

COGNITIVE STIMULATION IN OLDER ADULTS WITH DEMENTIA: WHAT IS THE IMPACT ON THEIR CAREGIVERS' HEALTH?

Estimulação cognitiva em idosos com demência: qual o impacto na saúde de seus cuidadores?

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ABSTRACT

OBJECTIVES: To identify and evaluate the effect of cognitive stimulation (CS) interventions for older adults with dementia on caregivers' health. **METHOD:** This systematic literature review was conducted in accordance with Preferred Reporting Items for Systematic Review and Meta-analysis Protocols (PRISMA) guidelines. A search was performed by two independent researchers in May 2018, using Scientific Electronic Library Online (SciELO), Latin American and Caribbean Health Science Literature Database (LILACS), Physiotherapy Evidence Database (PEDro), PsycINFO, and PubMed databases. The terms used were "dementia" AND "cognitive stimulation" and their equivalents in Portuguese and Spanish. For inclusion, articles should have been experimental, published from January 2007 to April 2018, with CS delivered to older adults with dementia by a professional or by a caregiver, and outcome measured in the caregiver. Quality of selected studies was assessed using the PEDro scale. **RESULTS:** The sample consisted of 10 studies, and only two reported CS benefits to the health of caregivers of older adults with dementia. **CONCLUSION:** This study found no consistent evidence of actual benefits of CS in older adults with dementia to their caregivers' health. **KEYWORDS:** caregivers; rehabilitation research; aged; dementia.

RESUMO

OBJETIVOS: Identificar e avaliar o efeito das intervenções de estimulação cognitiva (EC) em idosos com demências na saúde dos cuidadores. **MÉTODO:** Revisão sistemática da literatura conduzida de acordo com as diretrizes do *Preferred Reporting Items for Systematic Review and Meta-analysis Protocols* (PRISMA). A busca foi realizada em maio de 2018, por dois pesquisadores independentes, nas bases de dados *Scientific Electronic Library Online* (SciELO), Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS), Escala da Base de Dados de Evidência em Fisioterapia (PEDro), PsycINFO e PubMed. Os descritores utilizados foram "dementia" AND "cognitive stimulation" e seus equivalentes em português e espanhol. Foram incluídos apenas artigos experimentais, publicados entre janeiro de 2007 e abril de 2018, que realizaram EC em idosos com demência, conduzida por profissional ou pelo próprio cuidador e cujo desfecho incidisse no cuidador. A qualidade dos estudos selecionados foi avaliada pela Escala PEDro. **RESULTADOS:** A amostra foi composta de 10 estudos, sendo que apenas dois verificaram benefícios da EC sobre a saúde do cuidador do idoso com demência. **CONCLUSÃO:** Este estudo não encontrou evidências consistentes sobre os reais benefícios da realização de EC no idoso com demência para a vida do seu cuidador. **PALAVRAS-CHAVE:** caregivers; rehabilitation research; aged; dementia.

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INTRODUCTION

Dementia is a neurocognitive disorder characterized by overall and progressive deterioration of cognitive abilities leading to progressive functional loss.^{1,2} Managing dementia in older adults may be particularly challenging for caregivers, as they are exposed to higher care demands and increasingly stressful situations.^{3,4} Thus, there is a pressing need for interventions seeking to reduce the impacts of the activity on caregivers' health status.⁵

The current literature describes non-pharmacological interventions aiming to increase care-related skills and improve caregivers' quality of life (QoL), including psychosocial and psychoeducational groups.⁶ Other interventions, in turn, aim to decelerate the process of cognitive and functional loss in older adults with dementia and, as a result, contribute to reducing caregivers' burden,^{4,7} such as cognitive stimulation (CS).

CS is defined as a series of activities and techniques whose overall objective is to improve cognitive and social functioning in older adults with dementia.⁸⁻¹⁰ The intervention has been extensively studied⁸⁻¹⁰, and there is robust evidence supporting that CS leads to cognitive improvement, including attention, memory, orientation, language, and overall cognitive function, as well as improvement related to self-reported well-being, QoL, communication, and social interaction in older adults with dementia.¹⁰ However, confirmation of CS benefits to the health of caregivers of older adults requires further investigation.

