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EVALUATION OF DIFFERENT COGNITIVE STIMULATION THERAPIES AND ITS IMPACT ON THE QUALITY OF LIFE OF PEOPLE WITH DEMENTIA: A SYSTEMATIC REVIEW

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DECLARATION

I, *ELENA VASINC,* declare that this dissertation has been composed by myself, that the work contained herein is entirely my own except where explicitly stated otherwise in the text, and that this work has not been submitted for any other degree or qualification, in whole or in part, except as specified.

Signature: ELENA VASINC

Date: 10.09.2025

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Thank you, Alin, for helping me not just the last four years.

Thank you, Sebastian and David, for understanding how much I want to be a proud mother and a good role model for you.

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ABSTRACT

Background: Currently, there is no cure for dementia; however, non-pharmacological interventions seek to improve the quality of life for those affected by this condition: Cognitive Stimulation Therapy (CST). CST is a group-based intervention that has shown effectiveness in enhancing cognitive function and improving the quality of life for individuals with dementia. This study aimed to evaluate the most effective methods to deliver the therapy.

Methods: A systematic literature review was conducted. A literature review was conducted utilising online databases such as ProQuest, CINAHL, PubMed, UWTSD Library and Google Scholar to collect relevant academic materials. Search terms and keywords were entered into the database to retrieve relevant articles. After a thorough evaluation using the PRISMA tool and a review of the research articles, 7 studies were included in this systematic review.

Results: Thematic analysis of these 7 studies revealed six key themes and sub-themes: “Harnessing Cognitive Stimulation for Mental Vitality”, “The range of mentally stimulating activities that promote cognitive engagement and emotional well-being”, “Feasibility of a home-based programme of mental stimulation”, “Benefits and challenges of group expression in emotional, social, and cognitive contexts”, “Potential difficulties in delivering the cognitive stimulation program among people with dementia” and “Cultural adaptation of Cognitive Stimulation Therapy for individuals outside the UK”.

Conclusion: Individual CST (iCST) may be the best method for delivering CST to improve the quality of life for individuals with dementia, but this approach requires a video tutorial on key principles and the establishment of a chat line for family carers who have questions about iCST.

Keywords: cognitive stimulation therapy, mild dementia, non-pharmacological therapy, focus group in delivering CST, individual CST and cultural adaptation.

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ABBREVIATIONS

CST: Cognitive Stimulation Therapy
FMAP: Formative Method for Adapting Psychotherapy
iCST: individual Cognitive Stimulation Therapy
MT: Music Therapy
NPT: Non-pharmacological Therapy
PEO: Population, Exposure, Outcome
RO: Reality Orientation
SLR: Systematic Literatue Review
UK: United Kingdom

CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1 Introduction

Cognitive stimulation for dementia is the process of engaging individuals (typically in a group) in a variety of activities and discussions that are designed to improve their cognitive and social abilities (Clare and Woods, 2004). According to Spector *et al*. (2003), who developed this intervention in the United Kingdom (UK) and published the manual “Making a difference” in 2003, Cognitive Stimulation Therapy (CST) is the most extensively used and most well-evidenced version of cognitive stimulation for dementia. Since 2003, another 2 version of this manual was published. Aguirre *et al*. published in 2012 the second edition, "Making a Difference 2", which encompasses the fundamental concepts of CST intervention, outlines each developed session, specifies the required resources, and provides descriptions for monitoring the process. To engage more individuals with dementia, individual Cognitive Stimulation Therapy (iCST), a home-based, one-on-one intervention administered by carers, was developed (Yates *et al*., 2015) and documented in a manual for carers ("Making a Difference 3"; Yates *et al*., 2019) (as depicted in **Figure 1**).

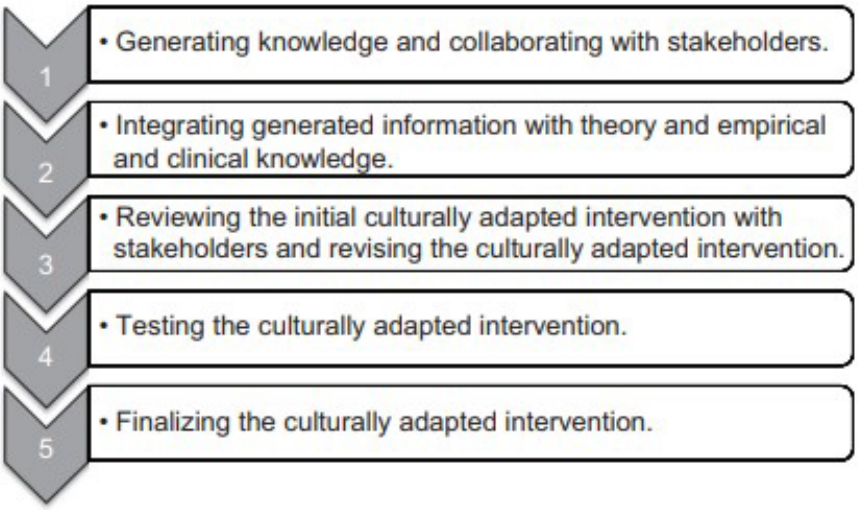
Figure 1. “Making a Difference” manuals

(Hawker Publications, 2025)

As dementia became a global health problem (World Health Organisation, 2025), numerous countries became interested in the cultural adaptation of CST. There are different ways to make "cross-cultural adaptations," which is a process that deals with both language (translation) and cultural adaptation issues when making a questionnaire or therapeutic intervention for use in a different setting. At present, the majority of frameworks for cultural adaptation therapies utilise a "top-down" theoretical approach, derived from conceptual ideas concerning the most effective methods of program adaptation (Aguirre, Spector and Orrell,

2014). This methodology utilises the Formative Method for Adapting Psychotherapy (FMAP), a "bottom-up" approach that emphasises initial engagement with service users to facilitate and promote treatment adaptation. This methodology consists of five stages (see **Figure 2**) aimed at the formulation, evaluation, and improvement of therapeutic adaptations.

Figure 2. The five phases of the FMAP



(Aguirre, Spector and Orrell, 2014)

This research seeks to evaluate the different methods to deliver the CST, to explain cultural adaptations of CST to different countries in Europe and to identify the most efficient approach to deliver the CST. Also, the findings will contribute significantly to understanding how these variations impact the efficacy of CST across diverse populations.

1.2 Background and Current Context

Dementia is an "umbrella" term that refers to a group of neurodegenerative diseases that cause cognitive impairment and affect one's capacity to participate in daily activities and, as a result, their quality of life. As the population ages, dementia becomes a critical global public health issue. According to the World Health Organisation (2025), the number of individuals with dementia is expected to reach 78 million by 2030 and 139 million by 2050, with nearly ten million new cases of dementia diagnosed annually on a global scale.

“With nearly 1 million people living with dementia in the UK today” (Alzheimer’s Research UK, 2025), the financial burden of dementia in the UK was forecast at £42 billion in 2024, with an

anticipated increase to £90 billion by 2040 (Alzheimer's Society, 2024). In 2025, it is anticipated that the sum will closely approximate that of 2024, since the sum has been reported at £42 billion year from early to mid-2024 (Alzheimer's Research UK, 2025). The majority of this cost is borne by people with dementia and their families, with social care and unpaid care accounting for the largest proportions of the total economic burden (Alzheimer's Society, 2024).

These statistics highlight the necessity for the implementation of effective evidence-based interventions (Desai *et al*., 2024). However, advancements in the development of pharmaceutical interventions designed to alter or impede disease processes have, to date, been slow. In the absence of effective pharmaceutical interventions, psychosocial interventions - encompassing physical, cognitive, and social methods - have demonstrated efficacy in enhancing overall physical and cognitive functioning, social interaction, activities of daily living, and quality of life (McDermott *et al*., 2019).

One such intervention is Cognitive Stimulation Therapy (Desai *et al*., 2024). In 2003, Spector *et al*. developed CST, a well-established manualised intervention. The first CST protocol had 14 group sessions, each lasting 45 minutes, that were held twice a week for seven weeks. By concentrating on a different theme at each session, the program aimed to enhance the cognitive abilities and general well-being of people with mild to moderate dementia (Spector *et al*., 2003).

The National Institute for Health and Care Excellence guidelines (NICE-SCIE, 2018) state that "CST is the only non-pharmacological intervention specifically recommended to improve cognition, independence, and well-being" for individuals with dementia. The efficacy of CST has led to its extensive adaptation and modification, encompassing cross-cultural adaptation (Aguirre, Spector and Orrell, 2014), individual delivery (Orrell *et al*., 2015), the incorporation of supplementary components such as exercise (Binns *et al*., 2020), and adaptations for online formats (Perkins *et al*., 2022). Furthermore, according to Woods *et al*. (2023), the frequency and duration of sessions can exhibit variability across different studies.

Nevertheless, despite the well-known cognitive benefits of CST (Spector *et al*., 2006), the ways that change happens in the quality of life of a person with dementia are still not clear. However, it is believed that the continuity and consistency of sessions facilitate the establishment of memories, making it an effective study environment. CST's main ideas are to put the person with dementia's opinion ahead of facts and to use implicit learning instead of explicit teaching.

These efforts capitalise on the strengths of people with dementia, reducing their possibility of failure and increasing their self-confidence. Encouraging people with dementia to ponder, reflect, and interact can lead to improved cognitive skills in everyday life, increased communication, and a better self-image (Spector *et al*., 2003).

1.3 Rationale for Research

According to de Souto Barreto *et al*. (2018), dementia is a degenerative disorder that can manifest several decades before any noticeable clinical signs appear. Zucchella *et al*. (2018) states that dementia constitutes a major health issue among older individuals and is characterised by a progressive decline in cognitive function, everyday activity performance, and behaviour, ultimately resulting in disability. Lack of access to stimulating activities for people with dementia can lead to a decline in their quality of life. When access to such activities is limited - due to environmental barriers, lack of resources, or insufficient support - people with dementia may experience increased feelings of isolation, frustration, and loss of independence. However, engaging in meaningful activities has been shown to slow cognitive decline, improve mood, and reduce behavioural symptoms such as agitation and depression (Spector *et al*., 2003).

The purpose of this research was to evaluate the different methods for delivering CST and what others European countries are doing and how the CST can improve the quality of life for individuals with dementia.

1.4 Research questions

What are the different methods of the CST, why are these methods effective, and how can these improve the quality of life for people with dementia?

1.5 Research Aim

This research aims to perform a systematic literature review (SLR) that evaluate the CST in mild dementia, explains cultural adaptation, and determines the most effective methods for administering CST. It also seeks to identify gaps in current evidence and offers recommendations to enhance the appropriateness of CST by emphasising the significance of aligning activities with individual preferences and stimulation levels.

1.6 Research Objectives

The primary objective of this research is to evaluate the different methods of CST and to identify the best method to deliver CST for people with dementia.

This study aims to:

a. explains the CST in mild dementia,
b. defines cultural adaptation of CST,
c. identifies the most effective methods for delivering CST.

1.7 Chapter summary

This chapter provides a concise summary of the dissertation, commencing with a brief introduction and subsequently delineating the key terms that are employed to elucidate the title of the paper. Additionally, the chapter provided general information about dementia and cultural adaptation of CST, clarified the rationale for selecting this subject for investigation, delineated the research objectives and goals in this field, and, in the end, provided conclusive conclusions.

The next chapter will concentrate on the literature review, which serves as the foundation for this SLR.

CHAPTER 2: Literature Review

2.1 Introduction

This chapter provides an overview of the existing literature on the topic, " What are the different methods of the CST, why are these methods effective, and how can these improve the quality of life for people with dementia".

Additionally, this chapter will discuss the concept of cultural adaptation and explore how various European countries adapt CST to meet the needs of their populations in addressing the challenges posed by dementia.

Furthermore, this chapter provides a description of the gaps identified in the current body of literature and outlines how this study aims to address them.

The keywords from the literature review are "cognitive stimulation therapy", "mild dementia", "non-pharmacological therapy", "focus group in delivering CST", "individual CST" and "cultural adaptation".

2.2 Literature review

The literature review is an endeavour to condense the current state of knowledge regarding a particular subject and, in research proposals, to define the anticipated contribution of the proposed research to the body of knowledge (Knopf, 2006).

In general, a literature review comprises two key elements. Initially, it should provide a concise summary of the findings or claims derived from previous research on a specific subject. Secondly, a literature review should arrive at a conclusion regarding the precision and comprehensiveness of the knowledge; it should provide your considered assessments of the existing literature, including what is correct, what is incorrect, what is inconclusive, and what is absent. However, in contrast to other methods of surveying a body of literature, such as an annotated bibliography, the literature review is a work of synthesis (Knopf, 2006).

For this research, a literature review will be used to evaluate the different CST and identify gaps that warrant further investigation. This approach will facilitate a more profound insight into different methods to deliver CST.

2.2.1 Non-pharmacological therapy (NPT)

Several studies conducted by Olazaran *et al*. (2010), Hulme *et al*. (2010), Zucchella *et al*. (2018) and Park, Perumean-Chaney and Bartolucci (2021) have highlighted the importance of NPT in the delivery of CST for individuals with mild dementia. However, several weaknesses have been identified in the literature, including those pointed out by Olazaran *et al*. (2010) regarding the “lack of funding for the systematic research of nonpharmacological therapy” and Park, Perumean-Chaney and Bartolucci (2021), who state, “Many of the NPT trials are small-scale with poor methodologies and inconsistent outcome measures, which makes it difficult to compare the results and effects across programs”.

However, according to Olazaran *et al*. (2010) and Zucchella *et al.* (2018), the quality of life of individuals with dementia and their carers can be enhanced through the use of non-pharmacological therapies. Furthermore, the authors state that the pathological course of dementia, which affects cognition, functionality, and behaviour, as well as the enduring human needs that result from its advancement, creates various opportunities for social, environmental, and therapeutic interventions. Nevertheless, although pharmacotherapies appear to slow down some aspects of dementia symptom progression, the current limitations on drug efficacy and the need for various treatment options highlight the necessity for thorough evaluations of non-pharmacological therapeutic interventions in dementia (Olazaran *et al*., 2010).

