The effectiveness of Snoezelen sensory-based behavioural therapy on individuals with Dementia

Ingrid Borland  
Pacific University

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The effectiveness of Snoezelen sensory-based behavioural therapy on individuals with Dementia

Disciplines
Mental and Social Health | Occupational Therapy

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The effectiveness of Snoezelen sensory-based behavioural therapy on individuals with Dementia

Prepared by: Ingrid Borland, OTS email address: borl9233@pacificu.edu
Date: 10/30/10
Review Date: 10/30/12

CLINICAL SCENARIO:
The observation of sensory integration with pediatrics prompted my curiosity with the use of sensory integration for adults. In the late 1970’s two Dutch therapists came together and developed a “controlled multisensory stimulation” environment or “Snoezelen Room” for people with mental disabilities (Hulsegge & Verheul, 1987). Over the past few decades these rooms have shown tremendous promise because they stimulate a persons’ various senses using sounds, scents, lighting effects, music, textures, etc. without the need for intellectual activity. This is crucial for individuals with dementia because they have the same sensory needs as anyone else but are unable to communicate these needs, preventing them from ever being met. Because the treatment is non-directive, it allows the intervention to be client-centered and the rooms’ various arrangements can produce various responses from each client that identify and target their specific sensory deficits. The majority of studies focus on individuals with dementia, however there is still a need for solid evidence.

FOCUSED CLINICAL QUESTION: How does Snoezelen compare to other more traditional forms of therapy on individuals with dementia?

SUMMARY of Search, ‘Best’ Evidence’ appraised, and Key Findings:

- 5 studies chosen had a positive effect on overall mood, behavior, and communication levels, however, results varied and the effect was only demonstrated during sessions but not after sessions (Van Weert et al., 2005; Staal et al., 2007; Hope, 1998; Baillon et al., 2004; Baker et al., 1997).

- One recent and rigorous study, by Staal, Sacks, Matheis, Collier, Calia, Hanif, & Kofman, 2007, used a single-blind RCT that controlled for factors that others left out such as, medication and testing for the patient’s sensory sensitivities prior to the intervention. This article serves as the basis for best evidence and was one of the few that used the outcome of ADL performance.

- One study examined both the short-term and longer-term effects of Snoezelen on behavior, mood, and communication of people with moderate to severe dementia. In the short-term, both groups showed a significant positive difference and in the long-term only speech skills improved in Snoezelen patients while they declined in the control group (Baker et al., 1997).

- In two studies, an RCT and the quasi-experimental, subjects were given a stimulus preference assessment prior to entering the Snoezelen room in order to develop the personalized sensory care plan used during their Snoezelen treatment (Van Weert et al., 2005 & Staal et al., 2007).
One study was a quasi-experimental pre and post-test design that aimed at the effects that the Snoezelen 24-hour daily care therapy had on caregivers’, CNAs in particular, stress. The results suggest that the treatment did add to the quality of working life for CNAs with a significant decrease of united workload, time pressure and overall stress (Van Weert et al., 2005).

There is only one qualitative study that was the only article that depicted the phenomenology, or lived experience, of the multi-sensory room. It is the best description of the Snoezelen room environment design that is among current data (Hope, K. W., 1998).

**CLINICAL BOTTOM LINE:**

The goal of an Occupational Therapist is to provide therapy that is based on engagement in meaningful and purposeful occupations or activities of daily living and to encourage participation in these activities in spite of limitations or impairments in physical and/or mental functions. With the rise in baby boomers, there is a need for OTs to use positive and new interventions in order to address the ever-changing and increasing client base. Snoezelen appears to be a potential option for an OT while working with individuals who have dementia.

**Limitation of this CAT:**

This critically appraised paper (or topic) has/not been peer-reviewed by one other independent person/lecturer.

**SEARCH STRATEGY:**

Terms used to guide Search Strategy:

- **Patient/Client Group:** Older adults with Alzheimer's/Dementia
- **Intervention (or Assessment):** Snoezelen Adult-Sensory-Based Rooms.
- **Comparison:** Standard Alzheimer Care.
- **Outcome(s):** Behaviour, Agitation, Apathy, and ADL’s.

