



REVIEW


## COGNITIVE STIMULATION PROGRAMS FOR ELDERLY PEOPLE WITH AND WITHOUT DEMENTIA SYNDROMES SUPERVISED OR APPLIED BY NURSES: INTEGRATIVE REVIEW

Maria do Perpétuo Socorro de Sousa Nóbrega<sup>1</sup> 

Carolina Marques Freitas<sup>1</sup> 

Brenda Gabriele Silva de Jesus<sup>1</sup> 

Jussara Carvalho dos Santos<sup>1</sup> 

Mafalda Sofia Gomes Oliveira da Silva<sup>2</sup> 

### ABSTRACT

Objective: to identify, describe and evaluate the effectiveness of Cognitive Stimulation Programs, applied and/or supervised by nurses, for older adults with and without dementia syndromes in any care setting. Method: integrative review with collection in PubMed, Scopus, Bdenf, Scielo, Web of Science, Cinahl and BVS, from May 2020 to November 2021, whose main descriptors were: "cognitive stimulation program", "nursing" and "older". Results: in the six selected studies, a lack of standardization was identified in the use of pre- and post-implementation instruments. The techniques were: reality orientation, reminiscence therapy and validation. The effectiveness of the program was proven by validated scales. Two studies demonstrated program applications and four were about supervision/guidance for caregivers. No Brazilian studies were found. Conclusions: Cognitive Stimulation programs are effective in reducing behavioral and psychological symptoms of dementia. The need for more clinical studies conducted by nurses is highlighted.

**DESCRIPTORS:** Memory; Dementia; Health of the Elderly; Nursing; Mental Health.

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<sup>1</sup>Universidade de São Paulo. São Paulo, SP, Brasil.

<sup>2</sup>Escola Superior de Saúde Jean Piaget de Vila Nova de Gaia, Porto, Portugal.

## INTRODUCTION

According to the World Health Organization, by the year 2025, the number of elderly individuals in the world will be approximately 1.2 billion and may reach two billion by the year 2050<sup>(1)</sup>. This fact has brought expressiveness to chronic and disabling diseases, with high degrees of physical and mental dependence, and, consequently, higher prevalence of comorbidities and vulnerabilities<sup>(2)</sup>. Because of population aging, chronic neurodegenerative diseases have their predominance in mild cognitive impairment and dementia, classified as Mild Neurocognitive Disorder and Major Neurocognitive Disorder (NCD)<sup>(3)</sup>.

Major Cognitive Disorder represents the main reason for dementia syndrome and has as its cause a still unknown organic condition, which causes memory loss, cognitive and emotional deterioration, changes in behavior, personality, progressive loss of autonomy, integrity, and constitutes an insidious initial picture that makes it difficult for caregivers to perceive this clinical situation, representing about 60% to 70% of dementia cases worldwide<sup>(4)</sup>.

In Brazil, a study carried out with elderly people in long-stay institutions in a capital city in the Northeast of the country demonstrated the prevalence of Mild or Major Cognitive Disorder in 83.6% of the elderly, with a significant correlation for those older than 83 years<sup>(5)</sup>. In the European Union, there are 8.7 million people with Major Cognitive Disorder<sup>(6)</sup>. In the United States, it is considered the leading cause of institutionalization and the second leading cause of death in the elderly<sup>(7)</sup>.

Prior to the Major NCD, the individual may be affected by a loss of cognitive abilities not resulting from the aging process, considered a transitional phase between the normal aging process and the Major NCD, designated as Mild Cognitive Disorder/Impairment (MCD)<sup>(7)</sup>. The early detection of this allows monitoring of the evolution of cognitive decline, with the goal of developing and implementing specific rehabilitation strategies, which can optimize daily functioning and promote the person's autonomy<sup>(8)</sup>.

Not all cases of MCI (Mild Cognitive Impairment or Mild Cognitive Disorder) evolve to NCD (Neurocognitive Disorder) Major since cognitive stimulation (CS) and the adoption of healthy lifestyles have special relevance to delay or prevent the development of this pathology. There are two types of MCI: amnesic, which is characterized by alterations in memory level; and non-amnesic, which compromises one or more cognitive abilities such as attention, language, executive functions, and/or processing of visual and spatial information. The following are risk factors for MCI: age, family history, diabetes, hypertension, high cholesterol levels, obesity, and smoking<sup>(8)</sup>.

