Non-Pharmacologic Treatments in Alzheimer Disease

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Research on Behavior Problems in Dementia

• What are the behavior problems in dementia?
• What is their etiology?
• How do we intervene?
Prior Status

• Behavior called agitation
• Treated with either
  – Ignoring – assumed that they were an integral part of dementia
  – Physical restraints
  – Psychoactive medication

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What are behavior problems and how do we classify them?
Subtypes of Agitation

- **Verbally Agitated Behaviors** - constant requests for attention, verbal bossiness or pushiness, complaining or whining, negativism, does not like anything, uncooperative, related or unrelated interruptions.

- **Physically Nonaggressive Behaviors** - general restlessness, performing repetitious mannerisms, pacing, trying to get to a different place, handling things inappropriately, inappropriate dressing or undressing.

- **Aggressive Behaviors** - hitting, pushing, scratching, grabbing onto things and people, temper outbursts, kicking, pushing, cursing, temper outbursts, screaming, verbal aggression
Studies of the syndromes of agitation using factor analysis of the CMAI

• **Nursing home residents:**
  - 408 residents in the USA (Cohen-Mansfield, Marx, & Rosenthal, 1989)
  - 375 residents in Japan (Schreiner, Yamamoto, & Shiotani, 2000).
  - Johnson & Johnson - Australia and New Zealand (n=304), USA (n=617), Europe and Canada (n=344) (Rabinowitz et al., 2005)

• **Other settings:**
  - 200 people from senior adult day care centers in the USA (Cohen-Mansfield, Werner, Watson, & Pasis, 1995)
  - 164 psychogeriatric in-patients and out-patients in Hong Kong (Choy, Lam, Chan, Li, Chiu, 2001)
  - 334 patients admitted to an observation clinic for elderly people in the Netherlands (de Jonghe & Kat, 1996).
Etiology
Theoretical frameworks
Conceptualization of Etiology for These Behaviors

I. Direct impact of dementia

II. Behavioral model

III. Environmental vulnerability model

IV. Unmet needs model

Direct impact of dementia

Behavioral model

Environmental vulnerability model

Dementia $\rightarrow$ Lowered threshold $\rightarrow$ Behavior

Environment $\rightarrow$ Stimuli

Unmet Needs as a Cause for Agitated Behavior

Lifelong habits and personality

Current condition
physical mental

Environment
physical psychosocial

Unmet needs

Behavior as a means of fulfilling needs

Behavior as a means of communicating needs

Behavior is an outcome of frustration and other negative affects interacting with decreased inhibition

Research results concerning etiology
Etiology – studies of predictors and correlates of agitation:

Methods

- Cross-sectional study of 408 nursing home residents

- Observations of 24 highly agitated cognitively impaired residents around the clock for 3 months

- Longitudinal study of 200 participants in adult day care centers over an average of 4 years
What Are the Most Common Unmet Needs?

<table>
<thead>
<tr>
<th>Vocal/Verbal Behaviors</th>
<th>Physically Nonaggressive Behaviors</th>
<th>Aggressive Behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>Need of activity and stimulation</td>
<td>Evasion of discomfort</td>
</tr>
<tr>
<td>Loneliness</td>
<td></td>
<td>Attempt to communicate needs</td>
</tr>
<tr>
<td>Depression</td>
<td></td>
<td>Personal space</td>
</tr>
<tr>
<td>Boredom</td>
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</tbody>
</table>

Why Do Unmet Needs Exist?

- **Normal needs**
  - physiological - pain, health, physical discomfort
  - safety - uncomfortable environmental conditions
  - love and belonging - need for social contacts
  - esteem - type of stimulation
  - self-actualization - level of stimulation

- **Abnormal conditions**
  - unable to communicate needs
  - unaware of needs of self
  - unable to use prior coping mechanisms
  - unable to obtain the means for meeting the need
  - environment does not comprehend/misinterprets the needs
  - environment ignores/does not provide for the needs

Intervention conceptualization
Why use nonpharmacologic approaches?

• It is the logical step based on the research on etiology of behavior problems
• The limitations of pharmacological approaches

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Intervention approaches
What is the Appropriate Methodology?

Assess problem

Hypothesize cause

Analyze treatment options

Treat

Assess

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Approaches to Management of Verbal Agitation

- Is it a physical pain or discomfort? medical treatment
- Is it loneliness or fears? try social interaction real or taped
- Is it a hallucination? try using familiar objects or people
- Is it boredom? try activities which may be meaningful

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Pain
Discomfort
The Problem: detection

- Change in PAINE score as rated by informant over time. (n=121)

## Needs by Treatment Options

### Need for Social Contacts

<table>
<thead>
<tr>
<th>General Treatment Approach</th>
<th>Real Human</th>
<th>Simulated Significant Others</th>
<th>Nonhuman</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interventions</td>
<td>One-on-one social interaction</td>
<td>Simulated presence therapy</td>
<td>Pets</td>
</tr>
<tr>
<td></td>
<td>Small group interaction</td>
<td>Family videotapes</td>
<td>Dolls</td>
</tr>
<tr>
<td></td>
<td>Massage</td>
<td></td>
<td>Mirrors</td>
</tr>
</tbody>
</table>

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Real social interaction
Appropriate Verbal Behavior by Intervention and Time

Simulated and other social interaction
Efficacy of nonpharmacologic interventions
Treatment of Verbal/Vocal Agitation
Underlying Cause: Boredom, Loneliness

Physically non-aggressive behaviors

Approaches to management of physically nonaggressive behaviors

- Does the person have akathisia?
  - change psychotropic medications
  - try to make the place look and feel more like home

- Is the person looking for a home?
  - Is the person restless?
    - Does the person seem to be looking for something?
      - try to find activities which are meaningful for the older person
      - try to use safety devices: safety alarms, large enclosed environments, change look of exit doors

- Are you concerned about the safety of the person?
  - Is the person trespassing and bothering others?
    - try to develop a more inviting environment where the person can wander, camouflage other entrances

- Does the person have a need for self-stimulation or exercise?
  - try to change staff attitudes; if still disturbing, try channelling behavior to more appropriate routes

- Is the behavior disturbing to others?