Furthermore, the study conducted by Park, Perumean-Chaney and Bartolucci (2021) highlighted the essential factors that must be considered when delivering NPT, ensuring that this therapy becomes a primary intervention option for the care of individuals with dementia. These essential factors refer to the fact that the intervention needs to be person-centred because each individual is unique. Additionally, NPT must be easy to implement and integrate into the daily routines of individuals with dementia, as poor management of a intervention can adversely affect the quality of care and lead to unnecessary cost increases for both providers and patients (Dopp *et al*., 2015).

2.2.2 Individuals with mild dementia

Dementia is a neurological condition that generally begins with memory impairment, accompanied by alterations in other cognitive functions. Over time, it affects the individual's daily activities, leading to a state of dependence. Additionally, the pharmacological

intervention shows modest efficacy in treating this disease, resulting in a reduction of behavioural symptoms; however, cognitive symptoms remain unaffected according to Juarez-Cedillo *et al*. (2020).

CST has gained widespread usage over the past two decades, with three CST manuals published thus far. Currently, the National Institute for Health and Clinical Excellence (2006) guidelines endorse CST as the primary non-pharmacological intervention for addressing cognitive symptoms of dementia in the UK. These guidelines assert that individuals with dementia should have access to CST, regardless of any medication they are receiving (Rai, Yates and Orrell, 2018). However, it is important to note that while numerous studies have been conducted in this field across the world (Orrell *et al*., 2017; Capotosto *et al*., 2017; Lauritzen *et al*., 2023; Gobbor *et al*., 2021 and Kelly *et al*., 2017), all of these investigations have focused exclusively on participants with mild dementia.

Another limitation of these studies is the inclusion criteria. According to Spector *et al*. (2003), Spector, Gardner and Orrell (2003), and Orfanos *et al*. (2023), eligible participants must meet the following criteria: "i) a diagnosis of mild-to-moderate dementia assessed by a clinician; ii) the ability to see and hear adequately to engage in the group; iii) no major physical illness or disability that would hinder participation; and iv) no diagnosis of a learning disability".

Also, in the study conducted by Yates *et al*. (2015), another limitation was highlighted. The majority of participants were from a white ethnic background. Nonetheless, to assess the impact of CST on individuals from diverse ethnic backgrounds, subsequent research must incorporate participants from a broader spectrum of ethnicities. This will make sure that the results can be used on more people and are more generalisable. Researchers should also take into account the cultural contexts that might affect the results of intervention in these various groups.

2.2.3 Home-based setting or individual intervention

Delivering care for individuals with dementia presents a significant challenge for health and social care systems worldwide, not just in the UK. The development of therapeutic interventions that are both clinically effective and user-friendly, which can be administered by carers, has the potential to enhance the quality of life and cognitive function of individuals with dementia. Additionally, these interventions can engage carers in activities that are enjoyable and worthwhile (Yates *et al*., 2015).

There are various methods to deliver the intervention; however, this study will concentrate solely on group-based settings to deliver the intervention and individual interventions to evaluate their effectiveness in enhancing the quality of life for individuals with mild dementia.

The studies conducted by Orrell *et al*. (2017), Capotosto *et al*. (2016), Woods *et al*. (2023), and Yates *et al*. (2014) underscored the importance of CST in improving both the quality of life and cognitive function for individuals with mild dementia who participate in such therapy.

The study conducted by Woods *et al*. (2023) assesses the evidence regarding the efficacy of CST for individuals with dementia when the intervention is delivered in a group-based setting, as well as any potential adverse effects on cognitive function. Also, the researchers found that individuals with dementia will benefit more from the intervention when it is delivered twice per week.

However, the same concept was also noted in the study conducted by Capotosto *et al.* (2016). The researchers indicated that their findings confirm the efficacy of the intervention, at least in the short term, and that it supports cognitive functions and perceived quality of life in adults with dementia when implemented in group-based settings.

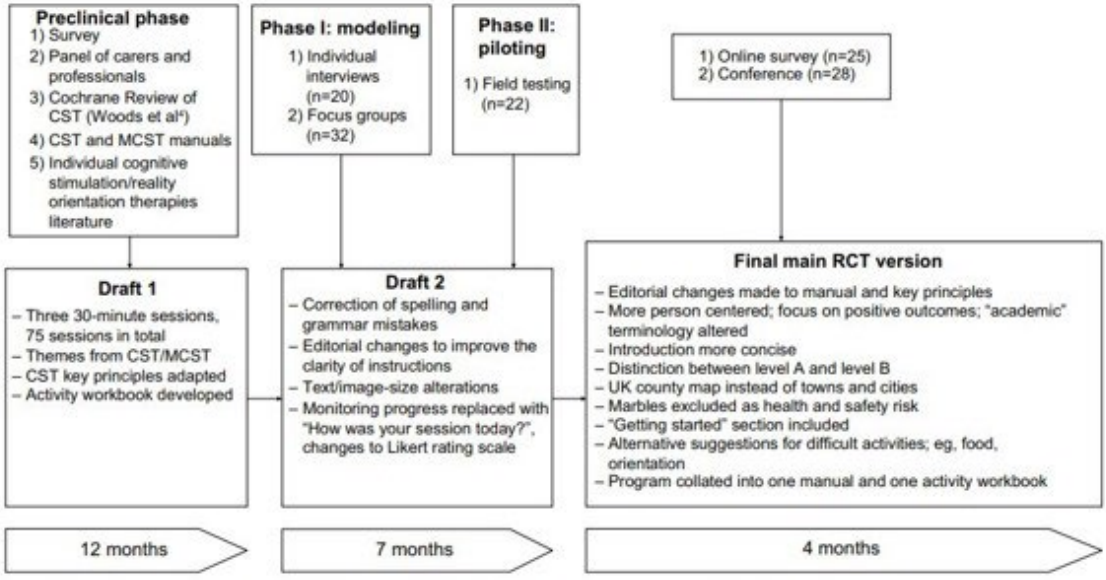
Substantial evidence indicates that group-based intervention offers general cognitive benefits for individuals with dementia. However, there is a lack of clarity regarding whether particular aspects of cognition may experience more pronounced changes, as well as the reasons behind such differences (Spector, Orrell and Woods, 2010).

The study conducted by Orrell *et al*. (2017) highlighted the impact of CST on the quality of life and cognition for participants with dementia. Furthermore, the study identified several strengths regarding the enhancement of participants' quality of life following the delivery of CST. However, it also found no evidence to suggest that iCST has any effect on cognition in individuals with dementia. Nevertheless, participation in iCST appeared to improve the quality of the caregiving relationship and enhance the quality of life for carers.

The study conducted by Yates *et al*. (2014) provided valuable insights into the needs of service users regarding the iCST programme, highlighting the importance of mental stimulation as perceived by both carers and individuals with dementia. Additionally, the researchers developed an initial draft of the iCST programme materials during the same study, which included a manual that complied with the guidelines established by the Medical Research Council (MRC) (refer to **Figure 3**). However, this investigation highlighted feasibility issues,

particularly regarding the availability of time to conduct the sessions. Nonetheless, the initial drafts of the iCST manual and activity workbook received positive feedback from carers and individuals with dementia, with specific praise for their professional appearance, the variety of ideas presented, and the clarity of the language used.

Figure 3. Development of the iCST program within the MRC framework



(Yates *et al*., 2014)

2.2.4 Cultural adaptation to deliver CST outside of UK

With an increased number of dementias in the last years, a diverse range of NPT has been developed to enhance the quality of life for individuals with dementia and their family carers. These therapies have been translated and adapted into various languages and are currently implemented in at least 39 countries around the world (Perez-Saez *et al.*, 2025).

According to Hwang (2009), cultural adaptation involves a systematic modification of the intervention to accommodate language, culture, and context, ensuring compatibility with the cultural patterns, meanings, and values of the participants.

Thus, frameworks for adapting interventions that focus on individuals with dementia must first take into account the cultural perceptions of dementia within the context of the intervention's application. Even in societies that may appear similar, the values, customs, and educational and healthcare systems can vary significantly, which may influence the implementation and

effectiveness of the intervention for both individuals with dementia and healthcare professionals (Voigt-Radloff *et al*., 2011).

Several studies have been conducted on this topic (Werheid *et al*., 2020; Perez-Saez *et al*., 2025; Capotosto *et al*., 2017; Alvares Pereira, Sousa and Vânia Silva Nunes, 2022; and Madsø, Weum and Holthe, 2024). All the studies highlighted the successful implementation of the intervention within their respective cultural contexts. However, a few limitations were identified: small sample size of participants (Werheid *et al*., 2020; Perez-Saez *et al*., 2025; Capotosto *et al*., 2017; Alvares Pereira, Sousa and Vânia Silva Nunes, 2022; and Madsø, Weum and Holthe, 2024), difficulty to getting the response specifically to the questions asked during the individual interviews (Perez-Saez *et al*., 2025), some information might have been lost because the interview was recorded on paper (Alvares Pereira, Sousa and Vânia Silva Nunes, 2022) and homogeneity of the group of participants (Madsø, Weum and Holthe, 2024).

2.2.5. Epidemiology of the problem of dementia

Currently, there is no cure for dementia; nevertheless, both pharmaceutical and non-pharmacological treatments aim to manage the symptoms of dementia. Consequently, a range of therapeutic approaches has been instituted, including CST (Juarez-Cedillo *et al*., 2020). Since 2003, when Spector *et al*. developed CST, all the studies conducted on it demonstrate that it only improves the quality of life for people with dementia (Alvares Pereira, Sousa and Vânia Silva Nunes, 2022), rather than offering a cure.

2.3 Chapter summary

In conclusion, a systematic review of the available literature on the selected topic demonstrates that CST can improve the quality of life for individuals with mild dementia. This intervention not only improves cognitive function, but it also encourages social interaction and emotional health. As a result, putting these kinds of interventions into practice in group-based settings or individually could be very helpful for both patients and their families.

The next chapter will outline the methodology adopted to conduct this research on the topic of “What are the different methods of the CST, why are these methods effective, and how can these improve the quality of life for people with dementia”.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter outlines the methodology adopted to conduct this research on the topic “What are the different methods of the CST, why are these methods effective, and how can these improve the quality of life for people with dementia". It includes a description of research design, including the inclusion and exclusion criteria, data extraction procedures, and thematic analysis techniques used to synthesise insights across studies. Booth *et al.* (2019) states that a structured methodology is fundamental to ensure the validity, reliability, and reproducibility of findings. The structured methodology provides a systematic framework that guides the researcher through each step of the study, minimises biases, and increases transparency (Dixon-Woods *et al*., 2006).

3.2 Systematic Literature Review (SLR)

A SLR is a highly formalised and protocol-driven method that involves the identification, evaluation, and synthesis of all pertinent research on a particular subject. The purpose of this process is to provide a reliable summary of the current evidence, identify gaps, and direct future research (Xiao and Watson, 2017; Aromataris and Pearson, 2014).

According to Moher *et al*. (2009), a SLR entails the formulating of a research question, the development of a protocol, the search for all pertinent studies, the application of selection criteria, the extraction of data, the synthesis of findings, and the writing and publication of a report. This method is performed in accordance with transparent protocols such as PRISMA to guarantee credibility and reproducibility.

This SLR aimed to identify all studies that address CST to improve quality of life among people with mild dementia in the UK. Then, by having strict inclusion and exclusion criteria and critically evaluating the quality of the studies included in this review, it not only provides valid conclusions but also a clear picture of the diverse nature of these CST. It is also crucial to produce clear and concrete recommendations that can be used in practice, thus laying the necessary foundation to improve quality of life for people with mild dementia.

3.3 Search Strategy

A search strategy in research refers to a systematic and organised approach used to identify relevant literature or data sources that address a specific research question (Ngulube, 2019). According to NICE (2014), the search strategy synthesises the fundamental concepts of the research topic to yield accurate results and includes all possible search terms, keywords, and phrases.

According to Hosseini *et al*. (2024) "PEO is the framework used to determine the relationship between exposure and health outcomes, helping the decision-makers decide on health policies and prevent adverse health outcomes".
The PEO (Population, Exposure, Outcome) framework was employed to concentrate the literature review. The population was defined as individuals with mild dementia, the exposure was CST, and the outcomes were improvements in quality of life.

The reason the PEO framework is used instead of PICO (Population, Intervention, Comparison, and Outcome) is that it is specifically designed to explore an exposure that may or may not influence the outcome (Butler, Hall and Copnell, 2016). This review aims to comprehend the broader context and evaluate the impact of CST on the quality of life of individuals with mild dementia. Consequently, exposure to particular interventions or comparisons among interventions is not important to the research question. Thus, the PEO framework was considered more suitable for delineating the search parameters and directing the SLR process.

3.4 Search terms

Surfing and browsing the internet has become an indispensable activity in contemporary society, states Lobo and Bichkar (2013).

According to Lewandowski (2015), a "search term" is a word or mix of words a user searches for information using a search engine or database. Search terms directly influence the relevance of search results. However, well-chosen terms help users obtain the most pertinent information quickly and efficiently, reducing search time and increasing user satisfaction (Hembrooke *et al*., 2005).

Furthermore, the use of synonyms in research is essential for improving the depth of information retrieval (Schotter, 2013). They enable researchers to obtain a comprehensive understanding of the literature by incorporating various terminologies that are employed across different studies and disciplines, thereby preventing any pertinent data from being neglected as a result of linguistic differences (Choudhary, 2012). Also, synonyms enhance search engine optimisation for published work, thereby increasing its visibility to a broader audience that may employ alternative keywords (Lobo and Bichkar, 2013). In general, the quality of a literature review and the accessibility of research findings are both improved by the integration of synonyms into research strategies (Schotter, 2013). However, high-quality synonyms possess identical or almost identical meanings only in certain contexts. Replacing them in all occurrences inside search queries can provoke search intent drift (Lobo and Bichkar, 2013).