Understanding the health outcomes of CS in caregivers of older adults with dementia has become relevant. Such knowledge may help planning interventions that provide benefits both to older adults with dementia and to their caregivers.⁷ Therefore, this systematic literature review aimed to identify and evaluate the effect of CS interventions on the health of caregivers of older adults with dementia.

METHOD

Search strategy

This systematic review was conducted in accordance with Preferred Reporting Items for Systematic Review and Meta-analysis Protocols (PRISMA) guidelines.¹¹ Five databases — Latin American and Caribbean Health Science Literature Database (LILACS), Physiotherapy Evidence Database (PEDro), PsycINFO, PubMed, and Scientific Electronic Library Online (SciELO) — were searched using the following terms: “demência” OR “dementia” AND “estimulação cognitiva” OR “cognitive stimulation” OR “estimulación cognitiva.”

Eligibility criteria

Only randomized controlled trials in which CS targeted older people (aged 60 years or above) diagnosed with dementia and outcomes were measured in caregivers were included. Interventions should have been delivered individually or in groups by a professional or by a caregiver.

Articles in Portuguese, English, or Spanish published from January 2007 to April 2018 were considered eligible. Studies were excluded if CS was conducted concomitantly to a support group for caregivers of older adults with dementia.

Study selection

Using the eligibility criteria, two researchers searched the databases independently, in May 2018. They selected articles for this review after screening titles and abstracts or full texts. There was no disagreement between the researchers regarding eligible articles. The results from different databases were cross-checked and duplicate studies were removed.

Quality assessment

All articles meeting the inclusion criteria were submitted to the PEDro scale, which rates the methodological quality of trial reports using 11 criteria for internal validity.¹² Because item 1 in the PEDro scale refers to external validity, it is not used to calculate the final score. Thus, the maximum quality score is 10.

RESULTS

The search yielded 395 articles, then 95 were excluded for being duplicate, resulting in 300 articles which were evaluated for eligibility. Of those, 124 articles were excluded after title and abstract screening (78 were review articles; 21 were pilot studies; 16 were editorials or letters to the editor; eight were written in languages other than those of the inclusion criteria; and one study conducted CS concomitantly to a caregiver support group). After full-text screening, 166 articles were excluded (143 did not report CS outcomes in caregivers; 19 were not randomized controlled trials; and four did not recruit older people diagnosed with dementia). Therefore, the final sample consisted of 10 articles included in this systematic review (Figure 1).

Quality assessment

Most studies included in this systematic review presented moderate or high methodological quality. Eight trials scored 5 or higher in the PEDro scale (Table 1).

Characteristics of included studies

The 10 trials included in this review had sample size ranging from 17 to 261 older adults, recruited from community settings, adult day care centers, long-term care facilities, sanatorium, clinics, and geriatric or teaching hospitals. They were diagnosed with various types of dementia (Table 2). The criteria for diagnosing dementia varied among the studies. The most commonly used criteria were the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV),¹³⁻¹⁵ the National Institute of Neurological and Communicative Disorders and Stroke-Alzheimer's Disease and Related Disorders Association Work Group (NINCDS-ADRDA),¹⁶⁻¹⁸ and the International Classification of Diseases, 10th Revision (CID-10).¹⁹

The Mini-Mental State Examination (MMSE)^{13,14,17-20} and the Global Deterioration Scale (GDS) were used for staging dementia.²¹ Seven studies included older adults with mild to moderate dementia,^{13-15,17,18,20,21} one included older adults transitioning to moderate stage,¹⁶ one included older adults with moderate dementia,¹⁹ and one did not specify dementia stage.⁷ The characteristics of the selected trials are shown in Table 2.

Characteristics of interventions

The characteristics of the intervention programs varied greatly in relation to number of sessions (8 to 144 meetings), duration (30 to 180 minutes), and frequency of care (1 to 5 times a week). Most CS interventions were conducted in

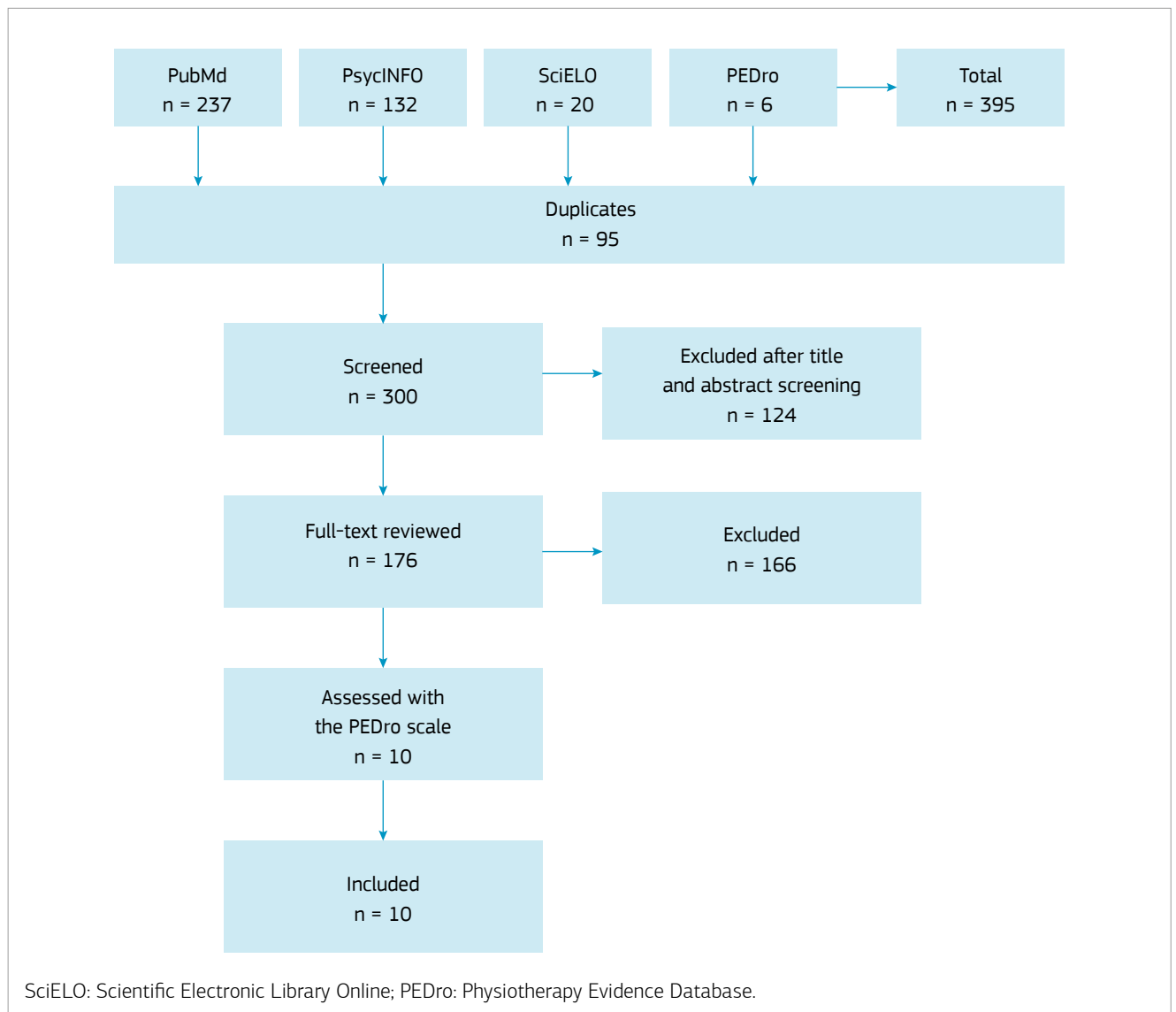


Figure 1 Flow of information.

groups^{7,16,18-21} and consisted of reality orientation (RO), reminiscence therapy, and other activities for stimulating cognitive functions and group interaction. Two studies developed multidomain intervention programs^{16,19} which also included physical exercises,^{16,19} music therapy,¹⁶ basic and instrumental activities of daily living,¹⁹ and occupational, art, and horticultural therapy.¹⁶ In two studies, CS was administered exclusively by trained caregivers of older adults, in the home.^{13,14} In another study, the caregivers from one of the intervention groups underwent training where they received general information on dementia and development of CS programs, and were encouraged to conduct those activities in the home.²⁰

Effectiveness of interventions

Two studies reported that CS interventions produced positive effects both on the caregiver and the older adult.^{15,21} Regarding the caregiver, there was improvement in burden,²¹ perceived distress due to behavioral changes in older adults with dementia, and anxiety.¹⁵ Three studies found beneficial effects only in older adults.^{16,17,19} In four studies, there was no positive effect either on older adults or their caregivers.^{13,14,18,20} Another study did not evaluate CS outcome in older adults and found no significant changes in caregivers after the intervention.⁷

DISCUSSION

Only 10 studies met the inclusion criteria of this systematic review. The reviewed studies varied considerably in terms of characteristics of study population, place of sample recruitment, dementia staging, criteria used for diagnosing dementia, and intervention protocol. Such factors may have led to the great variability observed in the results of the studies.

Only two studies reported that CS in older adults had positive effects on caregivers' health.^{15,21} Three studies found benefits exclusively to older adults,^{16,17,19} four studies found no benefits either to the caregiver or the older adult,^{13,14,18,20} and one study measuring only CS outcome in caregiver's health found no statistically significant effect.⁷

The positive CS results observed in caregivers were inconsistent. In a study conducted by Alves et al.,²¹ there was a significant decrease in caregiver burden, which was assessed using the Zarit Burden Interview, from pre-intervention to post-intervention moment in the brief intervention group. However, burden scores were relatively low across the three assessment moments and no additional difference was found in the standard intervention group compared to the wait-list group. The researchers suggest that the observed absence of burden could be related to the fact that respondents were formal caregivers.²¹ In a study conducted by Paddick et al.,¹⁵

Table 1 Physiotherapy Evidence Database scale scores of the included studies.

Study	Random allocation	Concealed allocation	Similar studies at baseline	Blinded subjects	Blinded therapists	Blinded assessors	Loss < 15%	Intention-to-treat analysis	Between-group statistical comparison	Point measures and measures of variability	Total (0 to 10)
Aguirre et al. ⁷	Yes	No	No	No	No	No	Yes	No	Yes	Yes	4
Orrel et al. ¹³	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	7
Orgeta et al. ¹⁴	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	7
Paddick et al. ¹⁵	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	8
Kim et al. ¹⁶	Yes	No	Yes	No	No	No	No	No	Yes	Yes	4
Niu et al. ¹⁷	Yes	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	7
Piras et al. ¹⁸	Yes	No	Yes	No	No	Yes	No	No	Yes	Yes	5
Luttenberger et al. ¹⁹	Yes	No	Yes	No	No	No	No	Yes	Yes	Yes	5
Cove et al. ²⁰	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	7
Alves et al. ²¹	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	8
Total (number of studies)	10	5	9	1	0	6	4	7	10	10	Mean = 6,2

Table 2 Characteristics of the selected studies.

Title/author/year	Number of participants	Type of caregiver	Features of older adults	Period of intervention	Intervention	Intervention had positive outcome in older adults	Outcomes measured in caregivers	Results
The effects of a Cognitive Stimulation Therapy (CST) programme for people with dementia on family caregivers' health. Aguirre et al., 2014. ⁷	85.	Informal.	Older adults with dementia living in the community.	Standard CS program: 14 sessions Duration: - Frequency: Twice a week. Maintenance CS program: 24 sessions Duration: - Frequency: Once a week.	Group CS based on the following guiding principles: using new ideas, thoughts, and associations; using orientation sensitively and implicitly; focusing on opinions rather than facts; using reminiscence as an aid to the here-and-now; providing triggers to aid recall; creating continuity and consistency between sessions; focusing on implicit (rather than explicit) learning; stimulating language; stimulating executive functioning and being person-centered.	Not assessed.	- EQ-5D: assesses health-related quality of life - Short Form-12: assesses physical and mental health (well-being) in caregivers.	There was no statistically significant difference in any of three assessment moments (baseline 1-2, 3-month follow-up, and 6-month follow-up).
The impact of individual Cognitive Stimulation Therapy (iCST) on cognition, quality of life, caregiver health, and family relationships in dementia: A randomised controlled trial. Orrel M et al., 2017. ¹³	261 - EG (caregiver-delivered CS + usual treatment): 135 - CG (usual treatment): 126.	Informal	Older adults with mild to moderate dementia, diagnosed using DSM-IV criteria, with MMSE score higher than or equal to 10, living in the community.	Caregiver-delivered CS: up to 75 sessions Duration: 30 minutes Frequency: 3 times a week, for 25 weeks. Usual treatment: services and interventions available for people with dementia and family caregivers varied across and within the CS centers and may have changed over time.	Caregiver-delivered CS: interventions were individually administered by a caregiver in the home, including word games, creative activities, RO, and reminiscence therapy. Usual treatment: groups had access to a similar range and similar types of mentally stimulating activities outside the trial, for example, non CS-based group activities offered at adult day care centers, hobbies, gardening, support groups, or visits to places of interest. In general, services provided for the usual treatment group were also available for those in the active treatment group.	Not found	- Short Form-12: assesses physical and mental health (well-being) in caregivers - HADS: assesses symptoms of anxiety and depression in caregivers. - Resilience Scale-14: assesses resilience in caregivers. - EQ-5D: assesses health-related quality of life in caregivers. - QCPR: assesses quality of relationship between patient and caregiver.	There was no statistically significant difference between-group associated with the intervention.

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Tabela 2 Continuation.

Title/author/year	Number of participants	Type of caregiver	Features of older adults	Period of intervention	Intervention	Intervention had positive outcome in older adults	Outcomes measured in caregivers	Results
Individual cognitive stimulation therapy for dementia: a clinical effectiveness and cost-effectiveness pragmatic, multicentre, randomised controlled trial. Orgeta et al., 2015.14	261 - EG (caregiver-delivered CS ± usual treatment): 135 - CG (usual treatment): 126.	Informal	Older adults with mild to moderate dementia, diagnosed using DSM-IV criteria, with MMSE score higher than or equal to 10, living in the community.	Caregiver-delivered CS: up to 75 sessions Duration: 30 minutes Frequency: 3 times a week, for 25 weeks. Usual treatment: services and interventions available for people with dementia and family caregivers varied across and within the CS centers and may have changed over time.	Caregiver-delivered CS: interventions were individually administered by a caregiver in the home, including word games, creative activities, RO, and reminiscence therapy. Usual treatment: groups had access to a similar range and similar types of mentally stimulating activities outside the trial, for example, non CS-based group activities offered at adult day care centers, hobbies, gardening, support groups, or visits to places of interest. In general, services provided for the usual treatment group were also available for those in the active treatment group.	Not found	- Short Form-12: assesses physical and mental health (well-being) in caregivers - HADS: assesses symptoms of anxiety and depression in caregivers. - Resilience Scale-14: assesses resilience in caregivers. - EQ-5D: assesses health-related quality of life in caregivers. - OQPR: assesses quality of relationship between patient and caregiver.	There was no statistically significant between-group difference associated with the intervention.
The prevalence and burden of behavioural and psychological symptoms of dementia in rural Tanzania. Paddock et al., 2017.15	34 G1 (immediate start CS): 8 G2 (immediate start CS): 8 G3 (late start CS): 8 G4 (late start CS): 10.	Informal	Older adults with mild to moderate dementia, diagnosed using DSM-IV criteria, living in the community.	Immediate start CS: 14 sessions Duration: - Frequency: Twice a week, for 7 weeks Late start CS: 14 sessions Duration: - Frequency: Twice a week, for 7 weeks.	Individually administered CS activities as described in Mkenda et al. (2016), involving RO, reminiscence therapy, games, music, food, word association, creativity, object categorization, orientation, use of money, games with numbers/calculations, word games, face recognition, famous scenes, and others.	Significant improvement in WHOQOL (physical domain in this quality of life assessment) and ADAS-Cog scores (total score as well as praxis, language, memory, and new learnings scores in this cognitive assessment).	- NPI (caregiver distress scale): assesses presence and severity of behavioral disturbances in patients with dementia and distress in caregivers due to those symptoms. - WHOQOL-Bref: assesses quality of life related to physical, psychological, social, and environmental domains. - HADS: assesses symptoms of anxiety and depression in caregivers. - Zarit Burden Interview: assesses burden in caregivers.	Statistically significant improvement in NPI score for presence and severity of behavioral disturbances in patients as well as for distress in caregivers due to those symptoms. Statistically significant improvement in HADS anxiety score (p = 0.032).