<table>
<thead>
<tr>
<th>Databases and Sites Searched</th>
<th>Search Terms</th>
<th>Search Results</th>
<th>Limits Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDLINE/PSYCNINFO</td>
<td>Medline and Psychinfo searched: “Snoezelen”, “dementia”</td>
<td>25 articles w/ 5 repeats</td>
<td>Full-text, Human, English language “And”</td>
</tr>
<tr>
<td>CINAHL</td>
<td>Cinahl searched: “Snoezelen”, “dementia”</td>
<td>28 articles w/ 5 repeats</td>
<td></td>
</tr>
<tr>
<td>OT SEARCH</td>
<td>OT search searched: “Snoezelen”, “dementia”</td>
<td>6 articles w/ 0 repeats</td>
<td></td>
</tr>
</tbody>
</table>
INCLUSION and EXCLUSION CRITERIA

- **Inclusion:**
  - Articles published within the last 15 years (1997-2012)
  - Subjects were adults diagnosed with any form or stage of dementia
  - Qualitative and Quantitative
  - Peer-reviewed articles
  - Adult participants (age 65+)

- **Exclusion:**
  - Interventions not related to Snoezelen therapy
  - Studies that investigated other diagnoses

RESULTS OF SEARCH

Table 1: Seven relevant studies were located and categorized as shown in Table 1 based on levels of evidence

<table>
<thead>
<tr>
<th>Study Design/Methodology of Articles Retrieved</th>
<th>Level</th>
<th>Number Located</th>
<th>Author (Year)</th>
</tr>
</thead>
</table>
BEST EVIDENCE
The following study/paper was identified as the ‘best’ evidence and selected for critical appraisal. Reasons for selecting this study were:

- The study used a rigorous RCT blinded design
- The study consisted of many outcome measures
- The study is recent
- The study took into account the specific medications that may or may not affect outcomes.
- The study was applicable for OTs

SUMMARY OF BEST EVIDENCE

Table 2: Description and appraisal of the effects of Snoezelen (multi-sensory behaviour therapy) and psychiatric care on agitation, apathy, and activities of daily living in dementia patients on a short-term geriatric psychiatric inpatient unit by Staal, Sacks, Matheis, Collier, Calia, Hanif, & Kofman, 2007.

Aim/Objective of the Study/Systematic Review:
The purpose of this study was to assess what affect Snoezelen, multi-sensory behavior therapy (MSBT), combined with standard psychiatric care & medicine have on agitation, apathy and Activities of Daily Living (ADL’s) in people who have dementia. Researchers predicted that the group who used Snoezelen MSBT would have a greater reduction in agitation and apathy and improvement of ADLs compared to the control group.

Study Design:
This study was a quantitative randomized control, single-blind group design. All participants were randomly assigned to either the MSBT experimental group or a standard inpatient psychiatric control group. Outcomes were measured at baseline and after every session.

Setting:
The study occurred in multiple rooms on an acute geriatric psychiatric unit at Beth Israel Medical Center, in New York.

Participants:
There were 24 participants, 8 males and 16 females all diagnosed with dementia with behavioural disturbances. Participants were recruited based on admission into the geriatric psychiatric unit. Both groups received psychiatric treatment of four classes of drug agents: atypical antipsychotics, mood-stabilizers, cognitive enhancers, and antidepressants.

Groups were comparable at baseline on only some key demographic variables. 12 of the subjects were randomly assigned to the experimental group; the mean age of this group was 80.33 years old, which was significantly older (8.33 years) than the control group who had a mean age of 72. Both groups had even mean scores when measured at baseline on the Global Deterioration score. The Mini Mental Exam Status
scores showed a mean of 19.17 in the experimental group and 11.83 in the control group. Overall health was measured with the Multi-Level Assessment Instrument (MAI) with the experimental group scoring a mean of 4.17 and the control group with a mean of 2.83. No dropouts were noted.

**Intervention Investigated:**

Both the experimental and control group consisted of 6 sessions of each intervention administered by a trained multidisciplinary team. Each subject took part in a one-on-one structured activity for 25-30 minutes.

