



EFFECTIVENESS OF COGNITIVE STIMULATION THERAPY(CST) AMONG PEOPLE WITH DEMENTIA - A NARRATIVE REVIEW

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ABSTRACT

OBJECTIVE: This study explores the effectiveness of cognitive stimulation therapy to improve cognition in people with dementia. **SELECTION METHOD:** PubMed, Google Scholar, Science Direct, Cochrane from these databases, articles were searched using keywords.

SELECTION CRITERIA: The articles were collected based on the inclusion criteria focusing on the cognition in people with dementia.

RESULTS: The preliminary results suggested that the tasks like measuring attention, memory, speed processing, executive functions, and speed processing following the cognitive stimulation treatment (CST). Evidence shows that CST promisingly improves people's cognitive functions as measured by the (MMSE) mini-mental state examination. This test investigates memory, orientation, language, and visuospatial abilities. CST has led to significant improvements in quality of life, along with care givers. Analyses suggests CST is equally effective as many dementia drugs.

CONCLUSION: Cognitive stimulation therapy improves cognition in people with dementia and benefits the quality of life. Evidence from several studies indicates that cognitive stimulation therapy along with multiple component interventions improves not only cognition but also the language, behavior, and quality of life of people with dementia. Results from interviews of CST sessions found key themes, including positivity being in the groups, due to a supportive and good environment, improvements in confidence, mood, and concentration.

KEY WORDS: Non-Pharmacological intervention, Cognitive stimulation therapy (CST), People with Dementia (PwD), Cognition, Older adults, assessment scales, Quality of life (QoL).

1. INTRODUCTION

Dementia is a progressive neurocognitive disorder that leads to deterioration in cognitive function. It is a global challenge, with increasing life expectancy along with the number of people suffering from chronic health conditions associated with aging. It affects memory, orientation, language, learning capacity, comprehension, judgement, and self-care abilities. ⁽¹⁾

Over 50 million people around the world are now living with dementia, according to World Health Organization (WHO) the number of people living with dementia worldwide is projected to reach 71.2 million (8.1 % of women and 5.4% of men over 65 years) by 2030 and could exceed 106.8 million by 2050. ⁽²⁾ Dementia is characterized by disorders of thinking and consciousness, personality changes, abnormal behavior, and reduced ability to perform daily activities. Additionally, up to 90% of people with dementia exhibit behavioral and psychological symptoms, such as anxiety, depression, agitation, delusions, apathy, wandering, sleep disturbances, and

irritability and they negatively affect quality of life, which not only present an economic and social burden, but also a burden for those living with the disease, their family and careers. People with dementia are more likely to suffer depression than other older adults, moreover depression was associated with an increased risk of dementia. ⁽¹⁾ Some studies showed that depression is the key factor to progress the mild cognitive impairment to dementia. ⁽³⁾

As per the evidence suggested, options for treating dementia include pharmacological and non-pharmacological interventions. ⁽¹⁾ Efficacy of current pharmacological therapy for dementia is very much limited and hence research focused on non-pharmacological treatment. The practice of physical activity is one of the variables that should not be forgotten in this condition, it has an improvement in the QOL older people as well as a guarantee of good aging in terms of health, yet there is good evidence that some non-pharmacological treatments can improve cognitive functions and physical, social



interactions, activities of daily living skills and quality of life of PwD, with the benefit of some being cost-effective.⁽⁴⁾ Therefore, social psychological interventions have attracted the attention of many researchers because of their efficacy and low cost. Among the various cognitive interventions available in dementia cognitive stimulation therapy is the intervention with the most robust.⁽³⁾

Cognitive stimulation therapy (CST), which originated in the UK, is a people-oriented social psychological, kind of group-based intervention on the principle of “use it or lose it”. The central assumption underlying cognitive stimulation is that a lack of cognitive stimulation can hasten the decline in both normal aging and dementia. First developed in 2001, CST was designed to improve the cognition of people with dementia through experiential learning, recognizing people, objects, and remembering the past. CST has been the focus of many recent studies of dementia interventions. Therefore, people with dementia can benefit from CST due to its adaptive and long-term use nature. Cognitive stimulation therapy is a brief, evidence-based group programme developed for people with mild to moderate dementia.⁽³⁾