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# An Illustration of Options

## Need for Stimulation

<table>
<thead>
<tr>
<th></th>
<th>Provide Activities/Stimulation</th>
<th>Accommodate Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Active</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walking</td>
<td>Active</td>
<td>Decrease Risk</td>
</tr>
<tr>
<td>Exercise</td>
<td>Passive</td>
<td>Make Behavior More Acceptable</td>
</tr>
<tr>
<td>Activity programs</td>
<td>Passive</td>
<td></td>
</tr>
<tr>
<td>Flower arranging</td>
<td>Passive</td>
<td></td>
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<tr>
<td><strong>Passive</strong></td>
<td>Passive</td>
<td></td>
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<tr>
<td>Hearing aids</td>
<td>Passive</td>
<td></td>
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<tr>
<td>Glasses</td>
<td>Passive</td>
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<tr>
<td>Sensory stimulation</td>
<td>Passive</td>
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<tr>
<td>Music</td>
<td>Passive</td>
<td></td>
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<tr>
<td>Aromatherapy</td>
<td>Passive</td>
<td></td>
</tr>
<tr>
<td>Massage</td>
<td>Passive</td>
<td></td>
</tr>
<tr>
<td>Camouflage doors</td>
<td>Make Behavior More Acceptable</td>
<td></td>
</tr>
<tr>
<td>Use nonskid floor, avoid throw rugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remove electrical appliances that are not necessary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity apron</td>
<td>Make Behavior More Acceptable</td>
<td></td>
</tr>
<tr>
<td>Materials to handle</td>
<td>Make Behavior More Acceptable</td>
<td></td>
</tr>
<tr>
<td>Outdoor park</td>
<td>Make Behavior More Acceptable</td>
<td></td>
</tr>
<tr>
<td>Changing the visual, auditory, and olfactory stimuli on corridors</td>
<td>Make Behavior More Acceptable</td>
<td></td>
</tr>
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Provide stimulation
Comprehensive Process Model of Engagement

Provide stimulation

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To what extent can persons with dementia be engaged?

Methods

• 193 residents with dementia, Mean MMSE 7
• 7 Maryland nursing homes

Selected study results

• All participants were engaged with some stimulus some of the time
• All stimuli were used by at least some of the participants

Which stimuli are more likely to engage persons with dementia?

- Live Social
- Self Identity (meaning, preferences)
- Simulated Social

Which environmental conditions are associated with more engagement?

• Modeling increased engagement

Engagement was greater with:

• Moderate levels of:
  – Light (not dark, not bright)
  – Noise (not low, not high)
  – Number of persons around (4-9)

What characteristics of persons with dementia are associated with more engagement?

- Cognitive functioning
- Speech clarity
- ADL
- Refusal related to hearing problems and to cognitive function

Accommodate existing behavior
Results:
Decrease in pacing and trespassing

Obstacles

• Distance to park, including elevators, was too long
• Residents were not accustomed to going outside
• Residents were afraid to go outside
• Each resident needs a personal accompaniment
• Weather

Approaches to Management of Aggressive Behaviors

Is the person trying to communicate discomfort?
- Change the environment to be more comfortable

Could the person feel that you invaded her/his personal space?
- Try new approaches to getting closer to the person

Is the person trying to refuse an ADL?
- Try to accommodate by performing the ADL at a different time or by a different method

Is the person bothered by another resident?
- Try to separate the people who may trigger negative responses in each other

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Evaluation of Intervention approaches
A treatment plan needs to be based on an understanding of the etiology of the agitated behavior.

Different types of behaviors have different etiologies.

Choosing a specific treatment:
- Capitalize on the remaining abilities and strengths of the individual, while recognizing current deficits.
- Utilize the unique characteristics of the individual: past work, hobbies, important relationships.
- Focus on prevention, accommodation, and flexibility.
Interventions - Examples

- Individualized music
- Family videotapes and pictures
- Illustrated magazines and large print books,
- Board games and puzzles
- Plush toys
- Sorting cards with pictures and words
- Stress balls
- Baby dolls
- Electronic massagers
- Pain treatment
- Outdoor walks to garden
- Perfume
- Busy apron.
**Sample**

<table>
<thead>
<tr>
<th></th>
<th>Intervention n= 89</th>
<th>Control n = 78</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>88</td>
<td>85</td>
</tr>
<tr>
<td><strong>Females</strong></td>
<td>84</td>
<td>76</td>
</tr>
<tr>
<td><strong>MMSE</strong></td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

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Procedure

• Baseline observations
  – Agitation,
  – Affect
  – determine 4 hours of greatest agitation

• Placebo control

• Intervention for 10 days

• Treatment observation
Intervention vs. control

N=167

F=10.2, p<.01
Conclusions

• Nonpharmacologic intervention can have a significant clinical and statistical effect
• Nonpharmacologic interventions promote quality of life
• Nonpharmacological interventions can address the behavior problem by either fulfilling the underlying need or accommodating the behavior.
• The most common needs are for social contact, engagement in activity, and relief from pain or discomfort
• We CAN DO much of this now, We have to learn how to do more of it