**Control:**

The participants were seated at a table, selected and participated in a number of therapeutic recreation activities, such as, play dough, bead mazes, sorting tasks, and tactile tasks.

All participants received Occupational Therapy with a focus on ADL’s, movement awareness, crafts and reality orientation.

**Experimental:**

Each subject took part in a one-on-one therapeutic session in the Snoezelen sensory-based room, which consisted of visual, auditory, olfactory and tactile therapy. The sensory method used was based on the individual’s preference, which was determined through a method of sensory assessment. This unique added session and assessment was created by the author of my “best evidence” article, J. Staal. A new term was created, multi sensory behaviour therapy (MSBT), which altered multi sensory environment therapy (MSET), the Snoezelen concept, by increasing the recognition and identification of the needs of each individual through the newly developed MSBT.

**Outcome Measures:**

There was a post-measurement to determine baseline. Outcomes of agitation, apathy, ADLs, stage of illness and cognitive functioning, as noted below, were measured after each of the six sessions.

### **Primary Outcomes**

**Agitation:**

Pittsburgh Agitation Scale (PAS). This assessment has inter-rater reliability. The scale focuses on four behaviors: aberrant vocalizations, motor agitation, aggressiveness and resisting care. Behaviours are measured on an intensity scale ranging from 0 (not present) -4 (extremely loud screaming or yelling, highly disruptive, unable to redirect).

**Apathy:**

Scale for the Assessment of Negative Symptoms in Alzheimer's Disease (SANS-AD). This assessment has inter-rater reliability. It assesses affective blunting; alogia (impoverished thinking); avolition/apathy; anhedonia/asociality; and disturbance of attention. Assessments are conducted on a six-point scale (0=not at all to 5=severe). (Psychiatry source, 2010).

**ADLs:**

The Katz Index of Activities of Daily Living (KI-ADL). This assessment has inter-rater reliability. It assesses bathing, toileting, dressing, transfer, continence, and feeding. It uses a 7-point scale (0-7) low scores indicates high dependence.

The Beck Dressing Performance Scale (BDP). This assessment has both content validity and inter-rater reliability of .80. It Measures dressing ability, content validity.

**Secondary Outcomes**

**Stage of illness:**
Global Deterioration Scale (GDS). This assessment has an inter-rater reliability of .95. It is measured on a 7-point scale 1-7 with low scores indicating no cognitive decline.

**Cognitive function:**
Mini Mental Status Exam (MMSE). This assessment has tests-retest reliability of .89 and inter-rate reliability of .88. It is composed of a brief 30-point questionnaire test. Any score greater than or equal to 25 points (out of 30) is effectively normal (intact), mild is 21-24, and moderate is 10-20 points.

**Administrators**
Psychiatrists who were blinded to the study assessed and pharmacologically treated all of the study participants.
Nurses who were also blinded to the study, assessed patient ADL post intervention.
Research assistants measured dressing, apathy and agitation after the sessions.

**Main Findings:**
Analysis of Intervention Findings:

<table>
<thead>
<tr>
<th>Table 2 Mean ADL Post test Scores Across Study Session Measured</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline</strong></td>
</tr>
<tr>
<td>---------------</td>
</tr>
<tr>
<td><strong>Mean KI-ADL</strong>*</td>
</tr>
<tr>
<td>MSBT</td>
</tr>
<tr>
<td>(SD)</td>
</tr>
<tr>
<td>Control</td>
</tr>
<tr>
<td>(SD)</td>
</tr>
<tr>
<td><strong>Mean RADL</strong>*</td>
</tr>
<tr>
<td>MSBT</td>
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<tr>
<td>(SD)</td>
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<tr>
<td>Control</td>
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<tr>
<td>(SD)</td>
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<tr>
<td><strong>Mean BDP</strong></td>
</tr>
<tr>
<td>MSBT</td>
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<tr>
<td>(SD)</td>
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<tr>
<td>Control</td>
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<tr>
<td>(SD)</td>
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</tbody>
</table>

Note. *Increasing scores denote less independence. **Decreasing scores denote less independence. All scales were not administered at every session; empty cells denote a scale was not administered.
Table 2 shows that the experimental group improved more than the members of the control group in KI-ADL assessment. Neither the control nor experimental groups showed any significant changes in the RADL and BDP assessments.

