



**Valentina Herrera Montoya**

**Global and regional barriers and  
facilitators to the implementation of  
Cognitive Stimulation Therapy**

**Dissertação de Mestrado**

Dissertation presented to the Programa de Pós-Graduação em Psicologia of PUC-RIO in partial fulfillment of the requirements for the degree of Master em Psicologia.

Advisor: Daniel Correa Mograbi

Rio de Janeiro,  
April de 2025.



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**Prof. Daniel Correa Mograbi**

Advisor

Departamento de Psicologia - PUC-Rio

**Prof. Helenice Charchat Fichman**

Departamento de Psicologia – PUC-Rio

**Profa. Elodie Bertrand**

Université Paris Cité

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**Valentina Herrera Montoya**

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## **Abstract**

Montoya, Valentina Herrera; Mograbi, Daniel Correa (Advisor). **Global and regional barriers and facilitators to the implementation of Cognitive Stimulation Therapy.** Rio de Janeiro, 2025. 108p. Dissertação de Mestrado – Departamento de Psicologia, Pontifícia Universidade Católica do Rio de Janeiro.

Life expectancy and the aging of the population have increased considerably, leading to an increase in the prevalence of chronic diseases. It is estimated that 50 million people currently live with dementia (PlwD) worldwide and this number is expected to rise to 135 million by 2050. As a result, more than 60% of PlwD live in low- or middle-income countries, where treatment options are very limited and lack adequate health professionals. Colombia is a middle-income country that does not have policies aimed at prevention, diagnosis, treatment or recognition of the particular needs of PlwD. Therefore, thinking about adapting psychosocial interventions is an effective alternative. Cognitive Stimulation Therapy (CST) is a brief, evidence-based intervention that aims to improve cognition and quality of life for people with mild to moderate dementia. Through a bibliographic survey, the common and specific barriers and facilitators faced by different countries in the process of adapting and implementing CST were identified. Following that, a cultural examination of barriers and facilitators for the adaptation and delivery of CST in the Colombian context was carried out, through interviews with key stakeholders. It is expected that this work will lead to the development of a Colombian version of CST, benefiting the local population.

## **Key words**

Dementia; non-pharmacological interventions; CST; cognitive stimulation.

## Resumo

Montoya, Valentina Herrera; Mograbi, Daniel Correa. **Barreiras e facilitadores globais e regionais para a implementação da Terapia de Estimulação Cognitiva**. Rio de Janeiro, 2025. 108p. Dissertação de Mestrado – Departamento de Psicologia, Pontifícia Universidade Católica do Rio de Janeiro.

A expectativa de vida e o envelhecimento da população aumentaram consideravelmente, levando a um aumento na prevalência de doenças crônicas. Estima-se que atualmente 50 milhões de pessoas vivam com demência (PlwD) em todo o mundo e espera-se que esse número aumente a 135 milhões até 2050. Como resultado, mais de 60% das PlwD vivem em países de baixa ou média renda, onde as opções de tratamento são muito limitadas e faltam profissionais de saúde adequados. A Colômbia é um país de renda média que não tem políticas voltadas para a prevenção, diagnóstico, tratamento ou reconhecimento das necessidades específicas das PlwD. Portanto, pensar na adaptação de intervenções psicossociais é uma alternativa eficaz. A Terapia de Estimulação Cognitiva (CST) é uma intervenção breve, baseada em evidências que visa melhorar a cognição e a qualidade de vida de pessoas com demência leve a moderada. Por meio de uma pesquisa bibliográfica, foram identificadas as barreiras e os facilitadores comuns e específicos enfrentados por diferentes países no processo de adaptação e implementação da CST. Em resposta a isso, foi realizado um exame cultural das barreiras e dos facilitadores para a adaptação e a aplicação da CST no contexto colombiano, por meio de entrevistas com as principais partes interessadas. Espera-se que esse trabalho leve ao desenvolvimento de uma versão colombiana da CST, beneficiando a população local.

## Palavras-chave

Demência; intervenções não farmacológicas; CST; estimulação cognitiva.

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# 1. Introduction

## 1.1 Dementia

Life expectancy and the aging of the population have increased considerably, causing an increase in the prevalence of chronic diseases (Garre Olmo, 2018). Dementia is a neurocognitive disorder more prevalent from the age of 65 (Garre Olmo, 2018), which causes people to suffer global and progressive deterioration in cognitive abilities, such as memory, orientation and language (Ghazali et al., 2016), interfering with people's daily and independent functioning (Gale et al., 2018). It is the seventh leading cause of death and one of the main causes of disability and dependence among older people worldwide (World Health Organization, 2023).

The most common causes of dementia are Alzheimer's disease (AD) and cerebrovascular alterations, accounting for 60% of cases (World Health Organization, 2023). Other types of dementia include dementia with Lewy bodies, frontotemporal dementia and mixed dementia (Raz et al., 2016). There is currently no proven way to prevent or cure Alzheimer's disease or dementia (The Journal of the Alzheimer's Association, 2024). Nevertheless, due to the large number of people living with dementia (PlwD) in the world, finding ways to prevent, delay and better control it is a top priority for governments and researchers globally (The Journal of the Alzheimer's Association, 2024).

There are some important risk factors that influence the development of dementia such as advanced age, genetic profile, systemic vascular disease (Gale et al., 2018), excessive alcohol consumption and traumatic brain injury (Gill et al., 2020). There are other potential risk factors, but with less evidence, including smoking and substance use (Falk et al., 2018). Although the mechanisms of



dementia are not yet clear, a higher level of education and better treatment of diabetes and cardiovascular disease are associated with a lower risk of dementia (Falk et al., 2018).

It is estimated that there are currently 50 million PlwD worldwide (World Health Organization, 2023) and this figure will double every 20 years to reach 82 million by 2030 and 152 million by 2050 (World Alzheimer Report, 2017). Recent studies suggest that the age-adjusted incidence and/or prevalence of dementia in older populations may be changing over time, but not in a consistent pattern, other than estimates of reductions in high-income countries and increases in middle-income countries (Fiest et al., 2016). The median survival time after diagnosis is 4.5 years, but varies depending on age at diagnosis, from 10.7 years for PlwD diagnosed at age 60 to 3.8 years for PlwD at age 90 (Falk et al., 2018). The long duration of the disease before death contributes significantly to the economic and social impact of AD, as much of that time is spent in a state of severe disability and caregiver dependence (Alzheimer's Association, 2022).

The cost of dementia to world economies according to the World Health Organization (WHO) in 2019 was 1.3 trillion US dollars (World Health Organization, 2023), with high direct costs related to treatment, family burden and indirect costs related to low investment in training for health personnel on aging and dementia, leading to misdiagnosis and treatment (Mascayano et al., 2015).

The total lifetime cost of care for a dementia patient is estimated at \$412,936 in 2022 dollars, with 70% of those costs borne by family caregivers in the form of unpaid care and out-of-pocket expenses for items ranging from home health support to medications (Skaria A. P, 2022). In low- and middle-income countries, family care accounts for 65% of the cost of dementia, while direct medical care and social

care account for only 35% (Kalaria et al., 2024). In contrast, informal care accounts for 44% of dementia costs in high-income countries (World Health Organization, 2021). In regions such as Latin America, caregiver burden is among the largest in the world and more strongly affected by gender disparities (Ibañez et al., 2021). These figures may reflect under- or misdiagnosis of dementia and poor availability and access to dementia care services in low- and middle-income countries (Ferri et al., 2017).

Nevertheless, it is likely that dementia is being underestimated, since in some parts of the world PlwD do not receive adequate clinical attention, as dementia is still considered in these regions as an inevitable consequence of old age (Hachinski, 2019).

## **1.2 Diagnosis and symptoms**

The Diagnostic and Statistical Manual of Mental Disorders (DSM 5; American Psychiatric Association, 2025) has updated the diagnostic criteria for dementia and mild cognitive disorder, introducing the terms 'major and minor neurocognitive disorder' (Falk et al., 2018). Major neurocognitive disorder can affect one or more of the following cognitive domains: memory, learning new information, attention span in complex tasks, language, motor coordination, ability to plan, organize and coordinate multiple tasks (American Psychiatric Association, 2017). Also, according to the International Classification of Diseases (ICD) 11th revision, dementia is characterized by the presence of marked impairment in two or more cognitive domains, and although memory impairment is present in most forms of dementia, cognitive impairment is not limited to memory (i.e., there is impairment in other areas such as executive functions, attention, language, social cognition and

judgment, psychomotor speed, visuoperceptual or visuospatial abilities) (International Classification of Diseases, 2024). This is not attributable to normal aging and is severe enough to significantly interfere with independence in the performance of an individual's activities of daily living (International Classification of Diseases, 2024).

The severity of cognitive deterioration can be quantified through neuropsychological assessment including the Mini-Mental State Examination (MMSE) which is one of the most widely used tests, as well as the Addenbrooke's Cognitive Examination-Revised (ACE-R), the Mini-Cog test, the General Practitioner Assessment of Cognition (GPCOG) and the Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE) (Tsoi et al., 2015), among others.

PlwD may experience challenges with everyday tasks such as shopping or driving during the early stages, but with the progression of dementia there are more limitations in basic activities of daily living (ADLs) such as eating, bathing, dressing, moving around or caring for oneself (Meyer C & O'Keefe F, 2020). They may also experience behavioral and psychological symptoms related to mood or sleep disorders, depression, agitation, psychosis, anxiety and apathy (Dyer et al., 2018), which is why dementia care is an important part of the process of mitigating the cognitive and behavioral consequences of PlwD (Tisher & Salardini, 2019).

### **1.3 Interventions**

There are pharmacological interventions that do not stop or reverse dementia, but that can temporarily improve the performance of PlwD in memory and thinking (Alzheimer's Society, 2024). Cholinesterase inhibitors like donepezil, rivastigmine, galantamine, NMDA receptor antagonists like memantine can help with severe

symptoms of depression in PlwD (World Health Organization, 2023). Other medications, such as antipsychotics, are also used to help with the agitation and aggression of PlwD, but these medications often cause serious side effects such as mobility difficulties and an increased risk of cerebrovascular accidents, including death (Alzheimer's Disease International, 2024).

In this context, it is very important to recognize that psychosocial and non-pharmacological interventions aimed at improving cognition, symptoms and well-being (Ismail et al., 2020), including cognitive rehabilitation, cognitive training and cognitive stimulation, are valid options. These interventions can be broadly divided into three groups: cognitive/neuropsychological rehabilitation, cognitive training and cognitive stimulation. Cognitive rehabilitation is an individualized approach aimed at improving performance in daily life to achieve pre-selected personal goals (Gomez-Soria et al., 2023), relying both on cognitive stimulation and compensatory strategies. Cognitive training interventions use guided practice in standardized paper-and-pencil or computerized tasks to target specific areas of cognition (one or several domains) (Ortega et al., 2020). Finally, cognitive stimulation refers to techniques to stimulate cognitive and social functioning (Clare and Woods, 2004). Cognitive stimulation plays an important role in memory and learning, offering benefits on cognitive reserve and the risk of dementia (Gomez-Soria et al., 2023), including group Cognitive Stimulation Therapy (CST)

### *1.3.1 Cognitive Stimulation Therapy*

CST is an evidence-based psychosocial intervention for people with mild to moderate dementia (Collins et al., 2023). CST includes a variety of enjoyable activities that provide general stimulation for thinking, concentration and memory,

usually in a social setting (Ismail et al., 2020). It also covers different types of approaches, including reality orientation, validation and reminiscence (Cafferata et al., 2021) and has been shown to be effective for patients with mild to moderate dementia (National Institute for Health and Care Excellence, 2018). CST is now implemented in most memory clinics in the UK (Royal College of Psychiatrists, 2016), has been recommended by Alzheimer's disease international (World Alzheimer Report, 2011) and has spread to different regions of the world, with its effectiveness having been examined in other contexts and cultures (Aguirre et al., 2014, Werheid et al., 2021).

CST is a brief intervention (14 sessions over 7 weeks) that includes play activities and principles of implicit stimulation and person-centered care. It has been adapted locally, taking into account the particular needs of each population and without compromising its effectiveness (Aguirre et al., 2014). It has been adapted and implemented in countries as diverse as Brazil (Bertrand et al., 2019), Canada (Collins et al., 2023), China (Wong et al., 2018), Portugal (Alvares Pereira et al., 2022), Tanzania (Morrish et al., 2022), Tanzania and Nigeria (Mkenda et al., 2018), the United Kingdom (Spector et al., 2011), India (Raghuraman et al., 2017) and others.

Studies and reviews examining the feasibility of CST as part of dementia care services (Gibbor et al., 2021); (Lobia et al., 2019), suggest that CST had a positive impact on cognition and quality of life of PlwD (Aguirre et al., 2013), (Apóstolo et al., 2014), (Capotosto et al., 2017). As for the mood of the Plwd (Capotosto et al., 2017), (Aguirre et al., 2013), (Yamanaka et al., 2013), they found a significant reduction in depressive symptoms after CST.

## 1.4 Dementia in Colombia

The call to fight dementia has become global, but the strategies, procedures and tools to address this urgent problem have not, as significant barriers persist in Latin American countries (LAC) (Parra et al., 2018). Currently, more than 60% of PlwD live in low-income countries (World Health Organization, 2023), and it is expected that between 2015 and 2050 the number of PlwD will quadruple in LAC, with high- and middle-income countries such as Argentina, Colombia and Brazil experiencing the greatest impact of dementia (Parra et al., 2018). As of 2017, 30 nations have developed ‘national plans for Alzheimer's disease’ (National Plan to Address Alzheimer's Disease (ASPE), 2017), where only four LAC (Argentina, Costa Rica, Cuba and Mexico) and one US Latin American community (Puerto Rico) have formally adopted national plans for Alzheimer's disease (Alzheimer's Disease International, 2017). Understanding of factors relevant to dementia is still limited, and a high proportion of PlwD in the region lack basic support (Parra et al., 2018), as is the case in Colombia, where there is no national plan or strategy for this disease (Alzheimer's Disease International, 2017).

Since 1993, in Colombia, Law 100 was introduced, which seeks to offer a General System of Social Security in health (Castaño, 2005). This model is organized in a) each person receives the health care he or she can afford and b) public health in the hands of the state, which is valued by society as important, but is not economically profitable (Vanegas et al., 2022). This model aims to obtain the maximum sum of profits, providing a lower cost service and offering a better economic benefit for the operators (Vanegas et al., 2022). However, this model does not contribute to welfare, equity or social justice, as it is inappropriate to use the economic condition of individuals to define the quality of health care (Puyol A, 2011).

Although Colombia is a middle-income country, it still has no policies aimed at the prevention, diagnosis or treatment of dementia, nor does it recognize the particular needs of the population (Barragan and Cuesta 2024). Although private health companies provide acetylcholinesterase inhibitors, these treatments are not covered for all people and alternative treatments for PlwD are not available (Parra et al., 2018).

