Cognitive Stimulation Therapy
Trial in Residential and Community Care at The Whiddon Group

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Acknowledgements

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• the support and training assistance provided by our colleagues at The Prince of Wales Hospital Aged Care Psychiatry Service – Daniella Kanareck, Natalie Narunsky, and Professor Brian Draper
• Professor Martin Orrell and Dr Aimee Spector, authors of the CST program
• Catriona (Keenie) Daly, independent research officer, who analysed and reported our CST findings.
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Executive summary

Introduction

The prevalence of dementia amongst older Australians is rising exponentially. In 2015, 342,800 people had dementia and this is estimated to rise to 900,000 by 2050. Currently 3 in 10 over 85s have dementia (AIHW 2015). In residential aged care settings at The Whiddon Group our average resident age is 82 and around 70% of residents have a diagnosis of dementia. We see similar levels of dementia in our community care clients, and understand that this is a typical picture across Australian residential and community care aged care settings.

Currently, there are few non-medication based therapies for dementia that can improve cognition and provide other benefits associated with improved quality of life. The Whiddon Group is committed to providing creative and positive ageing therapies to its residents and clients that engage, stimulate, motivate and answer their social, emotional and physical needs. Cognitive Stimulation Therapy (CST), is a structured group multi-sensory intervention for people with mild to moderate dementia. It was developed and researched by Professor Martin Orrell and Dr Aimee Spector in aged care settings (Spector et al 2006) and reviewed in a recent Cochrane report (2012). More information on CST can be found at cstdementia.com.

CST is widely acknowledged internationally as being good practice for dementia. The therapy draws on Reality Orientation and Reminiscence Therapy and consists of a program that runs over several months (recommended 8 months), with an intensive and maintenance stage. Up to 8 participants are actively engaged through different themes, stimulus and sensory materials. Resultant conversation, fun and social interaction are encouraged according to the founding principles of CST. The group sessions are always run at the same time and place to assist the participants with orientation. The facilitated groups are named by the participants and always include their chosen theme song. Resources, manuals, CDs and website, are available on the internet. It is important to be trained in CST principles and techniques, and Whiddon’s staff were trained by the Prince of Wales team, who had attended training in the UK.

Although well established in the UK and used widely in both residential and community care settings across the aged care sector, CST is not well researched in Australia. At the time of this trial, Whiddon was aware of only one other provider in South Australia running a CST program, and one research trial run by the Prince of Wales Hospital Aged Care Psychiatry team program. This trial was run in 2014 with one group of older people living in the community and was funded by the Dementia Collaborative Research Centres – Assessment and Better Care (DCRC–ABC). The Prince of Wales team have generously provided guidance and training support for Whiddon’s trial.
Objectives of the trial

The effectiveness of CST has been researched in the UK by the program creators (Spector et al, 2006) and reviewed in a recent Cochrane report. The Prince of Wales Aged Care Psychiatry team trialled CST in NSW in 2014 with one group of older people living in the community. Research findings indicate that CST is as effective as medication in slowing and stabilising cognitive decline and that this treatment, aimed at improving cognitive status, has a positive effect on the participant’s self reported quality of life. The Prince of Wales study also showed that there are important secondary benefits for participants around improved communication skills, confidence and motivation as well as increasing social networks.

Whiddon’s objectives were to test the CST program across our residential and community care settings to assess the level of benefit to residents and clients, and to pilot the program prior to full implementation. Success criteria for running the program at Whiddon would include:

- easy to run for leisure officers and/or AINs and other care workers
- enjoyable for residents/clients and staff
- ability to fit within the existing leisure and lifestyle schedules in residential care
- feasibility to include in community care services.
Method and measurement

Whiddon trialled CST across 6 residential and 2 community care services located in regional, rural and remote NSW. One combined group of residential and community care clients was run at our metropolitan service at Glenfield. Forty-five residents and clients participated in the trial, although there was some attrition due to sickness and death. When this occurred, we did not add participants to the groups as we felt it was important to maintain group dynamics and reduce trial variables. The trial ran for 6 months in each service and the groups included between 4–8 participants. This differs from the recommended program (Spector et al) of 8 months as Whiddon was keen to test a shorter, more sustainable version of the program. The likely benefits of a 6 versus 8 month program were discussed with the Prince of Wales trial team. Whiddon’s trial included an intensive stage of 8 weeks, where 45 minute groups were run twice a week and a maintenance stage of 18 weeks with groups once a week.

The groups were meant to be facilitated by two trained staff members, but in practice, because group sizes were small, most services ran the groups with one staff member. Selection criteria were distributed for participating residents and clients. Care and Leisure staff were asked to select people with low cognitive scores according to the Psychogeriatric Assessment Scale (PAS: Jorm et al, 1995), with mild to moderate dementia, or those who they felt would benefit from the groups (this meant that they could include some participants with more advanced dementia). They were also asked to consider likely social dynamics between the participants. Residents and clients with severe hearing or vision impairment were excluded from the trial.