The maintenance of cognitive health is relevant because it allows increasing protection against NCD, delaying its onset and preventing physical dependence in the elderly and, consequently, delaying the institutionalization process. There are different types of intervention programs in cognition such as CS, cognitive training, and cognitive rehabilitation. The recovery of cognitive status can be done by stimulating systems using simple and easily applied means, such as physical activities and cognitive stimulation workshops, which assist in the rehabilitation of cognitive ability, allowing the elderly to have a better quality of life<sup>(9)</sup>.

There are different forms of CS and each one can focus on distinct cognitive aspects, such as memory, attention, language, and others, which favors concentration, thinking, memory, and contributes to the increase in brain synaptic density, whose transmission network is responsible for the dynamics, plasticity of the brain<sup>(10)</sup>. Cognitive Stimulation Programs (CSPs) are conducted by a set of strategies and exercises that seek to reduce or compensate the difficulties experienced in daily life by the individual and the family, and to enhance the different areas of cognition<sup>(10)</sup>.

These programs can be implemented in groups or individually, with specific goals and well-designed methodologies in each period, for the person to maintain their reminiscent cognitive abilities, environmental orientation, promote functionality and autonomy. In the group approach, social interaction and readaptation of behaviors are encouraged<sup>(9)</sup>.

For the implementation of an intervention in cognition, it is necessary to assess the individual's cognitive profile to identify the compromised areas. The Cognitive Stimulation Program (CSP) (Cognitive Stimulation Programs) should consider the intellectual and cultural level, as well as the environment, social interactions, and family support, and be based on a process of cooperation between the person with cognitive deficit and family members/caregivers<sup>(11)</sup>. The empowerment of these to conduct and maintain the CS of the different basic life activities is fundamental for them to be able to establish the sessions, recall what was addressed in previous sessions and the training of compensatory strategies<sup>(9)</sup>.

The conduction of the Cognitive Stimulation Program (CSP) by nurses implies both intervention and supervision of implementation and adjustment of the care process conducted by family members/caregivers at home<sup>(10)</sup>. By conducting Cognitive Stimulation Program (CSP), nurses promote the autonomy of the elderly with and without dementia syndromes and lead them to perform self-care and activities of daily living, better quality of life, recovery of dignity, self-respect, and independence<sup>(12)</sup>, as well as their families.

Although the aging process does not necessarily imply cognitive deterioration, there are Cognitive Stimulation Program (CSP) that prevent/ delay the worsening of symptoms. Given the wide range of types of Cognitive Stimulation Program (CSP)s and the fact that they are conducted by different health professionals, including nurses specialized in mental health and gerontology, the state-of-the-art regarding the application, supervision, and effectiveness of Cognitive Stimulation Program (CSP) conducted by nurses is questioned. The need for an integrative review emerged, with the purpose of synthesizing the evidence of this practice by nurses. Based on these arguments, this review aims to identify, describe, and evaluate the effectiveness of Cognitive Stimulation Programs applied and/or supervised by nurses for older adults with and without dementia syndromes in any care setting.

## METHOD

The Integrative Literature Review (ILR) consists of standardized and systematic methods, which guarantee the indispensable rigor and legitimacy of the results obtained in scientific research. It makes it possible to critically evaluate the available publications on the investigated theme, to synthesize the published evidence, to identify production trends and to incorporate the applicability of the results of the analyzed studies, direct the development of future research from the gaps found<sup>(13)</sup>.

For this ILR, the following steps were performed: definition of the guiding question, creation of criteria for literature analysis, evaluation of the studies, interpretation and presentation of the results obtained. The PICo proposal was used (P - Population, I - Intervention, Co- Context/Outcome). In the present study, the acronym PICo was defined as follows: P - elderly with and/or without dementia syndromes; I - Cognitive Stimulation Program applied and supervised exclusively by nurses; Co - Effectiveness of Cognitive Stimulation programs. Thus, the following guiding question was developed: "What are the Cognitive Stimulation Programs applied or supervised by nurses for seniors with and/or without dementia syndromes and their effectiveness in any care setting?"

The following inclusion criteria were used: primary, quantitative (quasi-experimental, single comparison group - before/after, clinical trials, community interventions, randomized), qualitative and feasibility studies, in English, Portuguese and Spanish, available in full and indexed in databases, limited to the years between 2000 and 2021.

