementia dx, life expectancy < 3 mos, bipolar disorder or SCZ dx</p>	<p>IV: activity chosen based on problem behavior for 10 days (examples: music, family videotapes and pictures, magazines and large print books, board games and puzzles, plush toys, stress balls, busy apron, Play-Doh)</p> <p>Placebo: in-service about reasons for agitation and possible nonpharmacological treatments.</p> <p>DV: verbal and physical agitation via ABMI, affect via LMBS</p>	<p>Greater decrease in agitation for IV group versus control group ($p = 0.002$).</p> <p>Greater increases in pleasure and interest in IV group versus control group ($p < 0.001$; $p < 0.001$). No significant changes for negative affect.</p>	<p>Only partially randomized due to facility wishes. Clients received pharmacological intervention simultaneously, but both groups received comparable amounts of sedatives and psychotropic drugs at baseline.</p>

<p>Wierman & Wadland et al., 2011</p> <p><i>Journal of Gerontological Nursing</i></p> <p>USA</p>	<p>Pilot study to assess feasibility of Simple Pleasures interventions in hospital setting and impact on agitation for PWD.</p>	<p>Pre-post Pilot Study AOTA - III Pyramid - O4 PEDro - 1/6</p>	<p>26 participants, but only 13 have all outcomes due to short length of stay. Mean age per group ranged 80-90 yrs, IC: moved to hospital from LTCF Nov 2005 - Jan 2007. EC: no dementia dx, not evaluated within 24 hours of admission or seen by research assistant every 48-72 hours for 1 wk.</p>	<p>IV: Objects received at initial eval. (n = 9 completed), 48 hours after (n = 4 completed), or 72 hours after (n = 3 incomplete). Simple Pleasures stimulation objects (knitted ball filled with rice, seeds, or beads) and 1 item personalized to patient's identified behaviors (object-filled water bottle, stuffed animal, activity apron, warm bottle or bag, fleece muff, or box/purse with items).</p> <p>DV: agitation behaviors via CMAI</p>	<p>Receipt at eval group: Trend toward improvement in verbal agitation, with CMAI score decreases ranging from -1 to -33 points. 48-hour delay group: No changes in aggressive behavior while verbal behavior changes range from 0 to -11.</p>	<p>Only 69% of participants received IV items, and the group receiving items 72 hours after eval was excluded from analysis due to short length of stay. Study was terminated due to loss of research team, and did not gather enough data for statistical analysis</p>
Social Interaction						
<p>*Cheston & Thorne, et al., 2007</p> <p><i>Dementia</i></p> <p>UK</p>	<p>Compare effectiveness of SPT, music tapes, and usual care for people with mild and moderate dementia.</p>	<p>Controlled trial AOTA - II Pyramid - E3 PEDro - 4/10</p>	<p>6 residents in NH or inpatients in a unit. 5 F; age 75 - 91 yrs; 4 AD, 1 vascular dementia, 1 LBD. IC: mod to severe dementia or AD based on CDR Scale, spouse willing to record a tape, high anxiety with attachment related behavior (parent-fixation, separation anxiety, delusional beliefs about carers)</p>	<p>IV: baseline (usual care), SPT (recorded audio or video tapes of family members), or listening to a favorite music tape. Participants received 1-7 SPT sessions.</p> <p>DV: distressed and prosocial behavior (asking/searching to go home, anxious hand wringing, chanting/weeping/crying; initiating positive interactions, being able to speak calmly or happily)</p>	<p>Asking/seeking to go home: Significant differences between SPT and both baseline and music tapes groups ($p = 0.024$; $p = 0.038$). No other categories showed significant differences. Distressed behavior: varied from dramatic reduction to apparent indifference. Prosocial behavior: SPT led to more smiling, greeting others, and eye contact</p>	<p>All but one client declined to listen to the music tapes, so cannot say SPT is more or less effective than music. Some non-significant changes that seemed to be of clinical significance.</p>

<p>*Garland & Beer et al., 2007</p> <p><i>American Geriatric Psychiatry</i></p> <p>Australia</p>	<p>Compare effectiveness of simulated presence therapy and preferred music played on physical and verbal agitation behaviors in PWD.</p>	<p>Single subject randomized multiple treatments (randomly rotating treatments) single-blind. AOTA - III Pyramid - E4 PEDro – 4/7</p>	<p>30 NH residents with frequent, severe behavioral disturbances. 63% F, age 66-93, MMSE mean of 2.5, prescribed psychotropic medication.</p> <p>IC: Dx of dementia, resided in NH > 3 mos, rated on CMAI by nurses as having >1 significantly disruptive behavior several times a day.</p> <p>EC: Behavior was result of treatable medical or psychiatric condition, deaf, lack of response to conversational prompts from researcher, refusal to wear headphones on 3 consecutive trials, unwillingness by family member to prepare tapes.</p>	<p>IV: SPT vs preferred music vs placebo vs usual care. (each participant received each treatment randomly allocated to which order with washout days in between)</p> <p>DV: Frequency of physical and verbal agitation.</p>	<p>Physical agitation counts fell more during simulated presence than placebo ($p = 0.007$) or usual care ($p = 0.003$). Verbal agitation decreased more during simulated presence than usual care ($p = 0.037$). Both behaviors continued to decline after tapes were stopped. No significant differences between music and simulated presence in either behavior.</p>	<p>Assessors may have been biased, as there was no operationalizing of the variables assessed, and assessors were CGs. The multiple treatments and single subject design caused an inability to control for a learning effect; the multiple washout days may not have adequately accounted for learning effect.</p>
Activity-Based						
<p>Phillips & Reid-Arndt, et al., 2010</p> <p><i>Nursing Research</i></p> <p>USA</p>	<p>Examine effect of storytelling program on communication, neuropsychiatric symptoms, and QOL in LTCF residents with dementia.</p>	<p>Quasi-experimental, two-group, repeated measures AOTA - II Pyramid - O3 Pedro – 5/10</p>	<p>54 PWD, majority white Fs with MCI, mean MMSE range 13.67 - 16.</p> <p>IC: Age >60 yrs, dementia dx or current treatment with cholinesterase inhibitor, MMSE of > 11 and <24, ability to understand and speak English, adequate hearing and eyesight for reading and listening to instructions.</p> <p>EC: CSDD > 12, receiving hospice care, advanced terminal illness.</p>	<p>IV: TimeSlips = 1 hour sessions 2 mornings/week storytelling program encouraging imagination and creative abilities rather than memory. Images are given and participants are encouraged to tell a story about the picture. Control group received activity items of their choice.</p> <p>DV: QOL via QOL-AD, and behaviors via NPI-NH.</p>	<p>At week 7: Behaviors improved (ES = 0.49) and QOL did not improve based on resident or staff ratings (ES = 0.031, 0.27) for the treatment group. Neither were statistically significant. For the control group, behaviors significantly decreased (time effect = 6.87; $p < 0.05$).</p>	<p>Heterogeneity of facilities may have created confounding variables. Differences in MMSE between groups. Small group size limits generalizability. Multiple treatments - unable to determine if effects from social engagement or the actual intervention.</p>