A mixed method approach

We used a mixed methods approach to measure changes in cognitive impairment, quality of life and effectiveness of the program structure. Cognitive impairment was measured using the Psychogeriatric Assessment Scale (PAS: Jorm et al, 1995) an easy to administer 9-item scale used to assess cognitive impairment in dementia and depression. A higher score indicates more impairment. Quality of Life was measured through the Quality of Life – Alzheimer’s (Qol-AD) scale, a brief 13 item measure which elicits a quality of life rating from both residents/clients and an informant – caregiver or family member (the i-Qol). A higher score indicates a higher quality of life. In addition semi structured interviews were conducted with staff running the groups at the end of the intensive and maintenance stages to gain further insights into the effectiveness of the therapy and program.

Three waves of measurement

Measurement of the trial consisted of three waves: Pre trial assessment or baseline, the intensive stage and a maintenance stage. At baseline, medication charts were submitted and participants completed a PAS and Qol-AD assessment (Qol and i-Qol).

Following baseline, participants took part in 8 weeks of intensive CST, involving 45 minute sessions twice a week, with one or two (most services only ran with one trained care worker) trained care workers. Wave 2 assessment was completed after these 8 weeks. At this point participants completed the PAS again, as well as the Qol-AD. A qualitative semi-structured interview was conducted with the care worker/s running the groups.

The maintenance stage began immediately after the intensive stage and lasted 18 weeks. The same battery of questionnaires was given to participants and informants at the end of the maintenance stage, 26 weeks after baseline. Interviews with care and leisure staff were conducted again at this point.

Minimising variability

PAS surveys were mainly administered by RNs, and Qol-ADs were conducted by RNs or care staff. Variability was minimised by requesting (where possible) that the same RNs and care workers administered the chosen surveys, approximately at the same time of day, under the same conditions (eg resident with or without glasses, etc) at each wave of the trial.
Key findings

The main findings of the study were that the CST program, as applied in the Whiddon trial, is an effective and enjoyable therapy for people with mild to moderate dementia (based on PAS scores). It is relatively easy to run in both residential and community care settings. While findings were less pronounced in quantitative analyses, the qualitative component of the research revealed significant benefits to staff and clients alike: Staff reported that it is enjoyable for them to run, increasing job satisfaction and greater knowledge and understanding of clients. They also reported that participants gain great benefit from the groups in terms of increasing self confidence and esteem and improved communication and social skills. CST provides participants with the opportunity to widen their social networks in an enjoyable and highly supportive environment. It would seem to be a valuable program underpinning relationship centred care and positive ageing approaches.

Improved cognitive function

The program has a positive effect on the cognitive status of most participants, with 52% evidencing an improvement in PAS scores from baseline to the conclusion of the program (post maintenance). Mean PAS scores from baseline to the end of intensive stage improved by 3 points, indicating significant improvement in cognitive function. These scores slipped between intensive and post maintenance but were still improved compared to baseline scores. While not statistically significant, 40% of the 52% of participants that experienced a positive effect, had a 5 point or greater improvement in their PAS scores. This put some of them in the normal range of cognitive function. However, further analyses of results by centre and care type reveals a significant lowering of PAS scores across the duration of the trial for Tweed Heads, Community Care clients. Numbers of community care clients, however, were too low to be reliable.

Measuring quality of life

Effect on quality of life was less conclusive as evidenced by the QoL-AD results. Mean scores for the whole cohort showed improved QoL scores post-intensive phase, which then tailed off post-maintenance. Comparing scores between care types was more revealing and showed steady and sustained improvement for community care clients. Residents’ scores improved post-intensive and then fell post-maintenance.

Improved confidence and self esteem

Qualitative feedback from staff, through iQoL commentary and the semi-structured interviews, revealed strong and consistent themes around residents’ and clients’ improved self confidence and esteem, improved communication and social skills, which were maintained outside of the CST groups and observed by staff in larger social activities and day to day interactions.

Positive effect on mood

While we did not measure the effect of CST on depression in this trial, care workers, RNs and other stakeholders that were interviewed commented that CST groups had a positive effect on the mood of many of those attending the groups. One service manager involved in the measurement of CST decided to measure the effect on depression because she felt that the positive effect was much greater than she could see from the QoL-AD results. Some family members were also reported as commenting on their loved ones’ high levels of enjoyment and uplifted mood as a result of CST. This was a particular theme with families of community care clients.