Formulating a research question is an essential step in guiding any scientific study (Hosseini *et al*., 2024). In the research field, there are few frameworks which can help the researcher to formulate the research question. These frameworks are PEO, PICO, SPIDER and SPICE. PEO is designed for qualitative stuies and focus on social context; the PICO framework is not suitable for formulating research questions in qualitative research because it is more used in clinical and quantitative research (Hosseini *et al*., 2024); SPIDER helps clarify qualitative aims but can be less detailed regarding specific intervention. However, SPIDER is useful for systematic reviews of qualitative literature but limited when the research requires a focus on exposures and outcomes (Cooke, Smith and Booth, 2012). Also, SPICE was designed for clinical questions involving interventions within specific settings but may lack the focus on individual experiences or societal factors (Booth *et al*., 2019). A comparison of these frameworks can be found in **Table 1**. For this SLR was choose PEO becouse it's a qualitative review focused on social context (evaluate the CST to improve the quality of life for people with dementia).

Table 1. Frameworks Comparison

PEO	PICO	SPIDER	SPICE
Designed for qualitative research and studies	Used in clinical and quantitative research	Developed for qualitative and mixed-methods research	Designed for clinical questions involving interventions within specific settings
Focus on social contexts	Less suited for exploring perceptions, experiences, or social contexts.	Focus on participants and abstract phenomena;	Lack the focus on individual experiences or societal factors.
Flexible and well-suited for exploring complex, subjective experiences.		Useful for systematic reviews of qualitative literature;	
		Limited when the research requires a focus on exposures and outcomes.	

The PEO framework (refer to **Table 2**), is a useful approach for structuring searches and inquiry in fields like healthcare and social sciences, where qualitative data and broad impacts are of interest. “Population” (P) refers to the specific group, people with mild dementia. The research is directed towards comprehending the effects within this group, taking into account their distinctive requirements and challenges. The component "Exposure" (E) looks at the exposure of interest, which, in this research, is CST. This could include activities designed to enhance cognitive abilities, such as memory games, puzzles, social interactions, or structured programs that aim to engage the brain and encourage mental activity. Finally, the component "Outcomes" (O) is focused on improvements in quality of life. This part of the framework helps in framing the research in a way that highlights what changes or benefits are being measured as a result of the exposure.

Table 2: PEO Framework

Population	Individuals with mild dementia
Exposure	CST
Outcome	Improvements in quality of life

To summarise, the research question was developed to focus on people with mild dementia and the evaluation of CST to enhance their quality of life.

Based on the PEO framework, the following search question were formulated: "What are the different methods of the CST, why are these methods effective, and how can these improve the quality of life for people with dementia?".

To effectively conduct a search in multiple databases, it is important to integrate the synonyms and Boolean operators. The following keywords and synonyms was identified for each PEO component:

- Population (P):
    - Keywords: “mild dementia”
    - Synonyms: "early-stage dementia", "mild cognitive impairment"
- Exposure (E):
    - Keywords: "cognitive stimulation"
    - Synonyms: "mental exercises", "brain training", "cognitive exercises", "cognitive activities"

- Outcome (O):
    - Keywords: "quality of life"
    - Synonyms: "well-being", "life satisfaction", “standard of living”

The searches were conducted in multiple healthcare and psychology-focused databases such as: PubMed, CINAHL, ProQuest, UWTSD Library and Google Scholar. This was done to guarantee that the review has sufficient depth and breadth to address the research question that has been developed and that all pertinent articles are accessed.

To conduct a search in a database, the following search string was used: ("mild dementia" OR "early-stage dementia" OR "mild cognitive impairment") AND ("cognitive stimulation" OR "mental exercises" OR "brain training" OR "cognitive activities") AND ("well-being" OR "life satisfaction" OR “standard of living”).

3.5 Key Words

Keywords are critical words or phrases that encapsulate the main ideas or themes of a research topic. They are strategically selected to match the core components of a question or area of study, serving as the primary terms used to search for information in databases (Lardera and Hjorland, 2021).

The following keywords were used to achieve the search: “cognitive stimulation therapy”, “mild dementia”, “non-pharmacological therapy”, “focus group in delivering CST”, “individual CST” and “cultural adaptation”.

3.6 Databases

Conducting research can be a challenging endeavour. The objective is to identify as many studies on the subject of interest as is feasible, and a comprehensive search strategy must be devised and presented to the reader (Aromataris and Pearson, 2014).

For this SLR, was carried out a comprehensive search across multiple electronic databases, including PubMed, CINAHL, ProQuest, UWTSD Library and Google Scholar. The procedure entailed the developing of customised search that combined relevant terms related to CST, mild dementia, quality of life with Boolean operators (AND, OR, NOT). The results were refined using filters such as language (English) to enhance the accuracy of the findings and

publication date (the last fifteen years, 2010–2025), as most qualitative studies were conducted around 2010.

This method was implemented across many academic databases, each providing distinct advantages and content categories to guarantee a comprehensive collection of sources: PubMed - used for medical literature, CINAHL for nursing and allied health, ProQuest for psychological aspects, UWTSD Library and Google Scholar for interdisciplinary coverage.

Utilising multiple databases increases the likelihood of retrieving comprehensive and relevant literature. Gusenbauer and Haddaway (2020) reveal that no single database indexes all relevant literature, underlining the necessity of searching across several platforms to avoid missing critical research. Additionally, Evans (2002) emphasise that multiple databases help mitigate the biases and limitations of individual databases, ensuring a more balanced and comprehensive literature review.

3.7 Inclusion/Exclusion Criteria

Inclusion criteria are the set of characteristics that participants must have to be eligible for a study. These criteria are designed to define the study population clearly and include specific age ranges, the presence of a particular disease or condition, and certain demographic characteristics (Aromataris and Pearson, 2014). In contrast, exclusion criteria outline who should not participate, often to protect individuals from harm and reduce variability that could skew results. Together, these criteria enhance the study's reliability by minimising bias and confounding variables, effectively increasing the accuracy of findings (Sublok *et al*. 2025). By clearly defining the study population, inclusion and exclusion criteria ensure that the results are not only scientifically robust but also ethically sound. The inclusion and exclusion criteria developed for this research is demonstrated in **Table 3**.

Table 3 Inclusion and Exclusion Criteria

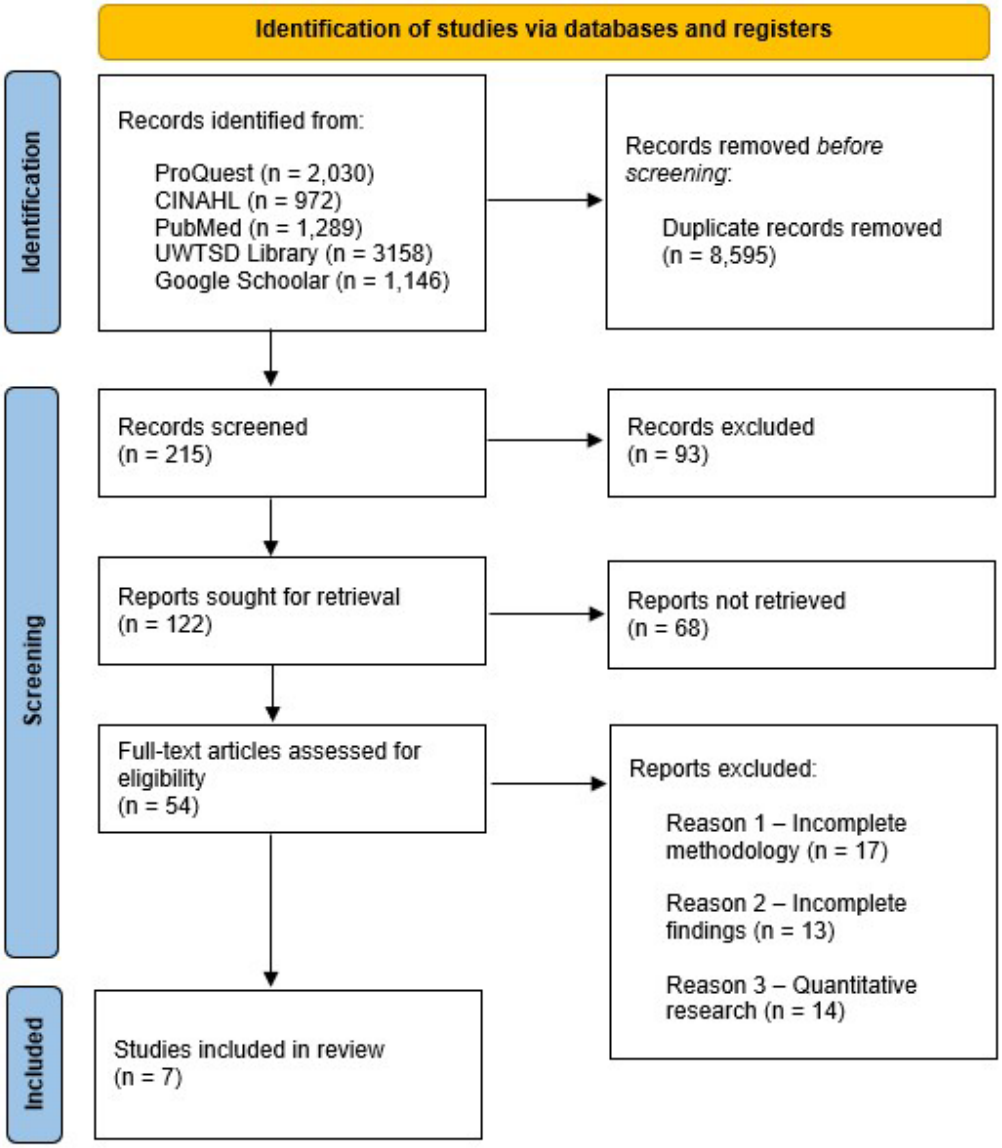
Inclusion Criteria	Exclusion Criteria
Studies conducted in the UK	Studies not conducted in the UK
Studies focusing on mild dementia	Studies focusing on another type of dementia like early stage or severe dementia
Studies published in the last 15 years	Studies published more than 15 years ago
Studies published in English	Studies not published in English
Studies that examine the effects of CST on mild dementia	Studies not addressing the effects of CST on mild dementia
Peer-reviewed articles and journals	Non-peer-reviewed articles, systematic reviews, editorials

3.8 Search Results

The search for relevant studies started with entering search words and key terms in the search engine, which led to the identification of 8,595 studies. To refine the search parameters, the terms “cognitive stimulation”, “mild dementia”, and “memory OR attention OR social interaction” are used.

Additionally, the inclusion and exclusion criteria were implemented, and Boolean operators were used. These modifications reduced the total to 215 articles. Initially, the search was conducted using ProQuest and CINAHL; however, the failure to find pertinent studies that met the eligibility criteria prompted the researcher to use PubMed, the UWTSD Library, and Google Scholar. Out of the 215 publications, 93 were removed because they were done in countries outside the UK or concentrated mostly on dementia in general rather than mild dementia. The remaining 122 papers were reviewed for their titles and abstracts, and those studies that did not encompass mild dementia were removed. Additionally, opinion papers were excluded, and from the remaining 54 publications, 17 were excluded due to either an incomplete methodology or the use of a systematic review as their approach, which could not be integrated into the study. Furthermore, the remaining 21 studies lacked a definitive statement of findings, while 14 of them employed a quantitative methodology. As a result, this systematic review identified and included only 7 studies (see **Figure 4**). The remaining studies underwent independent evaluation by two reviewers who assessed their relevance and extracted data.

Figure 4: PRISMA flow chart



3.9 Ethical Considerations

According to Arifin (2018), ethics in research refer to the principles and standards that guide researchers in conducting studies responsibly and with integrity. The study, employing a SLR methodology, does not necessitate ethical approval. Nonetheless, it was guaranteed that all included studies had received ethical approval prior to publication. However, were selected only studies that complied with ethical research guidelines, including informed permission and

the ethical treatment of participants. In addition, to mitigate bias, it was assured that the selected research employed a replicable and transparent methodology, devoid of human biases or conflicts of interest.

3.10 Chapter Summary

This chapter established the groundwork through the definition of the PEO framework, the delineation of search strategies across several databases, and the application of stringent inclusion and exclusion criteria. Ethical issues were crucial in the selection of studies that received ethical approval. The next chapter will examine the findings derived from the included research, focusing on the identification and synthesis of literature about the evaluation of various CST and their effects on individuals with mild dementia.

CHAPTER 4: DATA EXTRACTION AND EVALUATION

4.1 Introduction

This chapter aims to present the collected information regarding the selected studies in a table format to summarise them and facilitate comparisons. For this purpose, this chapter of the dissertation has an evidence table that presents detailed information on each study included in the SLR, as well as a summary that outlines the findings. Alongside this, the chapter offers a brief introduction of the critical appraisal and quality assessment tools used to evaluate the SLR review paper, highlighting its importance, strengths, and limitations.

4.2 Data Extraction

According to Schmidt *et al.* (2025), “data extraction is the process of capturing key characteristics of studies in structured and standardised form based on information in journal articles and reports”. In a SLR, data extraction precedes synthesis (Munn *et al*., 2014). Through data extraction, the researcher seeks to consolidate, process, and refine data in order to store it in a suitable location for transformation. Data extraction in a SLR is the process of capturing the essential characteristics of the included studies in a standardised and structured format (Schmidt *et al.*, 2025). It is important to extract data in order to evaluate the risk of bias in individual studies and to synthesise their findings (see **Appendix 2** for the Data Extraction Table).

4.3 Brief introduction to critical appraisal and paper quality assessment

A critical appraisal is defined as a critical component of a SLR that enables researchers to evaluate the credibility of the underlying research that underpins scientific knowledge. In the absence of a critical appraisal, the researcher is unable to interpret research findings in the context of the strengths and weaknesses of the methodologies employed by researchers to acquire their data (Tod, Booth and Smith, 2021).