In Colombia, there is a “National Pharmaceutical Policy” (NPP) in which the Ministry of Health and Social Protection (MSPS) has worked to promote access to medicines (Morales et al., 2020). However, some drugs have not been included in the system, especially because of their high cost, representing a barrier to access for patients, who have opted to resort to the use of legal tools, such as guardianships and evaluation by technical-scientific committees, to exercise their right to health (Machado et al., 2012).

From the Ministry of Health and Social Protection, a clinical practice guideline (CPG) has been adapted for the diagnosis and treatment of major neurocognitive disorder (dementia) (Clinical Practice Guideline, 2017); as well as law 1616 of 2013 that provides guaranteed care for Alzheimer's disease and other diseases that include mental health such as frontotemporal dementia, Parkinson's disease and Lewy body disease among others (Minsalud, 2013). Also, the constitutional court in sentence T-005 of 2023 established that health promoting entities (eps) must provide comprehensive, adequate, timely and relevant care to patients with dementia, which includes non-pharmacological therapies when necessary (Constitutional Court, 2023).

However, the reality of these laws and sentences is completely different, since, for example, the CPG is a document with recommendations for health professionals

that, although it confers recognition to the pathology, does not constitute a policy (Vanegas et al., 2022). On the other hand, the Political Constitution of Colombia and the international conventions and treaties recognized by the country require the creation of plans and programs that promote equality and the implementation of the rights of older adults, which is why Colombia has developed laws for them (Vanegas et al., 2022). The legislation enacts equality, health and justice, but the Colombian health system seems to guarantee them only to the extent that economic conditions allow it (Giraldo A, 2014).

With the above, there seems to be a contradiction between the regulations and the current model. An exclusive and economically unbalanced system does not guarantee the right to health and, therefore, does not contribute to the transformation of the health system, a fact that forces patients to file tutela actions to demand their legal rights (Vanegas et al., 2022).

Therefore, the adaptation of psychosocial interventions, such as CST, could be an attractive alternative for Colombia, considering its evidence base and cost-effectiveness. Additionally, since CST in Brazil has proven to be a promising psychosocial intervention for PlwD (Bertrand et al., 2019; Marinho et al., 2021; Bertrand et al., 2024; Renata et al., 2024) its effectiveness should be explored in other LAC contexts, including Colombia, as the use of alternative treatments to pharmacological therapies is not common in the country (Johnson et al., 2019).



## 1.5 Objective

The objective of this research was to identify barriers and facilitators for the adaptation and implementation of the CST program, both at a general level and within the Colombian context. It explored context-specific factors and common elements of the adaptation process that may guide its application in Colombia and in other countries where it has not yet been implemented. For this purpose, two studies were conducted:

- Study 1 - Barriers and facilitators for the adaptation and implementation of Cognitive Stimulation Therapy: A systematic review
- Study 2 - Cognitive stimulation therapy for Colombian people with dementia: examination of cultural issues for adaptation

## **2. Article section**

### **2.1 Article 1**

Valentina Herrera Montoya, Raquel Luiza Santos de Carvalho, Elodie Bertrand, Renata Naylor, Aimee Spector and Daniel Mograbi. Barriers and facilitators for the adaptation and implementation of Cognitive Stimulation Therapy: A systematic review

Submitted to Alzheimer's Disease and Associated Disorders

## Barriers and facilitators for the adaptation and implementation of Cognitive Stimulation Therapy: A systematic review

Ms. Valentina Herrera Montoya<sup>a</sup>, Dr. Raquel Luiza Santos de Carvalho<sup>a,b</sup>, Dr. Elodie Bertrand<sup>c</sup>, Ms. Renata Naylor<sup>a</sup>, Prof. Aimee Spector<sup>d</sup> and Dr. Daniel Mograbi<sup>\*a,e</sup>.

<sup>a</sup> Department of Psychology, Pontifical Catholic University of Rio de Janeiro, Rio de Janeiro, Brazil;

<sup>b</sup> Universidade do Grande Rio, Rio de Janeiro;

<sup>c</sup> Laboratoire Mémoire, Cerveau et Cognition, Institut de Psychologie, Université Paris Cité, Paris, France;

<sup>d</sup> University College London, Clinical, Educational & Health Psychology;

<sup>e</sup> Institute of Psychiatry, Psychology & Neuroscience, King's College London, United Kingdom.

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\* Corresponding author. Address: Institute of Psychiatry, Psychology and Neuroscience, KCL, PO Box 078, De Crespigny Park, SE5 8AF, London, UK

E-mail address: [daniel.mograbi@kcl.ac.uk](mailto:daniel.mograbi@kcl.ac.uk)

Phone: (44) (20) 7848

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## Abstract

Cognitive Stimulation Therapy (CST) is a brief evidence-based intervention for people with mild to moderate dementia, which positively impacts different health outcomes. CST has been increasingly adapted for and implemented in multiple countries. To conduct a systematic review to identify barriers and facilitators that different countries experienced during the adaptation and/or implementation of CST, aiming to understand both shared and context-specific difficulties in these processes. This systematic review followed PRISMA recommendations. Studies describing cultural adaptation and implementation of CST in different countries were included. The databases used for this research were PubMed, Science Direct and PsycInfo. A total of 8 articles were included. The main findings were that some barriers and facilitators were shared among different countries (for example, recruitment in Portugal, Canada, India and China); while others were unique to the sociocultural context (religious heterogeneity, in Tanzania). Cultural influences in different social contexts were crucial for the adaptation and exploration of efficacy of the program. Lack of knowledge and stigma about dementia reinforce the importance of implementing and enhancing strategies to increase dementia awareness, subsequently encouraging greater uptake of psychosocial interventions.

**Keywords:** Dementia; cognitive stimulation therapy; cultural adaptation; implementation.

## Introduction

Dementia is a major public health issue. According to the World Health Organization, more than 55 million people suffer from this condition worldwide in 2023,(World Health Organization, 2023) of which more than 60% live in low and middle-income countries, with an estimated increase to more than 140 million globally in 2050 (Gómez-Soria et al., 2023). It is important to consider that dementia represents an important burden on well-being and health care systems in the current century (Gómez-Soria et al., 2023), implying health, social and economic costs for the family and society as a whole (Aranda et al., 2021). Worldwide, dementia costs were estimated in 2019 at US\$1.3 trillion (World Health Organization, 2023).

Dementia is a neurocognitive disorder that leads to global and progressive deterioration of intellectual capacities, such as memory, orientation, language, among others (Toh et al., 2016), interfering with daily functioning (Gale et al., 2018), with Alzheimer's disease and vascular being the most frequent types, corresponding to 60% of cases (World Health Organization, 2023). It leads to loss of fundamental cognitive abilities, causing disability and dependence on basic and instrumental tasks of daily living (Gale et al., 2018). That often leads to a great burden for those people who become caregivers, usually family members, such as spouses or children, without any kind of monetary remuneration. While caring for people with dementia can have positive aspects, overall this role is stressful and can negatively affect caregivers' mental and physical health (Orrell et al., 2014).

Considering the impact of dementia, policies that foster awareness about the condition, reduce risk, and lead to timely diagnosis, prevention strategies and support for family members and caregivers are social priorities (Romero Vanegas

et al., 2021). This is particularly relevant for low- and middle-income countries, not only considering the larger number of people living with dementia (PLwD) in these regions, but also the existence of a gap between diagnosis and treatment (Stoner et al., 2021). It is recognized that non-pharmacological treatments can improve the quality of life of users (Orrell et al., 2014), with psychosocial interventions being an alternative or complementary option in high-income countries, such as the United Kingdom (Stoner et al., 2021).

Within this context, it is interesting for different countries to consider the adaptation of cognitive stimulation programs, an effective and cost-effective alternative. Specifically, Cognitive Stimulation Therapy (CST) has been shown to be effective for patients with mild to moderate dementia (National Institute for Health and Care Excellence (NICE), 2018). CST is a brief intervention (14 sessions over 7 weeks) based on principles of implicit stimulation and person-centred care. The intervention is now implemented in most memory clinics in the United Kingdom (Royal College of Psychiatrists, 2016), is recommended by Alzheimer's disease international (Alzheimer's disease international, 2011) and has been disseminated to different regions of the world, with its effectiveness having been examined in other contexts and cultures e.g. (Marinho et al., 2021; Orrell et al., 2014; Werheid et al., 2021).

In this study, a systematic review was carried out in order to identify the barriers and facilitators that different countries faced in the adaptation and implementation of CST. Considering that non-pharmacological treatment provision for dementia is limited in many countries, an expansion of this field may be instrumental to better cope with this condition, leading to increased well-being and improvements in health in PLwD and their relatives (Stoner et al., 2021). The key aims were to

explore which barriers and facilitators were context-specific, which may be useful for the development of other interventions in these regions, and which were the shared features of adaptation and implementation of CST, which can be helpful for countries where it has not been adapted yet.

## Methods

### **Search Strategy**

The systematic review was carried out in accordance with the PRISMA recommendations (Page et al., 2021). The databases that were used for the search were: PubMed, Science Direct and PsycInfo. The articles were searched using the following keywords: (*"Cognitive Stimulation Therapy" OR "CST"*) AND (*"cultural adaptation" OR "focus groups" OR "qualitative"*).

### **Eligibility and selection**

This review integrated studies of cultural adaptations/implementation of CST for people with dementia. Inclusion criteria were 1) evaluation of the original 14 session CST programme (Spector et al., 2003); 2) studies including semi-structured individual and/or group interviews, about facilitators and barriers they had at the time of adaptation or implementation; 3) studies published in peer-reviewed journals. As an exclusion criterion, no virtual CST articles were included.

## **Quality Assessment**

To evaluate the methodological quality of the qualitative studies included in the review, we employed the QualSyst tool developed by Kmet et al. (2004). This tool consists of 10 standardized criteria designed to assess various aspects of qualitative research quality, such as clarity of objectives, appropriateness of the study design, data collection methods, and strategies for ensuring credibility and reflexivity, among others. Each criterion is scored on a three-point scale: 'yes' (2 points), 'partial' (1 point), or 'no' (0 points), reflecting the degree to which the study meets the standard described by each criterion. In the context of this review, two criteria—Criterion 2 ('Study design evident and appropriate') and Criterion 8 ('Use of verification procedures to establish credibility')—were deemed not applicable to the nature of some included studies. As such, these were marked as 'not applicable' ('n/a') and excluded from the total score computation for those specific articles. To obtain a summary score for each article, the points assigned across the applicable criteria were summed and then divided by the total possible score (i.e., 16 points, corresponding to 8 applicable criteria with a maximum score of 2 each). This resulted in a final quality percentage for each study. Articles achieving a summary score of 75% or higher were categorized as high quality, those scoring exactly 55% were considered of fair quality, and those below 55% were classified as low quality.



Table 1 – Checklist for quality assessment.

| Author                             | Objective | Design | Context | Connection to |  | Sampling    | Data collection | Analysis | Credibility | Conclusions | Reflexivity | Total score (%) |
|------------------------------------|-----------|--------|---------|---------------|--|-------------|-----------------|----------|-------------|-------------|-------------|-----------------|
|                                    |           |        |         | literature    |  |             |                 |          |             |             |             |                 |
| Bertrand et al.,<br>2019           | Yes       | N/A    | Yes     | Yes           |  | Yes         | Yes             | Yes      | N/A         | Yes         | Yes         | 16/20 (80%)     |
| Collins et al.,<br>2023            | Yes       | N/A    | Yes     | Partial       |  | Yes         | Yes/Partial     | Yes      | N/A         | Yes         | Yes         | 15/20 (75%)     |
| Wong et al.,<br>2018               | Yes       | N/A    | Yes     | Yes           |  | Yes         | Yes             | Yes      | N/A         | Partial/Yes | Yes         | 15/20 (75%)     |
| Alvares<br>Pereira et al.,<br>2022 | Yes       | N/A    | Yes     | Yes           |  | Yes/Partial | Yes             | Yes      | N/A         | Yes         | Yes         | 16/20 (80%)     |

|                 |             |     |             |         |         |     |     |     |             |     |             |
|-----------------|-------------|-----|-------------|---------|---------|-----|-----|-----|-------------|-----|-------------|
| Mkenda et al.,  |             |     |             |         |         |     |     |     |             |     |             |
| 2018            | Yes/Partial | N/A | Yes         | Yes     | Partial | Yes | Yes | N/A | Yes         | Yes | 14/20 (70%) |
| Morrish et al., |             |     |             |         |         |     |     |     |             |     |             |
| 2022            | Yes/Partial | N/A | Yes         | Yes     | Yes     | Yes | Yes | N/A | Yes         | Yes | 15/20 (75%) |
| Spector et al., |             |     |             |         |         |     |     |     |             |     |             |
| 2011            | Yes         | N/A | Yes         | Yes     | Yes     | Yes | Yes | N/A | Yes         | Yes | 16/20 (80%) |
| Raghuraman      |             |     |             |         |         |     |     |     |             |     |             |
| et al., 2017    | Yes         | N/A | Partial/Yes | Partial | Partial | Yes | Yes | N/A | Partial/Yes | Yes | 13/20 (65%) |

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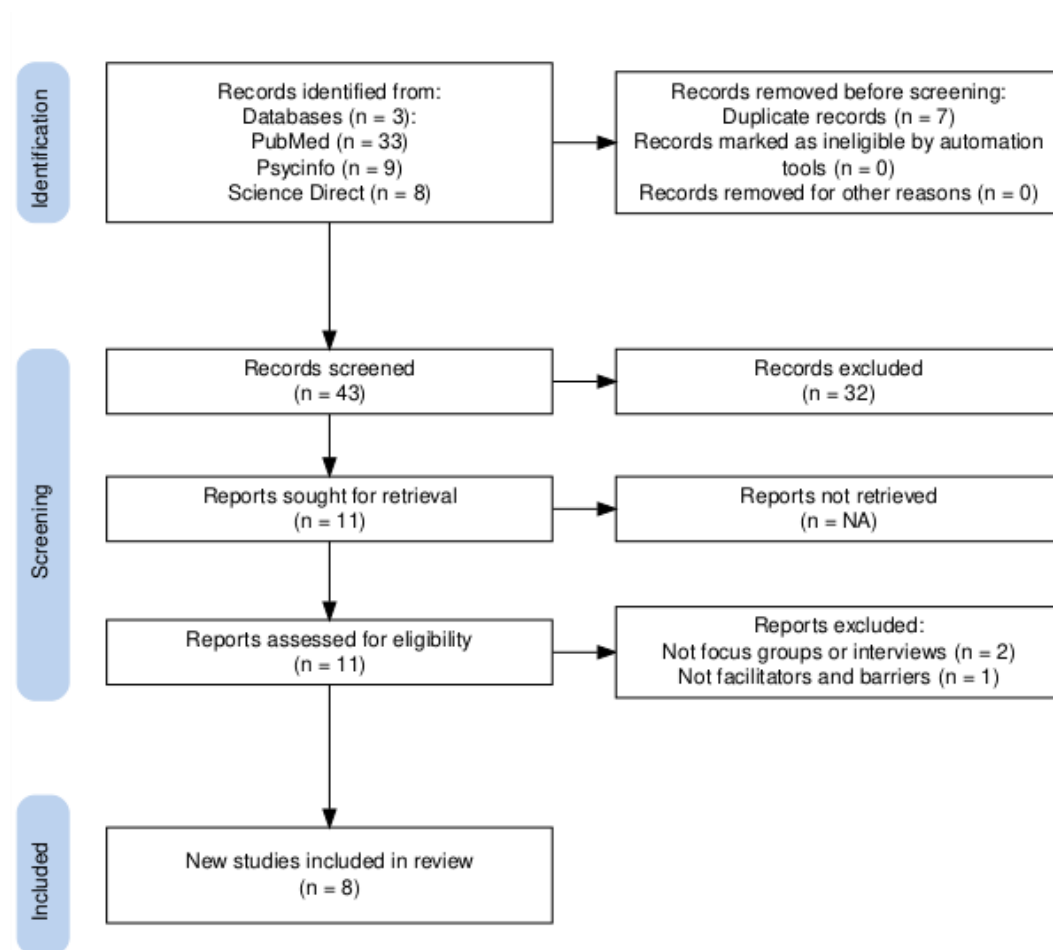
## **Data Extraction**

Two different authors (VH and RC) extracted the following information from the eight selected studies that met the inclusion criteria: (a) country, (b) name of the article and authors, (c) facilitators, (d) barriers. Barriers and facilitators refer to those factors that can enable or hinder the adaptation and implementation of CST in different cultures.