Opportunities to widen social networks

This was reported by staff to be of particular benefit to both residents and clients in community care. Social cliques are common in residential care and it can be difficult for residents to meet others in different social groups. CST provides an opportunity to cross these social boundaries and bond with new people. For community care clients, it can provide a much needed opportunity for regular social contact and to make new friends. Family members had commented on the value of this to their loved one. In addition, the combined group at Glenfield had eased the transition of one community care client into residential care, when she became too ill during the trial to remain at home.
Vignettes

Due to the exploratory nature of this research project, coupled with the relatively small sample size, individual vignettes are reported to demonstrate the dramatic effect that CST can have on some participants. Participants reported by staff as exhibiting dramatic improvements in cognitive function and wellbeing were chosen for vignettes. It is hoped that, in combination with the quantitative and qualitative results, these vignettes will provide a more holistic account of the trial.

**Harold (Tweed Heads)**

Harold is a 94-year-old male living in the community, supported by The Whiddon Group at Tweed Heads. He participated in all three stages of the CST trial. Of note, the maintenance stage at Tweed Heads was cut short by 1 month due to a misunderstanding with the research instructions. Accordingly, wave 3 data was collected 22 weeks after baseline, as opposed to the usual 26 weeks.

Harold experienced a large improvement in self-reported quality of life scores from baseline to Wave 2, and these improvements remained at Wave 3, following the maintenance stage of the trial. Harold’s initial QoL score was 35 (out of a possible 52). Following the intensive stage of the trial (wave 2), Harold’s score rose to 37. This score continued to increase, reaching 45 at the end of the trial. This marked a ten-point increase in quality of life from baseline to the end of the trial. In his final qualitative interview Harold said that he ‘enjoyed playing all the games’. Staff reported that Harold had mentioned he enjoyed the social interaction afforded by the group and that they had noticed him ‘participating more’.

Harold’s baseline PAS score was 6, increasing by 1 point to 7 following the intensive stage. This indicates likely cognitive impairment. Harold entered permanent care at the end of the trial and so no PAS score was able to be collected for wave 3.

**Harold’s QoL-AD scores**

![Graph showing Harold's QoL-AD scores across baseline, intensive stage, and maintenance stage.](image)
William (Narrabri JH)

William is an 83-year-old man living at Narrabri Jessie Hunt. He partook in all stages of the trial. At baseline, William had a diagnosis of Alzheimer’s Disease, Vascular Dementia and Parkinsonian traits for which he was taking dementia specific medication. He also had a diagnosis of Bipolar Depression and a range of physical ailments including coronary stents, hypothyroidism and incontinence.

At baseline, William had a PAS score of 19, placing him in the top 5% of the population for cognitive impairment on this scale (Jorm and Mackinnon, 1995). After the intensive stage of the intervention, despite a diagnosis of Dementia, William’s PAS score had dropped 9 points, dropping another 2 points following the maintenance stage. This marked an 11 point decrease in cognitive impairment from baseline to the maintenance stage! Although still cognitively impaired at the end of the trial, this represents a large improvement in cognitive functioning from baseline levels.

William’s QOL-AD scores showed some fluctuation across the duration of the study. At baseline, William had a QoL-AD score of 31, which increased 5 points after the intensive stage, suggesting a moderate improvement. The increase did not last into the maintenance stage of the trial and William’s score decreased to 32, just 1 point higher than his baseline score.
Joan (Kyogle)

Joan is an 85-year-old female living in care at the Whiddon Group home in Kyogle. She partook in all three stages of the trial. Joan had a diagnosis of dementia at baseline, however she was not taking any dementia-specific medication. Her baseline PAS score was 8, indicating cognitive impairment. Additionally Joan was depressed at baseline, according to the Cornell Scale for Depression in Dementia.

Despite a baseline diagnosis of depression, Joan’s QoL-AD scores markedly increased over the trial. At baseline she had a score of 29, this increased to 31 following the intensive stage of the intervention. Interestingly, Joan’s score jumped another 6 points between the intensive and maintenance stages, suggesting that the maintenance stage of the intervention may have some important carry on effects on quality of life. It would be interesting in the future to assess if the CST program has any effects on depressive symptoms.

Similarly, the biggest change in Joan’s PAS score was following the maintenance stage of the intervention. Joan’s PAS score stayed at 8 for baseline and the intensive stage however it decreased to 5 following the maintenance stage, indicating a decrease in cognitive impairment. Although this doesn’t sound like much, it puts Joan on the borderline of normal cognitive functioning (Jorm and Mackinnon, 1995). Again, this pattern of results points to the significance of the maintenance stage of CST.
Trial findings

Reported by Catriona Daly, Independent Researcher and Karn Nelson, Executive General Manager, Strategic Policy and Research

Quantitative findings

<table>
<thead>
<tr>
<th>Intensive stage</th>
<th>Maintenance stage</th>
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<tr>
<td>8 weeks</td>
<td>26 weeks</td>
</tr>
</tbody>
</table>

Baseline assessment

- PAS
- QoL participant
- iQoL carer*

Wave 2 assessment

- PAS
- QoL participant
- iQoL carer*
- Semi-structured interviews†

Wave 3 assessment

- PAS
- QoL participant
- iQoL carer*
- Semi-structured interviews†

* In residential care this was completed by the care staff member that knew the resident best, and in community care by the client’s family carer or member.