In the realm of research, critical appraisal stands as a cornerstone for ensuring the reliability and applicability of study findings. This process is essential for several reasons.
Firstly, it ensures the reliability of research findings by rigorously assessing methodologies, which is important for preserving scientific integrity (Shuster, 2011). Critically appraising

studies helps identify sources of bias and confounding factors that might otherwise bias results, thereby fostering more accurate interpretations (Aromataris and Pearson, 2014).

Furthermore, critical appraisal helps to determine the relevance of study findings to specific populations or situations, which is essential for making effective evidence-based decisions. This strategy helps practitioners reliably integrate scientific data into practice to improve patient care and policy formulation (Straus *et al*., 2019).

Additionally, the practice of critical appraisal encourages continuous improvements in research quality by spotlighting well-conducted studies and revealing methodological inadequacies in others, thus raising the overall standard of research output (Aromataris and Pearson, 2014).

Overall, critical appraisal is indispensable in ensuring that the evidence base used in professional practice is both rigorously evaluated and practically applicable.

4.4 Critical Appraisal Tools

Crowe and Sheppard (2011) define a critical appraisal tool as a structured instrument or checklist for systematically evaluating the methodological quality and rigour of research articles. These tools let reviewers evaluate crucial features such as study design, data collecting, analysis, and interpretation, guaranteeing a thorough assessment of the validity and reliability of a study's findings (Buccheri and Sharifi, 2017).

However, selecting the appropriate critical appraisal tool is essential because different study designs — for example randomised controlled trials, cohort studies, qualitative research, or systematic reviews — have distinctive methodological features and potential biases. Using a tool tailored to the study type ensures that the appraisal is methodologically sound and comprehensive, the key sources of bias or limitations are identified, the evidence included in a systematic review is of high quality and suitable for synthesis, and the conclusions drawn are based on rigorous and credible research (Buccheri and Sharifi, 2017). But, this process enhances the reliability and applicability of the review’s findings, which is especially important when informing clinical practice, policy decisions, or further research (Katrak *et al*., 2004).

As mentioned above, selecting the appropriate tool ensures that each study is evaluated according to its methodological design, which is key to preserving the integrity of a systematic review. For example, tools like the Cochrane Risk of Bias Tool assess aspects such as

randomisation, blinding, and attrition; the Newcastle-Ottawa Scale evaluates selection bias, comparability, and outcome assessment. Other tools like the CASP (Critical Appraisal Skills Programme) or the JBI (Joanna Briggs Institute) look at how trustworthy, applicable, and self-aware the research is, while AMSTAR (A Measurement Tool to Assess Systematic Reviews) is commonly used to check the quality of reviews, including whether protocols were registered, how searches were conducted, and how bias was evaluated (Tod, Booth and Smith, 2021). However, for this SLR, the researcher intends to use CASP because this tool will provide a reliable, unbiased, and applicable synthesis for the available articles selected.

4.5 Evaluation of the Studies using CASP tool

As previously mentioned, there are numerous tools and methods available to conduct critical evaluations of studies. Nevertheless, the CASP tool is designed to assess qualitative research, offering a particularly advantageous structured and user-friendly approach for researchers who are inexperienced in critically evaluating qualitative studies (Tod, Booth and Smith, 2021). CASP provides a protocol to help researchers in the evaluation of the primary components of qualitative research, such as the relevance of the research question, the appropriateness of the methodology, the recruitment strategy, and the analysis of findings (Buccheri and Sharifi, 2017). This benefit makes the CASP tool a great choice because it focusses on the most important parts of qualitative research and is easy to understand, which ensures a thorough and accurate evaluation.

The CASP tool has various advantages that make it an attractive option for evaluating qualitative studies. It is quite easy to use since it has a clear and simple checklist that helps users, especially those who are new to qualitative research, go through the critical evaluation process (Long, French and Brooks, 2020). CASP also highlights how important it is to make sure that the study's aims match its methods and analysis. This makes sure that the research is both relevant and well-done (Buccheri and Sharifi, 2017). However, the CASP tool is useful in a wide range of educational and professional settings because it is flexible and easy to understand. It helps a wide range of researchers critically evaluate qualitative research (Katrak *et al*., 2004).

As mentioned above, the CASP tool is quite useful because it is easy to use and understand; however, it does have certain limitations. One big concern is that it might not have the depth needed to judge more complicated qualitative studies because it only gives a general checklist instead of going into detail about technical issues (Long, French and Brooks, 2020). Such limitations can be a problem for researchers who need more in-depth reviews. Also, relying on researcher judgement can make findings more subjective, especially if the appraiser does

not have a lot of experience with qualitative research. But, compared with the JBI critical appraisal tool, the CASP tool may seem less nuanced than others, especially when it comes to analysing the systematic processes involved in data analysis (Long, French and Brooks, 2020). These limitations could make it less useful for complex investigations that need a lot of attention to detail.

A comparison of different appraisal tools can be found in **Table 4**.

Table 4. Critical Appraisal Tools – comparation

Critical Appraisal Tools	STRENGTHS	WEAKNESSES
CASP	• "Provides systematic evaluation of research articles. • Encourages deep engagement with methodology. • Globally recognised in healthcare and social sciences. • Designed for both novices and experienced researchers" (Long, French and Brooks, 2020).	• "Oversimplifies complex methodological issues, requiring detailed analysis. • Evaluator bias can affect reliability. • Overreliance on checklists may neglect nuanced context. • Not all questions are relevant across diverse study designs" (Long, French and Brooks, 2020).
Cochrane Risk of Bias Tool	• "Evaluates multiple bias domains: selection, performance, detection, attrition, reporting. • Facilitates transparency about potential biases, improving credibility of systematic reviews. • Regularly updated, reflecting current methodological standards and bias assessment evidence" (Higgins *et al.*, 2011).	• "Subjectivity in judgments, especially with incomplete or ambiguous information. • Designed for randomised controlled trials, limited applicability to observational studies. • Provides qualitative judgments, challenging for meta-analytical comparisons" (Higgins *et al.*, 2011).
JBI	• "Tailor-made for various study designs (qualitative, cross-sectional, cohort, case-control, experimental). • Covers methodological quality, bias, and validity. • Clear, easy-to-understand questions accessible to researchers. • Widely used in health research and systematic reviews" (Munn *et al.*, 2014).	• "Subjective responses can lead to variability unless clear criteria are strictly followed. • Tools function as guiding questions, not composite scores, making weighting or comparison challenging. • Conducting detailed appraisals with multiple checklists can be time-consuming" (Munn *et al.*, 2014).
AMSTAR	• "Provides a structured, validated framework for assessing the methodological quality of systematic reviews. • Helps identify potential biases and methodological limitations in systematic reviews" (Shea *et al.*, 2007). • The updated version, AMSTAR 2, addresses nonrandomised studies and provides nuanced quality ratings" (Shea *et al.*, 2017).	• "Assesses review process, not study quality or validity. • Some criteria rely on reviewer judgment, potentially leading to variability. • Provides qualitative assessment, not numerical score, complicating comparisons. • Originally designed for systematic reviews of randomised trials; AMSTAR 2 extends usability" (Shea *et al.*, 2017).

The table above (**Table 4**) shows that CASP is the appropriate critical appraisal tool for this SLR. This is because it has a structured, clear, and easy-to-use framework that encourages critical appraisal of different types of studies. By focusing on systematic questioning, it makes sure that methodological quality is always assessed in the same way, which makes review findings more reliable and reproducible.

In conclusion, structured methodologies, such as the CASP tool, can be advantageous for assessing the quality of qualitative research; however, it is crucial to implement these approaches appropriately. Nevertheless, novice researchers may require additional assistance when evaluating the quality of qualitative research, and synthesis teams may derive substantial advantages from incorporating qualitative expertise (Long, French and Brooks, 2020).

The CASP qualitative questionnaire, which is employed to evaluate the selected studies critically, comprises 10 questions, each of which is responded to for each study (see **Appendix 1**).

4.5.1 Critical evaluation of Article 1

Yates *et al.* (2015) employed a qualitative methodology to “gain insight into perceptions of mental stimulation from the point of view of carers and people with dementia, to ensure the materials are easy to use, clear, and appropriately tailored to the needs of people with dementia and their carers, and to assess the feasibility of the intervention”.

The CASP (2018) checklist for qualitative studies expects a study to have a clear statement of the research aims (Doody and Bailey, 2016). This requirement ensures that the research is focused and that the objectives are explicitly defined, allowing for a more structured and meaningful analysis (Tully, 2014). A well-defined aim also helps guide the methodology and interpretation of the findings. The aim of the study conducted by Yates *et al*. (2015) is explicitly expressed in the abstract and introduction section.

Similarly, choosing a qualitative approach is appropriate and adequately fulfils the study's aims. Yates *et al*. (2015) performed semi-structured interviews and focus groups as complementary qualitative methodologies to evaluate the viability of the iCST program and the quality of the initial draft of the produced materials. Individuals with dementia and their carers were consulted both alone and collectively to ensure that each group could express

their opinion and delineate their preferences for the program, which may vary based on their roles and requirements.

In qualitative research, saturation is the most common employed governing principle for evaluating the adequacy of purposive samples (Morse, 2015). Nevertheless, there has been a lack of clarity regarding the sample sizes required to achieve saturation and the assessment of saturation (Hennink and Kaiser, 2022). However, although saturation is crucial for the rigour of qualitative samples, there is a consistent lack of transparency in the justification of sample sizes in published qualitative research (Carlsen and Glenton, 2011; Hennink , Kaiser and Marconi, 2017).

According to Malterud, Siersma and Guassora (2016), a qualitative study requires at least 12 participants to achieve data saturation. While Creswell and Creswell (2018) suggested that a sample size ranging from 10 to 50 is adequate, contingent upon the type of research and the research question. On the other hand, Hennink and Kaiser (2022) delineate various methodologies for evaluating saturation, indicating that saturation can be attained within a limited number of interviews (9–17) or focus group discussions (4–8), especially in research with reasonably homogeneous groups and precisely stated aims.

4.5.2 Critical evaluation of Article 2

Leung *et al*. (2017) conducted a study “to explore people with dementia and family carers’ concepts of mental stimulation and experiences of participating in the iCST intervention”. For this purpose, a subsample of 23 dyads of people with dementia and their family carers completed the iCST intervention. To complete this study, the researchers used semi-structured, in-depth interviews to collect data.

CASP (2018) asks if the ethical issues have been considered. "Ethics in research defines guidelines for conducting professional research". It instructs and governs researchers to adhere to a stringent ethical code throughout research activities (Hasan *et al*. 2021).

The research methodology will remain incomplete without addressing ethical considerations. Honesty in data reporting, privacy, secrecy, and accurate results is fundamental to the research methodology (Hasan *et al*. 2021). The researchers must comply with ethical norms at every phase of the study process. The accuracy and fairness of study outcomes are more probable when the research design, sample methodologies, data collection methods, instruments, materials, and data analysis methods are conducted ethically (Knottnerus and

Tugwell, 2018). To validate the study, it is imperative to comply with ethical rules during both the execution and reporting phases (Hasan *et al*. 2021).

The research undertaken by Leung *et al*. (2017) received approval from the Multi-centre Research Ethics Committee (reference number 10/H0701/71). Individuals with dementia and their family carers provided informed consent to participate in the qualitative study. They were also requested to get permission for the audio recording of the interview.

4.5.3 Critical evaluation of Article 3

Orfanos *et al*. (2020) conducted a study "to explore experiences of group interactions in CST and longer-term maintenance CST (MCST) groups". The recruitment for this study occurred in three distinct branches of the same charity located in the East Midlands, South West, and South East of England, as well as in a private homecare organisation situated within a multicultural borough of inner-city London. All groups were directed by facilitators who underwent the standard one-day CST training program. Moreover, all facilitators have several years of expertise dealing with a dementia population and had previously conducted CST/MCST groups.

For this purpose, it was established before recruitment that interviewing individuals from a minimum of four groups, with an anticipated sample size of around 15 to 20, would be necessary for a representative data set. Upon collecting data from four groups, the study team concurred that the data exhibited adequate similarity (i.e., sufficient saturation), prompting the cessation of recruitment.

CASP (2018) asks if the recruitment strategy was appropriate to the aims of the research. Recruitment is essential to research methodology (Negrin *et al*., 2023). Participant enrolment in research can be difficult, according to Spratling (2013); yet it is a crucial determinant of study outcomes (Newington and Metcalfe, 2014). Moreover, recruitment affects the credibility of qualitative research (Jessiman, 2013). The recruitment process is frequently under-represented in qualitative research projects, state Kristensen and Ravn (2015). Recently, recruitment has increased attention in the qualitative methodology literature (Giorgi, 2021). However, the recruitment process requires further consideration to enhance comprehension of its planning and execution.

CASP (2018) requires the researcher to explain the selection process, the selection criteria, and any discussions surrounding recruitment, such as why some participants chose not to

participate in the study.

Initially, a purposeful sampling approach was employed to identify shared dimensions and diverse variations by sampling participants from a geographically diverse range of areas within England. As was mentioned before, the recruitment process was conducted in three distinct branches of the same charity, located in the East Midlands, South West, and South East of England, as well as a private homecare organisation located in a multicultural borough of inner-city London. A total of 25 participants who satisfied the inclusion criteria were referred to this study, comprising 21 group members and four group facilitators from four distinct groups. Three group members denied participation: two males who expressed disinterest and one female who was not interviewed due to health issues.

Members of the eligible group were mandated to fulfil the subsequent criteria, as delineated by a prior CST study (Spector *et al*., 2003): "i) mild-to-moderate dementia assessed by a clinician; ii) were able to see and hear well enough to participate in the group; iii) did not have a major physical illness or disability affecting participation; iv) were not diagnosed with a learning disability; v) attended at least one CST and/or MCST group". Group facilitators were interviewed to find out if they led or facilitated the CST and/or MCST group from which participants were recruited.

Demographic data regarding age, gender, and ethnicity was collected, along with a request for information on dementia state and/or diagnosis. Participants deemed potentially eligible were required to possess the ability to provide informed permission for study participation. Nonetheless, an effort was made to allocate sufficient time for group members to arrive at a decision when they deemed themselves prepared.