<table>
<thead>
<tr>
<th>Table 3 Agitation and Apathy Across Study Time Measured</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
</tr>
<tr>
<td><strong>Agitation</strong>*</td>
</tr>
<tr>
<td>MSBT</td>
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<tr>
<td>(SD)</td>
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<tr>
<td>Control</td>
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<tr>
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<tr>
<td>Control</td>
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<tr>
<td>(SD)</td>
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</tbody>
</table>

Note. *Increasing scores denote less independence.

Table 3 shows that the experimental group significantly improved in apathy and agitation while the members of the control group only improved significantly in agitation. No significant improvement was found in apathy.

Original Authors’ Conclusions

Both groups had reduced agitation, so it appears that the combined effect of pharmacological treatment and MSBT may reduce levels of agitation more than the standard treatment alone. Only the experimental group had significant improvement in the outcome of apathy. The researchers suggested that MSBT combined with standard pharmaceutical care reduced levels of agitation and apathy (Staal, et al., 2007).

Validity:

**Ethics**

Due to the cognitive abilities of the population studied, informed consent was obtained from the patients, caretakers or family members.

PEDro score= 9/11

(The PEDro scale is an 11-item scale designed for rating methodological quality of RCTs)

Criterion 1- Random Allocation- Participants were randomly selected. (+1 point)
Criterion 2- Concealed allocation- The precise method of randomization was not specified nor was there mention if there is a person who determined if a participant was eligible for the trial. (-1 point)
Criterion 3- Baseline similarities- While there were some similarities, there were more noted differences between the control and experimental group when measured at baseline. The experimental group was significantly older, and had a higher mean score on the mini mental exam. (-1 point)
Criterion 4, 5 & 6- Blinding of participants, therapists and assessors- Yes the participants, therapists and assessors were blinded to the study. (+3 points)
Criterion 7- Measures of key outcomes from more than 85% of participants- Yes measures of key outcomes where noted and there were no drop outs. (+1 point)
Criterion 8- Intention to treat analysis- There was no specific verbiage of “intention to treat analysis” however it was explicitly stated that all participants received treatment or control as allocated. (+1 point)
Criterion 9- Between-group statistical comparisons- Statistical comparison in the form of hypothesis testing involved a “p” value which described the probability of the groups differed only by chance. (+1 point)
Criterion 10- Point measures and measures of variability- These were notably clear in the tables provided. (+1 point)
Criterion 11- Eligibility criteria was met. (+1 point)

**Biases**

**Sample Selection Bias**- A possible seasonal bias may exist because the test was only done in a six-session period which could have had an impact on the results because it was potentially too short and may have been done in a season where the outcome may have been affected.

**Measurement Detection Bias**- There is bias in the number of outcomes measured because the ADL measure did not include personal hygiene, grooming or meal prep.

**Intervention/Performance Bias**- Timing of intervention and duration was short thus allowing for a possible bias as there may not have been sufficient time for a noticeable affect in the outcomes of interest.

**Contamination**- Contamination was avoided between groups through the use of trained research assistants. Control participants had no contact with the experimental groups’ room in order to isolate the effect of the experimental intervention.

**Co-Intervention**- Not Addressed in study.

**Interpretation of Results:**

The study reported that the experimental and control group both showed significant positive results with only one difference, the experimental group also showed significant positive changes in apathy. Results were in favour, but not significantly in favour of the experimental group, however there are a number of limitations that could have affected the results. Possible limitations include a small sample size, observer bias through the use of observational measures, and instrument selection through the lack of measurement sensitivity measures used to assess ADLs.