† Conducted with CST staff and other stakeholders.

Baseline assessment

Baseline summary

- Care Type: 84% in residential care
- QoL: Mean QoL 34.09, Mean iQoL 32.18
- Age: Mean age 84 years
- Baseline n = 44
- Sex: 68.2% of sample female
- PAS: Mean PAS score 9.53
Age

Overall, participants were aged between 72–94 years of age, with the mean age being 84 years old. When divided into centre location, Narrabri JH had the youngest sample, with a mean age of 79, whilst Kyogle had the oldest sample with a mean age of 87.

A univariate analysis of variance (ANOVA) was performed to test if age differed significantly across centres. The ANOVA was not significant, $F(6,37) = 1.57, p>0.05$, indicating that groups did not differ significantly as a function of age. Interestingly, pairwise comparisons revealed that Narrabri JH had a significantly younger sample than all groups except for Redhead and Belmont.

Mean age of participants was then compared across care types. Centres were divided into two types of care: Community and Residential. About 84% of participants fell into the residential care category. When entered into a univariate ANOVA, mean age did not appear to differ as a function of care type, $F(1, 43) = 0.92, p = 0.34$. Additionally, no pairwise comparisons reached significance. Interestingly, residential clients had a lower mean age than community care clients.
Sex

There were 30 female participants in the study, representing 68.2% of the overall sample. Two univariate ANOVAs were run with participants divided into centre location and care type respectively. When divided into centre location, groups did not differ significantly based on gender, all p's >0.05.

Gender of participants by centre location

When participants were divided by care type, the ANOVA was significant, F(1, 43) = 6.66, p<0.05, indicating there were gender differences between residential and community care types. However closer analysis of the data and standard error bars, suggested that this difference could largely be accounted for by the small sample size of the study.

Gender of participants by care type

PAS

Test scores on PAS can range from 0-21. In the current sample, scores at baseline ranged from a minimum score of 4 to a maximum score of 21. The mean score was 9.53 (SD=4.21). When divided into centre location, Narrabri Jessie Hunt had the highest mean PAS score at baseline, while Tweed community care clients had the lowest PAS scores. Again, a univariate ANOVA was run. The ANOVA was significant, F(6,36) = 3.24, p<0.05, indicating that centres did differ significantly in terms of baseline PAS scores. Age was considered a possible confound on cognitive impairment and so was entered as a covariate into the model. When age was entered as a covariate, the model remained significant indicating that age did not adequately explain the group differences across centres. The age-adjusted means are depicted in the graph below. Full pairwise comparisons of centre location can be found in the Appendix.
Baseline PAS scores were then compared across care types. Scores were adjusted for age. On average, participants in the Community Care group had lower PAS scores at baseline, signifying less impairment. When entered into a univariate ANOVA however, this difference was not significant, $F(1,43) = 0.71$, $p=0.41$, indicating that PAS scores did not differ significantly as a function of care type at baseline.

**QoL**

A 13 item Quality of Life Questionnaire was given to each pair of participants (QoL) and informants (iQoL). Informants were primarily care staff members at residential facilities and family carers in community care. There were four possible responses to each item (poor, fair, good, excellent). The lowest possible score was 13 and the highest possible score was 52. QoL scores at baseline ranged from 19 to 47 with the mean QoL score being 34.11 (SD = 6.25). Similarly, iQoL score ranged between 18 and 48, with the mean iQoL score at baseline being 32.18 (SD = 6.82). Interestingly, when a paired samples t-test was run, iQoL scores appeared to be significantly lower than QoL scores for the same participants. This suggests that informants perceived participants to have a lower quality of life than participants did themselves.

**QoL and iQoL scores at baseline**

Two univariate ANOVAs were run, for QoL and iQoL scores respectively. The first ANOVA was significant, $F(6,37) = 3.26$, $p<0.05$, indicating that centres did differ significantly in terms of baseline QoL scores, with the Narrabri JH sample having the lowest QoL scores and the Belmont sample having the highest. The second ANOVA was also significant, $F(5,30) = 2.96$, $p<0.05$, indicating that centres also differed significantly on iQoL scores. Of note, Kygole residents did not return completed iQoL questionnaires.
Baseline mean QoL and iQoL scores by centre location

The same analyses were run with Care Type entered as the between subjects variable. Although Community care clients had slightly higher QoL scores on average, QoL responses did not differ significantly across types of care, F(1, 43)=0.16, p = 0.69.