Multiple Intervention Types						
<p>O'Sullivan, 2011</p> <p><i>Dementia</i></p> <p>New Zealand</p>	<p>Outline differences when anti-psychotics are eliminated and activity plans, client centered care, and environmental modification are implemented in a residential care facility.</p>	<p>Longitudinal case study, outcome research.</p> <p>Pre/post-test AOTA - III Pyramid - O4</p> <p>Pedro - 4/6</p>	<p>2 secure memory care units of a residential care facility in New Zealand, 15 beds each.</p>	<p>IV: Availability of leisure activities - exercise, walking, finding and processing information, community outings, tea or coffee drinking, listening to music, arts and crafts, folding clothing, sewing, writing, reading, browsing/tinkering in a room. Antipsychotic drugs were eliminated from unit.</p> <p>DV: Problem behavior prevalence, no reported measure.</p>	<p>Following the elimination of antipsychotic drugs and implementation of available leisure activities, the count of problem behaviors decreased from 28 in 2005 to 10 in 2009.</p>	<p>There were multiple variables implemented during this study, so it is difficult to report causation. There was no blinding of assessors, and there was no control group present. There was no report of resident characteristics.</p>
<p>Cohen-Mansfield & Marx et al., 2010</p> <p><i>Journal of the American Geriatrics Society</i></p> <p>USA</p>	<p>Assess relative impact of different types of stimuli on agitation of PWD in nursing homes.</p>	<p>Single group pre-post with agitation measures at baseline and during intervention</p> <p>AOTA - III Pyramid - O4</p> <p>PEDro - 5/6</p>	<p>111 residents from prior study. Mean age 85.4 yrs, 80.2% women, 78.4% Caucasian, 60.4% widowed, mean MMSE score 5.</p> <p>IC: CMAI score of at least 42.</p> <p>EC: no data for 1+ stimuli or refused stimulus.</p>	<p>IV: presented with 25 different predetermined stimuli, 4 per day for 3 wks. Occupation-based stimuli: manipulatives, work-related, task-related, reading, and self-identity.</p> <p>DV: agitation via ABMI</p>	<p>Physical agitation: decreased with all stimuli ($p < 0.01$).</p> <p>Verbal agitation: decreased with task stimuli ($p < 0.05$) and reading and self-identity stimuli. ($p < 0.01$).</p> <p>Total agitation: task and reading stimuli better than manipulatives and work stimuli.</p>	<p>Overall agitation levels low, so floor effect may have minimized results. Agitation not recorded during refusals of stimuli.</p>

<p>Beerens & de Boer et al., 2016</p> <p><i>International Psychogeriatrics</i></p> <p>Netherlands</p>	<p>Observe which aspects of daily life correlate with higher QOL in PWD.</p>	<p>Correlational observational study. AOTA - IV Pyramid - D2 Pedro - 3/6</p>	<p>115 participants, mean age = 84 yrs, 75% Fs, from 18 LTCFs in 8 different locations.</p> <p>IC: Formal dx of dementia, consent given by participant or legal representative, reside in facility.</p> <p>EC: Primary psychiatric dx.</p>	<p>IV: Aspects of daily life including activity performed, extent of engagement, social interaction, level of physical effort, mood, agitation level.</p> <p>DV: QOL - high or low, measured by QOL-AD score.</p>	<p>Active, expressive, social, household, or musical activities or conversations with others occurred more frequently in daily lives of PWD with higher QOL. These people were also more frequently engaged in activity, expressive, or social activities ($p < .001$) and had higher mood scores ($p < .001$) Passive/purposeless activities such as sleeping, sitting without doing anything, or purposeless repetitive behaviors occurred more in daily lives of PWD with lower QOL.</p>	<p>QOL eval. may be influenced by personal values of assessors, instrument may not be valid. Interpretation of facial expressions was subjective and may have had some personal and cultural bias. Study did not control for level of cognitive impairments, so this may have been a confounding variable.</p>
<p>Smit & Willemse et al., 2014</p> <p><i>International Psychogeriatrics</i></p> <p>Netherlands</p>	<p>To study the types of occupation residents are involved in and their impact on well-being.</p>	<p>Descriptive AOTA - IV Pyramid - D3 PEDro - 2/3</p>	<p>57 residents from 10 facilities chosen from 136 LTCFs for PWD. 87.7% women, mean wellbeing 1.17 ($SD = 0.48$).</p> <p>IC: residents lived in facility at least 1 month.</p> <p>EC: none.</p>	<p>IV: no intervention; 5-6 residents observed per facility for two 3 hour periods.</p> <p>DV: DCM to rate well-being and ill-being during activity on a 6 point scale.</p>	<p>Fair mean wellbeing levels (means from 0.9 - 1.4) during self-care, dining, and religious participation. Highest well-being during vocational ($M = 1.66$), expressive ($M = 1.89$), reminiscence ($M = 2.18$) and intellectual activities ($M = 3.0$).</p>	<p>Small sample of residents from each facility. Observations included mealtimes, which may have limited observation of other occupations.</p>

Table Summarizing *Meta-Analyses/Meta-Syntheses/Systematic Review Articles*:

Author, Year, Journal, Country	Study Objectives	Study Design, Levels of Evidence	Number of Papers Included, IC & EC	IV & DV Measures	Summary of Results	Study Limitations
Activity-based						
Kong & Evans et al., 2009 <i>Ageing & Mental Health</i> USA & Korea	Assess effects of nonpharmacological interventions for agitation in dementia.	Systematic review with meta-analysis AOTA - I Pyramid - E1 Included: AOTA - I Pyramid - E2	4 studies meeting inclusion criteria. IC: randomized control parallel or randomized crossover study, subjects have dementia, used nonpharmacological intervention for agitation, in English or Korean, measures agitation, and includes enough information to determine ES.	IV: 3 studies addressed activities (rocking chair therapy, therapeutic recreational activities); 1 study of SPT DV: agitation	SPT groups had a decrease in agitation 67% of the time and were significantly better than placebo. For activities, rocking chair therapy showed no difference, while therapeutic recreation and individualized recreation showed a significant difference in CMAI.	Excluded many relevant studies due to randomization requirement. Small number of studies per IV type.
Livingston & Kelly et al., 2014 <i>Health Technology Assessment</i> UK	Discover which non-drug approaches to agitation in PWD worked, for whom they worked, and for how long.	Systematic review AOTA - I Pyramid - E1, O1 Included: AOTA - I, II, III Pyramid - E2, E3, O2, O3, O4	160 papers from 11 databases. IC: evaluated psychological, behavioral, sensory, or environmental intervention to manage agitation; had control or pre/post comparison; quantitative agitation results; participants were PWD. EC: all participants given psychotropic drugs or if some had medication with no other IV.	IV: 10 studies of activities (music, exercise, storytelling, Montessori, gardening, cooking); 3 of the studies individualized activities DV: agitation	Activities reduced agitation in 9/10 studies (SES = -0.8 to -0.6), and individualizing them did not make significant additional difference in agitation.	Little evidence of long term effects.