According to Spector et al, in the year 2003 evaluated a group CST programme in a single-blind, large multi-centre, randomized controlled trial and demonstrated the importance of two measures of cognitive functions in the Mini-Mental State Examination (MMSE) and cognitive subscale of the Alzheimer's Disease assessment scale (ADAS-Cog). CST provides a stimulating environment for dementia patients. The activities are chosen for participants according to their needs and ability and their interest is stimulated so they can participate actively. CST can delay further decline of cognitive function and improve the patients through stimulation. CST involves a series of engaging activities carried out in small groups that stimulate memory, thinking, and orientation, including 14 structured thematic cognitive stimulation activities, (two per week, each 45 min in duration). Each activity includes 10 minutes warm up and 10 minutes conclusion (class summary), and 25 minutes of cognitive stimulation.⁽²⁾ A wide range of activities are included to ensure cognitive stimulation, such as

mental stimulation, thoughts, promoting new ideas, associations, a focus on rather than facts, respect and person centredness, and maximising the potential of people with dementia.⁽¹⁴⁾

Currently, CST is the only psychosocial intervention recommended by the NICE Guidelines in the UK. CST has been translated into at least eight languages and used in 24 countries, indicating its efficacy. In a Cochrane review, Aguirre et al; confirmed its positive impact on cognitive function, depression, activities in daily life (ADL), and behavior of people with dementia. Subsequently, evidence showed that CST is associated with changes in patterns of neural activation in cognitively important brain regions among healthy older adults and in people with mild cognitive impairment.⁽¹²⁾

2. METHODOLOGY

SEARCH METHOD AND ELIGIBILITY CRITERIA

A thorough literature search was carried out using PubMed, Google Scholar, Science Direct, Sage Journal, Research Gate. Unpublished English articles were removed. Dementia, Cognition, Older Adults, Cognitive stimulation therapy were the keywords used in this search to find relevant articles. The articles were collected in full text. A total of 36 articles were collected and only 16 articles are used in this study for the research.

STUDY SELECTION

INCLUSION CRITERIA

- Articles explaining about Dementia, Cognition and Cognitive stimulation therapy were included.
- Older adults.
- Articles published in recent years.
- Full text articles.
- Articles published in English.

EXCLUSION CRITERIA

- History of recent trauma and fracture

3. REVIEW OF LITERATURE

SI NO	AUTHOR AND YEAR	TITLE	METHODS	STUDY RESULTS	CONCLUSION
1	Renata Naylor, et al. 2024	Experience of Cognitive stimulation Therapy (CST) in Brazil: A qualitative study of people with dementia and their caregivers	The interviews were conducted with the participants of the group of twelve and caregivers of eleven. The framework analysis was used to inspect the data.	The result indicates that CST groups had perceived personal benefits for the people among dementia and caregivers that there are changes for the participants group.	The authors concluded that CST brings changes in people with dementia and caregivers, and there are many improvements. Furthermore, the results of this study have evidence with previous qualitative findings indicating that CST is



