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Original Study

Maintenance Cognitive Stimulation Therapy: An Economic Evaluation Within a Randomized Controlled Trial

Francesco D'Amico PhD [a,*], Amritpal Rehill BSc [a], Martin Knapp PhD [a], Elisa Aguirre PhD [b], Helen Donovan DClinPsych [c], Zoe Hoare PhD [d], Juanita Hoe PhD [e], Ian Russell DSc [f], Aimee Spector PhD, DClinPsy [g], Amy Streater MSc [b], Christopher Whitaker MSc [d], Robert T. Woods MA, MSc [h], Martin Orrell PhD, FRCPsych [e]

[a] *Personal Social Services Research Unit, London School of Economics and Political Science, London, UK*
[b] *Dementia Care Research Centre, Research and Development Department, Maggie Lilley Suite, Goodmayes Hospital, North East London NHS Foundation Trust, Ilford, Essex, UK*
[c] *Clinical Psychology Service, South Essex Partnership NHS Foundation Trust, Healthlink, Bedford, UK*
[d] *North Wales Organisation for Randomised Trials in Health (NWORTH), Institute of Medical and Social Care Research, Bangor, Wales*
[e] *Division of Psychiatry, University College London, London, UK*
[f] *College of Medicine, Swansea University, Swansea, UK*
[g] *Research Department of Clinical, Educational and Health Psychology, University College London, London, UK*
[h] *DSDC Wales, Bangor University, Bangor, Gwynedd, Wales*

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A B S T R A C T

Background: Cognitive Stimulation Therapy (CST) is effective and cost-effective for people with mild-to-moderate dementia when delivered biweekly over 7 weeks.
Aims: To examine whether longer-term (maintenance) CST is cost-effective when added to usual care.
Methods: Cost-effectiveness analysis within multicenter, single-blind, pragmatic randomized controlled trial; subgroup analysis for people taking acetylcholinesterase inhibitors (ACHEIs). A total of 236 participants with mild-to-moderate dementia received CST for 7 weeks. They were randomized to either weekly maintenance CST added to usual care or usual care alone for 24 weeks.
Results: Although outcome gains were modest over 6 months, maintenance CST appeared cost-effective when looking at self-rated quality of life as primary outcome, and cognition (MMSE) and proxy-rated quality-adjusted life years as secondary outcomes. CST in combination with ACHEIs offered cost-effectiveness gains when outcome was measured as cognition.
Conclusions: Continuation of CST is likely to be cost-effective for people with mild-to-moderate dementia.

Cognitive stimulation therapy (CST) is an evidence-based, group intervention for people with mild-to-moderate dementia, involving themed activities to stimulate cognitive function. It is both effective and cost-effective when delivered biweekly over 7 weeks.[1–3] Would continuation of CST for longer generate additional advantages? Evidence from a pilot study of continued CST suggested improvements in cognitive function.[4]

A randomized controlled trial found that maintenance CST (MCST), delivered weekly for 24 weeks (plus usual care), improved patient quality of life compared with usual care alone.[5] It also found that MCST improves cognition for people with dementia taking acetylcholinesterase inhibitor medication (ACHEIs). Given intensifying pressure on health and social care resources, a key question facing commissioners, and one that was recently posed by the

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* Address correspondence to Francesco D'Amico, Personal Social Services Research Unit, London School of Economics and Political Science, Houghton St, London WC2A 2AE, UK.
E-mail address: damico@lse.ac.uk (F. D'Amico).

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National Institute for Health and Care Excellence, is whether cognitive stimulation is also cost-effective.[6]

Methods

Centers

Eighteen centers were recruited in London, Essex, and Bedfordshire: 9 care homes and 9 community centers (day centers, community mental health teams, and voluntary organizations). Another 3 centers were approached: 1 refused and 2 were excluded because they had insufficient participants meeting inclusion criteria. The study has received ethical approval by the Barking & Havering Local Research Ethics Committee, reference number 08/H0702/68 in October 2008.

Participants

Participants were eligible for inclusion if they met DSM-IV criteria for dementia,[7] scored between 0.5 and 2.0 (mild-to-moderate) on the Clinical Dementia Rating (CDR),[8] could communicate in English, could see and hear well enough to participate in CST, did not have major physical illness or disability (eg, urinary tract infection, delirium, or stroke) that could affect participation, or have a diagnosed learning disability.