<p>Testad & Corbett et al., 2014</p> <p><i>International Psychogeriatrics</i></p> <p>UK</p>	<p>Review the effect of psychosocial interventions on BPSD in care homes.</p>	<p>Systematic review and meta-analysis AOTA - I Pyramid - E1/O1</p> <p>Included: AOTA - I, II Pyramid - E2, O2, O3, O4</p>	<p>40 studies from 9 databases IC: studies on psychosocial treatment of PWD in care or NHs from 2000 - 2012 in English; peer-reviewed; individual and cluster RCT, pre/post-test with control to IV or control; outcomes were depression, agitation, anxiety; EC: IVs related to insomnia, palliative care, feeding skills, ADL, therapeutic touch, aromatherapy, CG IVs, nutritional IV, use of restraint, light therapy, and non-dementia related therapies; crossover designs</p>	<p>IV: 6 studies of pleasant activities (occupational stimuli, balancing arousal control program, staff training, therapeutic bike)</p> <p>DV: agitation</p>	<p>4 of 6 studies reported significant impact on agitation ($ES = 0.24 - 0.91$). 4 studies reported improvement in pleasure, positive mood, or reduced negative affect. Occupational stimuli tailored to behavior needs significantly decreased agitation and therapeutic bike activities significantly reduced depression.</p>	<p>Large variation in measures of agitation.</p>
Social Interaction						
<p>Zettler, 2008.</p> <p><i>Aging and Mental Health</i></p> <p>United Kingdom</p>	<p>Assess strength of evidence for the use of simulated presence therapy for problem behaviors in dementia.</p>	<p>Systematic review, Meta-analysis</p> <p>AOTA - I Pyramid - E1</p> <p>Included: AOTA - I Pyramid - E1</p>	<p>8 studies from 3 databases and reference lists of articles. IC: Studies that reported pre/post/during-test data for SPT for problem behaviors. Principal outcome measure of behavior assessment. SPT with personalized audio and video tapes. EC: Non-personalized video or audio tapes, data unobtainable in appropriate format.</p>	<p>IV: Simulated presence of family members video or audio taped.</p> <p>DV: Problem behaviors</p>	<p>4 studies were included in meta-analysis. The overall mean effect size was $d = .70$ ($p = .001$). These results indicate that SPT may effectively manage problem behaviors in dementia.</p>	<p>1 had a large ES, which may have inflated overall ES. Differences in study design and methodology excluded some articles from systematic review, so statistics from meta-analysis only include a few of the SPT studies.</p>

Multiple Interventions						
<p>Letts & Edwards et al., 2011</p> <p><i>American Journal of Occupational Therapy</i></p> <p>Canada</p>	<p>Appraise effectiveness of interventions to establish, modify, maintain occupational participation on QOL, health and wellness, and client and CG satisfaction for people with AD and related dementias.</p>	<p>Systematic review AOTA - I Pyramid - E1 Included: AOTA - I, II, III, IV Pyramid - E1, E2, E3, E4, O3, O4</p>	<p>26 articles from 9 databases, 13 from OT literature with direct relevance to the topic</p> <p>IC and EC not listed.</p>	<p>IV: individualized activity, leisure (general leisure, art), object interactions (kits), social interaction (remembrance)</p> <p>DV: QOL, health and wellness</p>	<p>Individualized activities (n=1): 57% of residents had increased well-being. Leisure (n=3): 1 study found significant improvements in QOL equivalent to control group, another found leisure more effective with social interactions, 1 found no QOL change. Object interaction (n=4): 2 found improvements in QOL. 2 reported improved satisfaction as outcomes. Social (n=5): 2 studies found reminiscence improved well-being. 2 reported outcomes outside scope of this review.</p>	<p>Many varied protocols and overlap between sections. Did not describe IC, EC, or databases searched.</p>

Table Summarizing *Qualitative* Articles:

Author, Year, Journal, Country	Study Objectives	Study Design/ Level of Evidence	Participants; Sample Size, IC & EC	Methods for enhancing rigor	Themes and Results	Study Limitations
Object Interaction						
Groenewoud & Lange et al., 2017 <i>Gerontechnology</i> Netherlands	Examine the effects of playing leisure games on tablets on QOL of PWD.	Qualitative observational descriptive study AOTA - none Pyramid - Q3	54 clients, 24 men, diagnosed with dementia, potential interest in playing tablet games. EC: serious physical conditions that hinder game playing, severe visual impairment, severe apraxia.	Large number of interviews and participants, a wide range of responses were collected. Some member checking was conducted with data collection. Subjects were from multiple living facilities which added to diversity of responses and sample. Information came from PWD themselves as opposed to caregivers and/or observation of behavior.	Need for achievement satisfied for many participants. Higher self-esteem reported when played well and were satisfied with game progress. Sense of connection and belonging from gaming as a social experience and bringing back memories. Sense of identity spoken about with games that felt familiar or similar to ones played when younger. Occupation of time and admiration of visual or auditory aspects were also positive experiences.	Playing game was always conducted with observer present, so a confounding variable may have been social engagement effects along with playing the game. Cognitive status may have also affected enjoyment of games.
Multiple Intervention Types						
Phinney, Chaudhury, & O'Connor, 2006 <i>Aging and Mental Health</i> Canada	Determine what constitutes meaningful activity from the perspective of persons with dementia and explore how they perceive its significance in their lives.	Interpretive phenomenological analysis of interview and observation. AOTA - none Pyramid - Q2/Q3	8 community-dwelling people with mild to mod dementia, 64-88 yrs, AD dx for average 7 yrs, dependent in 1-2 ADLs and 6 IADLs. European Americans. IC: 60+ yrs, live at home with family member, mild to mod CI (score of 5 or less on Global Deterioration Scale).	Participants were included who had varying degrees of activity involvement to elicit broad range of experience; data were gathered carefully and systematically to focus on most salient phenomena, open ended questions to allow for new understandings, multiple sources used. Raw data read and interpreted by multiple experts in the area.	Household chores: want to do independently or with help from CGs. Social involvement: embarrassed trying to follow conversation. Most liked support groups, hearing stories of other PWDs. Work-related activities: meaningful to do things similar to previous occupations. Activity meanings: enjoyment & pleasure, connection & belonging, autonomy & identity, well-being.	Small sample size, limited triangulation and member checking of data, no follow-up, bias may have been present due to purposive sampling and lack of blinding.

Abbreviations Key: Abbreviations key: ABI = acquired brain injury; ABMI = Agitated Behaviors Mapping Instrument; ADL = Activities of Daily Living; BPSD = behavioral and psychological symptoms of dementia; bvFTD = behavioral variant frontotemporal dementia; CAR = Change Assessment Rating; CDR = Clinical Dementia Rating; CDS = Care Dependency Scale; CG = caregiver; CI = cognitive impairment; CMAI = Cohen-Mansfield Agitation Inventory; CSDD = Cornell Scale for Depression in Dementia; CVA = cerebrovascular accident; DCM = Dementia Care Mapping, assessment of behavior and QOL; DMPT = Dementia Mood Picture Test; DV = outcomes; dependent variable; dx = diagnosis; EC = exclusion criteria; ES = effect size; eval. = evaluation; F = female; FL = functional level; freq = frequency; FRS = Frontotemporal Dementia Rating Scale; FTD = Frontotemporal Dementia; HD = Huntington's Disease; Hrs = hours; IADL = instrumental activities of daily living; IC = inclusion criteria; IV = intervention; independent variable; LACLS = Large Allen Cognitive Level Screen; LBD = Lewy Body Dementia; LMBS = Lawton's Modified Behavior Stream; LTCF = long term care facility; M = mean; MI = mental illness; MMSE = Mini Mental State Examination; mod = moderate; mos = months; NH = nursing home; NPI-C = Revised Neuropsychiatric Inventory Clinician rating scale; NPI-NH = Neuropsychiatric Inventory - Nursing Home Version; NPS = neuropsychiatric symptoms; PD = Parkinson's Disease; PDS = Passivity in Dementia Scale; PGCARS = Philadelphia Geriatric Center Affect Rating Scale; PSI = personal style of interest; PWD = person with dementia; QOL = quality of life; QOL-AD = Quality of Life Alzheimers Disease scale; RCT = randomized control trial; SCZ = schizophrenia; SES = standardized effect size; SNF = skilled nursing facility; SPT = simulated presence therapy; tx = treatment; TAP = Tailored Activities Program; wk(s) = week(s); yr(s) = year(s)

Summary of Key Findings:

Summary of individualized activity interventions

Seven studies discussing the effects of individualized activities on behavior for people with dementia were identified. These interventions were tailored to the participant's interests and/or functional level, and implementation produced promising results for behavior changes, but limited results that support quality of life. All seven studies reported positive behavioral changes, including reductions in problem behaviors and increases in positive behaviors. When activities were tailored to personal interest, positive behaviors such as engagement, alertness and attention were increased, but when activities were additionally tailored to functional level, agitation also increased (Kolanowski, Litaker, Buettner, Moeller, & Costa, 2011). A case study conducted by O'Connor et al. (2016) showed that participants' experiences with individualized activities may vary, as one participant had decreased hallucinations and other problem behaviors, while the other participant experienced the opposite. Gitlin et al. (2008) and Rapp et al. (2013) both showed decreases in problem behaviors after individualization of activities. DeVocht et al. (2015) showed an increase in positive behavior after 11 weeks of individualized interaction activities, and Cohen-Mansfield et al. (2015) showed greater positive behavior changes with individualization of activities as compared to non-individualized activities. Cohen-Mansfield et al. (2015) also showed more effective behavior changes when activity individualization was paired with social interaction. Letts et al. (2011) and Gitlin et al. (2008) were the only studies that examined the effects of individualized activities on quality of life. Letts et al. (2011) found that individualized activities increased well-being for participants. Letts et al. (2011) also reviewed Gitlin et al. (2008), which found no significant differences in quality of life. These findings suggest that individualized activities have good potential to decrease problem behaviors in people with dementia, but each client's experience may vary. Evidence for the impact on quality of life is limited.

Summary of object interaction interventions

Five studies from this review reported that intervention using object interactions such as games, fidgets, busy aprons, pictures, etc., decreased problem behaviors and increased quality of life. Two studies examined the use of objects to address a client's specific problem behaviors, and both found decreases in agitation (Cohen-Mansfield, Libin, & Marx, 2007; Wierman, Wadland, Walters, Kuhn, & Farrington, 2011). Letts et al. (2011) reviewed two studies that found that kit-based object interaction increased quality of life and decreased apathy, though one of these two studies did not find different improvements than the control group. Groenewoud et al. (2017) tested the effects of people with dementia playing games on tablets, and participants reported higher self-esteem, a sense of connection and belonging, an increased feeling of identity, and an occupation of time. Conti, Voelkl, and McGuire (2008) found that participants showed more alertness during small group bingo activities. Engagement in these types of leisure activities had multiple outcomes for people with dementia such as alertness, pleasure, and interest that generally indicated an increase in quality of life (Cohen-Mansfield, Libin, & Marx, 2007). Additionally, agitation seemed to decrease.

Summary of social interaction interventions

Four studies were included that examined the effects of interventions involving simulation of family presence through audio recording. These four studies showed moderate to strong evidence of positive results. A systematic review with a meta-analysis conducted by Zetteler (2008) found a significant overall mean effect for decreased problem behavior after the implementation of simulated presence therapy. This review included Garland et al. (2007) and Cheston et al. (2007). Letts et al. (2011) examined two studies that addressed quality of life and found positive effects in regards to reminiscence social interaction. By simulating presence of a family member or loved one or having engagement in social interaction, individuals with dementia seem to have improved quality of life and decreased problem behaviors.

Summary of interventions containing multiple activity types

Three studies that examined the effects of multiple activities were observational or retrospective. Generally, these studies seemed to find correlations between more activity and higher quality of life. Beerens et al. (2016) found a correlation between high quality of life and engagement in active, expressive, social, household and musical activities. Phinney, Chaudhury and O'Connor (2006) found that different activities such as household chores, social involvement, and work-related activities were associated with enjoyment, pleasure, connection, belonging, autonomy, identity, and well-being. Smit, Willemse, de Lange, and Pot (2014) observed that participants displayed the highest well-being during vocational, expressive, reminiscent, and intellectual activities.

Two studies involving multiple activities implemented interventions and examined the effects. O'Sullivan (2011) made a variety of occupation-based activities available to participants and reported a decreased frequency of problem behaviors. Cohen-Mansfield et al. (2010) examined how multiple types of activities affected agitation, and found that physical agitation decreased with all activities and verbal agitation decreased with task-based, reading, and self-identity or individualized activities (e.g. giving a book ledger to a former accountant). These findings indicate that involvement in activity can decrease the occurrence of problem behaviors.

Summary of general occupation-based activities

Engagement in occupation and activities was examined in multiple studies. Occupation-based interventions had mixed results with limited effects on quality of life. Behavioral symptoms such as agitation gen-

erally decreased after implementation of occupation-based interventions. Letts et al. (2011) reviewed two studies involving occupation-based activity. One of these studies found that an art intervention increased quality of life and engagement, and the other showed a correlation between leisure engagement and quality of life. Kong et al. (2009) reviewed 3 studies, and found no change in agitation with rocking chair therapy, but showed significant improvements in agitation with therapeutic recreation as compared to controls. Livingston et al. (2014) included six occupation based studies that showed significant agitation decreases after intervention. One of these studies included an activity tailored to skill and interest, and did not report significant differences. Testad et al. (2014) reviewed two occupation based interventions, with one that reported significant agitation decreases and the other a significant reduction in depression.

Implications for Consumers:

People with dementia can benefit from this report when the recommended interventions are used within homes, hospitals, long-term care facilities, and more to improve their quality of life. Although the target subjects in articles assessed were individuals with dementia-related cognitive impairment, this review is also intended to benefit caregivers of this population through education on strategies for managing problem behaviors. Caregivers are faced with many challenges when caring for a person with dementia, and the purpose of these interventions is to lessen this burden by reducing the number of problem behaviors. Caregivers may be better able to advocate for their relatives or clients using knowledge of strategies that will improve the quality of life of people with dementia. They will also be able to provide better support by implementing strategies that reduce problem behaviors that can be stress-inducing for the caregiver as well as the person with dementia. By occupying the person with dementia's time with activities that they enjoy or have meaning in, highlighting memories from the past, and helping them return to or maintain their roles (e.g. pet care, household chores, work-related activities), quality of life may be improved and problem behaviors that are stressful for both the caregiver and person with dementia will be more effectively managed.

Implications for Practitioners:

Occupational therapists can apply these findings to practice when working with individuals with cognitive impairments or dementia. While dementia may not be the primary reason for receiving occupational therapy services, these simple activities can be useful to therapists and caregivers for managing a client's problem behaviors. The evidence suggests a general relationship between increased activity, decreased problem behaviors, and higher quality of life. The cheapest and simplest option is to provide activity kits or objects clients can interact with independently such as games, fidgets, or pictures. However, there is strong evidence that interventions are most effective when individualized to the needs and interests of each client, and we recommend this as best practice. Individualization may include tailoring the activity to the client's interest, or grading it appropriately for their abilities so that they can take part in meaningful occupations such as feeding a pet, drawing, or assisting with cooking activities.

During caregiver education on these strategies, therapists must note that these activities are neither prescriptive nor exhaustive. There are many potential strategies and activities, and due to the variable nature of this population, therapists must be flexible and willing to try multiple things to identify the most effective strategy for each client. Occupational therapists can also use this evidence to advocate for people with dementia in skilled nursing facilities, long term care, and assisted living facilities by educating care staff regarding strategies for behavior management and engagement in activities to improve the quality of life of this population.