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Tabela 2 Continuation.

Title/author/year	Number of participants	Type of caregiver	Features of older adults	Period of intervention	Intervention	Intervention had positive outcome in older adults	Outcomes measured in caregivers	Results
Effectiveness of a community-based multidomain cognitive intervention program in patients with Alzheimer's disease. Kim et al., 2016.16	53 - EG (multidomain cognitive program ± pharmacological treatment): 32 - CG (pharmacological treatment): 21.	Not reported	Older adults with probable AD according to NINCDS-ADRDA criteria. Older adults living in the community	Multidomain cognitive program: 120 sessions Duration: 60 minutes. Frequency: 5 times a week, for 6 months.	Group multidomain CS including physical exercises, cognitive occupational therapy, and art, music, recollection, and horticultural therapy.	Significant improvement in word-list recall and recognition test scores as well as in the CDR score for community affairs.	- QoL AD (caregiver version): measures quality of life in caregivers	There was no statistically significant between-group difference associated with the intervention.
Cognitive stimulation therapy in the treatment of neuropsychiatric symptoms in Alzheimer's disease: a randomized controlled trial. Niu et al., 2010.17	32 - EG (CS): 16 - CG (placebo condition): 16	Not reported	Older adults with mild to moderate AD, diagnosed using NINCDS-ADRA criteria, with neuropsychiatric disturbances and MMSE score between 10 and 24, recruited from a military sanatorium.	CS program: 20 sessions Duration: 45 minutes. Frequency: Twice a week, for 10 weeks. Placebo condition: 20 sessions Duration: 45 minutes. Frequency: Twice a week, for 10 weeks.	CS program: individual interventions including RO, verbal fluency, overlapping figures, and photo-story learning tasks. Placebo condition: individually administered communication exercises focusing on: (1) discussing recent topics (e.g., activities from the previous day) and important life events (e.g., hobbies and enjoyable activities) and (2) learning about progress in current AD research and external memory aids. The exercises focused on conversational interaction and psychological support rather than practice or drills (as in the EG) and were unstructured and relaxed.	Statistically significant improvement in NPI score (behavioral disturbances in older adults)	- NPI (caregiver distress scale): assesses presence and severity of behavioral disturbances in patients with dementia and distress in caregivers due to those symptoms.	There was no statistically significant between-group difference associated with the intervention.

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Tabela 2 Continuation.