PAS and QoL relationship

At baseline, QoL scores and PAS scores were negatively correlated, r = -0.49, p < 0.05, indicating that as PAS scores decreased, QoL scores increased. In other words, the less cognitive impairment a person had, the more likely they were to report a higher quality of life. The same was true for iQoL scores, in that carers reported higher quality of life for those with lower PAS scores, r = -0.54, p < 0.05.
Wave 2 assessment

8 week follow-up (post intensive stage)

Wave 2 summary

<table>
<thead>
<tr>
<th>6 of the 44 participants dropped out during the intensive stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean PAS score at post-intensive stage was 6.79</td>
</tr>
<tr>
<td>Participants had significantly lower PAS scores following the intensive stage compared to baseline</td>
</tr>
<tr>
<td>Overall QoL and iQoL scores did not significantly change from baseline to post intensive stage</td>
</tr>
</tbody>
</table>

All centres were asked to run an 8 week intensive stage with CST groups twice a week at the beginning of the trial. Please note that one centre, Narrabri Jessie Hunt, was unable to meet this requirement due to staffing limitations.

Attrition

Six participants dropped out during the intervention stage. This was primarily due to ill health or death (n = 5). One community care participant experienced a decline in health and transitioned into residential care.

PAS

The mean PAS score across groups after the intensive intervention stage was 6.79 (SD=4.08). A paired samples t-test was conducted to test the efficacy of the intensive stage of the CST program by comparing mean PAS scores from wave 1 (baseline) with mean PAS scores from wave 2 (8 weeks later, post intensive stage). The t-test was significant, t(1,37) = 4.05, p<0.01, indicating that on average, participants had lower PAS scores following the intensive stage of CST compared to pre-intervention baseline scores.

The data file was then split so that PAS score differences within care groups could be assessed independently. A paired samples t-test was run for each care type. There was a decrease in PAS score (reflective of a decrease in cognitive impairment) for both residential and community clients; however this reduction only reached statistical significance for the residential group t (1, 43) = 3.31, p < 0.01. Examination of standard error bars suggests that a larger community sample size is required to make accurate statistical conclusions in regards to this group, especially considering there was a greater mean difference between baseline and post intervention in this group compared to the residential group.
The data file was then split by centre location so that PAS score differences could be assessed for each centre. PAS scores from baseline to post intervention decreased across all centre locations, by varying degrees. A series of t-tests were performed, with only Narrabri Jessie Hunt clients exhibiting a statistically significant reduction in PAS scores from baseline to post intervention, t(1, 6) = 3.91, p < 0.05. Again, small sample sizes across locations most likely influenced the statistical significance of these results. It is notable that Jessie Hunt was the only centre that did not run the first 8 weeks of CST as an intensive stage.

![Change in PAS scores by centre location](image)

**Table 1 Change in PAS scores pre and post intervention by centre location**

<table>
<thead>
<tr>
<th>Centre Location</th>
<th>Baseline</th>
<th>Narrabri JH</th>
<th>Narrabri RY</th>
<th>Kyogle</th>
<th>Redhead</th>
<th>Glenfield combined</th>
<th>Belmont</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline</strong></td>
<td>6.2</td>
<td>12.86</td>
<td>7.75</td>
<td>9.2</td>
<td>7.67</td>
<td>11.67</td>
<td>7.53</td>
</tr>
<tr>
<td><strong>Post intervention</strong></td>
<td>4.8</td>
<td>7.71</td>
<td>6.25</td>
<td>8</td>
<td>9.33</td>
<td>8.33</td>
<td>6.17</td>
</tr>
</tbody>
</table>

A repeated measures ANOVA was then run to investigate group differences between centre location and care type. Neither ANOVA was significant (all p’s > 0.05) indicating that pre and post intensive intervention PAS scores did not differ significantly as a function of care type or centre location.

**QoL**

Mean QoL score post intensive intervention was 34.88 (SD = 5.98). A paired samples t-test was run to test effectiveness of the intervention on QoL scores. The t-test was not significant, p > 0.05, indicating that overall, participants’ QoL scores did not change significantly as a result of the first stage of the CST intervention. Similarly, iQoL scores did not differ significantly from Baseline to Wave 2.

When the file was split by Centre location, and a series of paired samples t-tests were run, only the Belmont group evidenced significant increases in QoL score, t(1, 5) = -3.42, p < 0.05. When entered into a Repeated Measures ANOVA, with QoL scores at Wave 1 and 2 as the within subjects variable and Centre Location as the between subjects variable, the model was significant, F(6, 27) = 7.83, p < 0.01. This indicates that changes in QoL scores between baseline and wave 2 significantly differed across centre locations.
Change in W1–W2 QoL scores by centre location
Wave 3 summary

- Five participants dropped out during the maintenance stage, giving a total of 11 dropouts throughout the course of the study.
- Mean PAS score at post-maintenance stage was 8.59.
- PAS scores post intensive and post maintenance stage were significantly correlated, indicating stability of scores across stages.
- Mean QoL scores significantly decreased from post intensive stage.