4.5.4 Critical evaluation of Article 4

Spector, Gardner and Orrell (2011) conducted a study that sought to investigate whether improvements found in clinical trials were also noted by people with dementia, their carers, and group facilitators in everyday life.

CASP (2018) asks if the relationship between researcher and participants has been adequately considered. This consideration is essential in order to ensure that participants feel valued and respected throughout the research process and to adhere to ethical standards. Researchers can acquire more reliable and insightful data by cultivating an environment of trust. Researchers and participants are both important parts of the final

product since they each add something special to the project. Both of them may feel very involved. People feel involved because they talk about their experiences. Researchers become involved because they want to understand the experiences of others and have studied them in depth (Karnieli-Miller, Strier and Pessach, 2009). However, this relationship is even more complicated because the researchers and participants have important and sometimes conflicting roles. Participants, who are sometimes clients or patients, supply the researchers most of the data. The researcher is the study's philosopher, data collector, story analyser, writer, and publisher. The researcher usually gathers much of the data themselves by doing interviews or observing participants (Karnieli-Miller, Strier and Pessach, 2009).

In this study, Spector, Gardner and Orrell (2011) set out to create an optimal learning environment that facilitates memory formation by maintaining a consistent and uninterrupted program of cognitive stimulation between sessions. Key principles addressed by the researchers include highlighting opinions over facts and using implicit learning rather than explicit teaching. The researchers believe that these efforts capitalise on the strengths of people with dementia, thereby reducing their likelihood of failure and building their self-confidence. These practices may also lead to more positive self-evaluation, increased communication, and the use of cognitive skills in everyday life, as well as positive reinforcement of questioning, thinking, and interaction.

4.5.5 Critical evaluation of Article 5

Alvarez Pereira, Sousa and Vania Silva Nunes's (2022) article presents the findings of a study that tried "to present the cultural adaptation process of the CST manual, "Making a Difference" (Spector *et al*., 2003), for the Portuguese population. Portugal is one of the oldest countries in the world, and more and more people there are getting dementia. Experts estimate that dementia affects about 200,000 people in Portugal. There is a definite demand for non- pharmacological interventions to ease dementia symptoms and make life better. However, most of the research conducted has been clinical and non-systematic, which complicates the evaluation of its efficacy. Additionally, the studies completed are frequently academic and unpublished. The researchers investigated the feasibility and cultural suitability of CST for Portuguese individuals with dementia.

CASP (2018) asks if a clear statement of findings is there. According to Sandelowski and Barosso (2002), findings in qualitative studies typically consist of detailed, rich, and descriptive data that provide insights into people's experiences, perceptions, motivations, behaviours, and social contexts. Findings in qualitative studies are particularly challenging due to their

transdisciplinary nature and focus on representation (Sandelowski and Barosso, 2003). However, qualitative researchers hold diverse perspectives concerning the nature of their findings, their relationship with data, methodology, and how these findings should be communicated. Nevertheless, qualitative findings must be clearly identified to be pertinent to research integration efforts, policy development and implementation, and clinical practice, irrespective of the beliefs that underlie them (Sandelowski and Barosso, 2003). But no matter what beliefs govern qualitative findings, researchers must ensure that these findings are discovered for them to be meaningful in research integration work, policy development and implementation, and clinical practice (Sandelowski and Barosso, 2003).

The primary findings of the study conducted by Alvarez Pereira, Sousa and Vania Silva Nunes (2022) indicate that the adapted program was deemed acceptable and enjoyable by a small group of adults with dementia at a rehabilitation centre in Portugal. However, researchers should view the results of the study with caution because, as previously mentioned, the sample size was limited, and it was only conducted in one rehabilitation centre. Another finding of this research indicates that the study is flawed due to the possible loss of information in both focus groups and individual interviews, as notes were taken on paper instead of being audio-recorded (Alvarez Pereira, Sousa and Vania Silva Nunes, 2022). Although it uses personal experience and public data, strict regulations are needed for meticulous integration of information (Wong *et al*., 2017).

4.5.6 Critical evaluation of Article 6

Peres-Saez *et al.* (2025) conducted a study “to assess the validity and acceptability of an adapted version of CST for the Spanish population and culturally adapt the original UK manuals”. Spain is among the countries with the most rapidly ageing population. This results from an increase in life expectancy and a reduction in the birth rate. Consequently, the prevalence of individuals afflicted by age-related illnesses, such as dementia, has risen. Dementia impacts around 700,000 individuals in Spain, with projections indicating that this figure may reach nearly two million by 2050 (Soto Gardoa *et al*., 2015; Villarejo Galende *et al*., 2021).

CASP (2018) asks if the recruitment strategy was appropriate to the aims of the research. To complete this study, the researchers conducted two focus groups with healthcare experts specialising in dementia care: a pilot study with a limited sample size (n = 6), and individual interviews with participants, family carers, and group facilitators. The study was conducted at the National Reference Centre for Alzheimer's and Dementia Care (CREA), a professional

institution for dementia care in Spain. The participants included eight healthcare professionals for the focus groups, six patients with dementia from CREA outpatient programs for the pilot study, their family carers, and two group facilitators. The study concluded with individual interviews conducted with dementia patients and group facilitators who participated in the pilot trial to gather their insights. Each interview lasted around 20 minutes and was administered by a member of the research team using a prearranged script, who recorded and transcribed the participants' comments.

4.5.7 Critical evaluation of Article 7

Madsø, Weumb and Holthe (2024) conducted a study “to investigate how family carers in Norway experienced delivering iCST, their need for supervision and the potential for co-occupation”. The prevalence of dementia in Norway exceeds that of comparable high-income countries. This increase raises concerns about the availability of adequate healthcare resources and support systems to cope with the growing number of people affected by this disease. It is therefore essential that policymakers focus on research and intervention initiatives tailored specifically to address the unique challenges associated with dementia in the Norwegian context (Johnsen *et al*., 2024). In contrast, some argue that Norway’s robust healthcare infrastructure and its commitment to social welfare may mitigate the impact of rising dementia rates. This perspective suggests that, rather than focusing exclusively on the challenges, there is potential for innovative models of care and community support systems to emerge, improving the quality of life of those affected by dementia (Madsø, Weumb and Holthe, 2024).

CASP (2018) asks if the ethical issues have been considered. Ethical approval and data management were evaluated and authorised by the Norwegian Centre for Research Data (ID 463683). Family carers participating in the project were issued a formal invitation letter accompanied by an informed consent form to complete and send to the project leader (Madsø, Weumb and Holthe, 2024).

4.6 Chapter Summary

In conclusion, SLR are significantly improved by the inclusion of data extraction and quality assessment tools, which contribute to the reliability and validity of the findings. Consequently, the CASP qualitative checklist was chosen as an appropriate quality appraisal tool and

meticulously implemented on the selected articles. In the next chapter will be discussed in detail the themes of these articles.

CHAPTER 5: DATA ANALYSIS AND SYNTHESIS

5.1 Introduction

This chapter provides an analysis of the data obtained from the included studies. It also includes the specifics of the thematic analysis conducted and the framework selected for obtaining themes from the selected data. In addition, this chapter highlights the characteristics of the included studies, including the location, methodology, and data analysis used. Finally, it provides a comprehensive synthesis of the incorporated research; identifying the themes and sub-themes that emerged throughout the study.

5.2 Thematic Analysis

Ahmed *et al*. (2025) defines thematic analysis as "methods for analysing qualitative data" while Braun and Clarke (2006) and Scharp and Sanders (2018) suggest that thematic analysis is a systematic method for identifying, analysing, and reporting repeating patterns, referred to as themes, within a dataset. However, analysis frequently transcends simple description and explores the interpretation of various aspects related to the subject of study (Braun and Clarke, 2006).

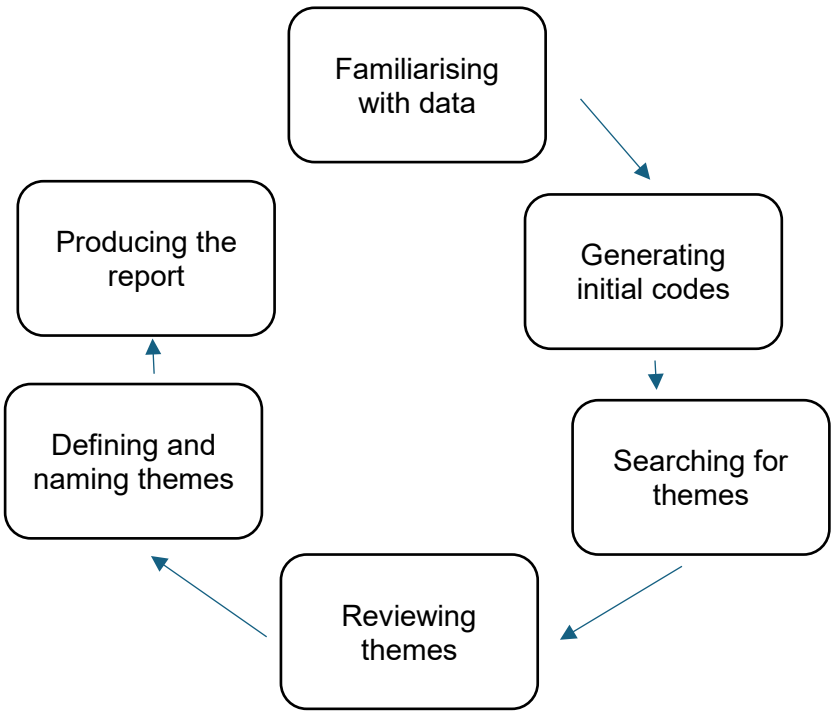
Thematic analysis is commonly used in projects, including interviews, focus groups, or textual data, to assist researchers in producing comprehensive, nuanced insights. In SLR, the study of secondary data, such as findings from several research, is sometimes termed "thematic synthesis" or "thematic analysis of secondary data" (Thomas and Harden, 2008).

In addition to thematic analysis, alternative methods for analysing qualitative data in an SLR include narrative analysis, grounded theory and framework analysis (Graue, 2015). The justification for employing a thematic analysis method in this SLR is its provision of flexibility and its relative accessibility for novice researchers (Castleberry and Nolen, 2018). Neuendorf (2018, pp.211-223) argued that this flexibility frequently results in inconsistent outcomes; hence, it is crucial to exercise caution while employing this technique.

5.3 Data analysis tool

The chosen thematic analysis framework for examining and synthesising relevant papers is Braun and Clarke's (2006) six-phase model: "familiarising with data", "generating initial codes", "searching for themes", "reviewing themes", "defining and naming themes" and "producing the report" (see **Fgure 5**) . This framework is one of the most prevalent approaches for executing theme analysis, owing to its systematic and rigorous methodology that improves the transparency, credibility, and reliability of qualitative evaluations. However, it often extends beyond this, interpreting many facets of the research topic (Braun and Clarke, 2006).

Figure 5 - Thematic analysis



According to Braun and Clarke (2006) the framework guarantees that themes are identified and interpreted in a systematic manner, providing a clear, structured approach to qualitative data analysis. Its significance is in the ability of researchers to identify meaningful patterns that reflect the profundity of the data, which enables the synthesis of comprehensive insights across multiple studies (Clarke and Braun, 2017). In addition, Braun and Clarke's framework is adaptable and appropriate for various qualitative datasets, such as secondary data in systematic reviews, thereby facilitating rigorous thematic analysis (Braun and Clarke, 2006).

5.4 Characteristics of the identified studies

Of the 7 studies, 4 studies were from the UK (Yates *et al*., 2015; Leung *et al*., 2017; Orfanos *et al*., 2020; Spector, Gardner and Orrell, 2011), 1 study was from Portugal (Alvares Pereira, Sousa and Vânia Silva Nunes, 2022), 1 study was from Spain (Perez-Saez *et al*., 2025) and 1 study was from Norway (Madsø, Weum and Holthe, 2024).

Out of 7 studies, 2 focus groups and interviews (Yates *et al*., 2015; Perez-Saez *et al*., 2025) and 2 semi-structured in-depth interviews were conducted (Leung *et al*., 2017; Orfanos *et al*., 2020); 1 study used qualitative interviews and focus groups (Spector, Gardner and Orrell, 2011); 1 study used focus group discussions (Alvares Pereira, Sousa and Vânia Silva Nunes, 2022); and 1 study used semi-structured interviews (Madsø, Weum and Holthe, 2024) (See **Appendices 2** – Data extraction table).

5.5 Emerging Themes from included studies

The analysis of the included studies resulted in the identification of the following themes and subthemes (see **Table 5**).

:

Table 5. Themes and subthemes identified in the included studies

Themes	Subthemes	Yates *et al.* (2015)	Leung *et al.* (2017)	Orfanos *et al.* (2020)	Spector, Gardner and Orrell (2011)	Alvarez-Pereira, Sousa and Vânia Silva Nunes (2022)	Perez-Saez *et al.* (2025)	Madsø, Weum and Holthe (2024)
Harnessing Cognitive Stimulation for Mental Vitality	Understanding Cognitive Stimulation in Practice	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Perceived Cognitive and Emotional Benefits	Yes	Yes	Yes	Yes	Yes	Yes	Yes
The range of mentally stimulating activities that promote cognitive engagement and emotional well-being	Interactive challenges: quizzes, puzzles and cards	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Creative arts	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Music Therapy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Physical activities	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Reality Orientation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Feasibility of a home-based programme of mental stimulation	Home setting programs	Yes	Yes					Yes
	Periodicity of the sessions	Yes	Yes					Yes
Benefits and challenges of group expression in emotional, social, and cognitive contexts	Positive feelings			Yes	Yes	Yes	Yes	
	Listening to others and feeling able to talk			Yes	Yes	Yes	Yes	
	Sharing a diagnosis			Yes	Yes	Yes	Yes	
	Supportive/non-threatening			Yes	Yes	Yes	Yes	
Potential difficulties in delivering the cognitive stimulation program among people with dementia	Overwhelm amount users	Yes	Yes					Yes
	Lack of time	Yes	Yes					Yes
	Keeping the motivation	Yes	Yes					Yes
Cultural adaptation of Cognitive Stimulation Therapy for individuals outside the UK	Knowledge awareness between stakeholders and family members					Yes	Yes	Yes
	Feedback from stakeholders and family carers					Yes	Yes	Yes
	Cultural adaptation of the program					Yes	Yes	Yes

5.5.1 Harnessing Cognitive Stimulation for Mental Vitality

All included studies in the review found that CST was created in the United Kingdom (UK) and is one of the most widely used and evidence-based (Spector *et al*., 2003) and cost-effective (Knapp *et al*., 2006) programs for enhancing cognitive function and quality of life in individuals with mild to moderate dementia (Woods *et al.,* 2012). Alzheimer's Disease International (ADI) recommends cognitive stimulation in the World Alzheimer's Reports (2011, 2014), as do the National Institute for Health and Clinical Excellence and the Social Care Institute for Excellence (NICE-SCIE) (2006). In 2018, NICE guidelines update, states that the CST has continued to be the only non-pharmacological intervention that is recommended for the enhancement of cognition, independence, and well-being (NICE, 2018).