Implications for Researchers:

Future research on this topic should consider a review of literature to find what terminology is used to describe specific behaviors common with dementia such as engagement, passivity, and agitation. While completing this review, it became clear that there are many terms used that are not clearly defined. By creating a list of defined terms that describe problem behaviors with dementia further literature reviews can be more consistent and thorough. Additionally, creating an operational definition of quality of life would be useful to develop more extensive assessments of this important aspect of a patient's life. Other future research may include the examination of specific activities and their effects on problem behaviors. Many studies broadly examined activity, or included multiple activities. In order to facilitate caregiver education on which activities to implement, therapists will need to be able to identify which activities are most effective in problem behaviors and improving quality of life. While this population can be quite variable, the most useful studies would be exploratory in nature. Therapists can then decide on a few activities that caregivers are able to easily try out. Further research on dosage would be useful to know how often to provide activities for these individuals, or how often and when to implement simulated presence therapy. While there are many experimental, outcome, and descriptive studies in this area of research, there is a lack of qualitative articles. It would be useful to have the subjective viewpoints, opinions, and ideas of caregivers and people with dementia to portray the lived experiences of the interventions they are interested in. Additionally, examination of caregiver perspectives would be helpful to further identify feasible interventions for people with dementia and aim to improve the quality of life for both the person with dementia and the caregiver.

Bottom Line for Occupational Therapy Practice/ Recommendations for Better Practice:

Today, occupational therapists may use strategies outlined in our review during therapy to engage this population and reduce incidence of problem behaviors. Therapists may also give a list of suggestions to caregivers on strategies to try at home or in a facility that may improve quality of life for the person with dementia. The evidence has indicated that individualization of occupation-based activity to the person with dementia's preference or perceived meaningfulness, audio and video recordings of family members and loved ones, social support, and simple availability of things to fidget with have success in reducing problem behaviors and improving quality of life. There is a great potential for occupational therapists to make a difference in this realm for both caregivers and people with dementia. These strategies are a start to making small changes and offering ideas for program implementation that will hopefully further expand occupational therapy into this setting and population.

Involvement Plan

Demonstration of Need

Two therapists in the inpatient rehabilitation unit at Multicare identified the need to further support clients with cognitive decline or impairment. Since most clients are being seen for physical injuries or impairments, cognitive status is not typically the focus of care in this setting. These clients are not provided with stimulating activities to do between treatment sessions, and primarily spend their time unoccupied, seated in line of sight of the nurse's station. Additionally, the inquiring therapists noticed that when unoccupied, these clients can demonstrate increased agitation, wandering, and other troubling behaviors typical of dementia.

Activities and Timeline

A critically appraised topic report was composed in Fall 2017 regarding occupation-based activities that can reduce problem behaviors in clients with dementia. The final research question was: Can occupation-based activities be used to improve quality of life and/or reduce problem behaviors in adults with dementia-related cognitive impairment? The findings of this review of the literature were presented to occupational therapy and speech language pathology staff from the rehabilitation unit in a 30-minute in-service in late March 2018. This presentation educated healthcare providers on the importance and effectiveness of occupation-based activities for people with dementia, and described examples of three types of activities supported by research. Handouts were provided for therapists and nurses to refer back to, as well as pamphlets targeted at caregivers with suggestions of activities they can do at home. The pamphlet included a space for the therapist to be involved in brainstorming ideas for individualized activities for the client with their caregiver. The students also contacted the Multicare volunteer coordinator about the possibility of establishing a volunteer program to facilitate incorporation of occupation-based activities and creation of activity kits and busy blankets in the unit in March. Student researchers briefly met with the volunteer coordinator who identified a number of barriers in recruitment of volunteers for the purposes outlined. A volunteer job description sheet was created to further define the need for volunteers on the inpatient rehabilitation unit.

Contextual Factors

General factors considered in developing recommendations to inpatient rehabilitation staff included the receptiveness of the team to implementation of our findings, the frequency at which therapists see clients with dementia or cognitive impairments, and the feasibility of volunteer program involvement and financial resources to conduct activities with patients.

The researchers identified factors that could facilitate successful research implementation, including the motivation of collaborating occupational therapists and the existence of a venue for relaying information to the rehabilitation staff through weekly meetings. Additionally, activities were proposed that clients could engage in independently or with therapist or caregiver involvement, allowing the facility and therapists to choose what is most feasible for them in each case. This was intended to increase the likelihood that findings would have an impact at the facility. Finally, one collaborator was promoted to a supervisory role in the rehabilitation department, giving her increased leverage to promote implementation of the proposed interventions.

Potential barriers to successful research implementation were also considered. The meeting was held during therapists' lunch and documentation hour, which decreased attendance and possibly decreased attentiveness. If therapists did not see the value of the presented findings, they would not choose to implement them during their treatment sessions. Researchers were also aware that the budget for hiring an activities director or funding the production of busy blankets and activity kits would be limited.

Outcomes

The effectiveness and impact of the in-service and handouts provided were measured using a survey completed by attendees at the end of the session (see Appendix D). Results of this survey are reported below in the section titled "Outcomes and Effectiveness."

Activities and Products Completed

Knowledge Translation Activities and Descriptions

In-service presentation

A thirty-minute in-service presentation was conducted for 10 occupational therapists, occupational therapy assistants, and speech therapists (see Appendix A). Physical therapists and nursing staff were invited, but none were in attendance. The presentation was held on national doctors' day, and the hospital was holding an appreciation lunch for doctors and social workers. This occupied the attention of many of the rehabilitation department staff and reduced attendance. The in-service was advertised through fliers in the staff areas and word-of-mouth promotion from our collaborators. This presentation educated attendees on the importance and effectiveness of occupation-based activities for people with dementia, and described examples of three types of activities supported by research. Slide printouts were provided for therapists to refer back to when working with clients.

Caregiver handouts

Pamphlets were designed for caregivers to explain the importance of occupational engagement for their loved ones with dementia (see Appendix B). It included concrete suggestions as well as a description of how to individualize activities to a specific individual. One panel included a space for the therapist to be involved in brainstorming individualized activities for the client with the caregiver. The pamphlet also provided education on problem behaviors, possible triggers, and signs of engagement. A stack of printed pamphlets was given to one collaborator to distribute to the nursing stations and other therapists. A PDF version was also shared with the collaborators so they could print more in the future.

Volunteer program proposal

The student researchers contacted the MultiCare volunteer coordinator, Colleen Collins, regarding the possibility of establishing a volunteer program to facilitate incorporation of occupation-based activities in the unit. Student researchers briefly met with Colleen Collins to discuss feasibility of recruitment of volunteers and she expressed a need for written job descriptions and hour requirements. A

proposal for volunteers containing job description and need was provided (see Appendix C). This was given to the rehabilitation director for future follow-up.

Tracking of outcomes

The effectiveness and impact of the in-service and handouts provided was measured using a survey completed by attendees at the end of the session (see Appendix D). The survey was created to gather information about the attendees themselves to determine who had received the information, and the likelihood that the presented recommendations would be implemented. Before the survey was administered, it was subjected to peer review for clarity. The results of this survey are reported in the section titled Outcomes and Effectiveness.

Products Created

See appendices A, B, and C for copies of products created.

Dates of Completion

Task/Product	Steps to achieve the outcome	Completed dates
Presentation to rehabilitation department (30-40 people)	Draft: 3/2 Feedback from Chair: 3/9 Final: 3/20 Clearance from Chair: 3/26 Print as handouts: 3/28 Presentation: 3/30/18	Draft: 3/2 Feedback: 3/19 Final: 3/25 Clearance: 3/29 Printed: 3/29 Presentation 3/30/18
Handouts for caregivers	Draft: 3/9 Feedback from Chair: whenever possible during or after spring break Final: 3/22 Clearance from Chair: 3/26 Print: 3/28 Distribution: 3/30/18	Draft 1: 3/8 Feedback: 3/19 Final: 3/25 Clearance: 3/29 Printed: 3/29 Distribution: 3/30/18
Volunteer program	Contact volunteer coordinator about interest: 3/7 Proposal for volunteer program: 3/30	Contacted: 3/19 2nd communication: 3/29

Outcomes and Effectiveness

Monitoring knowledge translation outcomes

A survey was administered immediately after the in-service to inpatient rehabilitation staff who attended the in-service presentation. See appendix D for copy of survey administered.

