Efficacy Of A Cognitive Stimulation Therapy Programme For People With Dementia

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What is Cognitive Stimulation Therapy (CST)?

CST is a non-invasive, psychological intervention for those with a cognitive impairment which focuses on the improvement and strengthening of spared cognitive functions and resources as well as on the maintenance of social and interaction skills, with the potential to improve mood and quality of life.
Evidence–Based CST Programme For People With Dementia - Spector et al 2003, Br Jr Psychiatry

- UK Randomised Control Trial (n=201) found that ADAS-cog scores, MMSE scores & QOL improved following a specific set cognitive stimulation programme

- Spector et al (2003) study completed randomised control trial which was single-blinded
CST Study (Spector et al 2003)

- 14 sessions programme ran twice a week for 45 mins per sessions in residential homes & day centres.

- Study measured group intervention programme against “usual activities” – which was described as usually nothing.

- Results showed CST improved cognition, QOL, with effects similar to acetyl cholinesterase inhibitors.
Reasoning and Ethical Approval for Research

- Limited studies to date
- Joint study by St. James’s O.T. Department with Mercers Institute Research (MIRA) St James Hospital, Beaumont Hospital Psychology Dept and Tara Winthrop Private Nursing Home
- Ethical Approval from Adelaide & Meath Children’s Hospital & St James’s Ethics Committee for St James’s & Cherry Orchard Hospital and Beaumont Ethics Committee
- Participants selected using inclusion criteria, & written consent from participants and next of kin.
Aims of Study

- Small scale replication of Spector et al’s study (2003) to investigate potential efficacy of CST
  - Current sample much smaller
  - Control condition = standard activities
Locations of Participants

- St James’s Hospital Long Term Care Units
  - Cherry Orchard Hospital (LTC)
  - Hospital 4 (LTC)
    - Bru Caoimhin (Rehab Ward)
- Tara Winthrop Private Nursing Home – through Psychology Dept. Beaumont Hospital with programme run by Tara Winthrop’s activity co-ordinator.
Inclusion Criteria for Study

A. Mild to moderate cognitive impairment

B. Score of 10-24 in MMSE

C. Some ability to communicate and understand communication; a score of 1 or 0 on the BRS-CAPE

- Able to see & hear well enough to participate in the group and make the most of the material in the programme, as determined by researcher

- No major physical illness or disability

- No diagnosis of an intellectual disability
CST Programme

1. Physical games
2. Sound
3. Childhood
4. Food
5. Current Affairs
6. Faces/Scenes
7. Word Association
8. Being Creative
9. Categorising objects
10. Orientation
11. Using Money
12. Number Games
13. Word Games
14. Team Quiz

Intervention & control individuals also attended other usual activities e.g. bingo, U/L groups, Balance (PT Groups) music, art.
Pre and Post Methods of Assessment

- Mini-Mental State Examination (MMSE)
- Clinical Dementia Rating (CDR, sum of box score)
- Rating Anxiety in Dementia (RAID)
- Geriatric depression Scale (GDS15 with one inappropriate item omitted, = “GDS14”)
- Quality of Life in Alzheimer’s disease (QoL-AD, participant version)
- Behavior Rating Scale (BRS) from the CAPE
- Alzheimer’s Disease Assessment Scale (ADAS-cog)

Test selection based on battery used by Spector et al ‘03.
## Description of Assessments

<table>
<thead>
<tr>
<th>MMSE</th>
<th>BRS from CAPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global screening tool</td>
<td>4 sub-areas</td>
</tr>
<tr>
<td>5 sub-areas to assess</td>
<td>Completed by nursing staff by observation. A, B, C, D &amp; E dependency level score</td>
</tr>
<tr>
<td>Normal, Mild, Moderate &amp; Severe score</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GDS-15 with 1 item omitted</th>
<th>RAID</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 questions</td>
<td>6 sub-areas</td>
</tr>
<tr>
<td>Yes/ No response</td>
<td>Completed by participant, leader of group and nurse</td>
</tr>
<tr>
<td>Triggered emotions</td>
<td>unable, 0, 1, 2 &amp; 3 score</td>
</tr>
<tr>
<td></td>
<td>Triggered emotions</td>
</tr>
</tbody>
</table>
## Description of Assessments

<table>
<thead>
<tr>
<th>QOL-AD</th>
<th>CDR (dementia staging)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 questions (1 omitted from original)</td>
<td>6 sub-areas</td>
</tr>
<tr>
<td>Poor, Fair, Good, &amp; Excellent response</td>
<td>None, questionable, mild, moderate &amp; severe score</td>
</tr>
<tr>
<td>Completed by assessor</td>
<td></td>
</tr>
</tbody>
</table>

### ADAS-Cog
- Battery of 11 sub-test
- Index of global cognition
- Sensitive to change

- Word list recall
- Commands
- Name objects / fingers
- Visuoconstruction
- Ideational praxis
- Orientation
- Recognition Memory
- Spoken Language Ability
- Comprehension of spoken language
- Remembering test instructions
- Word finding difficulties in spontaneous speech
Statistical analysis

- Data analysis completed by MIRA using DataDesk
- MMSE, CDR(sum of box score), RAID, GDS14, QOL-AD, BRS and ADAS-cog total score were analyzed.
- Mann-Whitney U test was used to evaluate statistical significance due to small sample size.
The pre-intervention scores for both the intervention and control groups were compared.

For both the intervention and control groups, change from pre- to post-intervention was calculated for each variable.