## **Results**

The article selection process can be seen in Figure 1. During the study, 50 relevant articles were found in the databases. After excluding duplicates, 43 articles were analysed. Based on the available abstracts, 32 articles were excluded because they were not related to CST, and 11 articles had their full text analysed. Two more articles were excluded because they did not include interviews with key stakeholders, did not have focus groups, or did not discuss facilitators and barriers, leaving a total of eight articles.

Figure 1 – Flowchart of study selection.



The eight articles were published from 2009 to 2022, covering CST adaptation in the following countries: Brazil (Bertrand et al., 2019), Canada (Collins et al., 2023), China (Wong et al., 2018), Portugal (Alvares Pereira et al., 2022), Tanzania (Morrish et al., 2022), Tanzania and Nigeria (Mkenda et al., 2018), United Kingdom (Spector et al., 2011), and India (Raghuraman et al., 2017). Two evaluators independently assessed the eight articles, also using the quality criteria to verify the agreement. Subsequently, the reliability of the quality scores of the selected articles among the evaluators was calculated. There was good agreement between raters (intraclass correlation coefficient = .78,  $p = .006$ ), and most of the

discrepancies were between "yes" and "partial". Considering that the evaluators gave a rating greater than 55%, all articles were included.

Summarised results describing the barriers and facilitators found in the articles can be seen in Figures 2 and 3 and Table 2.

Figure 2 – Shared and specific barriers for adaptation/implementation of CST.

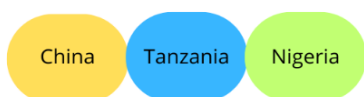
**Shared barriers***Recruitment**Displacement**Communication**Language differences**Duration of intervention**Memory deficits**Challenging behaviours**Activities***Specific barriers***Illiteracy**Religious themes**Knowledge of psychosocial interventions**Physical infrastructure*

Figure 3 – Shared and specific facilitators for adaptation/implementation of CST

**Shared facilitators***Group Intervention**Adaptation of program activities and schedule**Positive reinforcement**Benefits of the program**Increase knowledge of dementia, inclusiveness and improved self-care abilities***Specific facilitators***Religion**Flexibility of assistance**Professionals who spoke participants' native language**Assistive equipment**Caregivers*

Table 2 – Barriers and facilitators.

| Country                                                                                                                                                          | Barriers                                                                                                                                                                         | Facilitators                                                                                                              | Income Level  | Type of study           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------|
| Brazil: Cognitive stimulation therapy for Brazilian people with dementia: examination of implementation' issues and cultural adaptation (Bertrand et al., 2019). | 1. More work for caregivers.<br>2. Lack of motivation for participants to assist therapy.<br>3. Frequency of sessions.<br>4. Commuting.<br>5. Lack of information about the CST. | 1. Support from caregivers.<br>2. Two sessions per day.<br>3. Offering activities for caregivers.<br>4. Group activities. | Middle income | Exploratory qualitative |



|                                                                                                                         |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                    |             |                         |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------|
| Canada: Occupational Therapist Led Cognitive Stimulation Therapy: Feasibility of Implementation (Collins et al., 2023). | <p>1. COVID-19 (many participants quit the intervention due to health or personal problems. The program was suspended for 5 months.</p> <p>2. Funding (only 3 months).</p> <p>3. Small sample size due to COVID-19 restrictions (only 10 participants).</p> | <p>1. Social connection</p> <p>2. Knowledge about strategies of self-care. Knowing that there are other people on the same condition resulted in improving participants' hope.</p> <p>3. Adapting implementation according to the participants' capacities (personalized adjustment).</p> <p>4. Expanding the program (many participants would like to continue on the program</p> | High income | Qualitative descriptive |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------|

because they liked the variety  
of activities).

China: Cultural adaptation of cognitive stimulation therapy (CST) for Chinese people with dementia: multicentre pilot study (Wong et al., 2018)

1. Conservatism (Culturally, people do not like to speak about personal issues) and pragmatism.
2. Small sample size.
3. Lack of control group.
4. Communication barriers due to immigration from many cities in China.

1. Participants enjoy food (offering lunch or a snack).
2. Participation, participants like to learn new things.
3. Participants were more enthusiastic in activities that demanded actions.
4. Gifts facilitated the activities.

Middle income

Mixed pilot study with a quantitative and qualitative approach

|                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                               |                      |                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------|
| <p>India: Cognitive Stimulation Therapy for Dementia: Pilot Studies of Acceptability and Feasibility of Cultural Adaptation for India (Raghuraman et al., 2017).</p> | <ol style="list-style-type: none"> <li>1. Short sessions.</li> <li>2. Physical structure with no accessibility for participants (toilets with no grab bars, no lifts).</li> <li>3. Childlike activities (creativity).</li> <li>4. Participants' dropouts (deaths or diseases).</li> <li>5. Use of language that not everyone spoke, like English.</li> <li>6. Professionals without experience to deal with challenging behavior or unexpected situations.</li> </ol> | <ol style="list-style-type: none"> <li>1. Increasing session duration (3-4h)</li> <li>2. Improving communication/language, social interaction and quality of life, according to caregivers.</li> <li>3. Pleasant.</li> <li>4. It was offered transportation to participants, with low cost.</li> <li>5. Two-week introduction to create a routine.</li> </ol> | <p>Middle income</p> | <p>Mixed pilot study with a quantitative and qualitative approach</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------|

7. Small sample size. Only men.
6. Sessions began with tea and biscuits.
7. The group had lunch together after the session, to improve the relationship among members.

|                                                                                                                                                 |                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                           |                    |                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------------------------------------------------------|
| <p>Portugal: Cultural Adaptation of Cognitive Stimulation Therapy (CST) for Portuguese People with Dementia (Alvares Pereira et al., 2022).</p> | <ol style="list-style-type: none"> <li>1. Sadness when the sessions ended.</li> <li>2. Feeling uncomfortable of singing the song of the group when starting and ending the sessions.</li> <li>3. Few participants.</li> </ol> | <ol style="list-style-type: none"> <li>1. Enjoying being in group, remembering talking to friends when the participants were young.</li> <li>2. The professionals identified happiness in participants after ending the activities.</li> <li>3. Singing the song of the group only when starting the sessions.</li> <li>4. Having activities in group was a facilitator as the</li> </ol> | <p>High income</p> | <p>Mixed pilot study with a quantitative and qualitative approach</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------------------------------------------------------|

participants helped each other.

5. The assessment after the program registered that the participants had high degrees of participation.

|                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                          |                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------------------------------------------|
| Tanzania and Nigeria: Cognitive stimulation therapy as a low-resource intervention for dementia in sub-Saharan Africa (CST-SSA): Adaptation for rural Tanzania and Nigeria (Mkenda et al., 2018). | <ol style="list-style-type: none"> <li>1. Illiteracy.</li> <li>2. There is no public Transportation in the rural sector (Transportation resulted in cost and time for participants).</li> <li>3. In time of rains, the participants and the professions could not commute (sessions should happen earlier so that people could avoid flooded streets).</li> <li>4. Talking about private themes related to the family.</li> </ol> | <ol style="list-style-type: none"> <li>1. Respecting religious beliefs of all participants.</li> <li>2. Speaking about opinions instead of facts (illiteracy).</li> <li>3. Having a professional who could facilitate the sessions in the participants' native language.</li> <li>4. Having flexibility of assistance (the participants prioritize other activities).</li> <li>5. Giving a gift after the sessions (the participants like</li> </ol> | Low income–Middle income | Mixed pilot study with a quantitative and qualitative approach |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------------------------------------------|



5. Assisting to the sessions twice a week.  
to give it to a child from the family).
6. Modify questions about personal information  
(participants find these questions inappropriate).
7. Give a snack and avoid delivering the sessions in a place that is associated to a specific religion (so that the ones who have different religions must attend the sessions).

8. Avoid activities that demand reading and/or writing (they are mostly illiterate).

9. Offer glasses for the ones who cannot see very well.

Tanzania: Group experiences of cognitive stimulation therapy (CST) in Tanzania: a qualitative study (Morrish et al., 2022).

1. Feelings of loneliness and diseases after the CST.

2. Challenging behaviours towards other participants, not allowing others to show their opinion.

3. Speaking about religious themes, as many participants had different religious beliefs (choosing a church song, for example).

1. Walking to go the CST sessions, what would facilitate social interaction.

2. Happiness and forgetfulness of health questions while they attended the group.

3. The participants informed improvement in memory, mental stimulation, cognition, communication abilities, behaviour and selfcontrol.

Low income

Qualitative transversal

- |                                                                                                              |                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>4. Status differences between men and women (men are considered more powerful).</p>                       | <p>4. Feeling calm when knowing that other people had memory problems.</p>                                                                                                                         |
| <p>5. Economic differences. Some illiterate people did not have much participation in the CST groups.</p>    | <p>5. Activities of reminiscence singing old songs about activities that were performed in the past and how it has changed nowadays (having participants with the same age was a facilitator).</p> |
| <p>6. As it was a small region, some people knew each other and had old disputes that were never solved.</p> | <p>6. The participants felt safe during the sessions. Respect and feelings of belonging to the group (having a song and</p>                                                                        |
| <p>7. The groups in the afternoon participated less.</p>                                                     |                                                                                                                                                                                                    |

- |                                                                                                                      |                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| 8. The professionals who spoke a different language or shared other culture.                                         | a group name helped in the feelings of belonging).                                                              |
| 9. Some participants felt evaluated.                                                                                 | 7. Group work, offering help for the ones who had more difficulties in the moment of performing the activities. |
| 10. Some participants felt uncomfortable when they could not do some activities, due to memory or physical problems. | 8. Safe place to the social interaction. Decreasing aggressivity.                                               |
| 11. Old disputes among the participants.                                                                             | 9. Comprehension and adaptation of dementia.                                                                    |
|                                                                                                                      | 10. Increasing of domestic activities.                                                                          |

11. Giving food after the sessions, as many participants feel hungry.

|                                                                                                                                                                                 |                                                                                                          |                                                                                                                                                                                                                                                                                                                       |             |                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------|
| United Kingdom: The impact of Cognitive Stimulation Therapy groups on people with dementia: Views from participants, their carers and group facilitators (Spector et al., 2011) | 1. Difficulties to ask people with memory problems to remember past experiences from group CST sessions. | 1. Positive experience of being in the group (participants feel more confident, relaxed and safe).<br><br>2. Listening to others (having new perspectives, with no feelings of loneliness).<br><br>3. Sharing the diagnosis (knowing that there are other people facing the same problems).<br><br>4. Making friends. | High income | Qualitative Transversal |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------|

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5. Benefits in participants'

daily life (speaking more fluidly and feeling keen to speak).

6. Improving memory

(retaining new information, being more aware of time – participants could remember dates and appointments, which could be related to speaking in group sessions).

7. Improving concentration.

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## **Shared barriers**

### *Displacement*

Two studies identified that attending sessions twice a week would pose a difficulty due to travelling, because of limited caregiver (Brazil, Bertrand et al., 2019) or public transportation availability (Tanzania and Nigeria, Mkenda et al., 2018).

### *Communication*

Two studies identified that attitudes towards privacy could be a communication barrier (China, Wong et al., 2018) as the participants did not like to talk about private topics (Tanzania and Nigeria, Mkenda et al., 2018).

### *Recruitment*

In four different studies, recruitment of participants was a barrier (Portugal, Alvares Pereira et al., 2022) The COVID-19 pandemic forced many participants to drop out of research studies (Canada, Collins et al., 2023) due to illness or death (India, Raghuraman et al., 2017). The absence of a quantitative control group was also identified as a barrier for establishing the benefits of CST (China, Wong et al., 2018).

### *Language differences*

In three different studies, language differences were identified as a barrier (China, Wong et al., 2018) as some facilitators did not speak the participants' native language (Tanzania, Morrish et al., 2022) or because there were multiple languages

spoken within the same country (India and Tanzania, Morrish et al., 2022; Raghuraman et al., 2017).

#### *Duration of intervention*

In two studies, it was identified that the limited duration of the intervention (14 sessions) could have a negative effect, because some participants reported feelings of loneliness after the end of the CST program (Portugal and Tanzania, Alvares Pereira et al., 2022; Morrish et al., 2022)

#### *Memory deficits*

In two studies, participants had limited recall of their past experiences during the CST sessions due to memory impairments, which were identified as a barrier for presenting qualitative information about CST (United Kingdom, Spector et al., 2011) Another study found that participants felt frustration for not being able to do activities that others could do, due to memory deficits (Tanzania, Morrish et al., 2022).

#### *Challenging behaviours*

In two studies, it was reported that gender and economic difference led to challenging behaviours from some participants (Tanzania, Morrish et al., 2022) with less experienced facilitators struggling to manage these behaviours (India, Raghuraman et al., 2017).

### *Activities*

Two studies identified the activities as barriers, including the schedule of the program (time of day of sessions; duration of sessions), and specific activities in which the participants felt evaluated (Tanzania, Morrish et al., 2022) or which may have infantilized content (India, Raghuraman et al., 2017).

### **Specific barriers**

#### *Religious themes*

One study found that holding sessions in religious buildings, using religious music or talking about a particular religion would be a difficulty (Tanzania, Morrish et al., 2022).

#### *Knowledge of psychosocial interventions*

One study described lack of information about and, consequently, motivation for psychosocial programs as barriers (Brazil, Bertrand et al., 2019).

#### *Physical infrastructure*

Lack of physical infrastructure for participants, including accessibility, was identified in one study (India, Raghuraman et al., 2017).

### *Illiteracy*

Illiteracy was identified as a barrier to developing activities that included reading, writing or drawing (Tanzania and Nigeria, Mkenda et al., 2018).