The first survey question was developed to assess which role staff members attending in-service had in care team, such as occupation or physical therapy, nursing, or speech. This question was included to gather information about the audience that our recommendations were reaching, as the purpose of our research was to educate caregivers including family members and nursing, and give other healthcare staff the means to educate patients and caregivers when encountering a patient with dementia in their care. Since interventions were selected due to simplicity and lack of need for extensive training or resources, they are meant to be utilized by any member of the care team.

The second survey question was developed to assess how many patients with dementia staff typically encounter in this inpatient rehabilitation setting. Assessing this allows further assessment of the relevance of our research for this specific setting. Hospital inpatient rehabilitation teams see a variety of patients, so the prevalence of dementia affects the implementation and use of research and caregiver handout in this setting.

The third survey question assessed the likelihood of in-service attendees to distribute caregiver handout to patients or caregivers. Assessing this aspect indirectly measured how comfortable in-service attendees feel in recommending our research to caregivers and others, and the level of agreement felt with the content of the caregiver handout.

The final question assessed in-service attendees' level of comfort in individualizing and choosing activities to be used with a person with dementia. This question was to monitor the effectiveness of our information delivery of instructions and ideas for individualizing activities. Our goal was to give healthcare workers the tools they need to individualize activities or instruct caregivers in how to do so.

The survey was written with four questions in order to be brief, as inpatient rehabilitation staff are generally busy and had given up their lunch hour to attend the in-service. In order to increase survey

response rate, the short survey form was used to increase ease of answering with quick multiple choice questions. More in depth answers would have been useful, but the objective was to obtain accurate and complete data from each in-service attendee. Open ended questions were not used due to time constraints and the designated discussion time during the in-service available for attendees to ask questions or share opinions and ideas.

Survey questions were reviewed by three occupational therapy cohort colleagues before printing and distribution.

Evaluation of Outcomes

The results of the survey administered were generally positive. Attendance consisted of nine individuals, seven of whom completed the survey. Five occupational therapists and two speech therapists were present. The number of patients with dementia seen per month varied among attendees. Responses ranged from about two patients with dementia, to 20. Some stated that they saw two to three patients with dementia and seven to sixteen with other cognitive impairment such as stroke or traumatic brain injury. When asked the likelihood of using the caregiver handout, two attendees responded “definitely,” four responded “probably,” and one responded “unsure.” The comfort level with individualizing activities ranged from somewhat comfortable (two attendees) to very comfortable (four attendees). One attendee marked that they were very and somewhat comfortable. Due to the small number of attendees, we are hesitant to generalize attitudes to other healthcare professionals outside of the in-service, but the research and caregiver handout generally appeared to be well-received. These results were somewhat expected, but there were reservations going into the in-service regarding the likelihood of attendees implementing our research as it is known that inpatient rehabilitation staff are limited on time and resources. We hypothesized that healthcare staff may be hesitant to implement this, as it is another component to add to the therapeutic process, but since our research aimed to identify simple, easy interventions that do not require extensive time or resources to implement, attendees may have been more motivated to use interventions.

Analysis of overall process

The Master's thesis process at the University of Puget Sound has provided a host of unique learning opportunities. We have been able to collaborate with local clinicians and learn about the challenges they face that raise questions we can answer through research. Visiting the clinicians' workplace allowed us to observe the environment in which our implementation plan would take place, and better understand its complexity. This offered a better understanding of our audience for the in-service we prepared. Further, we were able to meet some of the other staff in the rehabilitation department when sharing our findings and hear their perspectives of the problem and how they had handled it previously.

This project was not without its challenges, however. We had great difficulty narrowing our topic down so we could get a manageable number of results while still finding enough useful articles to make meaningful conclusions. Adjusting the question also required careful consideration of our collaborators' needs to ensure we were still in line with their original inquiry. Throughout searching for articles, we had to define our inclusion and exclusion criteria carefully, and adjust them in response to articles that may technically meet the criteria but did not actually offer useful information for our research question. For example, the use of robotic animals is a low-maintenance intervention across time, but it requires significant funds to initiate. We also came across many music therapy interventions, but did not want to overlap our recommended services with those of music therapists. This required us to be flexible in our original plans and to be careful in our documentation of reasons for exclusion so we could ensure fidelity to established criteria as the question changed. Another difficult decision was how to define the need for interventions to be simple enough that a caregiver without a medical background could implement them, and to not require so much time that they contribute to caregiver burden rather than alleviate it. This required debate between the student researchers and conversations with our project chair to clearly define our exclusion criteria in the most objective way possible.

During the process of searching for and summarizing results, we had difficulty finding studies that measured quality of life outcomes. Quality of life is generally a subjective concept that is difficult to

quantify, especially without self-report data. Due to the nature of dementia, it is difficult to obtain reliable information from subjects, and therefore many studies made claims based on quality of life “indicators” that may not be as accurate. Throughout these searches, it was a challenge to maintain the level of organization necessary to ensure accurate categorization and tracking of duplicates. We overcame this by creating a shared spreadsheet system to record which searches each article was found in and why it was included or excluded. After gathering and summarizing relevant articles, our final challenge was to interpret the findings to the best of our ability and make recommendations to our collaborators and their colleagues. Identifying which interventions were “best”, not only based on the research but based on the characteristics of the setting, required even more attention to detail and intellectual discussion.

Overall, this project has sparked much personal and professional growth in both of us. We learned a lot about communication through negotiating with our collaborators, course mentor, and project chair to ensure we were meeting the needs of all involved. We also gained a greater appreciation for research, especially for those who complete large scale systematic reviews such as Cochrane Reviews. Those studies require much more organization and communication among even more researchers to be completed with accuracy and integrity. Completion of this thesis and the presentation of our findings in an in-service has given us increased confidence in our knowledge and abilities, and their value to others. This gives us faith in our ability to prepare and conduct in-services in the future, and potentially soon in our Fieldwork II experiences. We have been inspired to seek out opportunities to share our knowledge in the future and hope that our findings lead to others taking advantage of future research opportunities as well.

Recommendations for follow-up projects

There are many possibilities for future projects in this realm of research. In our searches of the literature, we needed to further constrain our original search terms due to the vast amount of literature available on the subject of interventions for people with cognitive impairment. The broad category of people with cognitive impairment was narrowed down to only including studies which examined individuals with dementia specifically. Research collaborators and attendees of the in-service presentation

expressed interest in research for other diagnoses that come with cognitive impairment such as stroke or traumatic brain injury. This could be a valuable area of research to examine as it would be particularly pertinent to the hospital inpatient rehabilitation setting, which sees a wide variety of patients. While our intervention ideas have the potential to be useful in these populations, dementia symptoms can manifest quite differently from those of stroke or traumatic brain injury. Researching potential interventions for these populations could help define the differences between these diagnoses in treatment planning or caregiver education.

Additionally, our research was narrowed down from any possible interventions to reduce problem behaviors and increase quality of life, to interventions that are occupation-based. This means that sensory based interventions such as music therapy, aromatherapy, massage therapy, or Snoezelen rooms were excluded. These interventions still hold worth in this realm of research, and exploring the effectiveness of these interventions on our target outcomes would contribute to the completeness of this research.

Another facet of this area of research that has the potential to be explored is the perspective of caregivers of people with dementia. Many of the activities we recommend are meant to indirectly reduce caregiver burden as they reduce the occurrence of problem behaviors, but it could be useful to examine the direct effects of interventions on caregiver burden and caregiver perceptions. A person with dementia often comes with a team of individuals working to care for them. Caregivers are an integral part of this research.

Conclusion

People with dementia can present with a variety of behaviors that are distressing to both the individual with dementia and the people around them (Livingston et al., 2014). This study primarily addressed the problem behaviors of agitation, aggression, passivity, wandering, repetitive questioning, and negative affect. A review of existing literature on the effects of occupation-based activities for people with dementia indicated that interventions such as simulated presence therapy, object interactions, and individualized activities can reduce the occurrence of problem behaviors. More research is needed to

determine whether occupation-based activities can increase quality of life for the person with dementia. It is our hope that these findings can be used to alleviate some of the stress and burden experienced by caregivers. This is a small step forward in the many possible avenues of research regarding dementia and occupational therapy. Future research should address the effects of decreased problem behaviors on perceived caregiver burden, the impact of occupation-based activities for clients with other cognitive impairments, and other interventions to reduce problem behaviors and increase quality of life.

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Note: Reference with asterisk () is not included in Critically Appraised Topic Table, but was used as a reference for the in-service presentation.*

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Appendix A

Occupation-Based Activities for People with Dementia

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Tatiana Kaminsky, PhD, OTR/L
George Tomlin, PhD, OTR/L, FAOTA

Overview

- Relevance
- Findings
 - Activity examples
- What can you do?

Objectives

By the end of this session attendees will be able to:

- Summarize examples of evidence-based, occupation-centered activities that can be used with clients with dementia or other cognitive impairment.
- Identify 3 examples of individualized activities for a specific client.

A study from New Zealand: O'Sullivan, 2011

O'Sullivan, 2011

Elimination of all drugs utilized for behaviors and antipsychotics (pain meds, BP meds, etc. were not eliminated)

Staff trained on how to get to know each resident

Activities available at all times in facility

O'Sullivan, 2011

Replacing antipsychotics with opportunities to participate in activities reduced falls and occurrences of challenging behaviors.

O'Sullivan

||

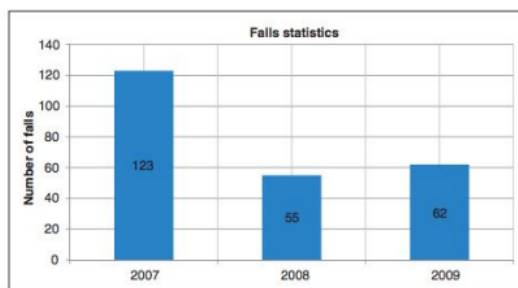
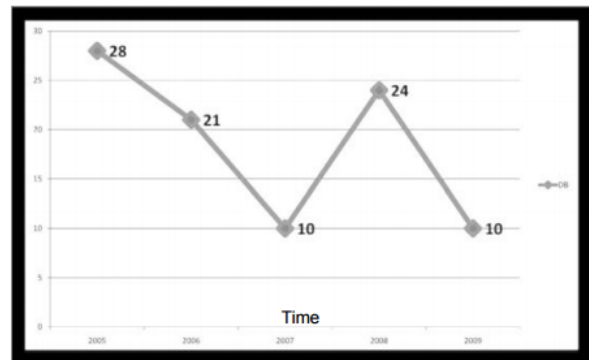


Figure 1. Fall Statistics.

of behavior management issues



O'Sullivan, G. (2011). Ethical and effective: Approaches to residential care for people with dementia. *Dementia, 12*, 111-121.
doi:10.1177/1471301211421707

Relevance

- **Line of sight clients**
 - Unoccupied
 - Demand on staff
 - Potential for increased behaviors

- **Evidence of a correlation between activity involvement and reduced rates of cognitive decline** (Amano, Park, & Morrow-Howell, 2017; Freeman, Spirgiene, Martin-Khan, & Hirdes, 2017; Treiber et al., 2011)
 - Impact on caregivers and families
 - Quality of life for the individual with dementia

Our Research Question

Can occupation-based activities be used to improve quality of life and/or reduce problem behaviors in adults with dementia-related cognitive impairment?

Process



Target outcomes: Quality of life and specific problem behaviors (agitation, aggression, passivity, wandering, and negative affect)

Findings

Summary of Findings: amount of evidence per intervention type

	Challenging behaviors	Quality of life
Social Interactions	MORE	SOME
Object Interactions	MORE	SOME
<u>Individualized Activities</u>	<u>MOST</u>	MIXED
General Occupations	MORE	MIXED

Simulated Presence Therapy (SPT)

Example: Audio tapes of family member talking about client's earlier life structured to imitate a telephone conversation with soundless intervals for processing. Topics included memories, loved ones, and family anecdotes (Garland, Beer, Eppingstall, & O'Connor, 2007).

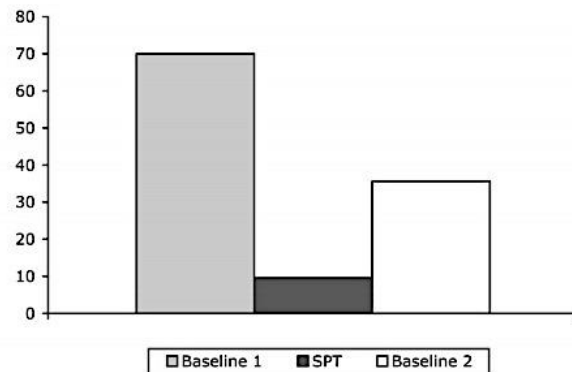


Figure 1 Percentage of distressed behaviour observed for the six participants across baseline 1, SPT and baseline 2 conditions

From Cheston, R., Thorne, K., Whitby, P., & Peak, J. (2007). Simulated presence therapy, attachment and separation amongst people with dementia. *Dementia*, 6, 442-449.

Activity Kits & Busy Blankets



- **Small objects sealed in water bottles** filled with oil and water dyed with food coloring that may target repetitive hand movements.
- **Stuffed animal** to target verbal repetitiveness.
- **Activity aprons/vests** to target repetitive motor patterns or pulling at medical devices.
- **Fleece-covered warm water bottles** or fabric bags filled with rice to target screaming.
- **Fleece muff** to target general agitation and anxiety.
- **Tackle boxes and/or purses** in which treasures are safely contained to target hand restlessness or wandering.

Wierman, H. R., Wadland, W. R., Walters, M., Kuhn, C., & Farrington, S. (2011). Nonpharmacological management of agitation in hospitalized patients with late-stage dementia: A pilot study. *Journal of Gerontological Nursing*, 37, 44-48. doi:10.3928/00989134-20100930-04

Individualized intervention

- Make sure the activity is meaningful to the person
- Simplify the activity so the person is able to participate and it is not too difficult or frustrating

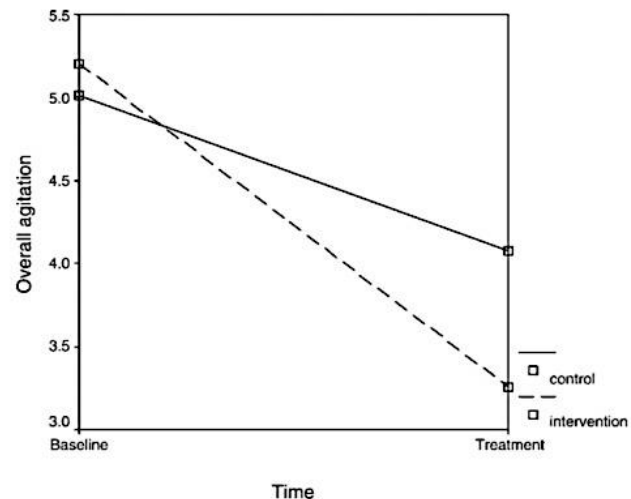


Figure 4. Change in overall agitation from baseline phase to the treatment phase for the intervention and control groups.