**Summary/Conclusion and Critical Appraisal:**

In conclusion, the Snoezelen room is a new treatment that offers an option for OTs and other users. It provides viable options for not only the elderly individuals who have dementia and need the multisensory environment, but also an exciting and fun way for those around them; family, friends, caregivers and medical staff, to work with them in an intervention that offers variety, to meet the needs of each individual, in a unique and stimulating environment.
<table>
<thead>
<tr>
<th>Study</th>
<th>Intervention investigated</th>
<th>Comparison intervention</th>
<th>Outcomes used</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Effects of Snoezelen Multi-Sensory Therapy on patients with dementia.</td>
<td>Reminiscence Therapy.</td>
<td>Frequency of agitated behavior, Cognitive Impairment, Level of Dementia &amp; Heart Rate.</td>
<td>Both Snoezelen &amp; Reminiscence Therapy appeared to have a calming effect on some patients who were agitated. Snoezelen is seen as a viable alternative but not necessarily any better than Reminiscence therapy. Data is non-conclusive.</td>
</tr>
<tr>
<td>2</td>
<td>The long-term and short-term effects of Snoezelen on older people with dementia.</td>
<td>Standardized activity sessions.</td>
<td>Behavior, mood and cognition.</td>
<td>Short-term- there was an improvement in mood and behavior immediately after both the Snoezelen and control group's activity sessions. Long-term- Speech skills improved in Snoezelen patients while they declined in the control group.</td>
</tr>
<tr>
<td>3</td>
<td>Effects of 24 hour Snoezelen therapy on patients with dementia &amp; the quality of working life of CNA care takers.</td>
<td>Standard care/Activity Sessions that were not Snoezelen related.</td>
<td>CNA's: workload, stress, job satisfactions, burnout, perceived problems of CNA's, psychological outcomes. Patients with Dementia: A parallel study of behavior mood.</td>
<td>CNA's: supported the effectiveness of Snoezelen in improving the quality of working life of CNA's in dementia care. Patients with Dementia: supported the effectiveness of Snoezelen on behavior and mood of nursing home residents with dementia. Results show that Snoezelen is a viable option when accompanied with regular care. It is also helpful for those who show severe anxiety and low mood.</td>
</tr>
<tr>
<td>4</td>
<td>Qualitative: The lived experience of multisensory environment on older people with dementia.</td>
<td>No comparison group.</td>
<td>Mood, speech/social &amp; interaction variables &amp; pulse rate.</td>
<td>While Snoezelen promotes an increased affect in mood and behaviors of older people with dementia, the effect was not significant as compared to control trials.</td>
</tr>
<tr>
<td>5</td>
<td>This systematic review was conducted to find efficacy of Snoezelen for individuals with dementia.</td>
<td>Control interventions used activities that did not included multi-sensory components. Both group and individual sessions or 24-hour care were considered.</td>
<td>Behavior, mood, cognition, physiological indices and client-care communication.</td>
<td></td>
</tr>
</tbody>
</table>

**IMPLICATIONS FOR PRACTICE, EDUCATION and FUTURE RESEARCH**

**IMPLICATION FOR PRACTICE:**

One thing to keep in mind when practicing as an Occupational Therapist on individuals with dementia is the importance of integrating sensory based objects in therapy and recognizing the various affects that each targeted treatment has on the client. Training in how to implement Snoezelen therapy, which is required (Hulsegge & Verheul, 1987), is approximately $500 per trainee. The cost of equipping a Snoezelen room ranges from $5,000 to $30,000, depending on the quantity and type of equipment purchased.
EDUCATION:
It is important that occupational therapists, especially those working with elders with dementia, are aware of the pros and cons of this therapy and that there is a training or educational program in place to properly prepare professionals on the many uses of Snoezelen therapy.

FUTURE RESEARCH:
Future studies, with a larger sample and over a longer period of time are needed. Because Snoezelen rooms can come in many forms, another area of research could compare the specific variety of Snoezelen objects used.

CURRENT RESEARCH:
There is a yearlong randomized control trial with a sample size of 360 subjects that will be published in January 2011. This study compares reminiscence therapy, 10-minutes activation and Snoezelen/multisensory stimulation (Berg, et al, 2010). Snoezelen remains a topic of discussion as a new opportunity for treatment.

REFERENCES:


