
Background:
- Behavioral problems in people with dementia (PWD) contribute to suffering, burden, utilization costs and require pharmacological and nonpharmacological interventions.
- **Unmet Needs Model**: Behavior problems arise when PWD can't meet their own needs, can't express needs, caregivers do not acknowledge or know the right way to meet those needs. Needs related to: pain/health/physical discomfort, mental discomfort, social contact, environment, level of stimulation.
- Previous studies have looked at efficacy of nonpharmacological interventions including person-centered care, Snoezelen, reminiscence, validation therapy, social contact, video, and music.
- Research has not addressed individually tailoring interventions to meet specific cognitive and sensory parameters.

Study goals:
1. When interventions are tailored, which interventions are most commonly used? Who receives which intervention? Efficacy?
2. Given multiple interventions, which is related to greater improvement in behavioral symptoms?
3. Does using a trial phase help?
   a. Rate of refusal will be lower in treatment than in trial phase
   b. Level of success will be higher in treatment phase than trial phase

Methods:
- Part of a larger study on nonpharmacological interventions
- 93 (of 654 eligible) participants randomized from 7 nursing homes (out of 23 approached)
- Inclusion: >3 weeks in NH, ID by staff as having behavioral symptoms multiple times daily, >60 y/o, dementia dx
- Exclusion: life expectancy <3 mo, mental illness (BP, Sz, mental retardation), expected to leave NH in < 4 mo, MMSE >25
- Mean age: 85.9 (SD 8.6) 73% fem 81% white 42.7% educ 61% widowed

Assessments
- MDS and Medical Records
- MMSE
- Change Assessment Rating (CAR) – 5-point scale (worse, somewhat, same, somewhat, better)
  - Did the intervention change agitation?”
  - Did the intervention change interest?”

Design
- **Identification phase**: Information gathered from baseline observation: 3 consecutive days, every ½ hour, 8am-9pm, 3 min observations to identify a 4-hour peak agitation period; relatives and caregivers queried about medical, social, identity, interests and other
background information. MDs reported on dementia dx, akathesia, delirium, pain, and/or depression.

- TREA decision tree protocol considering: Agitation etiology, remaining abilities, level of cognitive function, past/present interest
- Trial phase: 3 weeks, RAs tested out different treatments on each participant
- Treatment phase: selected activities from trial phase during selected 4 hour peak time for behavioral symptoms, 5 working days * 2 weeks

Intervention
- 24 interventions in 9 categories: care, theme, manipulative, sensory stimulation, movement activities, artistic activities, work-like activities, social simulation, and social.

Analysis
- Separate for trial and treatment on interventions used for >10 people.
- For each intervention: % of sessions in which participants refused, mean CAR for behavioral symptoms and for interest for all sessions, average of all people who received the intervention.
- Compared intervention refusal rates to trial phase using paired t-test
- Efficacy of interventions for behavioral symptoms

Results
- Trial phase (table 1) and Treatment phase (table 2) interventions utilization and perceived impact by session and by person, impact on interest, assessed further by sex, cognitive function
- Refusal rates in trial and treatment phase: higher during trial than in treatment
- Comparison of interventions in both phases: not always enough people to compare. List of comparisons.

Conclusion
- Intervention Utilization: efficacy impacts utilization; however some of the most effective intervention (e.g. sewing) were least utilized; cognitive function might dictate what is available (e.g. fabric book); availability (e.g. group activities). An intervention may have low utilization if it requires abilities most participants do not have.
- Efficacy of Intervention: tailoring makes comparison more difficult. Issues with sample size, or non-significant differences, power problems.
- One-on-One interaction often better than nonsocial or simulated social interventions. Importance of social interactions!
- Puzzle inferior to several interventions in trial phase, but in tailored phase, inferior only to video intervention

Limitations
- Sample size for some interventions, risk of Type I error (multiple comparisons), issues of bias as same RA assessed and implemented – however, this is more typical of actual nursing home situations
- Difficulty generalizing or providing specific guidance given tailored nature
- Future research – larger sample, better statistical controls, independent effects vs. interaction/cumulative effects

Future directions
- Implications for training all nursing staff or a no pharm specialist (!).
- On-going research classifying clinical data related to intervention utilization and efficacy

Implementation reality check?