Title/author/year	Number of participants	Type of caregiver	Features of older adults	Period of intervention	Intervention	Intervention had positive outcome in older adults	Outcomes measured in caregivers	Results
Efficacy of cognitive stimulation therapy for older adults with vascular dementia. Piras et al., 2017.18	35 EG (CS): 21 CG (active control): 14.	Not reported.	Older adults with mild to moderate vascular dementia, diagnosed using NINCDS-ADRA criteria, with MMSE score higher than or equal to 14, living in LTCF.	CS: 14 sessions Duration: - Frequency: Twice a week, for 7 weeks.	EG: Intervention in small groups (7-8 participants) performing RO and CS activities with the following themes: sounds, reminiscences, motor/physical, number, word, and team games, categorization, word and face association. Active CG: reading and discussing stories and newspapers as well as performing creative activities such as painting, coloring, decorating, and cooking.	Not found.	- NPI (caregiver distress scale): assesses presence and severity of behavioral disturbances in patients with dementia and distress in caregivers due to those symptoms. - QoL AD (caregiver version): measures quality of life in caregivers.	There was no statistically significant between-group difference associated with the intervention.
Effects of multimodal nondrug therapy on dementia symptoms and need for care in nursing home residents with degenerative dementia: a randomized-controlled study with 6-month follow-up. Lutzenberger et al., 2012.19w	119 - EG (multicomponent therapy ± usual treatment): 56 - CG (usual treatment): 63.	Formal	Older adults with primary degenerative dementia, diagnosed using CID-10 criteria, with MMSE score lower than 24, living in LTCF.	Multicomponent therapy: 144 sessions Duration: 120 minutes Frequency: 6 times a week, for 6 months. Usual treatment: participants were free to participate in any of the regular activities offered at the LTCF (approximately twice a week).	Multicomponent therapy performed in groups of 10 older adults, with tasks organized into 3 categories: motor stimulation, activities of daily living, and CS. Those tasks were preceded by a short introduction consisting of what was called a spiritual element, designed to help the participants feel part of the group. Participants in the intervention group were also free to participate in the activities offered as part of the usual treatment and did so once a week on average. Usual treatment: usual care offered at the LTCF such as memory training, physical exercises to reduce the risk of falling, cooking groups, and occupational therapy. Controls participated in an average of two of those activities per week.	Statistically significant improvement in Barthel Index score (measures independence in ADL), in NOSGER sum score (measures general dementia symptoms) as well as in its mood, challenging behavior, social behavior, memory, ADL, and IADL subscales.	- RUD-FOCA: records care time in an ambulatory setting.	There was no statistically significant between-group difference associated with the intervention.

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Tabela 2 Continuation.

Title/author/year	Number of participants	Type of caregiver	Features of older adults	Period of intervention	Intervention	Intervention had positive outcome in older adults	Outcomes measured in caregivers	Results
Effectiveness of weekly cognitive stimulation therapy for people with dementia and the additional impact of enhancing cognitive stimulation therapy with a carer training program. Cove et al., 2014,20	68 - EG1 (CS ± caregiver training): 21 - EG2 (CS): 24 - CG (wait list): 23.	Informal	Older adults with any type of dementia according to DSM-IV criteria, with MMSE score between 18 and 30, living in the community.	CS program: 14 sessions Duration: 45 minutes Frequency: Once a week. Caregiver training: 2 sessions and 1 optional workshop offered between sessions Duration: Session 1 – 3 hours; session 2 and workshop – 1 hour each.	Group CS, according to a manual developed by Spector et al. (2005), using RO and discussing recent subjects. Caregiver training: general information on dementia and CS. The CS program was outlined and details of individual sessions were presented. The guiding principles of CS were described and ways of engaging the person at home according to those principles were suggested. Activities that related to each theme undertaken in the CS program were also suggested. Caregivers were asked to record any activities tried at home and rate their success.	Not found	- QCPR: assesses quality of relationship between patient and caregiver.	There was no statistically significant between-group difference associated with the intervention.
Cognitive stimulation for Portuguese older adults with cognitive impairment: a randomized controlled trial of efficacy, comparative duration, feasibility, and experiential relevance. Alves et al., 2014,21	17 - EG (standard CS): 10; - CG (wait list/brief CS): 7.	Mostly formal.	Older adults with mild to moderate dementia (GDS scores between 3 and 5) recruited from adult day care centers and LTCF.	Standard CS program: 17 sessions. Duration: 60 minutes Frequency: 5 times a week. Brief CS program: 11 sessions. Duration: 60 minutes. Frequency: 5 times a week.	Group CS, as defined by Clare & Wood (2004), with the purpose of stimulating episodic autobiographical memory, working memory, visual and auditory attention, language, social interaction, reasoning, emotion identification and expression, and executive functioning (planning and sequencing skills).	Increase in MMSE score in EG compared to CG. Little clinical significance.	- QoL AD (caregiver version): measures quality of life in caregivers. - Zarit Burden Interview: assesses burden in caregivers.	There was a significant decrease in caregiver burden (p = 0.04).