Design

Participants completed 7 weeks of standard CST (14 twice-weekly sessions of 45 minutes), and were then immediately entered into a single-blind, multicenter, pragmatic randomized controlled trial comparing MCST added to usual care with usual care alone. There was no modification in design or eligibility criteria from the study protocol.[9]

Randomization

Participants were randomized to either the intervention group receiving weekly MCST for 24 weeks in addition to usual care or the control group receiving usual care alone.[5] Although usual care did not include any intervention similar to MCST, care offered to participants varied among centers. Participants were randomized in equal proportions after stratifying for center, whether ACHEI was prescribed, and previous CST group. Data storage and transfer were performed to avoid contamination. The nature of the intervention precluded blinding of participants, but researchers conducting interviews and the statistician analyzing outcomes were blind to group assignment. Researchers conducting the economic evaluation were not blind to assignment.

Outcome Measures

Participants were assessed at baseline (before randomization), after 3 months (intermediate end point), and after 6 months (primary end point).

There were 2 primary outcomes:

- cognition measured by ADAS-Cog (Alzheimer's Disease Assessment Scale-Cognition subscale): lower scores reflect better cognition[10]
- quality of life measured by QoL-AD (Quality of Life-Alzheimer's Disease scale): higher scores reflect better quality of life[11]

Secondary outcomes were

- Mini-Mental State Examination (MMSE): higher scores reflect better cognition[12]
- Neuropsychiatric Inventory (NPI): lower scores reflect better behavior[13]
- ADCS-ADL (Alzheimer's Disease Co-operative Study—Activities of Daily Living Inventory): higher scores reflect greater ability in activities of daily living (ADLs)[14]
- DEMQOL, a dementia-specific quality-of-life scale completed by participants (self-report), family carers, or care center workers (proxy): higher scores indicate better quality of life[15]
- proxy version of QoL-AD, completed by family carers or care center workers: higher scores reflect better quality of life[11]
- EQ-5D-3L, a generic health-related quality of life measure completed by participants (self-report), family carers or care center workers (proxy)[16]

Utility values were calculated from both generic and dementia-specific quality of life measures) to compare gain in quality-adjusted life years (QALYs) using both participant-reported and proxy-reported measures. QALYs were calculated from EQ-5D and Proxy EQ-5D using societal weights, York A1 Tariff,[17] by combining ratings on mobility, self-care, usual activities, pain/discomfort, and anxiety and depression domains to calculate utility values. QALYs were also calculated from dementia-specific measures (DEMQOL-U and DEMQOL-PROXY-U) using an algorithm based on societal weights.[18] QALYs were calculated by "area under the curve" analysis, with linear interpolation between assessment points.

Previous findings[19] suggest that a difference in score of 1.4 points on the MMSE can be considered "minimum clinically important." We could not find suggestions for clinically important differences on the other measures.

Resource Use and Cost Measures

The Client Service Receipt Inventory[20] was adapted to capture data on all health and social care services used in the previous 3 months by participants and inputs from unpaid family and other carers. It was completed with family carers or center care workers 3 times (at randomization, 3 months and at 6 months).

Unit costs reflected long-run marginal opportunity costs, taken from the Personal Social Services Research Unit (PSSRU) compendium for 2011.[21] We discounted at 3.5% for items providing benefit for more than 1 year, such as equipment or adaptations. Medication costs came from the British National Formulary.[22] Costs for equipment and adaptations came from market sources. Where necessary, unit costs were adjusted to 2011 prices using the Consumer Price Index.

Calculating the cost of MCST itself took into account the 1-day training course for facilitators (averaging £1.50 per subsequent MCST session, assuming skills acquired lasted 5 years), material and equipment used at each session (£1 per MCST session), and costs of the 2 cofacilitators (1 researcher, costing £130 per session; 1 care worker, costing £25 per session; the difference is due to preparation and travel time). Transport costs were added for participants who traveled to community centers for sessions and requested travel refunds (average £1.44 per person per session).

Average total cost per MCST session was £157.46 in care homes and £158.90 in community centers. Average number of participants per session was 5.

Cost-Effectiveness Analyses

The main cost-effectiveness analyses were conducted from a health and social care perspective. Further analyses added costs for unpaid carer time (societal perspective). The primary economic evaluation measured effectiveness by, in turn, each primary outcome as stated in