PAS

The mean PAS score across groups after the maintenance stage of the trial was 8.59 (SD=4.92). This marked almost a two point increase from the intensive stage of the trial however was still lower than baseline PAS scores across groups. When PAS scores at all three time points were entered into a Repeated Measures ANOVA, there was a main effect, indicating that PAS scores significantly differed over time, F(1,26)=12.92, p < 0.01. ANOVAs were performed to test where these differences occurred. PAS scores post intervention and maintenance were significantly correlated (r = .70, p<0.001) and did not significantly differ indicating that gains obtained post intensive stage were sustained after the maintenance stage. However, PAS scores at baseline and post maintenance stage were also significantly correlated (r = .61, p<0.001) and did not differ significantly.

Mean PAS scores across study phases

- Baseline: 9.53
- Post intervention: 6.79
- Post maintenance: 8.59

Subsequently, we approached analyses from a slightly different perspective, using percentages rather than mean scores to categorise change in PAS improvement. In the time from baseline until post maintenance stage, 51.72% of participants with complete data showed an improvement in PAS scores. Of these, 40% evidenced a 5 point or greater improvement. Although not statistically significant, these results are promising and warrant investigation with a larger sample size.
When Care Type was entered as the between subjects variable in a Repeated Measures ANOVA, with PAS score at baseline, post intensive and post maintenance entered as the within subjects variables, there was a significant main effect for PAS scores over time, $F(1,26)=12.92, p < 0.01$, and a significant interaction effect between PAS scores and Care Type over time, $F(1,26)=13.71, p < 0.01$. Differences in PAS scores over time were different in the two care types.

### Change in PAS scores by care type

![Chart showing change in PAS scores by care type](image)

When Centre Location was entered as the between subjects variables, there was also a significant interaction effect between PAS scores and Centre Location, $F (6, 21) = 2.64, p < 0.05$.

### Change in PAS scores by centre location

![Chart showing change in PAS scores by centre location](image)

### Table 2 Change in PAS scores by centre location

<table>
<thead>
<tr>
<th>Centre Location</th>
<th>Baseline</th>
<th>Post intervention</th>
<th>Post maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tweed</td>
<td>6.25</td>
<td>4.25</td>
<td>1.25</td>
</tr>
<tr>
<td>Narrabri JH</td>
<td>12.857</td>
<td>7.714</td>
<td>11.143</td>
</tr>
<tr>
<td>Narrabri RY</td>
<td>7.75</td>
<td>6.25</td>
<td>7.25</td>
</tr>
<tr>
<td>Kyogle</td>
<td>9.2</td>
<td>8</td>
<td>9.64</td>
</tr>
<tr>
<td>Redhead</td>
<td>7.667</td>
<td>9.333</td>
<td>10.667</td>
</tr>
<tr>
<td>Glenfield</td>
<td>18</td>
<td>11.5</td>
<td>12</td>
</tr>
<tr>
<td>Belmont</td>
<td>7</td>
<td>5.333</td>
<td>8.667</td>
</tr>
</tbody>
</table>
Mean QoL score post maintenance stage was 32.16 (SD = 6.18). A paired samples t-test was run to test efficacy of the maintenance stage on QoL scores. The t-test was significant (t = -2.09, p<0.05), indicating that participants' QoL scores were significantly lower following the maintenance stage compared to post intensive stage. Wave 3 and baseline QoL scores did not differ significantly. Subsequent multivariate analyses revealed no significant differences between groups.

Interestingly when QoLAD scores at all waves were entered into a Repeated Measures ANOVA, with Centre Location as the between subjects factor, the results were significant (F = 6.37, p<0.01), indicating that differences in QoLAD scores differed across centres and stages.
Conversely, when Care type was entered as the between subjects factor, differences were not significant indicating that QoLAD scores did not significantly differ across stages as a function of care type. Some interesting trends did emerge pointing to sustained positive effects on QoL in community rather than residential settings.

**Change in QoL-AD scores by care type**

![Bar chart showing QoL-AD scores by care type across different stages. The chart illustrates that scores remain relatively stable or show slight improvement in community settings compared to residential settings.]
Qualitative findings

Coupled with objectively investigating changes in cognitive impairment and quality of life across the duration of the trial, the purpose of this study was to evaluate the usefulness and appropriateness of implementing CST across Whiddon Group centres. This analysis attempts to categorise and examine responses given by centre staff about both positive and negative experiences they encountered whilst running the CST trial. Two overarching domains were noted relating to ‘outcomes’ and ‘processes’.

### Outcomes

**Cognitive improvements**

- Interpersonal skills and interactions
- Psychological benefits
- Staff gains

### Processes

**Resources**

- Group dynamics
- Environment (physical and psychosocial)

**Outcomes**

At the client level, the CST trial appeared to be a big success across centres. Three common areas of individual improvement arose in the various narratives of staff and clients. These were; cognitive improvements, an increase in levels of confidence and self-esteem (evidenced in improved interpersonal skills and interactions), and psychological benefits. Additionally, some narratives revealed gains to staff as well in terms of employment, job satisfaction and an increased understanding of clients.