As participants, we selected elderly individuals aged 60 years or older, with or without dementia syndromes. Review articles, experience reports, monographs, dissertations, theses, studies that did not identify the nurse's action and that did not present the structured program, or the instruments used, duplicate articles in other databases, and incomplete articles were excluded. The survey for this study was conducted from May 2020 to November 2021. An instrument was composed by the authors to analyze the articles in their entirety. For the relevance of this study, the independence of the reviewers in all stages of the review was taken into consideration.

The databases consulted were PubMed/MEDLINE, Scopus, the Nursing Database (BDENF), SciELO, Web of Science, CINAHL, and the Virtual Health Library (VHL), with the key words recognized by MeSH and DeCS (Chart 1).

Chart 1 - Search strategies used per database. São Paulo, SP, Brazil, 2021

Database and e-Portals	Strategy
PubMed/MEDLINE	Delirium, dementia, amnesic, cognitive disorders [MeSH Terms] AND "cognitive stimulation" OR "cognitive stimulation program" AND (older OR aged OR elderly) AND /nursing.
Scopus	(TITLE-ABS-KEY ("Cognition Disorders" OR "Dementia Delirium" OR "Amnesic Cognitive Disorders" )) AND ( TITLE-ABS-KEY ( older OR elderly OR aged OR geriatric OR senior ) ) AND ( TITLE-ABS-KEY ( nurse OR nurses OR nursing ) ) AND ( TITLE-ABS-KEY ( ( "cognitive stimulation" OR "cognitive stimulation therapy" OR "cognitive stimulation program" ) ) ).
BDENF	("estimulacao cognitiva" OR "cognitive stimulation" OR "cognitive stimulation program") AND (demencia OR "cognitive disorders" OR "disturbios cognitivos") AND enfermagem AND (db:("BDENF"))).
Web of Science®	(dementia AND "cognitive stimulation" AND nursing).
Portal Regional da BVS®	tw:(tw:(("estimulacao cognitiva" OR "cognitive stimulation" OR "cognitive stimulation program") AND (demencia OR "cognitive disorders" OR "disturbios cognitivos")) AND (enfermagem OR enfermagem OR nursing) AND ( db:("LILACS"))).
CINAHL®	(MH "Cognition Disorders") OR (MH "Delirium, Dementia, Amnesic, Cognitive Disorders) AND TI ("cognitive stimulation" or "cognitive stimulation therapy" OR "cognitive stimulation program") OR AB ("cognitive stimulation" or "cognitive stimulation therapy" OR "cognitive stimulation program") AND older or elderly or aged or geriatric or senior.

Source: Authors (2021).

After reading the titles and abstracts independently among the authors and to ensure that the findings contemplated the guiding question of this review, inclusion and exclusion criteria were established. When in doubt about the selection of studies, it was decided to include the publication and decide on its selection after reading the entire content. The studies were screened through the following process: title reading, abstract, fitting the inclusion and exclusion criteria, duplicate and repeated articles in the databases, followed by the final selection of those eligible for reading in full. Thus, the final sample was composed of six articles.

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (11) instrument was adopted to show the process of identification, screening, eligibility,

and inclusion of studies. From the search performed in the databases, 180 studies were found, after detailed reading of the title and abstract, and selected 12 articles read in full and six that show CSP conducted by nurses (Figure 1).