					beneficial for people with dementia.
2	Yanan Cao, et al. 2023	Effects of cognitive stimulation therapy on patients with dementia: An umbrella review of systematic reviews and meta-analysis.	A total of 14 systematic reviews and meta-analyses were included in the study. They searched in Cochrane Library, PubMed, Web of Science, China national knowledge infrastructure, and VIP databases from inception to December 31,2022	The result suggested that out of 14 reviews eleven studies with low to high rating reported that CST could significantly improve cognition of people with dementia.	The authors stated that current reviews support CST as an effective treatment for improving cognitive functions in people with dementia and multicomponent interventions are more effective than single components to be delivered regularly.
3	Yue Sun, et al. 2022	Comparative effectiveness of 3 settings of Cognitive Stimulation Therapy on Cognition and Quality of Life for People with Dementia: A systematic review and network Meta-analysis.	Search database, including PubMed, Embase, Cochrane Library, Web of Science, were systematically searched from inception to March 2021. RCT's compared the differences among three different settings of CST in treating people with dementia were included. A meta-analysis was conducted to evaluate the effect of CST settings.	A total 17 studies were included, enrolled 1680 participants. Compared to control group the mean difference showed low quality evidence and CST group could significantly improve cognitive function.	The authors concluded that both CST and MCST seems to promote more consistent benefits in cognition, QOL. Further MCST likely to be most effective CST settings.
4.	Elena Carbone, et al. 2021	Cognitive Stimulation Therapy for Older Adults with Mild to Moderate Dementia in Italy: Effects on Cognitive Functioning, and on Emotional and	At 16 residential care homes, older adults with mild to moderate dementia were randomly allotted to a CST-IT group with 123 and control group with number of 102. They were examined by MMSE, ADAS-	The results suggested that both long- and short-term assessments, the CST-IT group's MMSE scores remained stable, the control group's score decreased slightly. The CST-IT group also had short term benefits in	The authors stated that CST is a promising option for the long-term treatment for people with dementia.



5	Luke Gibbor, et al. 2021	Neuropsychiatric Symptoms. A feasibility randomized control trial of individual cognitive stimulation therapy for dementia: impact on cognition, quality of life and positive psychology.	Cog and Narrative language test, disability assessment for dementia and quality of life- Alzheimer's scale Thirty-three PWD were taken from care homes and randomly assigned with iCST 14 session with 45mins or treatment as usual TAU over seven weeks.	other cognitive measures (ADAS-Cog and Narrative language test) The result indicated feasible with high attendance to sessions, with significant improvement in iCST compared to TAU.	The authors concluded that with 14 session programme of iCST delivered a feasible benefit to cognition.
6	Eederica Piras, et al. 2017	Efficacy of cognitive stimulation therapy for older adults with vascular dementia	They were two groups, one group of 21 attended 14 sessions of CST-IT program and other active control group with 14 of them took part in alternative activities.	The result indicated that compared to active control group, the CST-IT group showed a greater improvement in cognitive functioning after intervention i.e., score increase in MMSE scale	The authors concluded that the present results support the efficacy of CST in people with vascular dementia.
7	Emanuela Capotosto, et al. 2017	Cognitive stimulation therapy in the Italian context: its efficacy in cognitive and non- cognitive measures in older adults with dementia	They included 39 older adults with mild to moderate dementia and randomly assigned to two programs: one group CST-IT 14 sessions, twice a week for seven weeks and control group took part in alternative general activities. The outcomes measures were MMSE, ADAS-Cog, digit span test, narrative language test.	The results suggested that only CST-IT group maintained its MMSE score, control group showed deterioration.	The study concluded that efficacy at least in short term of CST in sustaining cognitive functions and perceived quality of life in older adults with dementia.
8	Katsuo Yamanaka, et al. 2013	Effects of cognitive stimulation therapy Japanese version (CST-J) for people with	A single blindness CST-J consisting of 14 sessions to a treatment group of 30, twice a week for 7 weeks. The	The results indicated; they were a significant improvement in cognition, for the treatment group	The authors concluded that CST-J shows improvements in cognition, mood, and aspects of QOL for



9	E Aguirre, et al. 2013	dementia: a single-blind, controlled clinical trial Cognitive stimulation therapy (CST) for people with dementia.	treatment group was compared with control group with 30, and cognition were evaluated. The study included 272 participants with dementia took part in a seven-week CST program. It was carried out by pretest and posttest, and contributing factors that predicted change in outcomes were examined.	compared with control group. The result showed that the benefits of CST whether people were taking acetylcholinesterase inhibitor (AChEIs) medication. CST improved cognition and quality of life. Care home residents improved more than community residents.	people with dementia The authors stated that CST improves cognition and quality of life for people with dementia including with AChEIs.
10	Bob Woods, et al. 2012	Cognitive stimulation to improve cognitive functioning in people with dementia.	They searched from the database of Cochrane dementia and cognitive improvement. The search included Cognitive stimulation, reality orientation, memory therapy, memory stimulation, memory support, cognitive psychostimulation. The search was up to date and comprehensive.	The result indicated by the data with meta-analyses for 718 participants (407 receiving cognitive stimulation, 311 in control groups) Two analyses: primary analyses – that they were evident immediately at the end of the treatment period. In secondary analyses the benefits were not noted on self-reported quality of life and well-being.	The authors concluded that they were promising evidence from multiple trials that cognitive stimulation therapy benefit cognition in people with dementia from mild to moderate.
11	Aimee Spector, et al. 2011	The impact of Cognitive stimulation therapy groups on people with dementia	They conducted a qualitative interview and focus groups with people attending CST groups, data were recorded and transcribed, analyzed using framework analysis	Two themes emerged, positive experiences of being in the group and changes experienced in everyday life, overall, the results suggested that CST of being emotionally positive and most of them reported some cognitive benefits.	The authors concluded that the further findings lend support to previous quantitative findings, as well as providing information about CST.
12	Robert F Coen, et al. 2011	Efficacy of a cognitive stimulation therapy programme for	The participants were selected by mild to moderate dementia with MMSE score range	The results indicated that 14 CST and 13 control participants completed the study. Between the two	The authors concluded, even though the sample size is small the current study is



13	Sarah Tardif, et al. 2011	Cognitive stimulation therapy programs in healthy elderly: A review.	10-23, randomized to CST group. The pre and posttest was undertaken by the assessors who were blind to the condition. Measures included MMSE, CDR, ADAS-Cog, GDS depression, QOL-AD. The database was searched in PsycINFO and PubMed in the following, cognitive training, cognitive stimulation, elderly and aging. Along with 14 studies were in the community.	group CST group showed a promising improvement. The therapist noted that CST group demonstrated good interaction and enthusiasm in the group. The study indicates out of 14, nine studies were targeted memory as the principal of cognitive function to train or stimulate. Improvements observed on at least one outcome measure in each study.	consistent with the Spector et al's findings in 2003 of beneficial effects in people with mild to moderate dementia following CST. The author reviewed that nine-study targeted with memory as the cognitive principal, showed improvement in one of the outcomes used in the study.
14	Aimee Spector, et al. 2010	Cognitive stimulation therapy (CST); effects on different areas of cognitive function for people with dementia.	They evaluated a single blind, multi center, randomized controlled trial, with CST a 14-session group treatment. The outcome measures were ADAS-Cog compares with treatment group and the control group.	The results showed that a significant difference noted between treatment group and the control group in total ADAS-Cog score and in language subscale.no significance changes in memory and praxis.	The authors concluded that CST appears to have particular effects in promoting language function, with a generalize benefits
15	Aimee Spector, et al. 2003	Efficacy of an evidence based cognitive stimulation therapy programme for people with dementia: a randomizes controlled trial.	They conducted a single blind, multi centre, randomized controlled trial, along with 201 older adults with dementia. An intention to treat analysis used to analyses of covariance to control for potential variability in baseline measures.	The results showed among 201, one hundred and fifteen people were randomized with the intervention group and 86 were control group. The intervention group improved significantly relative to control group.	The author concluded by CST group may have worthwhile benefits of many people with dementia.