In 2003, Spector *et al*. developed CST, a 14-session structured program, that is typically administered twice a week in a social environment and in small groups of five or six individuals. Each session is approximately 45 minutes in duration and offers two levels of difficulty, A and B, that can be selected in accordance with the group members' characteristics. CST offers a variety of playful-themed activities that promote the development of memory, concentration, and thinking (Spector *et al.,* 2006). The authors defined a set of fundamental principles to guide its implementation, including the following: respect for individuality, maximising the potential of each participant, strengthening interpersonal relationships, and prioritising person-centred over impairments (Spector *et al*., 2006).

5.5.1.1 Understanding Cognitive Stimulation in Practice

CST is an evidence-based intervention that has demonstrated advantages for cognitive function and quality of life in individuals with mild to severe dementia (Spector *et al*., 2003; Woods *et al*., 2012).

The CST can be administered either individually or in a group context (Lobbia *et al*., 2018; Rai, Yates and Orrell, 2018). However, several individuals may be unable to attend CST groups due to various difficulties, mobility issues, hesitance to engage in a group environment, or the absence of accessible local CST groups. A CST delivered individually by family carers at home is expected to enhance accessibility for individuals with dementia and their carers. Research indicates that CST administered individually by a family carer or in a group may enhance cognitive function in individuals with dementia (Onder *et al*., 2005).

5.5.1.2 Perceived Cognitive and Emotional Benefits

The majority of individuals with dementia regarded cognitive stimulation as an activity that offered possibilities to maintain cerebral activity “the brain going”, engage in reflection, enhance concentration, and remain vigilant. They also underscored the significance of maintaining mental activity, as 'if you do not use it, you lose it' (Leung *et al*., 2017; Yates *et al*., 2015; Orfanos *et al.*, 2020; Spector, Gardner and Orrell, 2011; Alvarez-Pereira, Sousa and Vânia Silva Nunes, 2022; Perez-Saez *et al*., 2025 and Madsø, Weum and Holthe, 2024).

Several carers suggested that CST offered opportunity to engage with the present, connect with the past, and assimilate new information (Leung *et al*., 2017; Yates *et al*., 2015).

5.5.2 The range of mentally stimulating activities that promote cognitive engagement and emotional well-being

This concept encompasses a wide range of activities that are intended to stimulate and engage the cognitive processes of the brain, such as memory, reasoning, problem-solving, and emotional regulation. Particularly, for people with dementia, it is essential to participate in such activities to preserve cognitive health (Willis *et al*., 2006). These activities are flexible to diverse preferences and abilities, making them suitable for a variety of settings, including the home, clinical settings and community (Ball *et al.,* 2002).

5.5.2.1 Interactive challenges: quizzes, puzzles and cards

Quizzes, puzzles and card games are esteemed cognitive activities that enhance reasoning, logic, and memory. These exercises enhance brain connections, support cognitive reserve (Valenzuela and Sachdev, 2009) and delay cognitive decline (Fissler *et al*., 2017). Similarly, a carer remarked that activities incorporating visual or auditory components were more valuable than merely sitting and reading (Leung *et al*., 2017; Yates *et al*., 2015; Orfanos *et al.*, 2020; Spector, Gardner and Orrell, 2011; Alvarez-Pereira, Sousa and Vânia Silva Nunes, 2022; Perez-Saez *et al*., 2025 and Madsø, Weum and Holthe, 2024).

5.5.2.2 Creative arts

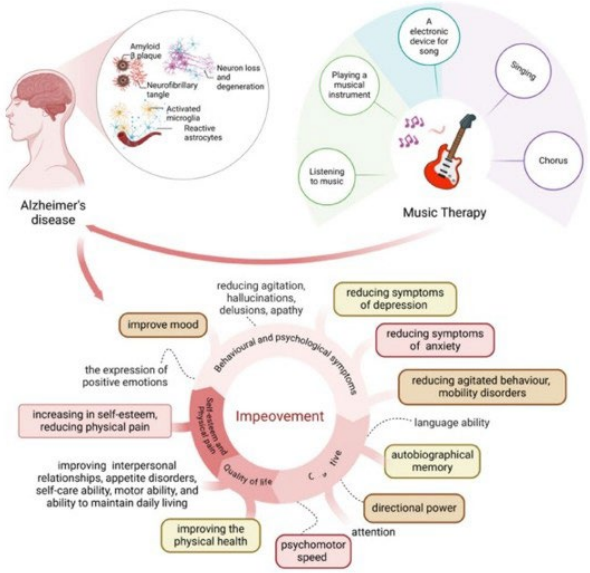
Creative art, including painting, drawing, and crafting, are essential components of CST for individuals with dementia, as they activate various brain regions associated with perception, emotion, and memory, thus enhancing cognitive abilities such as attention, language, and executive functions (Windle *et al*., 2018; Chancellor, Duncan and Chatterjee, 2014). These activities provide nonverbal avenues for expression that are especially beneficial as linguistic

capabilities diminish, enhancing confidence, eliciting good feelings, and cultivating a sense of accomplishment (Beard, 2012). Moreover, engaging in creative arts can elevate mood, alleviate symptoms of sadness and anxiety, and promote social engagement in group contexts, fostering emotional well-being and social connectivity (Hinz, 2020). Likewise, the use of art in CST programs fosters a nurturing atmosphere that enhances multi-sensory engagement, recollection, and identity affirmation, rendering it a potent intervention for elevating the quality of life for adults with dementia (Leung *et al*., 2017; Yates *et al*., 2015; Orfanos *et al.*, 2020; Spector, Gardner and Orrell, 2011; Alvarez-Pereira, Sousa and Vânia Silva Nunes, 2022; Perez-Saez *et al*., 2025 and Madsø, Weum and Holthe, 2024).

5.5.2.3 Music Therapy (MT)

Music therapy is an essential element to keep people with dementia's minds active because it uses the way the brain responds to music to improve memory, thinking skills, and happiness. Music stimulates different neural pathways, including those pertaining to emotion, language, and memory (Wang *et al*., 2025). It has been shown that music therapy activities like singing, listening to music, or just playing instruments can improve mood, calm people down, and help brain processes like attention and processing speed (Vink, Bruinsma and Scholten, 2011). Similarly, MT encourages social contact and emotional expression, which improves quality of life in general and health (see **Figure 6**) (Leung *et al*., 2017; Yates *et al*., 2015; Orfanos *et al.*, 2020; Spector, Gardner and Orrell, 2011).

Figure 6. Music therapy

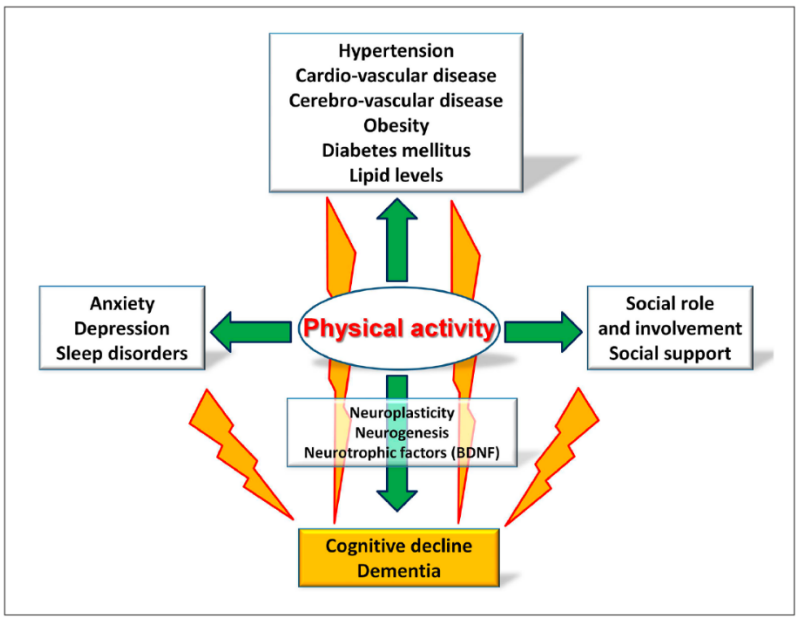


(Wang *et al*., 2025)

5.5.2.4 Physical activities

Physical activities are essential for cognitive stimulation, as regular movement - such as walking, dancing, or other exercises - promotes brain health and improves cognitive functions including memory, attention, and executive functioning (Kramer and Erickson, 2007). Furthermore, exercise has been associated with enhanced mood, diminished symptoms of depression and anxiety, and an improved general quality of life (Noetel *et al.*, 2024). Similarly, in CST, incorporating physical activities directly improves brain function while promoting social connection and behavioural engagement, so creating a comprehensive approach to enhancing cognitive and emotional well-being (see **Figure 7**) (Leung *et al.*, 2017; Yates *et al.*, 2015; Orfanos *et al.*, 2020; Spector, Gardner and Orrell, 2011).

Figure 7. Physical activities



(Bula, 2019)

5.5.2.5 Reality Orientation (RO)

RO is a critical cognitive stimulation technique that was initially introduced in 1966 as a therapy for the rehabilitation of elderly patients who were disoriented. This entails providing the patient with ongoing memory and orientation information regarding personal matters and the patient's surroundings (See **Figure 8**) (Camargo, Justus and Retzlaff, 2015; Chiu *et al.*, 2018). Similarly, RO assists individuals with dementia in preserving their sense of personal identity, current time, and environment. It entails the provision of consistent, structured signals and reminders about reality, such as the date, location, and familiar people, to mitigate

confusion, agitation, and disorientation (Orfanos *et al.*, 2020; Spector, Gardner and Orrell, 2011).

Figure 8. Reality Orientation

*(*Chiu *et al.*, 2015)

5.5.3 Feasibility of a home-based programme of mental stimulation

The feasibility of implementing a home-based mental stimulation programme hinges on several factors, such as accessibility, acceptability, safety, and sustainability for participants. Home-based interventions offer a practical and cost-effective way to promote cognitive health, especially for individuals with mobility issues or those living in remote areas (Mohlman, Chazin and Georgescu, 2011). Essential factors encompass verifying that activities align with the cognitive capabilities of participants, ensuring carers have sufficient assistance and training to facilitate these activities, and confirming that materials are readily available and adaptable for home implementation (Ma *et al.*, 2025).

5.5.3.1 Home setting programs

Home setting programs are intervention strategies aimed at enhancing health, well-being, and functional independence within an individual's living environment. These programs comprise several activities, including cognitive stimulation, physical exercise, and social interaction, customised to address the specific requirements of individuals with dementia. Executing

programs in the home setting presents several benefits, such as enhanced convenience, comfort, and participation rates, since individuals are more inclined to engage in activities within a safe and familiar context (Silva *et al*., 2021). Effective home-based programs frequently depend on continuous assistance from healthcare experts, flexible resources, and carer training to optimise compliance and efficacy (Yates *et al*., 2015).

5.5.3.2 Periodicity of the sessions

Periodicity of the sessions refers to the frequency and consistency with which interventions, activities, or therapy sessions are carried out within a program. The best schedule is determined by the desired outcomes, the nature of the activities, and the demands of the participants. CST, for example, frequently propose 30- to 60-minute sessions held twice or three times a week to maintain engagement without fatigue (Spector *et al*., 2003). The ideal interval balances intensity with participants' stamina and motivation, and it can be altered based on individual reactions, carer availability, and resource limits. Consistent scheduling is essential for obtaining long-term cognitive and emotional improvements and maintaining program commitment (Yates *et al*., 2015).

5.5.4 Benefits and challenges of group expression in emotional, social, and cognitive contexts

Group expression activities, including sharing stories, sharing feelings, and discussions, provide substantial advantages in the cognitive, social, and affective domains. These activities promote emotional well-being by offering a secure environment in which individuals can express their emotions, process their experiences, and alleviate feelings of isolation and depression (Leung, Orrell and Ortega, 2015). Socially, group expression fosters a sense of community and support, improves communication skills, and improves social connections, all of which are essential for mental health and overall quality of life (Toms *et al.*, 2015). Cognitively, participating in group activities stimulates thinking, memory, and problem-solving skills by encouraging dialogue, reminiscence, and shared learning (Orfanos *et al.*, 2020; Spector, Gardner and Orrell, 2011; Alvarez-Pereira, Sousa and Vânia Silva Nunes, 2022; Perez-Saez *et al*., 2025).

5.5.4.1 Positive feelings

Engaging in group activities, such as conversations, expressing emotions, and exchanging stories, can greatly enhance positive feelings among participants. These activities give people

with dementia the opportunity to feel pleasure, hope, and a sense of belonging, all of which are important for their mental health. According to Clark, Tamplin, and Baker (2018), sharing personal stories or creative work often leads to feelings of pride, connection with others, and success, which can help people with dementia to mitigate the feelings of depression and loneliness. Similarly, participants frequently stated that they looked forward to visiting the group each week and were saddened that it was ending (Spector, Gardner and Orrell, 2011).