Between group difference scores were compared.
Demographics of Participants

- **Beaumont - Tara Winthrop Private Nursing Home**
  - 5 Intervention participants
    - 4 male
    - Mean age = 83.4 (67-98)
    - Mean pre MMSE = 13.8
  - 4 Controls
    - 2 male
    - Mean pre MMSE = 13.5
    - Mostly primary level education

- **St James’s & Cherry Orchard**
  - 9 Intervention participants
    - 5 male
    - Mean age = 79.1 (70-89)
    - Mean pre MMSE = 18.3
  - 9 Controls
    - 2 males
    - Mean pre MMSE = 19.1
    - Mostly primary level education
Controls a little worse on CDR. Groups did not differ besides.
# Results 2

Between group pre to post change

<table>
<thead>
<tr>
<th></th>
<th>Intervention Group change</th>
<th>Control Group change</th>
<th>Between Gp comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MMSE</strong></td>
<td>0.8 ± 3.6</td>
<td>-2.1 ± 2.5</td>
<td>P=0.013 significant</td>
</tr>
<tr>
<td><strong>CDR (sum of box)</strong></td>
<td>0.5 ± 2.0</td>
<td>0.1 ± 2.1</td>
<td>P=0.68</td>
</tr>
<tr>
<td><strong>RAID</strong></td>
<td>-1.1 ± 7.3</td>
<td>1.6 ± 6.4</td>
<td>P=0.27</td>
</tr>
<tr>
<td><strong>GDS14</strong></td>
<td>0.9 ± 3.0</td>
<td>-0.1 ± 1.9</td>
<td>P=0.29</td>
</tr>
<tr>
<td><strong>QoL-AD</strong></td>
<td>3.6 ± 3.7</td>
<td>0.5 ± 4.4</td>
<td>P=0.055, just short of significant</td>
</tr>
<tr>
<td><strong>BRS</strong></td>
<td>0.0 ± 3.6</td>
<td>1.4 ± 5.4</td>
<td>P=0.45</td>
</tr>
<tr>
<td><strong>ADAS Total</strong></td>
<td>-0.2 ± 7.2</td>
<td>-2.3 ± 4.1</td>
<td>P=0.39</td>
</tr>
</tbody>
</table>

Intervention group MMSE improved while control MMSE declined. Intervention group rated QoL as better (p=0.055).
Results 3 MMSE: number in each group who increased or decreased on MMSE

<table>
<thead>
<tr>
<th></th>
<th>MMSE increase</th>
<th>MMSE decrease</th>
<th>MMSE no change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention Group</td>
<td>n=9</td>
<td>n=3</td>
<td>n=2</td>
</tr>
<tr>
<td>Control Group</td>
<td>n=2</td>
<td>n=9</td>
<td></td>
</tr>
</tbody>
</table>

* MMSE differences are evident in groups (not just an effect due to a couple of individuals).
* 4 controls and 2 intervention participants were on cholinesterase inhibitor.
Qualitative Data Results from St James’s & Cherry Orchard

Supports statistical data

Improvements in areas of
- Interest
- Communication
- Enjoyment
- Mood

Difference in 1st session attended & last session of the average scores for all members improved for all of the above areas.
Group sessions of CST programme with most Engagement

1) Number Games

2) Orientation

3) Word Games
Summary – Comparison Between Spector et al and Current Study

- *Spector et al 2003* – *Randomised Control Trial*

- Mild-moderate cognitive impairment & diagnoses of dementia

- Large scale study over large number of sites

- Results shows improvement in Cognition, QOL, and ADAS-cog scores

- Controls usual activity was usually nothing
Summary – Comparison Between Spector et al and Current Study

- Single Blinded Control Trial.
- Moderate to severe cognitive impairment
- No dementia specific diagnosis
- Interventions & controls attended other usual activities e.g. Bingo, Balance (PT groups) SALT, Music, Art
- Small numbers in study; still showed significant improvements in cognition (improved MMSE score)
- QOL was almost statistically significant, and supported in qualitative data
SUMMARY

- Significant increases in MMSE Scores post CST Programme (similar to Spector et al, 2003)
- Improvements in QOL observed (similar to Woods, 2006)
- Further research into measuring QOL in person’s with dementia & cognitive impairment (2006, E. Moniz-Cook)
- O.T.’s involved in study found that standardised assessments may exclude participants who would benefit from programme due to inability to complete outcome measures
Limitations of the Study

- Small sample size
- No change in ADAS-cog assessment
- Time/Staff resources
- Ability for participants to complete Standardised Assessments leading to exclusion of participants that could benefit
Staff Involved in Research

St James’s Hospital
Dr. R.F Coen - Psychologist MIRA
N. Merriman - Occupational Therapy Manager
B. Flynn - Senior OT, Cherry Orchard
E. Rigney - Senior OT
L. Fitzgerald - Basic grade OT
E. O Connor - Basic grade OT
C. Murray - OTA
Dr. C. Cunningham - Consultant

Beaumont Hospital
Dr. J. Edgeworth Psychologist
C. Dunleavy – Tara Winthrop
M. Mc Donald – Activity Co-ordinator, Tara Winthrop
D. Delaney – Psychology PHD Student
Dr. N. Pender - Psychologist
Acknowledgements

- Nursing Staff on all the wards involved with the study in facilitation of groups & assistance with screening & completion of objective pre/post Rating Scales.
- Families of participants of the study for their interest & support during programme.
Questions ?


HIQUA (Aug, 2007); “Draft National Quality Standards for Residential Care Settings for Older People – A consultation Document”; Aug 2007 *Health Information and Quality Authority (AntUdaras Um Fhaisneis agus Cailiocht Slainte)*

Leach L (2004) Cognitive “Stimulation therapy improves cognition and quality of life in older people with dementia”; *Evidence-Based Mental health*; 7 (1):19
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References

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