**Cognitive improvements**

Cognitive improvements were reported across centres. These improvements became apparent after the intensive stage of the intervention and generally remained intact following the maintenance stage. The most pertinent improvements were seen in the domains of memory and attention.

**Memory**

Staff reported improvements in the short and long term memory of participants; ranging from their ability to remember where the CST sessions were held, to their ability to recall autobiographical events from their past.

‘One lady is starting to remember things – where the group is, the time it’s on, etc – before (CST) she didn’t have those memories’ (Belmont, Stage 2).
This may be due, in part, to the open, flexible format of the sessions. Staff conjectured that the open and social nature of the groups, coupled with the indirect approach to reminiscing, allowed individuals to build self-confidence in their cognitive abilities.

‘Anything that can indirectly break the ice about their personal information (works well) … if you ask directly though they say they can’t remember’ (Glenfield, Stage 2).

It is promising that staff, family members and participants have noticed big changes however it is unclear how long these improvements will remain. One centre reported,

‘We are now a month away from the end of the program and we have seen some regression amongst clients who had showed big memory improvements’ (Tweed Heads, Stage 3).

Attention

Multiple sites noted an improvement of attentional faculties such as focus, alertness, concentration and general awareness.

‘Have seen benefits to their state of mind – they seem more alert and aware of dates etc’ (Narrabri RY, Stage 2). These improvements have also been noted by some families of participants, suggesting that these skills may have transferred to settings outside of the CST group.

‘Family members say that they are glad that their loved ones are going (to CST). For example they have commented that (participant’s name) is able to focus more and participate in more activities’ (Glenfield, Stage 3).

Interpersonal skills and interactions

Another common area of improvement, reported across centres and stages, was interpersonal skills and social interactions. Many participants made new friends within their CST groups.

‘The group has given them the opportunity to make new friends or to broaden their social world. They have become more comfortable socially’ (Narrabri RY, Stage 2).

‘The participants are interacting more in the group and outside the group, so it has helped them make better and new connections’ (Redhead, Stage 2).

The increased social interaction afforded by the CST groups may have positively influenced other domains as well.

‘… the increased social interaction of the group had an effect on both depression and dementia’ (Glenfield, Stage 2).

Some participants were observed to have more external social interactions as well as with CST group members. However social gains within the CST group did not always generalise outside the group, suggesting that this could be an area for improvement in subsequent CST trials.

‘He is a lot more open to conversation, sharing opinions etc. in the group than he was at the start … his openness/confidence doesn’t seem to extend outside of the group though’ (Narrabri JH, Stage 3).

Participants’ confidence in group settings was also seen to improve and appeared to be a more generalizable gain.

‘In the past she was withdrawn and seemed intimidated … now she is relaxed and has confidence to interact socially’ (Glenfield, Stage 2).

‘(CST) increased their confidence in engaging socially, which they have taken outside the group into general interactions. This seems to be a lasting benefit and has meant that they can communicate better outside the group and make friends more easily’ (Narrabri RY, Stage 3).
Psychological benefits

Finally, staff accounts revealed gains in psychological wellbeing and quality of life across centres and stages.

‘There were many comments from the residents about how the group uplifts their spirits and makes them feel good about themselves … it made them feel important and … increased self esteem and purpose’ (Narrabri RY, Stage 3).

One centre even decided to administer the Cornell Depression Scales at stage 3, in an attempt to quantify the improvement in client’s mood that they were observing.

‘ … we ended up measuring the clients on depression scales at stage 3, because we noticed significant changes in client mood and energy that were not evident in PAS and QoLAD scores’ (Redhead, Stage 3).

Staff gains

Interestingly, numerous staff across centres reported benefits. These included getting to know clients better, increased quality of relationships with those involved in the program, inspiration for other group activities and significant contributions to care planning practices.

‘It had enabled her (staff member) to find out much more about the residents … it was easier for residents to open up in the smaller group than in one on one care planning … she felt this was a very positive outcome and could contribute significantly to care planning’. (Belmont, Stage 3).

Processes

On further analysis of the interviews and emerging narratives, three additional themes were uncovered pertaining to group level processes and the overall appropriateness of CST for community and residential aged-care settings. These process related themes encompassed ‘resources’, ‘group dynamics’ and ‘environment’.

Resources

Resources were frequently mentioned throughout the interviews. Many studies had difficulties with various aspects of resource construction; including availability and time taken to compile as well as some content concerns.

Availability

Availability of resources, both computer-based and physical, was reported as a big difficulty in the implementation of the CST program. This was especially the case for community centres and those based in remote areas.

‘Difficult to get the resources together, particularly because we are in the community’ (Tweed Heads, Stage 3).

‘Was easy enough to Google 2D resources but finding objects is very difficult … as Narrabri is a small town’ (Narrabri RY, Stage 2).