5.5.4.2 Listening to others and feeling able to talk

Listening to others and feeling able to talk are essential components of group expression activities (Spector, Gardner and Orrell, 2011). These activities enhance the emotional and social well-being of people with dementia. Alsawy *et al*. (2020) state that active listening makes people with dementia feel appreciated, understood and valued, which boosts their self-esteem and builds trust within the group. Likewise, creating an inclusive and non-judgemental environment is critical to ensuring that all people with dementia feel comfortable and empowered to listen and speak freely (Proctor, 2001).

5.5.4.3 Sharing a diagnosis

Sharing a diagnosis in group contexts entails individuals with dementia engaging in open discussions with their peers regarding their health conditions (Spector, Gardner and Orrell, 2011; Orfanos *et al.*, 2020). Likewise, this process can promote emotional support, reduce stigma, and cultivate feelings of validation by enabling individuals with dementia to share their experiences and receive support from others who understand their circumstances (Alsawy *et al*., 2020).

5.5.4.4 Supportive/non-threatening

Supportive/non-threatening settings are essential for promoting open and honest communication in group settings, particularly when addressing difficult subjects such as dementia (Wilberforce *et al.*, 2022). Such settings foster trust, respect, and safety, enabling people with dementia to express their thoughts and feelings without fear of judgement or stigma. Facilitators are essential in fostering a non-threatening environment by exhibiting empathy, active listening, and acceptance (Spector, Gardner and Orrell, 2011). Likewise, when individuals with dementia receive support, they are more inclined to seek assistance and build significant relationships with others (Wilberforce *et al*., 2022).

5.5.5 Potential difficulties in delivering the cognitive stimulation program among people with dementia

Delivering a cognitive stimulation program to people with dementia can face multiple challenges. One significant difficulty is the wide variability in individuals' cognitive abilities and disease progression, which makes it hard to tailor activities to meet everyone's needs effectively (Dickinson *et al.*, 2017). Carer involvement is also crucial; lack of training, support, or availability can limit consistent facilitation of programs. Similarly, the carers indicated that feeling overwhelmed by caregiving duties could diminish his motivation to implement the program (Yates *et al*., 2015).

5.5.5.1 Overwhelm amount users

Overwhelm may occur when a program or activity is developed without regard for the capacity, requirements, or resources available, resulting in people with dementia experiencing stress, anxiety, or frustration (Reuben *et al*., 2022) . Effective communication, gradual implementation of activities, and vigilant facilitation are essential tactics for fostering a secure and inclusive environment in which people with dementia feel supported, protected, and empowered to engage fully without experiencing overwhelm (Yates *et al*., 2015).

5.5.5.2 Lack of time

Lack of time is a common challenge in delivering programs, especially for carers, staff, or participants with busy schedules. When time limits exist, sessions may be shortened or skipped, reducing the effectiveness and consistency of the intervention. This can lead to decreased engagement, insufficient practice of skills, and limited overall benefits (Madsø, Weum and Torhild, 2024). Similarly, carers indicated that time constraints, whether full-time or part-time employment, role strain, or other familial obligations, hindered their ability to engage in activities (Leung *et al*., 2017; Yates *et al*., 2015).

5.5.5.3 Keeping the motivation

Keeping the motivation is essential for the successful implementation of cognitive stimulation programs. People with dementia may experience fluctuations in cognitive stimulation programs due to fatigue, frustration, or disease progression. In this situation, motivation should be supported by setting achievable goals, providing positive reinforcement, and personalising activities according to individual preferences. Maintaining engagement, preventing dropout, and encouraging long-term participation require constant feedback and

adapting activities to the changing needs of participants (Leung *et al*., 2017; Yates *et al*., 2015).

5.5.6 Cultural adaptation of CST for individuals outside the UK

CST's cultural adaptation for individuals with dementia outside the UK entails the modification of the current intervention to accommodate the cultural values, beliefs, language, and daily experiences of diverse populations (Spain, Portugal and Norway) (Hwang, 2009). This process entails the translation of materials into the local language, the integration of culturally pertinent themes, stories, and stimuli, and the verification that activities are in alignment with the cultural backgrounds of the participants (Alvarez-Pereira, Sousa and Vânia Silva Nunes, 2022; Perez-Saez *et al*., 2025 and Madsø, Weum and Holthe, 2024).

5.5.6.1 Knowledge awareness between stakeholders and family members

Understanding and awareness among stakeholders and family members are essential elements in assisting individuals with dementia. When stakeholders - such as healthcare professionals, carers, and community members - have a thorough understanding of dementia, its progression, and effective care strategies, they are better prepared to deliver compassionate, customised support that improves the individual's quality of life (Zucchella *et al*., 2018). Similarly, knowledgeable family members can recognise early signs, address daily challenges more effectively, and participate actively in carer planning and decision-making, thereby fostering a collaborative and empowered environment (Alvarez-Pereira, Sousa and Vânia Silva Nunes, 2022; Perez-Saez *et al*., 2025 and Madsø, Weum and Holthe, 2024).

5.5.6.2 Feedback from stakeholders and family carers

Feedback from stakeholders and family carers is essential for the continuous improvement and tailoring of dementia cognitive stimulation therapy. Their insights provide valuable information about the practicality, appropriateness, and cultural relevance of interventions, helping to identify strengths and areas needing adjustment (Turner *et al*., 2017). Family carers often share firsthand experiences about daily challenges, emotional impacts, and unmet needs, which inform better support strategies and resources (Orrell *et al*., 2017). Stakeholders, including healthcare professionals and community organisations, can offer feedback on program feasibility, sustainability, and alignment with health policies. Collecting and integrating feedback through surveys, interviews, or focus groups fosters a participatory

approach, ensuring that services remain person-centred, culturally sensitive, and responsive to evolving needs (Turner *et al*., 2017).

5.5.6.3 Cultural adaptation of the program

The last step in the cultural adaptation of a CST is to extensively review and refine the adapted intervention to ensure it is culturally relevant, acceptable, and effective for the target community. This method includes pilot testing the customised program with community leaders, gathering input on its appropriateness, clarity, and resonance, and making necessary changes based on participant feedback and observations (Hwang, 2009). Once completed, the culturally adapted program should be evaluated for efficacy and sustainability, ensuring that it fits the community's requirements while also effectively promoting engagement, participation, and good outcomes (Alvarez-Pereira, Sousa and Vânia Silva Nunes, 2022; Perez-Saez *et al*., 2025 and Madsø, Weum and Holthe, 2024).

5.6 Chapter Summary

This chapter has highlighted the main themes identified in the 7 included studies: Harnessing Cognitive Stimulation for Mental Vitality; The range of mentally stimulating activities that promote cognitive engagement and emotional well-being; Feasibility of a home-based programme of mental stimulation; Benefits and challenges of group expression in emotional, social, and cognitive contexts; Potential difficulties in delivering the cognitive stimulation program among people with dementia and Cultural adaptation of CST for individuals outside the UK. These themes have been further divided into subthemes which were discussed in the chapter. In the next chapter will be discussed in detail the findings of these articles.

CHAPTER 6: DISCUSSION

6.1 Introduction

This chapter critically appraises the different ranges of CST, the feasibility of a home-based mental stimulation program, and the benefits and challenges of group expression in emotional, social, and cognitive contexts. Also, it will critically appraise potential difficulties in delivering the cognitive stimulation programme among people with dementia and the cultural adaptation of CST for individuals outside the UK.

6.2 Discussion of Key findings

For this SLR, only qualitative research conducted in the UK was used and focuses on exploring the appropriate approach to the application of CST, either individually or in groups, while also exploring how European countries have culturally adapted this therapy to improve the quality of life of people with dementia. In total, six themes were identified: “Harnessing Cognitive Stimulation for Mental Vitality”, “The range of mentally stimulating activities that promote cognitive engagement and emotional well-being”, “Feasibility of a home-based programme of mental stimulation”, “Benefits and challenges of group expression in emotional, social, and cognitive contexts”, “Potential difficulties in delivering the cognitive stimulation program among people with dementia” and “Cultural adaptation of Cognitive Stimulation Therapy for individuals outside the UK”.

6.2.1 Harnessing Cognitive Stimulation for Mental Vitality

The present findings from this systematic literature review seem to be consistent with other research which found that carers, family members, and people with dementia stressed the importance of maintaining mental activity, highlighting various cognitive, emotional, and functional advantages derived from participation in mentally stimulating activities (individually or in groups) (Yates *et al*., 2015; Leung *et al*., 2017 and Spector, Gardner and Orrell, 2011). However, carers and family members believed that mental stimulation might enhance quality of life and positively influence mood. Furthermore, individuals experiencing dementia highlighted the importance of engaging in meaningful activities to maintain their identity and create a connection between their present and past life stages (Yates *et al*., 2025).

However, even though numerous studies have been conducted on this topic, indicating various cognitive benefits of stimulation therapy (Aguirre *et al*., 2013; Barnes *et al*., 2009; Cahn-Weiner, Boyle and Malloy, 2002; Knapp *et al*., 2006; Lin *et al*., 2017; Matsuda *et al*., 2010; Orgeta *et al*., 2015; Spector, Orrell and Woods, 2010; Wilson *et al*., 2002), a critical evaluation shows that the advantages of these therapies are not conditional on the administration of anticholinesterase drugs (Aguirre *et al*., 2013; Barnes *et al*., 2009; Cahn-Weiner *et al*., 2002; Matsuda *et al*., 2010; Wilson *et al*., 2002). But some of the other research indicates that the beneficial outcomes of this therapy are subordinate to those linked with pharmacological prescriptions (Woods *et al*., 2012), therefore advocating for a combined treatment approach for these patients (Matsuda *et al*., 2010; Olazaran *et al*., 2010). However, this cognitive stimulation intervention necessitates few resources and can be implemented in groups or individually, yielding comparable cognitive outcomes to pharmacological treatments, which impose considerable costs on public health systems (Lopez, Sanchez and Martin, 2020).

Nevertheless, as was observed in the mentioned studies, persons with dementia require support from others to participate in CST, and their family or carers may have challenges implementing the program if the person with dementia experiences visual, auditory, or linguistic impairments (Madsø, Weum and Holthe, 2024).

6.2.2 The range of mentally stimulating activities that promote cognitive engagement and emotional well-being

The present findings from this systematic literature review highlight that individuals with dementia and their carers recognise a diverse array of cognitively engaging activities: interactive challenges such as quizzes, puzzles, and card games; creative arts; music therapy; physical exercises; and reality orientation. However, some of the other research indicates that these workouts strengthen neural connections, bolster cognitive reserve (Valenzuela and Sachdev, 2009), and postpone cognitive decline (Fissler *et al*., 2017). Though, participating in conversation and games or puzzles was among the most favoured recommended activities. Both people with dementia and carers believed practical work and outdoor activities enabled them to keep cognitively active and boost their well-being (Yates *et al*., 2015; Leung *et al*., 2017).

The findings of the current study are consistent with those of Wand *et al*. (2025) who has shown that music therapy positively impacts sleep disturbances by reducing overnight

disruptions, enhancing daytime alertness, and improving overall sleep quality. As was shown in other studies, active musical intervention (AMI) can enhance socialisation, involvement, and self-expression more effectively than alternative approaches. Music therapy (MT) for dementia patients can enhance cognition, behaviour, psychology, and quality of life, thereby mitigating the progression of the disease (Vink, Bruinsma and Scholten, 2011). Moreover, some of the other research indicates that music therapy is more efficacious when integrated with other non-pharmacological therapies, and sustained MT yields long-term benefits for individuals with dementia and their carers (Wand *et al*., 2025). In the same direction with the findings from this systematic literature review, the study conducted by Chiu *et al*. (2018) demonstrates that RO therapy alone or combined with other types of intervention (cognitive stimulation) showed significant improvements in cognitive functions in people with dementia.

This is important because the findings from this systematic literature review suggested that the individuals with dementia reported that CST facilitated their awareness of retained memory capabilities and encouraged them to maintain mental engagement (Leung *et al*., 2017). Also, they emphasised the significance of preserving a link to family, friends, and the community, including the presence of grandchildren and participation in volunteer activities (Leung *et al*., 2017).

6.2.3 Feasibility of a home-based programme of mental stimulation

The findings from this systematic literature review concern the feasibility of the CST that may arise during the delivery of the cognitive stimulation activities at home (Yates *et al*., 2015). As the study highlights a home-delivered program for mentally stimulating activities was positively welcomed, particularly during winter when adverse weather conditions may isolate individuals with dementia (Yates *et al*., 2015; Leung *et al*., 2017). However, carers stressed the significance of engaging in activities collectively, whereas individuals with dementia expressed their wish to participate in home-based activities, contingent upon assistance from others. This finding aligns with the scaffolding theory, which asserts that cognitive assistance allows carers to be sensitive to the cognitive needs of individuals with dementia (McCabe, Robertson and Kelly, 2018). Additionally, individuals with dementia which residing alone expressed worries over the identification of potential assistance for the program, whereas those cohabiting or frequently visited by family were concerned about the availability of carers, particularly if they were employed. Carers also voiced concern, as certain individuals with dementia believed they could occupy themselves at home without participating in activities (Yates *et al*., 2015; Leung *et al*., 2017 and Madsø, Weum and Holthe, 2024). Furthermore,

this SLR examined the periodicity of sessions, specifically addressing the number of sessions that may be conducted weekly, the duration of each session, and the timing of the sessions. The findings suggested that most of the carers agreed that attending three sessions each week would be feasible, although it may not always be practical due to factors like motivation (for both the carer and the individual with dementia), emotional states, or the need to prioritise other responsibilities (Yates *et al*., 2015). Also, the finding suggested that dedicating 20–30 minutes to an activity would be feasible; nevertheless, numerous carers indicated a preference for brief, casual sessions and proposed distributing these sessions throughout the day (Yates *et al*., 2015; Leung *et al*., 2017).