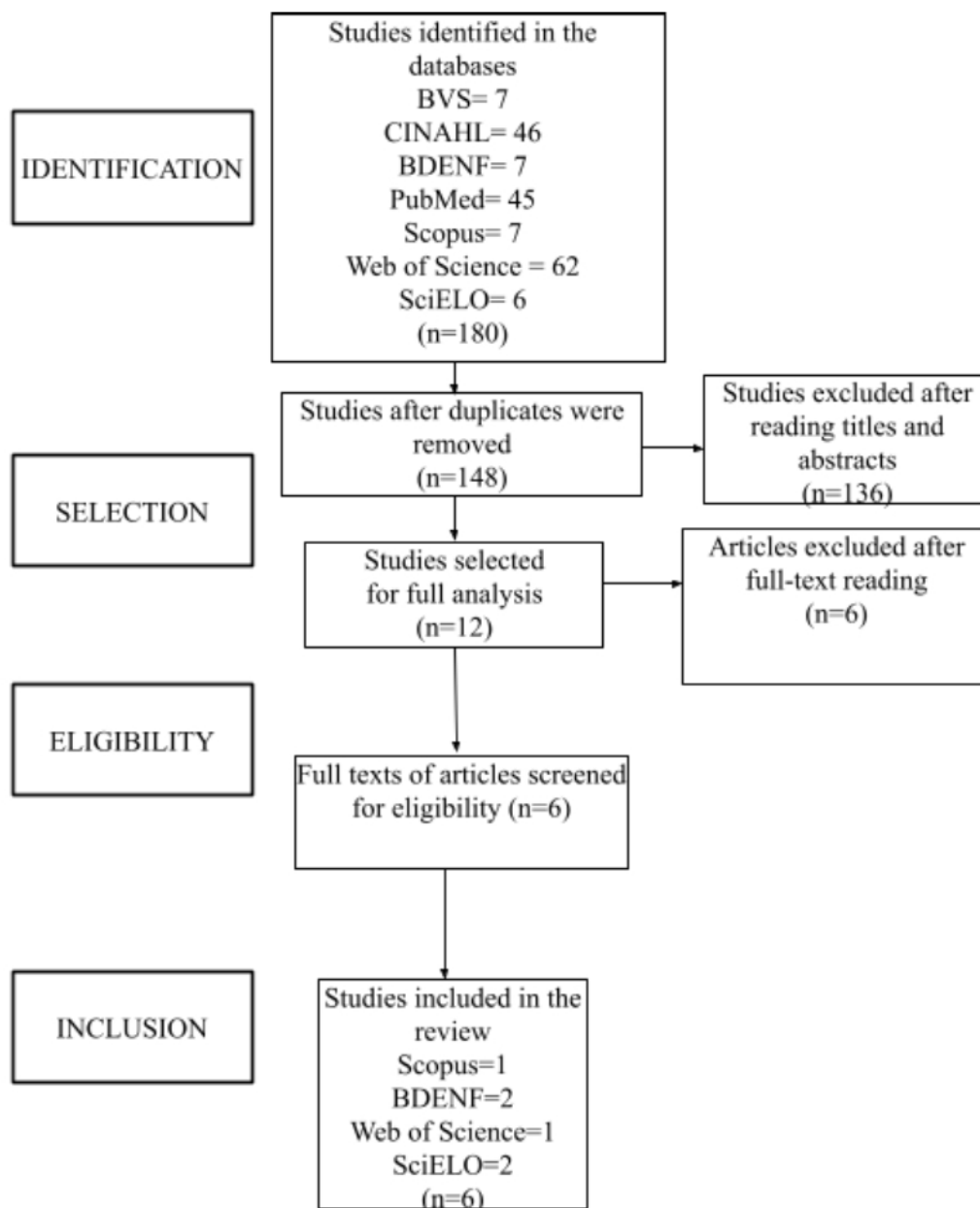


Figure 1 - Flowchart of the search process and selection of articles according to the intersections of the terms Medical Subject Headings, via databases and virtual library. São Paulo, SP, Brazil, 2021  
Source: Authors (2021).

For data extraction, an instrument was prepared with the variables: Study code, country, study objective, population and sample, method, instruments, type of intervention, setting, executor and effectiveness of the Cognitive Stimulation Program (CSP). The data were organized in a logical structure to simplify, summarize, abstract, and compare systematically the results from the primary studies and facilitate the process of interpretive analysis in accordance with the scientific literature. The information was organized by



convergences and divergences, and entered Microsoft Excel® spreadsheets, version 2016; subsequently validated by double typing to exclude possible errors and ensure reliability.

## RESULTS

The studies selected in this review were found in the following databases: Scopus (n=one), Nursing Database (n=two), Scientific Electronic Library Online (n=two), Web of Science (n=one). The year 2011 obtained the largest publications (n=two), 2013 (n=one), 2015 (n=one), 2016 (n=one), 2018 (n=one). As for language, two (33.33%) are in Portuguese language and four (66.66%) are in English language. The methodologies used were experimental study, pilot study, feasibility study, and quantitative quasi-experimental study. The information is shown in Chart 2 and Chart 3.

