

# **Cognitive Stimulation Therapy (CST): summary of evidence on cost-effectiveness**

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There are a number of interventions or approaches to help people with dementia improve their memory and thinking skills to enable them to cope better with memory loss. One of the interventions for which there is most evidence in terms of clinical and cost-effectiveness is Cognitive Stimulation Therapy (CST).

Key points:

- CST has been found to help the memory and thinking skills of people with mild to moderate dementia. Studies have mainly been conducted with people with Alzheimer's disease or mixed dementia, but CST would be relevant to all.
- People with dementia who took part in the therapy group reported improved quality of life
- CST was found to be a cost-effective intervention and offers value for money
- National Institute for Health and Care Excellence (NICE) and Social Care Institute for Excellence (SCIE) guidance (2006) recommend that people with mild to moderate dementia should be given the opportunity to take part in a CST programme.

## **What is CST?**

CST involves 14 sessions of structured 45-minute group therapy sessions. Sessions run twice a week over 7 weeks and each one covers a different theme. To make sure that there is continuity between the sessions they include the same structure, such as the warm-up activity, a song and a 'reality orientation board' at the beginning of every session which has information on the group, details including date, time, place, weather. Members give their group a name and sessions cover a range of activities to stimulate thinking, memory and to connect with others such as by:

- discussing current news stories
- listening to music or singing
- playing word games
- doing a practical activity such as baking which involves measuring ingredients and following a recipe.

The sessions are intended for people with mild to moderate dementia. They are designed to be relaxed, fun and to create opportunities for people to learn, express their views and work with others in a sociable setting.

A training manual and DVD have been developed with guidance on how to plan and run the sessions and different ways to check progress [1]. The manual has been translated and adapted for other cultures and countries [2].

There is a maintenance programme of CST that can be followed after the initial seven weeks of the CST programme. *Maintenance CST* (MCST) consists of an additional 24 weekly sessions that follow the same structure and principles as the CST programme, with a specific theme including orientation-based activity, refreshments and a group song.

### Is CST effective?

CST has been found to benefit the memory and thinking skills of people with mild to moderate dementia [4, 5]. People with dementia who took part in the therapy programme reported improved quality of life [6]. Some carers and relatives reported an improvement in language and the willingness of people with dementia to join in conversations [7].

In the original randomised controlled trial (RCT) [4] most of the people with dementia were living in care homes and in a second study [5] half were living in the community and half in care homes.

The first trial [3] found that CST worked as well as standard anti-dementia medication and the second study [4] found that CST had benefits for people in addition to those from the anti-dementia medication they were taking.

Maintenance CST has also been evaluated in an RCT in which 236 people with dementia, who had previously completed 14 sessions of standard CST, took part. MCST helped improve the quality of life of those taking part: this was observed from self-reports by people with dementia at 6 months, and also from reports by their family or other carers at 3 months.

However, there was no difference in cognition between those who only took part in the original CST programme and those who continued with the MCST sessions. This may be due to the potential for improvements in cognition already having been achieved by CST [5].

Some of the people in the MCST trial were taking anti-Alzheimer medication, usually donepezil. The combination of medication and MCST resulted in better cognition than either of these treatments alone.

### What do people say about CST?

People with dementia, family carers and staff facilitating the CST groups were asked for their views on the CST programme [6]. People with dementia who took part in the group sessions thought:

'First thing it was fun, because nobody, well it was serious but it was enjoyable, yes it was enjoyable... There was an awful lot of laughing.'

'It's made me a bit more confident, you know at the beginning I was a bit hesitant to say much, well you just think well if I've got something to say then I'll say.'

'Yes you get other people's point of view. If you are by yourself at home all the time you haven't got anyone to discuss anything with. Well its better than stagnating at home saying nothing to anyone all day isn't it.'

People with dementia reported that they were concentrating more and noticed an improvement in memory. They also felt that the action of talking in the group helped them to remember:

'It always makes a change when you have to concentrate on something it's more helpful for your memory. ... I think it makes you concentrate more in everything you're doing really.'

### Is CST cost-effective?

An economic evaluation linked to the original RCT [4] found that health and social care costs (including CST itself) were slightly higher over the 8-week period for people who received CST than for the usual care group: after adjusting for the baseline costs the difference was approximately £20 at 2014/15 prices ( $p=0.08$ ) [8].

This cost difference was combined with the evidence on improvements in cognition and quality of life in a cost-effectiveness analysis. The cost of achieving a 1-point difference in cognition (measured by MMSE) was £90, and the cost of achieving a 1-point difference in quality of life (measured by QOL-AD) was £27 (both costs inflated to today's prices). The study did not measure QALYs. The evaluation concluded that there was a high probability that CST would be seen as cost-effective, especially by reference to the quality of life gains for people with dementia [8].

The cost of CST averaged £238 per individual over the 8-week period (£30 per week). CST is, however, usually delivered by care staff trained in the therapy, rather than by research workers (as in the trial), which would reduce the cost of delivery. It is not known, however, if this would also reduce the effectiveness.

There is also economic evidence on the maintenance version of CST (MCST), based on data collected over a 6-month period following randomisation [9]. Health and social care costs for the MCST group (including MCST itself) were very slightly although not statistically significant higher than for the usual care group.

The cost-effectiveness analysis results were mixed. The economic evaluation found mixed results: MCST was more cost-effective when outcomes were measured in terms of self-rated quality of life (using QoL-AD), interviewer-rated cognitive impairment (using MMSE) and quality-adjusted life years (using proxy-rated EQ-5D). On all other outcomes, however, MCST was less cost-effective than usual care alone.

The combination of anti-dementia medication and MCST was found to be more cost-effective than medication alone by reference to a number of indicators, including cost per QALY (which was below the NICE threshold of £20,000).

The cost of MCST averaged £634 per individual over the 6-month period (£24 per week). MCST sessions in the trial were delivered by two co-facilitators (one researcher and one from the care setting).

### Implementation of CST

The NICE-SCIE guidelines published in 2006 recommended that people with mild to moderate dementia should have the opportunity to take part in a group CST programme [10]. CST is now offered to people with dementia in NHS trusts and through memory clinics [11], with approximately 80% of UK memory services currently offering CST to some patients.

The team who developed CST have links on their website to a selection of NHS Trusts offering the programme <http://www.cstdementia.com/page/cst-in-practice>. Another useful source for further information is <https://www.ucl.ac.uk/international-cognitive-stimulation-therapy>.

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