CS: cognitive stimulation; EQ-5D: European Quality of Life – 5 Dimensions; EG: experimental group; CG: control group; GDS: Global Deterioration Scale; LTCF: long-term care facility; QoL AD: Quality of Life in Alzheimer’s Disease scale; EG1: Experimental Group 1; EG2: Experimental Group 2; DSM-IV: Diagnostic and Statistical Manual of Mental Disorders, 4th Edition; MMSE: Mini-Mental State Examination; RO: Reality Orientation; QCPR: Quality of Caregiver and Patient Relationship; AD: Alzheimer’s disease; NINCDS-ADRDA: National Institute of Neurological and Communicative Disorders and Stroke – Alzheimer’s Disease and Related Disorders Association; CDR: Clinical Dementia Rating; CID-10: International Classification of Diseases, 10th Revision; ADL: activity of daily living; IADL: instrumental activity of daily living; NOSGER: Nurses’ Observation Scale for Geriatric Patients; RUD-FOCA: Resource Utilization in Dementia-Formal Care; NPI: Neuropsychiatric Inventory; HADS: Hospital Anxiety and Depression Scale; G1: Group 1; G2: Group 2; G3: Group 3; G4: Group 4; WHOQOL: World Health Organization Quality of Life questionnaire; ADAS-COG: Alzheimer’s Disease Assessment Scale-Cognitive Subscale.

in turn, an assessment using the Neuropsychiatric Inventory found significant improvements in number and severity of psychological and behavioral symptoms of dementia as well as in caregiver distress due to those symptoms. However, reductions in caregiver burden as assessed by the Zarit Burden Interview were not significant. The authors claim that the burden assessment tool was developed for use in high-income countries and adjustments may be needed to make it more relevant in other settings.¹⁵

No common characteristics were found to justify the fact that both studies, Alves et al.²¹ and Paddick et al.,¹⁵ reported benefits to caregivers' health. In Alves et al.,²¹ older adults were classified as mild to moderate dementia using the GDS and recruited from adult day care centers and long-term care facilities, while in Paddick et al.¹⁵ older adults were classified according to the DSM-IV and recruited from community settings. The type of caregiver, formal in one study²¹ and informal in the other,¹⁵ also differed. The intervention protocol used in Alves et al.²¹ consisted of 11 sessions, 60 minutes each, five times a week, while Paddick et al.¹⁵ conducted 14 sessions, twice a week, and did not inform duration. Alves et al.²¹ proposed a group intervention, while Paddick et al.¹⁵ used an individual intervention.

It is worth mentioning that some characteristics of participating caregivers, such as age, level of education, and type of relationship with older adults with dementia, could not be considered in the review because such information was unavailable in the reports. Those characteristics may have impacted the interpretation of the results of the reported studies and, therefore, of the present review.

There is an assumption that a cognition-based intervention delivered by a family caregiver may be more successful in having a positive influence on older adults and

caregivers.^{7,22,23} However, the two studies that analyzed the effects of caregiver-delivered CS found no positive results in older adults or caregivers.^{13,14}

Previous research suggests that non-cognitive dementia features are more likely to be associated with disturbances in caregivers.^{15,24} Of the three studies that reported positive CS effects on mood and behavior of older adults,^{15,17,19} only one found an indirect effect of the intervention on caregivers.¹⁵

This study has some limitations, including exclusion of reports in other languages and lack of assessment of the effect of CS conducted concomitantly to a caregiver support group. Studies seeking to increase the scope of this review may contribute to a better understanding of the topic.

Although some studies indicate that CS benefits could be extended to caregivers of older adults with dementia,^{15,21} evidence remains inconclusive. There was great variation in terms of population and method used in the reviewed studies. Further studies are needed to evaluate the potential benefit of CS to caregivers' health.

CONCLUSION

This study found no consistent evidence of actual benefits of CS in older adults with dementia to their caregivers' health. Interventional studies are required to evaluate the health of caregivers of older patients with dementia as a primary outcome. Although CS is much referred to as effective for older adults, it should be adequately scrutinized in order to ensure its effectiveness for caregivers' health.

CONFLICT OF INTEREST

The authors report no conflicts of interest.

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