Chart 2 - Studies published on Cognitive Stimulation Programs in the elderly with or without dementia, according to title, country, population/sample, methods, and pre/post Cognitive Stimulation Program (CSP) assessment instruments. São Paulo, SP, Brazil, 2021 (continues)

<b>Cod.</b>	<b>Title/Country</b>	<b>Objectives</b>	<b>Population /Sample</b>	<b>Methods</b>	<b>Pre/post evaluation instruments</b>
A12	Cognitive stimulation for older people with Alzheimer's disease performed by the caregiver. (Portugal)	Influence of Cognitive Stimulation at home, performed by the caregiver of the elderly with Alzheimer's disease.	five elderly people and their respective caregivers	Case study with elderly people with Alzheimer's disease. Six steps: orientation of caregivers, selection of elderly and their caregivers. Approach of the subjects at home, weekly meetings weekly meetings, and the reapplication of tests to monitor the cognitive function of the elderly.	Mini Mental State Examination Test (MMSE), KATZ Scale, LAWTON Scale, Clock Drawing Test (CDT).
A14	Cognitive stimulation of elderly residents in social protection centers in Cartagena (Colombia)	To determine the effectiveness of a CSP for elderly residents of Cartagena's Social Protection Centers in 2014.	37 elderly people	Quasi- experimental quantitative study, using cognitive tests, consisting of ten items for mental evaluation.	Pfeiffer test and clippings about daily events. Wilcoxon test.

A15	Effect of cognitive stimulation in the elderly. (Portugal)	Analysis of the effectiveness of Cognitive Stimulation in dementia syndromes.	23 elderly people	Experimental study with pre- and post-test. The elderly were selected by means of inclusion and exclusion criteria, and were evaluated by means of cognitive evaluation instruments	MoCA (Montreal Cognitive Assessment), the Lawton Instrumental Activity of Daily Living Scale (IADL), the Katz Scale of Daily Living Activities (AVD), and the Geriatric Depression Scale (GDS).
A16	Cognitive stimulation in elderly people. (Portugal)	To evaluate the effect of a Cognitive Stimulation Program (CSP) Program (CSP) in the elderly.	13 elderly people	Pre-test and post-test study where 13 elderly people were assessed with cognitive screening instruments and received cognitive intervention	Portuguese version of the Mini Mental State Examination (MMSE) and Barthel Index.
A17	Cognitive stimulation during hospitalization improves global cognition of older Taiwanese undergoing elective total knee and hip replacement surgery. (China)	Effects of cognitive stimulation in elderly patients undergoing elective hip and/or knee replacement.	47 elderly people	Randomized clinical trial, with methods: literature review of individual in acute care settings, recruitment of patients and application of the intervention.	Mini Mental State Examination (MMSE)
A18	Managing dementia in rural Nigeria: feasibility of cognitive stimulation therapy and exploration of clinical improvements (Nigeria)	Investigate the feasibility and clinical impact of a CSP, in a rural setting.	9 elderly people	Single group feasibility study	Quality of life assessment (WHOQOL-Bref); Cognitive Illness Assessment Scale g); Zarit Caregiver Burden Interview (ZBI), WHO Disability Assessment Schedule (WHODAS), Neuropsychiatric Inventory (NPI), Hospital Anxiety and Depression Scale (HADS).

Source: Authors (2021).

Chart 3 - Published studies on Cognitive Stimulation Programs in the elderly with and without dementia, regarding the type of intervention/duration, care setting, performer, and effectiveness of the CSP. São Paulo, SP, Brazil, 2021