Time

The time it took to gather resources was another shared limitation that arose during the analyses.

‘Biggest issue has been the time involved around gathering resources. Have had to do in my personal time’ (Kyogle, Stage 2).

‘Difficult to get resources … because of lack of time … have had to do a lot of it at home, and then bring in for admin staff to copy.’ (Redhead, Stage 2).
Content

The content of the resources, specifically the topics and activities covered, was a common theme amongst centres however no clear patterns emerged. Groups seemed to vary on which topics were popular and which failed to engage clients. For instance, the current affairs topic elicited opposing opinions from various centres.

‘The current affairs topic did not go down well. They don’t remember what’s in the paper and can’t discuss topics. Or they have entrenched views if you raise a topic and they don’t want to discuss, eg gay marriage’ (Glenfield, Stage 2).

‘They like current affairs – interesting discussions around gay marriage and terrorists. They don’t argue, they voice their opinions and no one really reacts to these opinions’ (Narrabri JH, Stage 2).

This diversity in narratives across centres suggests that a flexible approach that is tailor-fit to the group may be the most effective way of engaging participants.

Centres also suggested a ‘starter kit’ and enhanced communication between centres to remedy resourcing issues.

‘Going forward we would recommend that a (resource) kit should be built from start to finish … pool resources with all the other services … swap ideas with the other services. This would make a big difference to the staff running it’ (Kygole, Stage 3).

Group dynamics

Group dynamics have varied across centres but were generally observed as positive.

‘A great group dynamic. Our clients have got on very well and support each other in the group. They have gelled as a group’ (Glenfield, Stage 2).

A couple of centres did report difficulties with group dynamics, however these were often remedied in a timely fashion through staff intervention.

‘Social issues between two of the ladies were well managed with discussions around respect’ (Redhead, Stage 3).

Some common factors have been suggested as influencing group dynamics. These include; the size of the group, gender makeup and the level of dementia or cognitive impairment.

Group size

Generally the smaller the group the better, with most services having between 5 and 8 clients in the CST group at any one time.

‘Smaller group activities are the way we want to go. Big activity groups are not so effective at engaging people. We saw CST bring big benefits to a smaller group of people’ (Redhead, Stage 3).

‘The activity groups are normally much larger and it is difficult to give full attention’ (Narrabri RY, Stage 2).

Gender

‘Gender differences’ was a common theme in many staff narratives. There were more women across all groups. This may be representative of the older population in Australia, which generally consists of more women than men. One study pointed to the suitability of participation as another possible reason for this difference in numbers, with many men not meeting inclusion criteria for participation in the CST trial.

Differential benefit between male and female clients was another theme common to centres. Generally, women appeared to gain more from the CST program than men, however many male participants also showed gains across outcomes.

‘Benefits were greater for the women, as the sole male found it more difficult to engage’ (Redhead, Stage 3)

‘The men were more laid back and let the ladies talk, the ladies were more opinionated and dominated’ (Belmont, Stage 3).
Stage of dementia/cognitive impairment

was another common thread throughout centre narratives. As with resource content, no clear patterns emerged. Some centres thought the CST program would be suitable for all clients, of varying cognitive status, suggesting CST may be an appropriate program for all aged care services, not just those focusing on dementia.

'CST would benefit all clients, not just those with dementia' (Kygole, Stage 3).

'we would like to try a group for people with severe dementia and adapt sessions to them and use more hands on stuff. We feel it could bring benefits to these people as well. We are always looking for things to engage them.' (Redhead, Stage 3).

Other centres were less optimistic about the generalizability of the program across cognitive levels.

'It (CST) would not suit all clients. You do have to select carefully to make sure clients are well matched cognitively …. CST is better for those who are more cognitively capable, with mild to moderate dementia' (Narrabri RY, Stage 2).

Environment

The environment and setting of the CST sessions was the final process related theme to emerge from qualitative analyses.

Setting

The importance of finding a suitable, uninterrupted location for the CST groups to take place was a common theme in staff narratives.

'Room is very small and not great but it’s all we have. At times it hasn’t been easy as we keep on getting interrupted' (Narrabri JH, Stage 2).

'Not having their own location made the logistics difficult' (Tweed Heads, Stage 3).

This being said, some improvisation on this front often had unexpected advantages.

'The best scenario has been when we hold the group in a shared, residential room, where both residents are in the group but haven’t been able to get out of bed. The funny thing is that (the residents) don’t talk normally but they do when they attend the group. The other members of the group have been relaxed about attending in their room' (Narrabri JH, Stage 3).

Psychosocial setting

The pressure-free, non-threatening environment of the sessions, created by the involved staff and participants has been praised across all centres as adding to the success of the program.

'(Benefits) seem to come from being able to enjoy group dynamics in a very comfortable, enjoyable and familiar environment that has no pressure and where you can see that other’s can’t remember either. It’s OK not to remember.' (Glenfield, Stage 2).
References