From Cohen-Mansfield, J., Libin, A., & Marx, M. S. (2007). Nonpharmacological treatment of agitation: A controlled trial of systematic individualized intervention. *Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, 62, 908-916.

Activities used in published research

For use in hospital:

- Drawing
- Playing or sorting cards
- Art
 - Color by numbers
- Music, singing
- Hand massage

Recommend for home:

- Wii sports
- Meal prep
- Use of kitchen utensils
- Feeding pet
- Washing car
- Knitting
- Work-related
 - Sorting nuts and bolts
 - Sorting coins

What can you do?

Therapist role in individualization:

Therapist role in individualization:

- Consider activity interests, daily routines, physical functioning, home behaviors
- Consider medical Hx, social skills, fall risk
- Consider feasibility
- Provide caregiver pamphlet
- Identify 3 individualized activities
- Teach caregiver tips on working with someone with dementia
 - Guiding the person with dementia through the activity
 - How to best set up the activity

Gitlin, L., Marx, K., Alonzi, D., Kvedar, T., Moody, J., Trahan, M., & Van Haitsma, K. (2017). Feasibility of the Tailored Activity Program for Hospitalized (TAP-H) Patients With Behavioral Symptoms, *The Gerontologist*, 57, 575-584. doi:10.1093/geront/gnw052

Identifying individualized meaningful occupations

- What is their employment history?
- What is their role in their family or home?
- What did/do they like to do for fun?
- How can you make the activity easier to participate in?
- What is something that makes them happy?
- Do they have family members that can do things with them or that you can show pictures of?
- How can you involve them in an activity that they used to do that may now be too difficult?

Identifying challenging behaviors

Anxiety & Agitation

Aggression & Anger

Memory loss & confusion

Repetition & Questioning

Wandering

Sleep issues & Sundowning

Suspicion & Delusions

Problem solving non-aggressive physical or verbal agitation.

- **Is the person looking for home?** → Identify and implement activities they might do at home.
- **Do they seem restless or like they are looking for something?** → Identify meaningful activities.
- **Is their behavior disturbing to others** → Channel energy into engaging activity.
- **Is the person depressed or in need of more control?** → Offer choices and identify activities that offer control.
- **Hallucinations** → Try using familiar objects or people.

Cohen-Mansfield, J., Libin, A., & Marx, M. S. (2007). Nonpharmacological treatment of agitation: A controlled trial of systematic individualized intervention. *Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, 62, 908–916.

Is it working? Should I stop?

- Is the offering of an activity making the person more upset or agitated?
- Are they:
 - Averting gaze
 - Becoming restless
 - Breathing heavily
 - Repeating questions
 - Trying to leave the area
- Consider:
 - Simplifying instructions
 - Changing the activity
 - Redirecting their attention to something familiar or relaxing

Takeaways

1. In general, participation in activity or occupation of time is beneficial for people with dementia and can help decrease problem behaviors
2. Each person is different
3. These interventions aren't prescriptive
4. It is important to try multiple interventions and find what works best

Caregiver Handout

Questions?

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Appendix B

ACTIVITY IDEAS

Share pictures, visual, or audio recordings of family or friends

Items to occupy their hands such as: zippers, stuffed animals, warmed beanbags, or tools

Participation in household tasks such as cooking, cleaning, folding, or pet care. Even a part of an activity can keep people busy!

Activities specific to their interests and abilities. Turn this page to find out how.

TIPS TO ENGAGE PEOPLE WITH DEMENTIA IN ACTIVITIES

- Use simple step by step instructions, given one at a time.
- Offer choices instead of asking "what do you want to do?" Limit choices to a few options if needed.
- Redirect - don't argue or correct.
- Speak to them as an adult.
- Smiling, eye contact, and gestures are signs of engagement.
- Concentrate on the process, not the result
- Be flexible
- Simplify the task
- Encourage participation in what they CAN do
- Don't give up! Try different things
- Watch for signs of agitation and change or alter the activity if needed.

CARING FOR LOVED ONES WITH DEMENTIA



TIPS FOR HANDLING CHALLENGING BEHAVIORS



COMMON CHALLENGING BEHAVIORS

Anxiety	Wandering
Confusion	Sundowning
Questioning	Repetition
Aggression	Agitation
Suspicion	Delusions

POSSIBLE TRIGGERS

- change in routine
- bright lights
- loud noises
- unfamiliar environments
- time of day
- boredom
- overstimulation
- confusion

WHAT CAN YOU DO?

Research shows that engaging people with dementia in activities can prevent or reduce challenging behaviors and help to improve quality of life. Activities that are meaningful or individualized to the person's interests and abilities are most effective [1,2].

HOW TO INDIVIDUALIZE ACTIVITIES

Consider:

- Past employment history
- Fun activities they enjoy
- What makes them happy
- Family or friends to engage with
- Reminiscing with pictures
- Simplifying activities they used to do



1. Gillin, L. N., Winter, L., Burke, J., Chernett, N., Dennis, M. P., & Hauck, W. W. (2008). Tailored activities to manage neuropsychiatric behaviors in persons with dementia and reduce caregiver burden: A randomized pilot study. *American Journal of Geriatric Psychiatry*, 16, 229-239.

2. O'Sullivan, G. (2011). Ethical and effective: Approaches to residential care for people with dementia. *Dementia*, 12, 111-121.

MY INDIVIDUALIZED ACTIVITY IDEAS

1

2

3

ASK YOUR THERAPIST FOR IDEAS OR SUPPORT!

Examples:

Bill used to be a mechanic. He may enjoy building models, tinkering with tools, or looking through automobile books.

Helen was a very proud, independent homemaker. She may enjoy sweeping, washing vegetables, or folding laundry.

Appendix C

Volunteer Program Proposal**Good Samaritan Hospital, Puyallup, WA**

Unit: Inpatient Rehabilitation

Number of volunteers: 2-3

Hours per week: 6-10

Description of duties: Volunteers would be available to do one-on-ones with patients with dementia or other cognitive impairment. Patients with dementia or other cognitive impairment are in an unfamiliar hospital environment, which can increase feelings of distress and unease. Problem behaviors may occur such as wandering, repetitive questioning, agitation, or fidgeting with medical lines and tubes. Occupying these patients' time will help in ease feelings of distress and reduce problem behaviors.

Additionally, if there are currently no patients with dementia or cognitive impairment on the unit, volunteers may work on activity kits or busy blankets, which aim to reduce fidgeting behavior and give patients something to occupy their time with. Volunteers can assemble, sew, or gather materials.

Qualifications: Experience working with people with dementia or other cognitive impairment is welcome but not necessary. A calm personality and a willingness to help others is encouraged.

Appendix D

We thank you for your attention at this in-service today. It has been a valuable experience for our learning and we hope it was beneficial to you as well. Please complete this brief survey to help us track the outcomes of our research.

1. What is your role in the care team?

OT PT Nursing Speech Other:

2. About how many clients with dementia or other cognitive impairment(s) do you typically see each month?

3. How likely are you to distribute the caregiver handout to your clients' caregivers?

Definitely Probably Unsure Not likely

4. How comfortable do you feel individualizing activities for your clients with dementia or other cognitive impairment(s)?

Very Somewhat Not at all

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