Cod.	Type of intervention/Duration	Scenario of care, executor	Effectiveness of CSP
A12	Cognitive intervention at the elderly person's home, with activities such as object identification, calendar, clock, relationships with people, environment recognition, crochet, knitting, reading books and magazines, and leisure activities. The sessions last an hour and a half each.	Residency. Nurse.	Increased score in the orientation domain in the MMSE.
A14	The CSP was performed from orientation to reality such as day, month, current years. Followed by memory exercises, arithmetic development session, daily information, and reading aloud. The intervention had 10 sessions, lasting 50 minutes, and was carried out three times a week.	Center for Protection Center. Students nursing students, with nurse supervisor.	According to the statistical data, there was an improvement in the cognitive status of the elderly according to the Pfeiffer test.
A15	Cognitive stimulation program (making a difference) was adapted for the Portuguese version. There were 14 sessions of 45 minutes, once a week.	Day Care Center and Health Center. Students of undergraduate nursing students supervised by the nurse researcher.	Demonstration of effectiveness from analyses of dispersion, variations, and evolution between the control group and the experimental group.
A16	Cognitive stimulation intervention with reading sessions; painting; drawings; imitation; memorization; identification of figures and images; arithmetic calculations; object categorization; antonyms; identification of textures, sound, and smell; personal history; imitations; ball game; proverbs and metaphors.	Long-term care unit. Nurses and nursing students.	There was stabilization and positive results in cognition. However, due to the absence of a control group, there was a limitation in the studies, with little difference between pre- and post-testing in the Barthel index.
A17	Cognitive stimulation intervention with themes of current events; recall; word games; object categorization; orientation. Duration of 20 to 30 minutes from the end of surgery to hospital discharge.	Hospital. Nursing Team	Increased MMSE score and improvement persisted after one month of discharge. Decreased cognitive decline from 44% to 12%.
A18	Cognitive stimulation with elements of reality orientation, validation therapy, and Alzheimer's (ADAS-Co Reminiscence). Duration 45-60 min, two sessions per week, over a period of seven weeks.	Rural community. Nurse.	Significant improvement in the physical, psychosocial, and environmental domains according to the WHPQOL-Bref. Improvement in the language domain

Source: Authors (2021).

## DISCUSSION

In this review, we identified the lack of standardization in the use of various instruments pre- and post-implementation of CSP. The instruments most used to assess cognitive function



and activities of daily living were: Mini Mental State Examination (MMSE), Lawton Scale and Katz Scale<sup>(12,15)</sup>. The MMSE is a quantified assessment of cognitive status with high reliability and validity, aiming to assess the cognitive function of individuals. Through its application, it is possible to evaluate temporal and spatial orientation, memory, attention, computation, language, and constructive visual capacity. It is the most widely used cognitive screening instrument in the world due to the benefits of its ease of execution and rapid application<sup>(19)</sup>.

Lawton's scale evaluates the Instrumental Activities of Daily Living (IADL), such as telephone use, transportation, medication, financial activities, food preparation, shopping, and cleaning<sup>(20-21)</sup>. The Katz scale was originated as a useful way to evaluate the treatments performed by the elderly and describe suspected chronic diseases in the population and evaluates some items according to their order of complexity such as: feeding, continence, personal hygiene, ability to dress and bathe<sup>(22)</sup>.

Regarding the interventions applied during the CS sessions, the following techniques were verified: orientation to reality, categorization of objects, and reading texts from newspapers and magazines<sup>(12-17)</sup>. Cognitive orientation to reality enables the description of places, people, time, and benefits individuals in items such as verbal orientation, attention, intellect, and better performance on social interaction scales, and delays cognitive decline by six months<sup>(23)</sup>.

In all the studies analyzed, it was found that various CS techniques were used, such as reality orientation technique, reminiscence therapy, and validation therapy. The selection of CS techniques should be made with attention to the objectives outlined and the cognitive deficit presented by the person. Techniques such as reading and categorization of objects have the function of stimulating verbal skills and allow encouraging participants to express themselves verbally, socialize with groupmates, and use language creatively<sup>(24-25)</sup>.

The exercises used and the themes selected for therapy should meet the sociocultural backgrounds and tastes of the person<sup>(26)</sup>. The authors of the studies reinforce the importance of empowering the person and the primary caregiver with strategies to deal with difficulties in daily life throughout the implementation of the CSPs. Regarding the effectiveness of CSPs, in all studies included in this review, improvement was identified in dementia pictures assessed by the MMSE score<sup>(12-17)</sup>, corroborating the literature on elderly people with dementia syndromes who, when receiving CS, obtained higher scores than those without dementia<sup>(27)</sup>. However, only one study<sup>(17)</sup> demonstrated the effectiveness of the CSPs after one month of intervention, which shows weakness, since the literature points out as basic principles for performing CS the initial, final and follow-up evaluation between three to six months after the end of the CSP<sup>(26)</sup>.

It was detected in all the studies included in this review that there is no standardization of the intervention and program content, number of participants, and duration of sessions, which makes it difficult to compare the results obtained and the implementation of these results. The evaluation of the effectiveness of CSPs is superficial, making it necessary to understand the need for maintenance of the gains made over time and the costs associated with these interventions. However, the systematic review study pointed out the possibility of applying the CSP in different cultures and different contexts, with modification of the content to suit the local culture and maintaining the same benefits<sup>(28)</sup>.