## **Shared Facilitators**

### *Group intervention*

Five studies identified that being in contact with other people who share the same diagnosis was a positive aspect for participants (Canada, Collins et al., 2023). It also allowed people with better preserved cognitive abilities to help more cognitively impaired ones (Portugal, Alvares Pereira et al., 2022), facilitating interaction between participants (Brazil, Bertrand et al., 2019), which resulted in a sense of belonging to the group (Tanzania, Morrish et al., 2022), as well as feelings of trust, security and friendship (United Kingdom, Spector et al., 2011).

### *Positive reinforcement*

Two different studies informed that giving gifts to participants facilitated their participation (China and Tanzania and Nigeria, Mkenda et al., 2018; Wong et al., 2018). Three studies highlighted the benefits of offering snacks to participants (China, Wong et al., 2018), considering that many participants feel hungry (Tanzania, Morrish et al., 2022) and to enhance the relationship among members of the group (India, Raghuraman et al., 2017).

### *Benefits of the program*

In four different studies, the participants, professionals and family caregivers reported that cognitive improvement following the intervention was a facilitator. This improvement was observed in memory, mental stimulation, cognition, communication, behaviour, self-control (Tanzania, Morrish et al., 2022) and concentration (India; Tanzania and Nigeria; United Kingdom; Mkenda et al., 2018; Raghuraman et al., 2017; Spector et al., 2011).

### *Adaptation of program activities and schedule*

The adaptation of the program schedule and its activities were seen as potential facilitators. One study indicated that it would be a facilitator to have the two weekly sessions on the same day (Brazil, Bertrand et al., 2019). The activities should be adapted according to the participants' capacities (Canada, Collins et al., 2023) and should allow learning new things and prioritising activities that include actions (China, Wong et al., 2018). Furthermore, because of participants who might be illiterate, activities that demand reading/writing should be avoided (Tanzania and Nigeria, Mkenda et al., 2018). Including reminiscence activities, such as talking about past activities or singing old songs, was also recommended (Tanzania, Morrish et al., 2022).

### *Increase knowledge of dementia, inclusiveness and improved self-care abilities*

Three studies identified that participants realised, during the course of the intervention, that other people also had memory problems, feeling understood

(Tanzania and United Kingdom, Morrish et al., 2022; Spector et al., 2011) and developing strategies of self-care (Canada, Collins et al., 2023).

### **Specific facilitators**

#### *Caregivers*

One study identified that offering activities to caregivers during the program and counting on their support was a potential facilitator (Brazil, Bertrand et al., 2019).

#### *Religion*

Religious homogeneity was indicated as a potential facilitator, allowing, for example, to develop the program in places related to a specific religion (Tanzania and Nigeria, Mkenda et al., 2018).

#### *Flexibility of assistance*

One study identified that participants prioritised other activities, such as social events (e.g. wedding ceremonies, funerals, community meetings), activities of daily living (e.g. supermarket), among others. Given this scenario, having a flexible intervention was considered a facilitator (Tanzania and Nigeria, Mkenda et al., 2018).

### *Professionals who spoke participants' native language*

One study reported the importance of having a professional who facilitated the program in the participants' native language (Tanzania and Nigeria, Mkenda et al., 2018).

### *Assistive equipment*

One study identified that providing assistive equipment, such as glasses for people with impaired vision, was a facilitator of the program (Tanzania and Nigeria, Mkenda et al., 2018)

## Discussion

### **Summary of findings**

This review had the objective of identifying barriers and facilitators that different countries had at the moment of adaptation and implementation of the CST. However, although general findings indicated the feasibility of CST in different cultures, it was identified that there were some barriers and facilitators that changed according to the context. Shared barriers and facilitators highlighted universal features of CST, for example, related to its group structure, but also contextual factors seen in many countries in which CST was adapted, such as limited infrastructure in low- and middle- income countries.

Difficulties in recruitment (Alvares Pereira et al., 2022; Raghuraman et al., 2017; Wong et al., 2018), especially in more recent years, because of the COVID-19 pandemic, were an important barrier to the development of the CST program, with

older adults being particularly vulnerable and participants not being able to join or continue the program due to personal or health related reasons (Collins et al., 2023). However, one of the alternatives adopted during the pandemic, in countries such as China, Brazil, India and United Kingdom (Perkins et al., 2022), was the implementation of virtual CST (vCST), an accessible and valid option even for people who could not count on public transportation (Mkenda et al., 2018). Initial findings on virtual CST showed that there might have clinical improvements in cognition, quality of life, communication and humour (Hui et al., 2022), as well as a study in Brazil and India suggests that virtual CST would be a feasible option (Fisher et al., 2024) for PlwD.

Some studies have also shown as a shared facilitator that the social connection promoted by CST (Alvares Pereira et al., 2022; Collins et al., 2023; Morrish et al., 2022; Spector et al., 2011), as well as its activities (Bertrand et al., 2019; Collins et al., 2023; Mkenda et al., 2018; Morrish et al., 2022; Wong et al., 2018) might mitigate feelings of loneliness among participants. Reinforcement of relationships during the activities has generated feelings of belonging, safety and friendship. Therefore, it is important to give more attention to the necessity interventions with affective elements targeted at PlwD (Yu et al., 2023).

Among the specific barriers, it was observed that lack of knowledge and of information about dementia would be an important factor that affects ability to participate in psychosocial interventions (Morrish et al., 2022). Therefore, it is important to mention that many people, due to lack of knowledge, illiteracy and social stigma, continue finding that dementia is part of a ‘normal ageing process’ (Patel et al., 2021). It is therefore essential to develop plans and programs that enhance awareness and reduce stigmatization about dementia, such as the national



strategy developed in the Netherlands (De Krom et al., 2021; Stoner et al., 2021).

It has been shown that people with dementia improved their humor and hope when they could understand that other people also had memory problems (Collins et al., 2023; Morrish et al., 2022; Spector et al., 2011).

Finding balance among household chores, employment and caregiving tasks is a common and overloading experience for informal caregivers of PlwD (Liu et al., 2019). Therefore, one of the identified barriers to the implementation of CST was commuting twice a week, because it would increase caregiver burden (Bertrand et al., 2019). Caregiver burden may be related to symptoms of depression and anxiety, and this situation may worsen in low and middle-income countries where there is lack of formal services especially designed for caregivers (Cheng, 2017). Although emotional support, including empathy, love and trust from the family, can compensate for caregiver fatigue and overload (Rote et al., 2019), these results highlight that offering services for caregivers in the CST program may be relevant for implementation (Bertrand et al., 2019).

Religion has been indicated as a potential specific barrier and facilitator. Religion represents important cultural values that can often unite or divide people. Religiosity and spirituality are associated with positive outcomes in terms of health, reducing or maintaining cognitive status, allowing people to have coping strategies to understand their condition, maintain hope, find meaning to their lives and increase quality of life (Océane Agli et al., 2014). Keeping groups religiously homogeneous or avoiding religious themes in regions and contexts in which this is not possible is advisable considering the findings from the current study.

One of the main arguments for the implementation of CST is its solid base of evidence, with quantitative research indicating benefits in a number of health

outcomes (Gómez-Soria et al., 2023). The fact that these benefits are also reported in qualitative research by participants, caregivers and professionals as facilitators of the intervention (Mkenda et al., 2018; Morrish et al., 2022; Raghuraman et al., 2017; Spector et al., 2011) reinforces the strength of the program, while also highlighting the need to monitor and research constantly the effects of CST.

Also, participants have experienced limited physical structure specifically designed for the development of the CST program (Raghuraman et al., 2017). It is urgent to have safe and adequate places for the development of the intervention (Mangili & Capolongo, 2022), and for the needs of PlwD and older adults in general, such as elder-friendly venues with accessible elevators, railings, and toilets (Raghuraman et al., 2017).

Finally, due to the scarcity of psychosocial interventions in many Latin American countries, adapting CST in nations where it has not yet been introduced—such as Bolivia, Venezuela, Paraguay, Peru, Guatemala, Cuba, and Mexico—could be highly beneficial. These countries share common characteristics such as unequal access to healthcare services, low investment in mental health, and high levels of stigma surrounding dementia. Established guidelines for cultural adaptation (Aguirre et al., 2014) recommend a five-step participatory process: (i) identifying stakeholders; (ii) collecting input through focus groups; (iii) revising content; (iv) piloting; and (v) integrating feedback to finalize the adapted intervention.

## **Future research**

### **Strengths and limitations**

Some limitations of this study are related to the small number of studies included, which was an obstacle to the classification of barriers and facilitators that other countries could have observed. Another issue is that some studies explored barriers and facilitators as part of stakeholder groups before the intervention was offered, while others investigated this topic after the intervention. This may have led to some heterogeneity in findings.

### **Conclusions**

To conclude, this review aimed to help the adaptation and implementation of CST, in countries where it has not been adapted yet, by identifying barriers and facilitators described in the literature. The main findings suggested some common barriers and facilitators, but cultural influences in different social contexts were crucial for the adaptation and implementation of the program. It was also identified that lack of knowledge and stigma about dementia reinforce the importance of developing and enhancing strategies and programs for awareness of this condition, allowing for instance more access to psychosocial interventions.

## References

- Alvares Pereira, G., Sousa, I., & Nunes, M. V. S. (2022). Cultural Adaptation of Cognitive Stimulation Therapy (CST) for Portuguese People with Dementia. *Clinical Gerontologist*, 45(4), 891-902.  
<https://doi.org/10.1080/07317115.2020.1821857>
- Alzheimer's disease international. (2011). Alzheimer's disease international. <https://www.alzint.org/resource/world-alzheimer-report-2023/>
- Aranda, M. P., Kremer, I. N., Hinton, L., Zissimopoulos, J., Whitmer, R. A., Hummel, C. H., Trejo, L., & Fabius, C. (2021). Impact of dementia: Health disparities, population trends, care interventions, and economic costs. *Journal of the American Geriatrics Society*, 69(7), 1774-1783.  
<https://doi.org/10.1111/jgs.17345>
- Bertrand, E., Naylor, R., Laks, J., Marinho, V., Spector, A., & Mograbi, D. C. (2019). Cognitive stimulation therapy for brazilian people with dementia: Examination of implementation' issues and cultural adaptation. *Aging & Mental Health*, 23(10), 1400-1404. <https://doi.org/10.1080/13607863.2018.1488944>
- Cheng, S.-T. (2017). Dementia Caregiver Burden: A Research Update and Critical Analysis. *Current Psychiatry Reports*, 19(9), 64.  
<https://doi.org/10.1007/s11920-017-0818-2>
- Collins, K., Hanna, M., Makarski, J., & Kastner, M. (2023). Occupational Therapist Led Cognitive Stimulation Therapy: Feasibility of Implementation. *Canadian Journal of Occupational Therapy*, 90(1), 68-78.  
<https://doi.org/10.1177/00084174221115284>

De Krom, F. J. W., Sivananthan, S., Alkhotany, F., Celen, M., Hol, I. E., Houben, K. J. G., Sivananthan, P., Koekebakker, H., & Deckers, K. (2021). Awareness of Dementia Risk Reduction among Current and Future Healthcare Professionals: A Survey Study. *Journal of Public Health Research*, 10(3), jphr.2021.1961. <https://doi.org/10.4081/jphr.2021.1961>

Fisher, E., Venkatesan, S., Benevides, P., Bertrand, E., Brum, P. S., El Baou, C., Ferri, C. P., Fossey, J., Jelen, M., Laks, J., Liu, L., Mograbi, D. C., Natarajan, N., Naylor, R., Pantouli, D., Ramanujam, V., Rangaswamy, T., Santos De Carvalho, R. L., Stoner, C., ... Spector, A. (2024). Online Cognitive Stimulation Therapy for Dementia in Brazil and India: Acceptability, F., and Lessons for Implementation. *JMIR Aging*, 7, e55557. <https://doi.org/10.2196/55557>

Gale, S. A., Acar, D., & Daffner, K. R. (2018). Dementia. *The American Journal of Medicine*, 131(10), 1161-1169. <https://doi.org/10.1016/j.amjmed.2018.01.022>

Gómez-Soria, I., Iguacel, I., Aguilar-Latorre, A., Peralta-Marrupe, P., Latorre, E., Zaldívar, J. N. C., & Calatayud, E. (2023). Cognitive stimulation and cognitive results in older adults: A systematic review and meta-analysis. *Archives of Gerontology and Geriatrics*, 104, 104807. <https://doi.org/10.1016/j.archger.2022.104807>

Hui, E. K., Wong, G. H. Y., Tischler, V., Yuan, S. N. V., Leung, W. G., Saunders, R., Suen, L. W., & Spector, A. (2022). Virtual individual cognitive stimulation therapy in Hong Kong: A mixed methods feasibility study. *Geriatric Nursing*, 47, 125-134. <https://doi.org/10.1016/j.gerinurse.2022.07.010>

<https://www.who.int/es/news-room/fact-sheets/detail/dementia>.

<https://www.rcpsych.ac.uk>.

Kmet, L. M., Lee, R. C., & Cook, L. S. (2004). Standard quality assessment criteria for evaluating primary research papers from a variety of fields. Alberta Heritage Foundation for Medical Research.

Liu, Y., Dokos, M., Fauth, E. B., Lee, Y. G., & Zarit, S. H. (2019). Financial Strain, E., and Role Captivity and Overload Over Time Among Dementia Family Caregivers. *The Gerontologist*, gnz099. <https://doi.org/10.1093/geront/gnz099>

Mangili, S., & Capolongo, S. (2022). Healthcare Facilities and Dementia Development of a Framework to Assess Design Quality. En I. Garofolo, G. Bencini, & A. Arenghi (Eds.), *Studies in Health Technology and Informatics*. IOS Press. <https://doi.org/10.3233/SHTI220856>

Marinho, V., Bertrand, E., Naylor, R., Bomilcar, iris, Laks, J., Spector, A., & Mograbi, D. C. (2021). Cognitive stimulation therapy for people with dementia in Brazil (CST-Brasil): Results from a single blind randomized controlled trial. 286-293.

Mkenda, S., Olakehinde, O., Mbowe, G., Siwoku, A., Kisoli, A., Paddick, S.-M., Adediran, B., Gray, W. K., Dotchin, C. L., Adebisi, A., Walker, R. W., Mushi, D., & Ogunniyi, A. (2018). Cognitive stimulation therapy as a low-resource intervention for dementia in sub-Saharan Africa (CST-SSA): Adaptation for rural Tanzania and Nigeria. *Dementia*, 17(4), 515-530. <https://doi.org/10.1177/1471301216649272>

Morrish, J., Walker, R., Dotchin, C., Spector, A., Orfanos, S., Mkenda, S., & Shali, E. P. (2022). Group experiences of cognitive stimulation therapy (CST) in Tanzania: A qualitative study. *Aging & Mental Health*, 26(4), 688-697.  
<https://doi.org/10.1080/13607863.2021.1872489>

National Institute for Health and Care Excellence (NICE). (2018). NICE guidance | Our programmes | What we do | About [CorporatePage]. NICE; NICE.  
<https://www.nice.org.uk/about/what-we-do/our-programmes/nice-guidance>

Océane Agli, N. Bailly, & Claude Ferrand. (2014). Spirituality and religion in older adults with dementia: A systematic review. *International Psychogeriatric Association*, 11.