16	Veronique Breuil, et al. 1994	Cognitive stimulation therapy of patients with dementia: Preliminary results.	They were 56 subjects with randomized group, assessment was blind for the main criteria. 29 patients were stimulated and compared with 27 non stimulated patients. The stimulated group attended 10 stimulation sessions over 5 weeks. Each group was assessed on first and seventh session.	They were significant improvement of MMSE scores and increased performance.	The authors concluded that global stimulation of cognition functions improve certain parameters among dementia patients.
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4. DISCUSSION

The aim of the review was to explore the effectiveness of cognitive stimulation therapy in patients with mild to moderate dementia. Evaluating the number of studies included in this review, there is a need for additional research in the use of CST in different cultural setting and in the use of CST. It is an evidence-based intervention for dementia that is widely implemented in the health care settings. The practice of physical activity is one of the variables that should not be forgotten in this condition, it has an improvement in QOL older people as well as a guarantee of good aging in terms of health, yet there is good evidence that some non-pharmacological treatments can improve cognitive functions and physical, social interactions, activities of daily living skills and quality of life of PwD, with the benefit of some being cost effective. The results are promising on the tasks measuring attention, memory, speed of processing, executive functions following the cognitive stimulation programs. For instance, some intervention programs were administered in groups along with structured sessions targeted a specific cognitive function whereas other programs were unstructured format sessions and targeted multiple cognitive functions.

The findings showed that 40 sessions (8weeks) of cognitive stimulation therapy resulted in a significant improvement of behavioral symptoms and cognitive in patients with mild to moderate dementia (Spector et al.,2001) After 8 weeks of cognitive stimulation treatment, the patients showed the decrease in dementia severity, a better outcome results in memory, planning, abstraction, and visuospatial ability. Thematic activities like physical games, sound, word association, childhood, using objects, word and team games etc. When implementing CST, multi-component interventions should be used whenever possible, which will be more effective than single- component interventions. CST usually includes 14 group sessions, twice a week for about 45min each, (Rai et al.,2018) however treatment outcomes achieved by longer duration programs appear to be better (Sun et al., 2022), such as maintenance cognitive stimulation therapy, which continues

for an additional 24 weeks of CST sessions after completing a 7-week CST program (Orrell et al., 2014)

Xue Chen Mmed et al., in the year September 2022 studied about the effectiveness of cognitive stimulation therapy (CST) on cognition, quality of life for patients living with dementia. The authors carried out a randomized control trial; The study was to assess the effectiveness of CST for improving cognition, quality of life (QoL) people with dementia. Totally 10 studies CST for improving cognition, QoL, behavior, language and activities of daily living were evaluated. The authors concluded that CST improved the cognitive ability, QoL, language and activities of daily living of dementia. However, the effect of neuropsychiatric symptoms on dementia requires further exploration.

A feasibility randomized control trial of individual cognitive stimulation therapy for dementia, (Luke Gibbor et al.,2021) identified with 33 PwD were taken in the study and randomly assigned with CST of 14 session with 45mins of treatment as usual TAU over seven weeks, and the results indicated with high attendance to sessions, with significant improvement in CST compared to TAU. So, the authors concluded that with 14 session programme of CST delivered a feasible benefit to cognition and improved the quality of life in people with dementia. Adelina Comas-Herrera et al., in the year May 2016 studied about the Cognitive Stimulation Therapy (CST), a summary. The authors carried out randomized controlled trial (RCT). The first trial found that CST worked as well as standard anti-dementia medication and the second study found that CST had benefits for people in addition to those from the anti-dementia medication, they were taking 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, from reports by their family or other at 3 months. This may be for improvements in cognition already having been achieved by CST.



LIMITATIONS

Limited generalizability of the findings to a broader in cognitive deficits in dementia population.

In addition, few studies reported follow up data, so there is no high-quality evidence to corroborate the long-term benefits of CST on cognitive function, to provide a reliable reference for improving the quality of life of dementia patients.

CONCLUSION

Research from multiple studies suggested that Cognitive stimulation therapy improves the cognition in people living with dementia. The result showed that CST can improve the cognitive ability and QOL of PwD and reduce their depression. It also had a significant effect on ability to perform daily living activities and language in PwD, so the articles supported the feasibility and effectiveness of CST for PwD. Therefore, more rigorous and in-depth studies are needed.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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