A variety of care settings were identified in all studies where the CSP was applied: institutionalized settings, home care residences, Social Protection Center, Long Term Care Units, and rural communities<sup>(12-17)</sup>.

Regarding the conduction of CSP by nurses, only two studies<sup>(12,17)</sup> included demonstrated detailed applications conducted by them. The others portray supervision and guidance to caregivers about basics regarding the dementia process, benefits, and ways to perform CS at home and application of the cognitive screening test. The studies also show that the implementation of CS was decided weekly by the nurses with the caregivers with final evaluation of the application. They show that most of the results of the applied CSPs

were positive to the decrease of cognitive deterioration<sup>(12-18)</sup>.

The CSP conducted by nursing students and supervised by nurses consisted of providing information about days and month, exercises to stimulate auditory, visual or evocation memory, done daily during the program, as well as exercises to develop arithmetic (economic implementation problems) and daily information (place of residence, date, place of birth, age and full name)<sup>(14-16)</sup>.

The programs conducted by the nursing team lasted between 20-30 minutes and dealt with activities of recalling the past, word games, categorization of objects<sup>(28)</sup>. The literature highlights that it is important to establish the characteristics of the CSP taking into consideration the number of sessions (six to 12); the frequency of the sessions (one to two per week); establish the place, time, duration of the individual or group sessions, which can vary a maximum of 60 minutes and 90 minutes, respectively<sup>(26)</sup>.

This literature review evidenced the role of nurses in different healthcare settings, with great importance in elderly care. The comprehensive function of nursing explains the leadership of teams where there is great importance in any model of long-term illness to a specific and complex care<sup>(29-30)</sup>.

There was no evidence in the studies in this review of nurses conducting CSP with older adults without dementia. This fact demonstrates the scarcity of publications that allow us to evaluate the actions of nurses with the population without this clinical picture. Also, no Brazilian studies were found that evidence the conduction of CSP by nurses. In Brazil, it is observed that in clinical practice, the application of CSP by nurses specialized in mental health/psychiatric nursing and gerontological nursing has not been common. The implications of this review for clinical practice are that it demonstrates a gap for the role of nurses in the implementation and/or supervision of CSP, which have been known to be conducted by other health professionals. Therefore, it is necessary to open a space for reflection and discussion, from training to specialization of nurses, in the field of mental health of the elderly.

The possibility of losing relevant studies produced in other languages is considered a limitation of this review. It is emphasized that the evidence presented should be interpreted and applied carefully and therefore, not generalized, but seen according to each care setting. However, this integrative review is important to open the discussion about the conduct of CSP by nurses in the Brazilian reality and in the relevant areas of knowledge.

## CONCLUSION

The studies on Cognitive Stimulation Programs applied and/or supervised by nurses for older adults with dementia syndromes that comprise this review are shown to be effective. No articles were found that addressed CSPs in elderly people without dementia syndromes conducted by nurses. Regarding the characteristics of the interventions, there were similarities regarding the scales, the techniques applied and the variability of settings where they are conducted, demonstrating the presence and versatility of nurses in different care and supervision settings. A relevant number of studies on CSP was verified, but there are few studies applied and/or supervised by nurses.

This study contributes to the area of mental health of the elderly by highlighting the CSP as an effective practice that reduces the behavioral and psychological symptoms of dementia. Moreover, it presents itself as a non-pharmacological therapeutic alternative to the guidelines of best care practices, avoiding polypharmacy, which is common among the elderly. Thus, we highlight the need for more clinical studies conducted by nurses to build and expand knowledge in this field, since the intervention has been little studied.

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Corresponding author:

Maria do Perpétuo Socorro de Sousa Nóbrega  
Universidade de São Paulo - São Paulo, SP, Brasil  
E-mail: [perpetua.nobrega@usp.br](mailto:perpetua.nobrega@usp.br)

Role of Authors:

Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - Nóbrega M do OS de S, Freitas CM, Jesus BGS de, Santos JC dos, Silva MSGO da; Drafting the work or revising it critically for important intellectual content - Nóbrega M do OS de S; Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - Nóbrega M do OS de S. All authors approved the final version of the text.

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