Orrell, M., Aguirre, E., Spector, A., Hoare, Z., Woods, R. T., Streater, A., Donovan, H., Hoe, J., Knapp, M., Whitaker, C., & Russell, I. (2014). Maintenance cognitive stimulation therapy for dementia: Single-blind, multicentre, pragmatic randomised controlled trial. *British Journal of Psychiatry*, 204(6), 454-461.  
<https://doi.org/10.1192/bjp.bp.113.137414>

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, n71.  
<https://doi.org/10.1136/bmj.n71>

Patel, I., Patel, J., Jindal, S., Desai, D., & Desai, S. (2021). Knowledge, awareness, and attitude towards dementia amongst medical undergraduate

students: Can a sensitization program help? *Annals of Indian Academy of Neurology*, 24(5), 754. [https://doi.org/10.4103/aian.AIAN\\_874\\_20](https://doi.org/10.4103/aian.AIAN_874_20)

Perkins, L., Fisher, E., Felstead, C., Rooney, C., Wong, G. H., Dai, R., Vaitheswaran, S., Natarajan, N., Mograbi, D., Ferri, C. P., Stott, J., & Spector, A. (2022). Delivering Cognitive Stimulation Therapy (CST) Virtually: Developing and Field-Testing a New Framework. *Clinical Interventions in Aging*, V. 17, 97-116. <https://doi.org/10.2147/CIA.S348906>

Raghuraman, S., Lakshminarayanan, M., Vaitheswaran, S., & Rangaswamy, T. (2017). Cognitive Stimulation Therapy for Dementia: Pilot Studies of Acceptability and Feasibility of Cultural Adaptation for India. *The American Journal of Geriatric Psychiatry*, 25(9), 1029-1032. <https://doi.org/10.1016/j.jagp.2017.04.014>

Romero Vanegas, S. J., Vargas González, J. C., Pardo Turriago, R., Eslava- Schmalbach, J. H., & Moreno Angarita, M. (2021). El Sistema de Salud Colombiano y el reconocimiento de la enfermedad de Alzheimer. *Revista de Salud Pública*, 23(2), 1-9. <https://doi.org/10.15446/rsap.v23n2.88369>

Rote, S., Angel, J., & Hinton, L. (2019). Characteristics and Consequences of Family Support in Latino Dementia Care. *Journal of Cross-Cultural Gerontology*, 34(4), 337-354. <https://doi.org/10.1007/s10823-019-09378-4>

Royal College of Psychiatrists. (2016). Royal College of Psychiatrists. [Www.Rcpsych.Ac.Uk](http://www.rcpsych.ac.uk). <https://www.rcpsych.ac.uk>

Spector, A., Gardner, C., & Orrell, M. (2011). The impact of Cognitive Stimulation Therapy groups on people with dementia: Views from participants,



their carers and group facilitators. *Aging & Mental Health*, 15(8), 945-949.

<https://doi.org/10.1080/13607863.2011.586622>

Spector, A., Thorgrimsen, L., Woods, B., Royan, L., Davies, S., Butterworth, M., & Orrell, M. (2003). Efficacy of an evidence-based cognitive stimulation therapy programme for people with dementia: Randomised controlled trial. *British Journal of Psychiatry*, 183(3), 248-254.

<https://doi.org/10.1192/bjp.183.3.248>

Stoner, C. R., Lakshminarayanan, M., Durgante, H., & Spector, A. (2021). Psychosocial interventions for dementia in low- and middle-income countries (LMICs): A systematic review of effectiveness and implementation readiness. *Aging & Mental Health*, 25(3), 408-419.

<https://doi.org/10.1080/13607863.2019.1695742>

Toh, H. M., Ghazali, S. E., & Subramaniam, P. (2016). The Acceptability and Usefulness of Cognitive Stimulation Therapy for Older Adults with Dementia: A Narrative Review. *International Journal of Alzheimer's Disease*, 2016, 1-11. <https://doi.org/10.1155/2016/5131570>

Werheid, K., Schaub, B., Aguirre, E., & Spector, A. (2021). Cognitive Stimulation Therapy: Model-Based Cultural Adaptation and Manual Translation of an Evidence-Based Psychosocial Group Therapy for People With Dementia. *GeroPsych*, 34(3), 117-124. <https://doi.org/10.1024/1662-9647/a000244>

Wong, G. H. Y., Yek, O. P. L., Zhang, A. Y., Lum, T. Y. S., & Spector, A. (2018). Cultural adaptation of cognitive stimulation therapy (CST) for Chinese people with dementia: Multicentre pilot study. *International Journal of Geriatric*

Psychiatry, 33(6), 841-848. <https://doi.org/10.1002/gps.4663>

World Health Organization. (2023). Demencia.

<https://www.who.int/es/news-room/fact-sheets/detail/dementia>

Yu, D. S., Li, P. W., Lin, R. S.-Y., Kee, F., Chiu, A., & Wu, W. (2023). Effects of non-pharmacological interventions on loneliness among community-dwelling older adults: A systematic review, network meta-analysis, and meta-regression. *International Journal of Nursing Studies*, 144, 104524.

<https://doi.org/10.1016/j.ijnurstu.2023.104524>

## 2.2 Article 2

Cognitive stimulation therapy for Colombian people with dementia:  
examination of cultural issues for adaptation

Valentina Herrera Montoya<sup>a</sup>, Raquel Luiza Santos de Carvalho<sup>a,b</sup>, Elodie Bertrand<sup>c</sup>,  
Aimee Spector<sup>d</sup> and Daniel Mograbi<sup>\*a,e</sup>.

<sup>a</sup> Department of Psychology, Pontifical Catholic University of Rio de Janeiro, Rio de Janeiro, Brazil;

<sup>b</sup> Universidade do Grande Rio, Rio de Janeiro;

<sup>c</sup> Laboratoire Mémoire, Cerveau et Cognition, Institut de Psychologie, Université Paris Cité, Paris, France;

<sup>d</sup> University College London, Clinical, Educational & Health Psychology;

<sup>e</sup> Institute of Psychiatry, Psychology & Neuroscience, King's College London, United Kingdom.

\* Corresponding author. Address: Institute of Psychiatry, Psychology and Neuroscience, KCL, PO Box 078, De Crespigny Park, SE5 8AF, London, UK

E-mail address: [daniel.mograbi@kcl.ac.uk](mailto:daniel.mograbi@kcl.ac.uk)

Phone: (44) (20) 7848

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## Abstract

**Objectives:** Currently, there are more than 55 million people living with dementia (PlwD) worldwide, with a significant prevalence in Latin American and Caribbean countries. However, most Latin American countries, such as Colombia, have a huge deficit in health services and lack psychosocial interventions for dementia. Cognitive Stimulation Therapy (CST), which originated in the UK, has shown benefits for PlwD, but is not offered in Colombia. Considering this urgent social need, possible barriers and facilitators in adapting CST to the Colombian population were investigated.

**Methods:** Individual interviews and focus groups were held with PlwD, caregivers and health professionals (n=18). The interviews were recorded, transcribed and analyzed using Framework Analysis.

**Results:** In the process of adapting CST to the Colombian population, three main themes emerged, 'Barriers', 'Facilitators' and 'Sessions and material', along with 13 sub-themes. Barriers identified were related to lack of knowledge about dementia and alternative treatments, and the health system. The main perceived facilitators were the positive impact the program would have on the population, as well as improvements in quality of life and socialization. In general, the sessions and materials were considered appropriate for use with the Colombian population, with some changes being made.

**Conclusion:** The results indicated that there is demand for CST in Colombia, with some cultural adaptations needed in the activities and materials.

**Keywords:** Dementia; Cognitive Stimulation Therapy; psychosocial interventions; cultural adaptation.

## Introduction

It is estimated that 4 million people in Latin America live with dementia, which corresponds to around 7.1% of the population over 65 years old (Ferri et al., 2019). Dementia is a chronic and progressive condition that causes global decline of cognitive capacities (Toh et al., 2016). Alzheimer's disease (AD) is the most common type of dementia, representing 60% to 70% of dementia cases (World Health Organization, 2023).

The majority of Latin American and Caribbean countries (LAC), such as Colombia, have a huge deficit in health services, particularly those designed for people living with dementia (PlwD; Barragan and Cuesta 2024). Thirty nations have started the development of a National Plan to Address AD since 2017, but only four LAC (Argentina, Costa Rica, Cuba and Mexico) and a Latin American community from the USA (Puerto Rico) formally adopted national plans for AD (Alzheimer's Disease International, 2017). Although Colombia is a middle-income country with expected increases in the number of people over 60 years old until 2050 (Barragan and Cuesta 2024), it still does not have a national plan or a government strategy to deal with AD (Alzheimer 's Disease International, 2017), which has a social, economic and political impact (Vanegas et al., 2023).

As PlwD lack appropriate treatments, they have to call on jurisprudence to claim their basic rights – this highlights the need of creating government programs that meet PlwD needs (Vanegas et al., 2021). Therefore, policies related to awareness of the disease, risk reduction, appropriate diagnosis, prevention strategies, support to family members and caregivers are necessary (Vanegas et al., 2021). Since there

is no validated psychosocial intervention in the Colombian health system, the development of alternative treatments is urgent.

In this context, Cognitive Stimulation Therapy (CST) has shown to be effective for mild and moderate PlwD (National Institute for Health and Care Excellence, 2018). CST is a brief intervention (14 sessions through 7 weeks), with recreational activities and principles of implicit stimulation and person-centered care. The intervention has been implemented in the majority of memory clinics in the United Kingdom (Royal College of Psychiatrists, 2016). It was recommended by Alzheimer's Disease International (Alzheimer's Disease International, 2011) and it was adapted to different regions of the world, with its efficacy examined in other contexts and cultures (Orrell et al., 2014; Wong et al., 2021), including Latin America (Marinho et al., 2021).

There are some guidelines to facilitate the implementation and adaptation of CST in other cultures (Aguirre et al., 2014), with an approach that includes stakeholders in the cultural adaptation process. The theoretical approach encompasses five bottom-up steps: (i) identifying the stakeholders; (ii) integrating information collected from focus groups; (iii) revising and modifying; (iv) having pilot tests; (v) synthesizing feedback from stakeholders and finalizing the culturally adapted intervention. Ideally, this process should precede a feasibility study.

Based on the above, the aim of this study was to explore the potential challenges involved in the cultural adaptation of Cognitive Stimulation Therapy (CST) for the Colombian context. To achieve this, interviews were conducted with a group of stakeholders who had experience either in dementia care provision or in accessing dementia-related services. Two qualitative approaches were employed: focus

groups and individual semi-structured interviews. Stakeholders were asked to identify practical barriers that could impede the implementation of the program, propose necessary adaptations to the intervention materials, and highlight potential facilitators that could support the effective integration of CST in Colombia.

## Methods

### **Recruitment**

For the inclusion of participants, an intentional categorization was performed as follows: 1) People diagnosed with dementia, their caregivers and family members and 2) Clinical professionals (Doctors, nurses, neuropsychologists, psychologists, geriatricians). This strategy aimed to involve participants who had in-depth knowledge about dementia and thus understand their perceptions and needs.

Thus, the principal investigator identified potential participants who were invited via email. For those who accepted the invitation, an interview was scheduled according to their availability.

### **Procedure**

Semi-structured interviews were applied, coordinated by two facilitators, with the objective of assessing the possibility of adapting the program to the Colombian population. Possible necessary changes and adaptations in activities and materials were discussed. The interviews were in-person or online, with two supplementary approaches: focus groups and individual interviews. Individual interviews were made either because of lack of availability for a focus group or due to low

attendance in a scheduled group. Both the focus groups and the individual interviews were audio recorded and transcribed verbatim.

### *Focus groups*

There were multidisciplinary focus groups with health professionals, including psychologists, nurses, neuropsychologists, gerontologists, doctors (n=11), caregivers (n=6) and PlwD (n=1). During the online focus groups, one person from the research group was the facilitator and led the interview and the group discussion (VH), while another person was an observer who took additional notes (RC). The schedule was developed in a semi-structured style guided by a series of questions and predetermined focal themes (Table 1). In the beginning of the focus groups, a general description of the principles of CST was presented, and the barriers and facilitators to its implementation were discussed. Furthermore, each activity in the program was explained. The participants mentioned the positive impact of the adaptation of the program to the Colombian population, as well as the changes that could be made. There was also an opportunity to mention any topic that was not covered by the interview. Each group had approximately 45 minutes of duration.

### *Individual interviews*

A psychologist and the caregiver of a PlwD were invited for individual interviews (n=2). These interviews were carried out, respectively, in-person and online, by one interviewer from our research team (VH) for approximately 30 minutes. The individual interviews followed a structure similar to the focus groups, with an introduction about CST followed by questions.



Table 1.

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**Focus points of the semi-structured interviews**

Barriers and facilitators for referrals to non-pharmacological interventions

Relevance of the approach

Frequency and content of the sessions

Adaptation of materials and procedures

Other considerations

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**Analysis**

The transcriptions of the focus groups and individual interviews were analysed according to Framework Analysis (Ritchie & Spencer, 1994). There were five steps: (i) familiarizing; (ii) identifying the thematic framework; (iii) coding; (iv) graphics: and (v) mapping and interpretation. At first, two researchers read all the transcriptions (VH and RC) to get familiar with the general themes that were discussed. Afterwards, general key themes and subthemes were identified to create codes. The transcriptions were categorized and registered. Finally, mapping and interpretation were used to determine the factors that could affect the implementation of the CST program in Colombia.

**Ethical issues**

All materials were anonymized, preventing identification of participants. The research project was approved by the research ethics committee of the Institute of

Psychiatry of the Federal University of Rio de Janeiro (IPUB-UFRJ; project ref: 57019616.5.0000.5263).

## Results

Considering focus groups and individual interviews, a total of 18 people were interviewed. We identified three themes and 13 sub themes (Table 2). Illustrative citations are presented for each subtheme. Summarized results describing the barriers, facilitators and sessions and materials found in the focus groups can be seen in Figures 1 and 2.

Figure 1 - Barriers, facilitators and sessions and themes for the adaptation of CST.

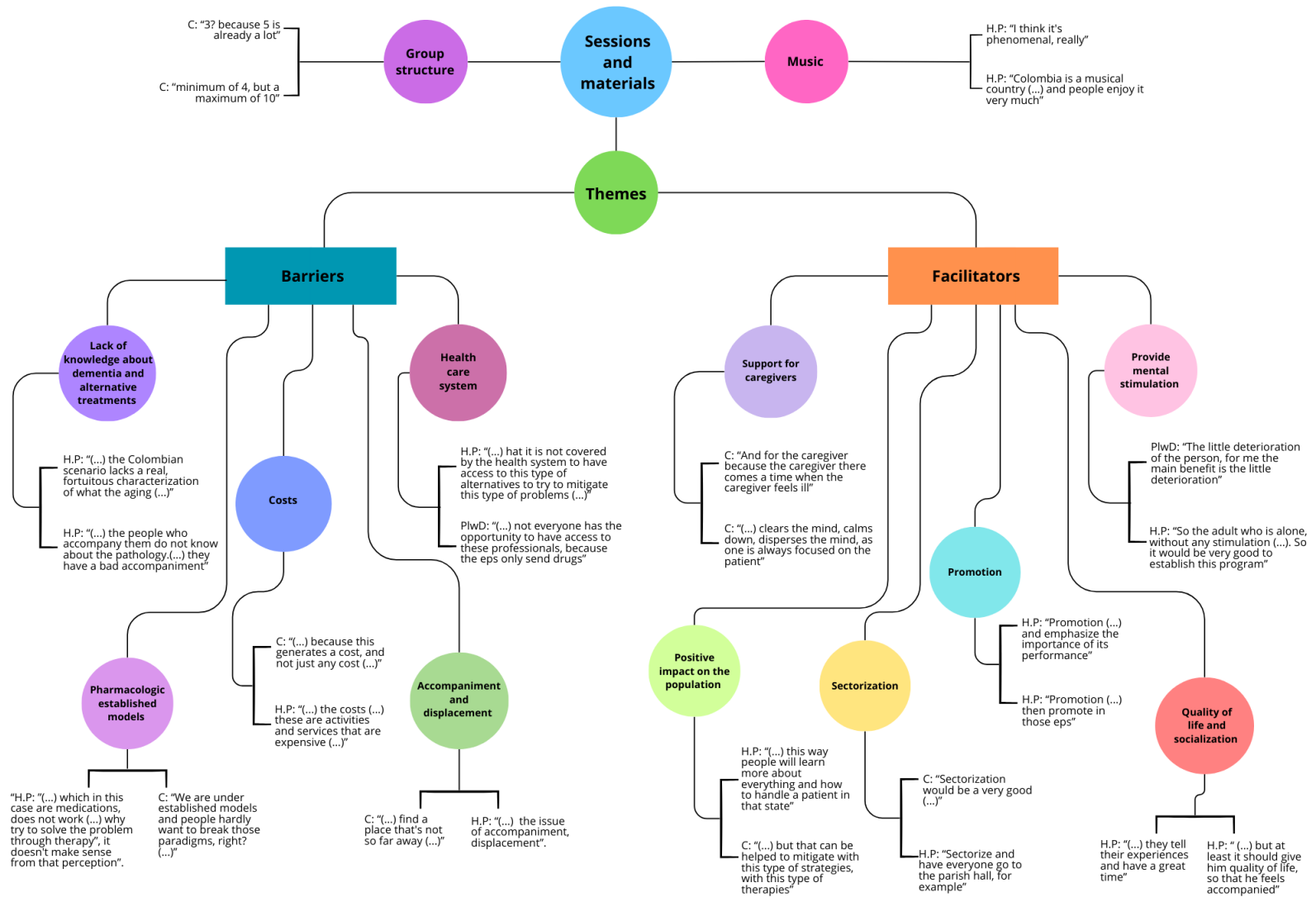


Table 2 - Themes and sub-themes identified across focus groups and individual interviews.

| Themes                 | Sub-themes                                                                                                                                                                                                                                              |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Barriers               | <ul style="list-style-type: none"> <li>- Lack of knowledge about dementia and alternative treatments</li> <li>- Health care system</li> <li>- Established models and pharmacology</li> <li>- Costs</li> <li>- Accompaniment and displacement</li> </ul> |
| Facilitators           | <ul style="list-style-type: none"> <li>- Slowing cognitive decline</li> <li>- Quality of life</li> <li>- Program dissemination</li> <li>- Organization by sectors</li> <li>- Accompaniment for patients</li> <li>- Support for caregivers</li> </ul>    |
| Sessions and materials | <p>Group structure</p> <p>Music</p>                                                                                                                                                                                                                     |

### **Theme 1: Barriers**

#### *Sub-theme 1: Lack of knowledge about dementia and alternative treatments*

The health professionals reported that lack of knowledge about aging and dementia in Colombia is a barrier that prevents PlwD to receive adequate approach.

*(...) the Colombian scenario lacks a real, factual characterization of what the aging issue in Colombia is like or what the outlook is. (Health professional 8)*

*(...) and also the people who accompany them do not know about the pathology. So, the lack of knowledge of the pathology means that they do not have good assistance. (Health professional 9)*

*Well, as a barrier the same eps, because for them the less they spend on the patient, the more profit they are going to have. (PlwD)*

#### *Sub-theme 2: Health care system*

There was a consensus among participants that the health system is a barrier, since not everybody can access it. The ones who can access the health system do not receive adequate treatment with adequate health professionals. It was also identified that PlwD are not forwarded to non-pharmacological interventions, because professionals do not have enough education to promote these programs.

*Well, many times I believe that one barrier is, for example, the health system, right? (...) they give very wrong diagnostic results and, from there, treatments and interventions that are not adequate or well structured in relation to the diagnosis itself begin to be carried out. (Health professional 7)*

*(...) Why do I take it as a barrier? Because not everyone has the opportunity to have access to these professionals, because the health units only deliver drugs. (PlwD)*

*The fact that it is not covered by the health system makes it even more complicated, because there will be people who would like to have access to this type of intervention, but do not have the possibility to (...). (Health professional 11)*

### *Sub-theme 3: Pharmacologic established models*

Health professionals and caregivers identified that the established models based on pharmacological interventions recommended by physicians prevent people from searching for alternative options.

*I would think that basically we are under established models and people hardly want to break those paradigms, right? Simply what the doctor, the specialist determines, and sometimes we do not see a possibility other than that, because we do not know it, or because we are simply afraid (...). (Caregiver 6)*

*“If what conventionally people usually resort to solve their problems, which in this case are medications, does not work, then if those medications have not worked, why would it work for me to go or take my family member that I am in charge of to try to solve it through therapy”, it doesn't make sense, it doesn't make sense from that perception. (Health professional 11)*

#### *Sub-theme 4: Costs*

The participants mentioned that one of the barriers for PlwD to participate in psychosocial interventions was related to costs, since these interventions are not offered by the government and that they tend to have high cost.

*I think a barrier could be the cost (...) What I know is that these are activities and services that are expensive and not accessible to all people (...). (Health professional 4)*

*First, the economic aspect, because this generates a cost, and not just any cost (...) (Caregiver 4)*

*The other may be, let's say, the costs. Sometimes many patients do not have the money to have access to this type of work, right? (Health professional 7)*

#### *Sub-theme 5: Accompaniment and displacement*

Caregivers and health professionals indicated as a barrier the accompaniment and displacement of PlwD, because the caregiver generally has other activities to do, such as working. Displacement of old aged people tends to be hard as well.

*(...) there the barrier is the issue of accompaniment, displacement, these are two things that are not easy for them. (Health professional 6)*

*(...) and yes, the only thing that should be taken into account would be to find a place that is not so far away (...). (Caregiver 5)*

## **Theme 2: Facilitators**

### *Sub-theme 1: Positive impact on the population*

There was a clear consensus that CST would have a positive impact among the Colombian population, since these types of programs are not common for PlwD in Colombia. It would be positive for caregivers to know that, beyond the healthcare providers, there are other people that could guide them.

*If there was such an opportunity, it would be great because you would really know that outside your healthcare providers there are other people in charge of this and you would look for guidance, right? (Caregiver 4)*

*(...) all the activities that are already prepared there are very useful to give agility to the mind, to make people think and remember, helping people in a positive way. (PlwD)*

*(...) they are left without possibilities, without having some tools, without having some elements that help at least to mitigate this situation (...) but that can be helped to mitigate with this type of strategies, with this type of therapies. (Caregiver 6)*



*Sub-theme 2: Provide mental stimulation*

All participants agreed that the mental stimulation that PlwD could obtain from CST is both a facilitator and a benefit, since it is common in Colombia that, after the diagnosis of dementia, people stay home with no type of stimulation.

*So the adult who is alone, without any stimulation, the only stimulus he has is the TV (...) They have no way to put their brain to work, no skills, fine motor skills, nothing, because they have no direction. So, it would be very good to establish this program. (Health professional 6)*

*(...) for me the main benefit is that the person has less deterioration. (PlwD)*

*It is important to accompany them, to stimulate them, to help them, to have other spaces to be able to create this. (Health professional 1)*

*Sub-theme 3: Quality of life and socialization*

Health professionals mentioned that increase in PlwD quality of life and socialization could be a facilitator.

*Of course, if it is integral (...) but at least it should give him quality of life, so that he feels accompanied. (Health professional 1)*

*(...) because most of the time they have pleasant memories and coincide, if they are more or less contemporary, they coincide with the theme of the games or dances. (Health professional 6)*

#### *Sub-theme 4: Program dissemination*

Since most of the Colombian population does not have much knowledge about non pharmacological treatments, health professionals agreed that dissemination of CST is a facilitator. Moreover, they highlighted the importance of training health professionals so that they could understand the importance of the program and forward PlwD to CST.

*Promotion (...) we would have to be in places where this service is provided to them, then promote in those healthcare providers. (Health professional 3)*

*Promotion to both users and ordering physicians and emphasize the importance of its performance. (Health professional 4)*

#### *Sub-theme 5: Organization by sectors*

Health professionals and caregivers identified that sectioning would be a facilitator, so that the PlwD would not have displacement difficulties.

*Sectorize and have everyone go to the parish hall, for example, the biggest thing in the neighborhoods is the parish hall. (Health professional 6)*

*Sectorization would be very good (...). (Caregiver 5)*

### *Sub-theme 6: Support for caregivers*

The caregivers reported that the opportunity of being in a different environment would be a facilitator, since they are mainly focused on PlwD and feel overwhelmed and ill.

*(...) at least being with another person... clears the mind, calms down, so to speak in quotation marks, disperses the mind, as one is always focused on the patient. But I think it is very cool because, if I would have had that help when I was with my mother, I think it would have been very different.*  
(Caregiver 1)

*It would be very good because there are moments when the caregiver feels ill.* (Caregiver 2)

## **Theme 3: Sessions and materials**

### *Sub-theme 1: Group structure*

There was variation in the suggested number of people per group, but all participants agreed that it would be better to work in small groups, guaranteeing more personalized attention.

*Three? Because five is already a lot.* (Caregiver 2)

*(...) So I would think a minimum of four, but a maximum of 10, and 10 would be enough, right?* (Caregiver 6)

### *Sub-theme 2: Music*

There was consensus among participants in relation to the use of music in the beginning of the sessions, because the song would stir up positive emotions.

*I think it's phenomenal, really. That's the scenario that is handled especially in group events. (Health professional 8)*

*Colombia is a musical country, we are divided into regions, but all regions have their own musical taste and people enjoy it very much; adults, children, grandparents (...) The song here in Colombia would work. (Health professional 6)*

### **Adaptation of the sessions and materials**

Based on the interviewees' opinions, there were some changes to sessions and materials. Most of the activities in the original CST manual were maintained. However, there were some necessary changes in some activities (for example, related to games, food or Colombian music). Table 3 shows a detailed description of cultural adaptations made in CST for the Colombian population.

Table 3 - Cultural adaptations made in the CST for Colombian people

| Session themes    | Cultural adaptation                                                                                    | Reasons for adaptation                                                                             |
|-------------------|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 1. Physical games | Skittles replaced by Colombian games (e.g., parques).                                                  | Skittles is an uncommon game among the Colombian population.                                       |
| 2. Sounds         | Use of well known Colombian songs.                                                                     | Adaptation of the material to the Colombian population.                                            |
| 3. Childhood      | Remove the drawing of the childhood room and make them draw something else instead (e.g., the school). | The drawing of the room may generate susceptibility in the participants, as many did not have one. |
|                   | Typical Colombian children's sweets (e.g., manjar blanco or natilla)                                   | Lack of knowledge of the candies used in the original manual.                                      |

|                      |                                                                                                                                                                                                                                                                |                                                                               |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| 4. Food              | <p>The foods suggested to stimulate memory are substituted by typical Colombian dishes (e.g., tamales or sancocho de gallina).</p> <p>The names of foods to be completed are replaced by typical Colombian dishes (e.g., arroz con leche or café con pan).</p> | Lack of knowledge of the foods used in the original manual.                   |
| 5. Current affairs   | Elimination of questions related to the royal family, charity and same-sex marriages. Replace with questions related to politics or religion.                                                                                                                  | Questions that do not apply to the context, or that are considered offensive. |
| 6. Faces/scenes      | Use of photographs of famous Colombian faces and places (e.g., Pacheco or the walled city).                                                                                                                                                                    | Adaptation of the material to the Colombian population.                       |
| 7. Word associations | Association of words replaced by culturally adapted phrases (e.g., ‘a caballo regalado...no se le mira el colmillo’ or ‘un cuarto de...azúcar’).                                                                                                               | Adaptation of the material to the Colombian population.                       |

|                         |                                                                       |                                                                |
|-------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------|
| 8. Being creative       | Elimination of kitchen activity.                                      | Activity is considered risky.                                  |
| 9. Categorizing objects | Nil                                                                   | Not applicable                                                 |
| 10. Orientation         | Map of the United Kingdom replaced by the map of Colombia.            | Adaptation of the material to the Colombian population.        |
| 11. Using money         | Nil                                                                   | Not applicable                                                 |
| 12. Number game         | Snap replaced by other card games (e.g., poker or UNO).               | Lack of knowledge of the SNAP game.                            |
| 13. Word game           | Hangman was replaced by other word games (e.g., STOP or word search). | Hangman is a little known game among the Colombian population. |

#### 14. Team game

The division of the group into two teams will be replaced by a game that includes the whole group in general.

The division of the group into teams is believed to generate antagonism among the participants.

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## Discussion

In this study, we assessed the possibility of adaptation of CST to the Colombian context, by understanding the possible barriers and facilitators to the adaptation of the program. The participants reported that some of the barriers were related to the lack of knowledge about aging and dementia, what prevented an adequate approach to PlwD. Lack of information about dementia is a reality (Guerrero Barragán, 2019), particularly in low- and middle-income countries. Another barrier mentioned was related to healthcare providers, since many people do not have access to the health system or do not receive adequate diagnosis, or the attention of adequate professionals. The participants also reported that health professionals do not have enough information to forward PlwD to non-pharmacological interventions, due to lack of attention to dementia in most of the countries (Tolson et al., 2016).

According to the participants' reports, the established pharmacological models prevent family members and caregivers from seeking alternative options, out of fear or because they think that conventional treatments (such as medication) are enough; and since dementia is not yet on the public agenda in Colombia, there are no comprehensive care routes, nor are there any policies in place on care and dementia (Vanegas et al., 2021). It is therefore important to offer psychoeducation to healthcare professionals, family members and caregivers, since on many occasions the availability of alternative treatments is unknown or there are doubts about their usefulness, in addition to the stigma about the diagnosis (Guerrero Barragán, 2019).

Other barriers preventing participation in psychosocial programs for PlwD, according to participants, are the costs usually involved in access. However, CST

offers benefits in terms of effectiveness, being more cost-effective than usual treatments (Knapp et al., 2006). Accompaniment and mobilization to reach the place of application of the program were other barriers encountered, since often the PlwD live far away, the caregiver has other occupations (e.g. work) or because the country does not have safe transport, which makes it difficult for older people to travel. The Brazilian adaptation of the CST (Bertrand et al., 2019) found a similar barrier, which led to the notion of having the two weekly sessions on the same day as a facilitator. However, the stakeholders of the Colombian adaptation thought that two sessions a day would affect the cognitive performance of the participants and recommended sectioning the program as the best option.

As for the facilitators, there was a consensus among the participants about the positive impact that CST would have, arguing that through the program they could have the opportunity to be in a different environment, as they are often very focused on PlwD and feel overwhelmed and ill. They also agreed that publicizing the program would work as a facilitator, because in Colombia it is not common for PlwD to be referred to treatments other than pharmacological ones, so it is important to disseminate this information.

Dementia has a significant impact on the ability to carry out daily activities (Gajardo et al., 2021), which is why it is very common for PlwD to spend a lot of time at home without any kind of stimulation. Thus, one of the facilitators mentioned by the participants was precisely the mental and social stimulation that the PlwD could get from participating in the program and the improvements in quality of life, which could be the result of improvements in cognition (Orrell et al, 2017). Among the therapies that improve the quality of life of PlwD, CST has solid

evidence base and although it focuses on cognition, it also includes social elements such as group play activities (Orrell et al., 2017).

Also, there is a wide range of research showing that caregivers in general are more likely to develop symptoms of depression and other indicators of psychological distress than non-caregivers (Roth et al., 2015); therefore, stakeholders agreed that one facilitator is the support that caregivers could receive. This could be connected with the fact that if CST improves the cognitive abilities and quality of life of PlwD, it could also have a potentially beneficial effect on family caregivers (Aguirre et al., 2014).

The number of participants was discussed, and even though there was no consensus on the number of people to include per group, they agreed to work with small groups, ensuring good attention for everyone. The participants also agreed that the use of music was a good strategy, as this can stir up positive emotions in PlwD; and different research shows that music has a positive impact on psychological well-being, producing better temporal performance in various cognitive domains (Pauwels et al., 2014). Also, they emphasized that the Colombian population really needs the adaptation of CST and stressed the importance of including PlwD who have been forgotten by the healthcare system.

In relation to the activities and materials presented in the CST manual, participants responded positively, but suggested some necessary changes. As in other cultural adaptations of CST (Bertrand et al., 2019; Pereira et al., 2022), the need to replace aspects in the activities that are not frequent in the country (e.g. bowling) or using materials adapted to local realities (e.g. typical Colombian music in the “sounds”

session) was highlighted. However, no major challenges were encountered in the cultural adaptation of CST to the Colombian population.

Finally, the results suggested that there was a consensus among health professionals, caregivers and PlwD in relation to the factors that could facilitate or prevent the adaptation of the CST to the Colombian population, because both the themes and subthemes were consistently found in the participants' citations.

## Limitations

Some of the limitations of the study are related to the small number of people interviewed in the focus groups. The main reason for that was lack of availability of healthcare professionals. Similarly, only one interview was conducted with a person with dementia. Considering that is the main stakeholder group that could benefit from CST, ideally more PlwD would be included. Nevertheless, it was difficult to have access to PlwD, particularly in the context of an opinion survey, as opposed to a clinical study.

## Conclusion

CST was adapted according to the proposed agenda. Based on the positive feedback from stakeholders, it was considered a viable intervention for PlwD in the Colombian population. Furthermore, due to the limited options available for non-pharmacological interventions for PlwD in the Colombian context, it was determined that adaptation of the CST was indeed necessary. Interviews with stakeholders identified that most of the activities in the manual were appropriate, including some necessary cultural modifications.

## References

- Aguirre, E., Hoare, Z., Spector, A., Woods, R. T., & Orrell, M. (2014). The effects of a Cognitive Stimulation Therapy (CST) programme for people with dementia on family caregivers' health. *BMC Geriatrics*, 14, 31. <https://doi.org/10.1186/1471-2318-14-31>
- Aguirre, E., Spector, A., & Orrell, M. (2014). Guidelines for adapting cognitive stimulation therapy to other cultures. *Clinical Interventions in Aging*, 9, 1003–1007. <https://doi.org/10.2147/CIA.S61849>
- Alvares Pereira, G., Sousa, I., & Nunes, M. V. S. (2022). Cultural adaptation of Cognitive Stimulation Therapy (CST) for Portuguese people with dementia. *Clinical Gerontologist*, 45(4), 891–902. <https://doi.org/10.1080/07317115.2020.1821857>
- Alzheimer's Disease International (ADI). (2017). *National Alzheimer's and dementia plans*. <https://www.alz.co.uk/dementia-plans/nationalplans>
- Bertrand, E., Naylor, R., Laks, J., Marinho, V., Spector, A., & Mograbi, D. C. (2019). Cognitive stimulation therapy for Brazilian people with dementia: Examination of implementation issues and cultural adaptation. *Aging & Mental Health*, 23(10), 1400–1404. <https://doi.org/10.1080/13607863.2018.1488944>
- Ferri, C. P., & Oliveira, D. (2019). Harmonization of epidemiological studies on dementia in Latin America: Why does it matter?

*Dementia & Neuropsychologia*, 13(4), 363–366.

<https://doi.org/10.1590/1980-57642018dn13-040001>

Gajardo, J., Jean, A., Alvarado, M., Rubén, & Slachevsky, C., Andrea.

(2021). Experiencias luego del diagnóstico de demencia: Aportes desde la perspectiva de los pacientes. *Revista Chilena de Neuro-Psiquiatría*, 59(3), 185–196. <https://doi.org/10.4067/s0717-92272021000300185>

Guerrero Barragán, A. (2019). Sensibilización y educación sobre

demencia. *Acta Neurológica Colombiana*, 35(1), 50–51.

<https://doi.org/10.22379/24224022233>

Guerrero Barragán, A., & Lucumí Cuesta, D. I. (2024). Stakeholder

perceptions of dementia in Colombia: A qualitative study

[Preprint]. *Research Square*. <https://doi.org/10.21203/rs.3.rs-3893692/v1>

Knapp, M., Thorgrimsen, L., Patel, A., et al. (2006). Cognitive stimulation

therapy for people with dementia: Cost-effectiveness analysis.

*British Journal of Psychiatry*, 188(6), 574–580.

<https://doi.org/10.1192/bjp.bp.105.010561>

Marinho, V., et al. (2021). Cognitive stimulation therapy for people with

dementia in Brazil (CST-Brasil): Results from a single blind

randomized controlled trial. *The American Journal of Geriatric*

*Psychiatry*, 36(2), 286–293. <https://doi.org/10.1002/gps.5421>

National Institute for Health and Care Excellence (NICE). (2018). *NICE guidance | Our programmes | What we do | About*.  
<https://www.nice.org.uk>

Orrell, M., Aguirre, E., Spector, A., Hoare, Z., Woods, R. T., Streater, A., Donovan, H., Hoe, J., Knapp, M., Whitaker, C., & Russell, I. (2014). Maintenance cognitive stimulation therapy for dementia: Single-blind, multicentre, pragmatic randomised controlled trial. *British Journal of Psychiatry*, 204(6), 454–461.  
<https://doi.org/10.1192/bjp.bp.113.137414>

Orrell, M., Yates, L., Leung, P., Kang, S., Hoare, Z., Whitaker, C., Burns, A., Knapp, M., Leroi, I., Moniz-Cook, E., Pearson, S., Simpson, S., Spector, A., Roberts, S., Russell, I., de Waal, H., Woods, R. T., & Orgeta, V. (2017). The impact of individual Cognitive Stimulation Therapy (iCST) on cognition, quality of life, caregiver health, and family relationships in dementia: A randomised controlled trial. *PLOS Medicine*, 14(3), e1002269.  
<https://doi.org/10.1371/journal.pmed.1002269>

Pauwels, E. K., Volterrani, D., Mariani, G., & Kostkiewics, M. (2014). Mozart, music and medicine. *Medical Principles and Practice*, 23(5), 403–412. <https://doi.org/10.1159/000364873>

Ritchie, J., & Spencer, L. (1994). Qualitative data analysis for applied policy research. In A. Bryman & R. G. Burgess (Eds.), *Analyzing qualitative data* (pp. 173–194). Routledge.  
[https://doi.org/10.4324/9780203413081\\_chapter\\_9](https://doi.org/10.4324/9780203413081_chapter_9)

Romero-Vanegas, S. J., Acero, J. P. M., & Cuervo, D. E. (2023).

Necesidades jurídicas y de seguridad social en la demencia en Colombia. *Revista de Derecho*, 60, 173–195.

<https://doi.org/10.14482/dere.60.658.451>

Roth, D. L., Fredman, L., & Haley, W. E. (2015). Informal caregiving and its impact on health: A reappraisal from population-based studies.

*The Gerontologist*, 55(2), 309–319.

<https://doi.org/10.1093/geront/gnu177>

Royal College of Psychiatrists. (2016). *Royal College of Psychiatrists*.

<https://www.rcpsych.ac.uk>

Spector, A., Thorgrimsen, L., Woods, B., Royan, L., Davies, S.,

Butterworth, M., & Orrell, M. (2003). Efficacy of an evidence-based cognitive stimulation therapy programme for people with dementia: Randomised controlled trial. *British Journal of Psychiatry*, 183, 248–254. <https://doi.org/10.1192/bjp.183.3.248>

*Psychiatry*, 183, 248–254. <https://doi.org/10.1192/bjp.183.3.248>

Toh, H. M., Ghazali, S. E., & Subramaniam, P. (2016). The acceptability and usefulness of Cognitive Stimulation Therapy for older adults with dementia: A narrative review. *International Journal of Alzheimer's Disease*, 2016, 5131570.

*Alzheimer's Disease*, 2016, 5131570.

<https://doi.org/10.1155/2016/5131570>

Tolson, D., Fleming, A., Hanson, E., Abreu, W., Lillo Crespo, M.,

MacRae, R., Jackson, G., Hvalič Touzery, S., Routasalo, P., &

Holmerová, I. (2016). Achieving prudent dementia care (Palliare):



An international policy and practice imperative. *International Journal of Integrated Care*, 16(4), 18.

<https://doi.org/10.5334/ijic.2497>

Vanegas, S. J. R., et al. (2021). El sistema de salud colombiano y el reconocimiento de la enfermedad de Alzheimer. *Revista de Salud Pública*, 23(2), 1–9. <https://doi.org/10.15446/rsap.v23n2.88369>

World Alzheimer Report. (2023). *World Alzheimer Report 2023*.

<https://www.alzint.org/resource/world-alzheimer-report-2023/>

World Health Organization. (2023). *Dementia*.

<https://www.who.int/es/news-room/fact-sheets/detail/dementia>

## Anexxes

| <b>Semi-structured interview</b>       |                                                                                                                                                                                                                        |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Barriers and facilitators              | <p>-What would be the main barriers for patients to be directed to non-pharmacological interventions?</p> <p>-What do you think would be the main barriers or impediments for patients to learn about the program?</p> |
| Relevance of the approach              | -What would be the relevance of adapting a cognitive stimulation therapy program for patients with dementia, in the Colombian population?                                                                              |
| Frequency and content of the sessions  | <p>-What would be the ideal frequency of sessions per week?</p> <p>-How many people should be worked with per group?</p>                                                                                               |
| Adaptation of materials and procedures | -Considering that there are 14 sessions in total in the program, we will discuss the necessary changes in the activities and materials.                                                                                |

### 3. General discussion

With the worldwide increase in life expectancy and the consequent aging of the population, the prevalence of neurodegenerative diseases such as dementia has increased considerably. In the current absence of curative treatments, non-pharmacological interventions have emerged as essential components of dementia care. Among them, psychosocial interventions stand out for their person-centered approach, addressing not only cognitive symptoms, but also social and emotional needs, thus improving the quality of life of people living with dementia (PlwD) and their caregivers (Wyman et al., 2022).

This study aimed to explore the process of adaptation and implementation of Cognitive Stimulation Therapy (CST) in different socio-cultural contexts, with a focus on the Colombian population. Through a two-pronged methodological approach-first, a systematic review of the international literature and, second, a qualitative study with the participation of stakeholders in Colombia-both shared and context-specific barriers and facilitators related to the adaptation of CST were identified.

The systematic review highlighted the feasibility of CST in diverse cultural settings, while revealing that implementation is profoundly influenced by local infrastructure, health systems, and cultural beliefs. Common barriers included limited knowledge about dementia and psychosocial interventions, stigma, caregiver burden, and inadequate public transportation systems (Bertrand et al., 2019; Morrish et al., 2022; Raghuraman et al., 2017). On the other hand, facilitators such as flexible session formats, the benefits of social engagement, and the emergence of virtual CST (vCST) during the COVID-19 pandemic underscore the

adaptability of the intervention to changing needs and contexts (Mkenda et al., 2018; Hui et al., 2022; Fisher et al., 2024).

In Colombia, stakeholder interviews confirmed many of these findings, while emphasizing critical local nuances. The lack of national dementia care pathways, limited knowledge among health professionals, and the predominance of pharmacological models present significant challenges. However, the high acceptance of CST among professionals, caregivers and people with dementia themselves, coupled with strong interest in culturally relevant modifications, positions Colombia as a promising context for adapting CST. Participants highlighted the need to incorporate culturally meaningful materials (e.g., local music) and to ensure logistical feasibility (e.g., frequency of sessions and organization by sectors), echoing best practices observed in other cultural adaptations (Bertrand et al., 2019; Pereira et al., 2022).

Importantly, this study confirms that while CST retains universal elements-such as its group structure and evidence-based efficacy-successful implementation requires an ecosystemic approach that considers local sociocultural and economic conditions. In Colombia, as in many low- and middle-income countries (LMICs), systemic gaps in access to care and the paucity of nonpharmacological interventions underscore the urgency of developing national dementia strategies aligned with the World Health Organization's (WHO, 2017-2025) global action plan.

Furthermore, these findings support the notion that CST may produce collateral benefits for caregivers by reducing emotional distress and offering indirect psychosocial support, a crucial factor given the high burden experienced by informal caregivers (Cheng, 2017; Aguirre et al., 2014). Participants also reported the positive impact of social interactions fostered during CST sessions, in line with

literature highlighting reduced loneliness and improved emotional well-being in PlwD (Spector et al., 2011; Collins et al., 2023; Yu et al., 2023).

The Colombian case underscores the transformative potential of CST in resource-poor settings. Although the challenges of adaptation are not trivial, they can be overcome through inclusive and culturally sensitive methodologies. The stakeholder-driven framework used in this study reinforces the importance of bottom-up adaptation processes that ensure relevance and sustainability (Aguirre et al., 2014).

Finally, given the projected four-fold increase in dementia cases in Latin America and the Caribbean by 2050 (Parra et al., 2018), there is a pressing need to scale up validated and cost-effective interventions such as CST. Expanding its implementation to other countries in the region-particularly those without current adaptations-should be considered a public health priority.

## References

- Alejandra Guerrero Barragan, & Diego Ivan. (2024, January 29). *Stakeholder perceptions of dementia in Colombia: A qualitative study*. Research Square. <https://doi.org/10.21203/rs.3.rs-3893692/v1>
- Alzheimer's Disease International [ADI]. (2017). *National Alzheimer's and dementia plans*. <https://www.alz.co.uk/dementia-plans/nationalplans>
- Alzheimer's disease facts and figures. (2022). *Alzheimer's & Dementia: The Journal of the Alzheimer's Association*, 18(4), 700–789. <https://doi.org/10.1002/alz.12638>

- American Psychiatric Association. (2017). *What is Alzheimer's disease?*  
<https://www.psychiatry.org/patients-families/alzheimers/what-is-alzheimers-disease>
- Álvarez Castaño, L. S. (2005). El derecho a la salud en Colombia: Una propuesta para su fundamentación moral. *Revista Panamericana de Salud Pública/Pan American Journal of Public Health*, 18(2), 129–135. <https://www.scielosp.org/pdf/rpsp/2005.v18n2/129-135>
- Apóstolo, J. L. A., Cardoso, D. F. B., Rosa, A. I., & Paúl, C. (2014). The effect of cognitive stimulation on nursing home elders: A randomized controlled trial. *Journal of Nursing Scholarship*, 46, 157–166. <https://doi.org/10.1111/jnu.12072>
- Bertrand, E., Marinho, V., Naylor, R., Bomilcar, I., Laks, J., Spector, A., & Mograbi, D. C. (2023). Metacognitive Improvements Following Cognitive Stimulation Therapy for People with Dementia: Evidence from a Pilot Randomized Controlled Trial. *Clinical gerontologist*, 46(2), 267–276.  
<https://doi.org/10.1080/07317115.2022.2155283>
- Capotosto, E., Belacchi, C., Gardini, S., Faggian, S., Piras, F., Mantoan, V., Salvalaio, E., Pradelli, S., & Borella, E. (2017). Cognitive stimulation therapy in the Italian context: Its efficacy in cognitive and non-cognitive measures in older adults with dementia. *International Journal of Geriatric Psychiatry*, 32(3), 331–340.  
<https://doi.org/10.1002/gps.4521>
- Chang, C. Y., & Hsu, H. C. (2020). Relationship between Knowledge and Types of Attitudes towards People Living with Dementia. *International journal of environmental research and public health*, 17(11), 3777. <https://doi.org/10.3390/ijerph17113777>
- Clare, L., Woods, R. T., Moniz Cook, E. D., Orrell, M., & Spector, A. (2003). Cognitive rehabilitation and cognitive training for early-stage Alzheimer's disease and vascular dementia. *The Cochrane*

*Database of Systematic Reviews*, (4), CD003260.

<https://doi.org/10.1002/14651858.CD003260>

Corte Constitucional. (2023). *Sentencia T-005 de 2023*.

<https://www.corteconstitucional.gov.co/relatoria/2023/T-005-23.htm>

Dementia prevention, intervention, and care: 2020 report of the *Lancet* Commission Livingston, Gill et al. The *Lancet*, Volume 396, Issue 10248, 413 - 446. 2024 Alzheimer's disease facts and figures. (2024). *Alzheimer's & dementia : the journal of the Alzheimer's Association*, 20(5), 3708–3821. <https://doi.org/10.1002/alz.13809>

Dyer SM, Harrison SL, Laver K, Whitehead C, Crotty M. An overview of systematic reviews of pharmacological and non-pharmacological interventions for the treatment of behavioral and psychological symptoms of dementia. *International Psychogeriatrics*. 2018;30(3):295-309. doi:10.1017/S1041610217002344

Fam, Johnson; Mahendran, Rathi; Kua, Ee Heok. Dementia care in low and middle-income countries. *Current Opinion in Psychiatry* 32(5):p 461-464, September 2019. | DOI: 10.1097/YCO.0000000000000523

Falk, Nathan, et al. "Evaluation of Suspected Dementia." *American Family Physician*, vol. 97, no. 6, 15 Mar. 2018, pp. 398–405, [www.aafp.org/pubs/afp/issues/2018/0315/p398.html](http://www.aafp.org/pubs/afp/issues/2018/0315/p398.html).

Ferri, C. P., & Jacob, K. S. (2017). Dementia in low-income and middle-income countries: Different realities mandate tailored solutions. *PLoS medicine*, 14(3), e1002271. <https://doi.org/10.1371/journal.pmed>.

Fiest, K. M., Jetté, N., Roberts, J. I., Maxwell, C. J., Smith, E. E., Black, S. E., Blaikie, L., Cohen, A., Day, L., Holroyd-Leduc, J., Kirk, A., Pearson, D., Pringsheim, T., Venegas-Torres, A., & Hogan, D. B. (2016). The Prevalence and Incidence of Dementia: a Systematic

Review and Meta-analysis. *The Canadian journal of neurological sciences. Le journal canadien des sciences neurologiques*, 43 Suppl 1, S3–S50. <https://doi.org/10.1017/cjn.2016>.

Franco-Giraldo A. Sistemas de salud en condiciones de mercado: las reformas del último cuarto de siglo. *Rev. Fac. Nac. Salud Pública* 2014; 32(1): 95-107

Gale, Seth A et al. “Dementia.” *The American journal of medicine* vol. 131,10 (2018): 1161-1169. doi:10.1016/j.amjmed.2018.01.022

Garre Olmo, Josep. “Epidemiología de La Enfermedad de Alzheimer Y Otras Demencias.” *Revista de Neurología*, vol. 66, no. 11, 2018, p. 377, <https://doi.org/10.33588/rn.6611.2017519>.

Gibbor, L., Yates, L., Volkmer, A. y Spector, A. (2021). Terapia de estimulación cognitiva (TCC) para la demencia: una revisión sistemática de la investigación cualitativa. *Envejecimiento y salud mental*, 25 (6), 980–990. <https://doi.org/10.1080/13607863.2020.1746741>

Gómez-Soria I, Iguacel I, Aguilar-Latorre A, et al. Cognitive stimulation and cognitive results in older adults: A systematic review and meta-analysis. *Arch Gerontol Geriatr*. 2023;104:104807. doi:10.1016/j.archger.2022.104807.

Hachinski V. Dementia: new vistas and opportunities. *Neurol Sci*. 2019;40(4):763-767. doi:10.1007/s10072-019-3714-1

Ibáñez, A., Pina-Escudero, S. D., Possin, K. L., Quiroz, Y. T., Peres, F. A., Slachevsky, A., Sosa, A. L., Brucki, S. M. D., Miller, B. L., & Multi-Partner Consortium to Expand Dementia Research in Latin America (2021). Dementia caregiving across Latin America and the Caribbean and brain health diplomacy. *The lancet. Healthy longevity*, 2(4), e222–e231. [https://doi.org/10.1016/s2666-7568\(21\)00031-3](https://doi.org/10.1016/s2666-7568(21)00031-3)



ICD-11 for Mortality and Morbidity Statistics. icd.who.int. Published January 2024. <https://icd.who.int/browse/2024-01/mms/en#546689346>

Ismail, Z., Black, S. E., Camicioli, R., Chertkow, H., Herrmann, N., Laforce, R., Jr, Montero-Odasso, M., Rockwood, K., Rosa-Neto, P., Seitz, D., Sivananthan, S., Smith, E. E., Soucy, J. P., Vedel, I., Gauthier, S., & CCCDTD5 participants (2020). Recommendations of the 5th Canadian Consensus Conference on the diagnosis and treatment of dementia. *Alzheimer's & dementia : the journal of the Alzheimer's Association*, 16(8), 1182–1195. <https://doi.org/10.1002/alz.12105>

Kalaria, R., Maestre, G., Mahinrad, S., Acosta, D. M., Akinyemi, R. O., Alladi, S., Allegri, R. F., Arshad, F., Babalola, D. O., Baiyewu, O., Bak, T. H., Bellaj, T., Brodie-Mends, D. K., Carrillo, M. C., Celestin, K. K., Damasceno, A., de Silva, R. K., de Silva, R., Djibuti, M., Dreyer, A. J., ... Ismail, O. (2024). The 2022 symposium on dementia and brain aging in low- and middle-income countries: Highlights on research, diagnosis, care, and impact. *Alzheimer's & dementia : the journal of the Alzheimer's Association*, 20(6), 4290–4314. <https://doi.org/10.1002/alz.13836>

Ledezma-Morales, Mónica, Amariles, Pedro, Vargas-Peláez, Claudia Marcela, & Rossi-Buenaventura, Francisco Augusto. (2020). Estrategias para promover el acceso a medicamentos de interés en salud pública: revisión estructurada de la literatura. *Revista Facultad Nacional de Salud Pública*, 38(1), e332273. <https://doi.org/10.17533/udea.rfnsp.v38n1e332273>

Ley 1616 de 2013. (2013) Recuperado de : <https://www.minsalud.gov.co/sites/rid/Lists/BibliotecaDigital/RIDE/DE/DIJ/ley-1616-del-21-de-enero-2013.pdf>

Lobbia, A., Carbone, E., Faggian, S., Gardini, S., Piras, F., Spector, A., y Borella, E. (2019). La eficacia de la terapia de estimulación

cognitiva (TCC) para personas con demencia leve a moderada: una revisión. *European Psychologist*, 24 (3), 257–277.

- McAulay, J., & Streater, A. (2020). Delivery of Cognitive Stimulation Therapy for people with dementia in an inpatient setting (innovative practice). *Dementia (London, England)*, 19(7), 2513–2520. <https://doi.org/10.1177/1471301218808986>
- Machado Alba JE, Moncada Escobar JC. Evolución del consumo de medicamentos de alto costo en Colombia. *Rev Panam Salud Publica*. 2012;31(4):283–9
- Mascayano T, Franco, et al. “Estigma Hacia La Demencia: Una Revisión.” *Revista Chilena de Neuro-Psiquiatría*, vol. 53, no. 3, Sept. 2015, pp. 187–195, <https://doi.org/10.4067/s0717-92272015000300006>. Accessed 8 Aug. 2019.
- Mauricio, Rui, et al. “Tackling Gaps in Developing Life-Changing Treatments for Dementia.” *Alzheimer’s & Dementia : Translational Research & Clinical Interventions*, vol. 5, 24 June 2019, pp. 241–253, [www.ncbi.nlm.nih.gov/pmc/articles/PMC6597931/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC6597931/), <https://doi.org/10.1016/j.trci.2019.05.001>.
- Meyer C, O’Keefe F. Non-pharmacological interventions for people with dementia: A review of reviews. *Dementia*. 2020;19(6):1927-1954. doi:[10.1177/1471301218813234](https://doi.org/10.1177/1471301218813234)
- Ministerio de Salud y Protección Social de Colombia. (2017). Guía de práctica clínica para el diagnóstico y tratamiento del trastorno neurocognoscitivo mayor (demencia). (<https://www.minsalud.gov.co/sites/rid/Lists/BibliotecaDigital/RIDE/INEC/IETS/gpc-demencia-completa.pdf>)
- “National Plan to Address Alzheimer’s Disease.” *ASPE*, [aspe.hhs.gov/collaborations-committees-advisory-groups/napa/napa-documents/napa-national-plan](https://aspe.hhs.gov/collaborations-committees-advisory-groups/napa/napa-documents/napa-national-plan).

- Naylor, R., Spector, A., Fisher, E., Fucci, F., Bertrand, E., Marinho, V., Bomilcar, I., Coutinho, B., Laks, J., & Mograbi, D. C. (2024). Experiences of cognitive stimulation therapy (CST) in Brazil: a qualitative study of people with dementia and their caregivers. *Aging & mental health*, 28(2), 238–243.  
<https://doi.org/10.1080/13607863.2023.2231376>
- Orgeta, V., McDonald, K. R., Poliakoff, E., Hindle, J. V., Clare, L., & Leroi, I. (2020). Cognitive training interventions for dementia and mild cognitive impairment in Parkinson's disease. *The Cochrane database of systematic reviews*, 2(2), CD011961.  
<https://doi.org/10.1002/14651858.CD011961.pub2>
- Parra, M. A., Baez, S., Allegri, R., Nitrini, R., Lopera, F., Slachevsky, A., Custodio, N., Lira, D., Piguet, O., Kumfor, F., Huepe, D., Cogram, P., Bak, T., Manes, F., & Ibanez, A. (2018). Dementia in Latin America: Assessing the present and envisioning the future. *Neurology*, 90(5), 222–231.  
<https://doi.org/10.1212/WNL.0000000000004897>
- Puyol, À. (2011). Justicia y políticas sanitarias en tiempo de crisis. *Bioètica & debat: tribuna abierta del Institut Borja de Bioètica*, 17(63), 1-6.
- Raz, L., Knoefel, J., & Bhaskar, K. (2016). The neuropathology and cerebrovascular mechanisms of dementia. *Journal of cerebral blood flow and metabolism : official journal of the International Society of Cerebral Blood Flow and Metabolism*, 36(1), 172–186.  
<https://doi.org/10.1038/jcbfm.2015.164>
- Romero-Vanegas, Sara J., Vargas-González, Juan C., Pardo, Rodrigo, Eslava-Schmalbach, Javier, & Moreno-Angarita, Marisol. (2021). El sistema de salud colombiano y el reconocimiento de la enfermedad de Alzheimer. *Revista de Salud Pública*, 23(2), 1. Epub January 14, 2022.  
<https://doi.org/10.15446/rsap.v23n2.88369>

- Skaria A. P. (2022). The economic and societal burden of Alzheimer disease: managed care considerations. *The American journal of managed care*, 28(10 Suppl), S188–S196.  
<https://doi.org/10.37765/ajmc.2022.89236>
- Tsoi KKF, Chan JYC, Hirai HW, Wong SYS, Kwok TCY. Cognitive Tests to Detect Dementia: A Systematic Review and Meta-analysis. *JAMA Intern Med*. 2015;175(9):1450–1458.  
doi:10.1001/jamainternmed.2015.2152
- Woods, B., Aguirre, E., Spector, A. E., & Orrell, M. (2012). Cognitive stimulation to improve cognitive functioning in people with dementia. *The Cochrane database of systematic reviews*, (2), CD005562. <https://doi.org/10.1002/14651858.CD005562.pub2>
- World Health Organization. (2021). Global status report on the public health response to dementia.
- Yamanaka, K., Kawano, Y., Noguchi, D., Nakaaki, S., Watanabe, N., Amano, T., & Spector, A. (2013). Effects of cognitive stimulation therapy Japanese version (CST-J) for people with dementia: a single-blind, controlled clinical trial. *Aging & mental health*, 17(5), 579–586. <https://doi.org/10.1080/13607863.2013.777395>