However, the results of the present study do not align with those of Montgomery and Williams (2001), which indicate that a minority of carers perceived the CST program as impractical, and some carers proposed that it would be more appropriate if administered by a professional. Also, these findings must be interpreted with caution because the personalities of both the carer and the person with dementia can also impact these interactions, state Zarit *et al*. (2011).

6.2.4 Benefits and challenges of group expression in emotional, social, and cognitive contexts

The findings of this study indicated that the benefits of group expression included the ability to discuss thoughts, emotions, or everyday conversations without feeling compelled to do so if one did not wish to (Orfanos *et al.*, 2020; Spector, Gardner and Orrell, 2011; Alvarez-Pereira, Sousa and Vânia Silva Nunes, 2022 and Perez-Saez *et al*., 2025). Another important finding was that CST participants agreed that the group was both enjoyable and relaxing. These findings are consistent with the descriptions of CST group experiences in other qualitative studies (Gibbor *et al*., 2020; Orfanos, Gibbor, Carr and Spector, 2020; Spector *et al*., 2011). In addition, most participants reported that their participation in the group resulted in a more positive, calmer, and more confident outlook and that they wanted to continue participating in the group because the group allowed them to hear the opinions of others, which was engaging and broadened their perspective on life. Most participants also reported that the CST group was a supportive and non-threatening environment that created a sense of community and friendship (Spector, Gardner and Orrell, 2011).

The results of the current study align with those of McCabe, Robertson and Kelly (2018) and Nygard (2006), indicating that the results of cognitive stimulation activities are consistent with the enrichment process theory. This theory suggests that individuals with dementia may not

remember the specifics of the activities but can still reflect on “feelings of enjoyment” and “feeling good”.

Also, the present study's findings offer novel insights into the challenges associated with a group format in CST, such as the difficulty of group expression, the failure to establish relationships with others, and the difficulty of forming group bonds. However, these results are consistent with the broader body of literature on group processes, which includes research on group conflict and avoidance (Bruce *et al*., 2024) and negative working group relationships (Johnson *et al*., 2006).

6.2.5 Potential difficulties in delivering the cognitive stimulation program among people with dementia

The current study found that carers identified several difficulties to implementing the CST. According to Yates *et al*. (2015), Madsø, Weum and Holthe (2024) and Leung *et al*. (2017), the carers struggled to incorporate CST into a busy schedule. This finding is in agreement with Adam’s (2008) and Campbell *et al*.’s (2008) findings, which indicated that these difficulties may pertain to their limited time, motivation (Spector, Gardner and Orrell, 2011) or energy for enjoyable activities.

Furthermore, carers discovered that involving individuals with dementia in CST could be especially difficult because of the increasing characteristics of the condition. This finding corroborates the ideas of Choi and Twamley (2013), who suggested that poor physical health or diminished emotional well-being was considered an impediment to activity participation for those with dementia.

The present findings seem to be consistent with other research which found that certain carers felt inadequately skilled to implement the intervention, thereby affecting adherence to it (Chee *et al*., 2007). Also, carers proposed that additional assistance, through the involvement of others in implementing the CST and prioritising their daily responsibilities, would help reduce role strain (Lopez-Hartmann *et al*., 2012). Additionally, in diverse populations, activities may not receive the necessary adaptations, which can create further barriers due to cultural and language differences (Madsø, Weum and Holthe, 2024). However, the implementation of CST in different setiings (hospital and community care facilities) will be affordable for the population (Juarez-Cedillo et al., 2020) and will reduce the potential difficulties.

6.2.6 Cultural adaptation of CST for individuals outside the UK

The results of this SLR indicate that all forms of CST adhere to specified principles, enabling the family member or carer to tailor the materials to the interests and needs of individuals with dementia. Consequently, the specific activity should be excluded if it evidently does not serve the individual's interests or lacks enjoyment or significance. This imposes a duty on the family member or carer to tailor the activity's content to the individual, necessitating an understanding of dementia, the individual, and the underlying principles (Alvarez-Pereira, Sousa and Vânia Silva Nunes, 2022; Perez-Saez *et al*., 2025 and Madsø, Weum and Holthe, 2024).

CST is an evidence-based, non-pharmacological, activity-orientated intervention (“Making a difference”) for individuals with mild to moderate dementia, initially proposed in the UK by Spector *et al.* in 2003, like to group therapy. As indicated by the other study, the group format of CST may be unsuitable or inaccessible for some individuals because of sensory impairments, communication difficulties, mobility issues, lack of availability in their location, or personal choice not to participate in group activities (Orrell *et al*., 2017). However, to engage more individuals with dementia, iCST, a home-based, one-on-one intervention administered by carers, was established (Yates *et al*., 2015) and documented in a manual for carers (*Making a Difference 3*; Yates *et al*., 2019). Also, iCST was created through comprehensive iterative procedures involving family carers, individuals with dementia, and professionals familiar about CST, as detailed in *Yates et al*. (2015).

Moreover, feedback from participants, carers, and family members was overwhelmingly favourable, emphasising the enthusiasm and enjoyment experienced by the participants during the sessions. These findings align with those reported in earlier qualitative studies concerning CST experiences (Gibbor *et al*., 2020; Orfanos, Gibbor, Carr and Spector, 2020; Spector *et al*., 2011; Yates, *et al*., 2017; Orrell *et al*., 2017).

The findings of this study indicated that the culturally adapted CST proved to be a valid and acceptable intervention, highly regarded by individuals with dementia, carers, and care professionals.

The results of the present study do not correspond with those of James *et al*. (2021), which suggest that the effectiveness of CST may be constrained by the possibility of disregarding significant cultural beliefs and social practices due to inadequate cultural adaptations. Furthermore, preserving the therapeutic essence of CST while incorporating cultural adaptations can be difficult, as it may result in a dilution of its core principles.

6.3 Strengths and Limitations

This chapter's critical analysis provides a comprehensive examination of how CST serves as a tool for co-occupation among people with dementia and their carers, including both family members and professionals. One strength of this analysis is that this systematic literature review brings together both methods to deliver the CST, individually or in a group, and, at the same time, brings in the discussion of the cultural adaptation of CST in a few European countries. Another strength of this study is the selection of themes. The themes were selected from the three categories of intervention examined in the review: individually, in a group and cultural adaptation.

However, there are limitations to consider. One limitation refers to the impossibility of finding more qualitative studies conducted in the UK. In the last period (2010–2025), only a few qualitative studies were conducted in the UK; this limitation had a negative impact because the researcher had the possibility to analyse only four qualitative studies conducted in the UK for this systematic literature review. A further limitation was the insufficient ethnic diversity among the studies' participants. Despite maximising representativeness through data collection across a varied geographical area in England, all group members and facilitators were from white British backgrounds.

6.4 Chapter Summary

In conclusion, this chapter provides a critical examination of CST in the UK context and the complexities involved in adapting it to diverse cultural contexts across Europe. The review highlights the importance of harnessing cognitive stimulation to promote mental vitality, with an emphasis on a wide range of activities that support cognitive and emotional well-being. Furthermore, the chapter assesses the benefits of collective expression in promoting emotional, social, and cognitive context, taking into account any challenges associated with group dynamics and individual differences. The chapter argues that good cultural adaptation is crucial for the implementation of CST outside the UK, requiring awareness of local languages, customs, and social circumstances to ensure its relevance and effectiveness.

CHAPTER 7: RECOMMENDATIONS AND CONCLUSION

7.1 Introduction

Currently, there is no cure for dementia; however, both pharmaceutical and non-pharmacological interventions seek to manage mood and behavioural symptoms while improving the quality of life for those affected by this condition. In addition to pharmacological therapies, a multi-dimensional approach has been adopted: Cognitive Stimulation Therapy (Juarez-Cedillo *et al*., 2020). CST is a group-based intervention that has shown effectiveness in enhancing cognitive function and improving the quality of life for individuals with dementia (Orfanos *et al*., 2020).

This chapter presents an overview of the implications arising from the study findings and provides recommendations for both practice and future research. Finally, general conclusion will be offered. The **Table 6** summarises the research objectives.

Table 6. Research objectives - summarise

Objectives	How this was achieved
Objective 1: To evaluate the different methods of CST	Conducted a systematic review of 7 studies, using thematic analysis to identify different methods to deliver CST
Objective 2: To identify the best method to deliver CST	Review existing evidence from qualitative studies and compare different approaches

7.2 Implications of findings

The findings of this study hold a major influence on dementia care, encompassing practice, policy, and future research. Firstly, the demonstrated benefits of CST highlight the necessity for its broader integration into community services and healthcare settings. This integration is expected to enhance cognitive outcomes, emotional well-being, and social engagement for individuals living with dementia. Secondly, policymakers are encouraged to allocate resources for the training of practitioners and carers; the establishment of standardised protocols; and the assurance of equitable access to CST across diverse regions and facilities. Additionally, the results emphasise the importance of person-centred approaches by advocating for the use of tailored activities that resonate with the interests and preferences of individuals with

dementia to maximise therapeutic benefits and engagement. Furthermore, the findings indicate that ongoing capacity development through specialised training is essential to ensuring high-quality service delivery. Finally, the study highlights areas for further research, such as exploring integration with other interventions, assessing long-term impacts, and adapting CST for diverse ethnic populations.

7.3 Recommendations for Practice

Some of the practice recommendations are:

- Increase training and ongoing professional development for facilitators to ensure they are well-equipped to deliver CST in accordance with best practices, including personalised activity planning and culturally responsive approaches.
- Standardise session structures and core components to maintain consistency and fidelity across various settings while still allowing flexibility to tailor activities to individuals' needs.
- To promote holistic care and comprehensively address cognitive, emotional, and social needs, integrate CST within a multidisciplinary team approach.
- Educate healthcare professionals, carers, and families about CST to encourage greater engagement and support for dementia patients.
- Establish robust monitoring and evaluation mechanisms to measure outcomes, inform continuous improvement, and demonstrate the value of CST.

7.4 Recommendations for Future Research

Future research should focus on:

- Explore the long-term effects of CST to ascertain its sustained benefits over time and its influence on disease progression.
- Investigate the integration of CST with other NPT, including psychological therapies.
- Examine the effectiveness of CST across diverse populations, taking into account various cultural backgrounds, differing stages of dementia, and coexisting health conditions.

- Research the cost-effectiveness of CST and its application in various healthcare settings.

- Develop and evaluate digital or remote delivery models for CST to enhance accessibility for individuals with dementia in rural or underserved areas, ensuring that a broader range of people can benefit from this evidence-based intervention.

7.5 Conclusion

This research on the topic “Evaluation of different cognitive stimulation therapies and its impact on the quality of life of people with dementia” was conducted to evaluate which method to deliver CST – group-based or individual – is more efficient to improve the quality of life for individuals with mild dementia in the UK. To better assess how countries outside the UK have adapted CST to their culture, the research was extended to include articles published in English but in other European countries. For this purpose, a systematic review methodology was adopted, and seven relevant research articles (only qualitative studies) were selected and included: 4 articles from the UK, 1 article from Spain, 1 article from Portugal, and 1 article from Norway. The thematic analysis of these seven studies revealed six themes and nineteen subthemes.

The findings of this study showed that CST was well received by both carers and individuals with dementia. Furthermore, the results indicate that the cultural adaptation of CST, which incorporates the necessary linguistic and cultural modifications, is suitable for the European context.

The evidence presented in the study indicated that iCST may be the best method for delivering CST to improve the quality of life for individuals with dementia, but this approach requires a video tutorial on key principles and the establishment of a chat line for family carers who have questions about iCST. This study thus calls for immediate actions to be taken by the government and policymakers to achieve equity in care and ensure that individuals with dementia and their carers can have access to these materials regardless of the geographical area where they live.

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Appendix 1: CASP Table

Checklist Questions		Yates *et al.* (2015)	Leung *et al.* (2017)	Orfanos *et al.* (2020)	Spector, Gardner and Orrell (2011)	Alvarez-Pereira, Sousa and Vânia Silva Nunes (2022)	Perez-Saez *et al.* (2025)	Madsø, Weum and Holthe (2024)
1.	Was there a clear statement of the aims of the research?	Yes. "To gain insight into perceptions of mental stimulation from the point of view of carers and people with dementia, to ensure the materials are easy to use, clear, and appropriately tailored to the needs of people with dementia and their carers, and to assess the feasibility of the intervention".	Yes. "To explore people with dementia and family carers' concepts of mental stimulation and experiences of participating in the iCST intervention".	Yes. "The main aim of the present study was to explore experiences of group interactions in CST and longer-term maintenance CST (MCST) groups".	Yes. "To investigate whether improvements found in clinical trials were also noted by people with dementia, their carers and group facilitators in everyday life".	Yes. "To test the feasibility and cultural appropriateness and adapted CST to Portuguese people with dementia".	Yes. "To assess the validity and acceptability of an adapted version of Cognitive Stimulation Therapy (CST) for the Spanish population and culturally adapt the original UK manuals".	Yes. "To investigate how family carers in Norway experienced delivering iCST, their need for supervision and the potential for co-occupation".
2.	Is a qualitative methodology appropriate?	Yes. "To gain insight into perceptions of mental stimulation", this methodology is appropriate.	Yes "To explore the impact of CST on people with dementia", this methodology is appropriate	Yes. "To explore the experiences of the group interactions in CST", this methodology is appropriate.	Yes. "To investigate whether improvements found in clinical trials", this methodology is appropriate.	Yes. "To test the feasibility and cultural appropriateness and adapted CST to Portuguese people with dementia", this methodology is appropriate.	Yes "To assess the validity and acceptability of an adapted version of Cognitive Stimulation Therapy (CST) for the Spanish population and culturally adapt the original UK manuals",	Yes. "To investigate how family carers in Norway experienced delivering iCST, their need for supervision and the potential for co-occupation", this methodology is appropriate.

Checklist Questions		Yates *et al.* (2015)	Leung *et al.* (2017)	Orfanos *et al.* (2020)	Spector, Gardner and Orrell (2011)	Alvarez-Pereira, Sousa and Vânia Silva Nunes (2022)	Perez-Saez *et al.* (2025)	Madsø, Weum and Holthe (2024)
							this methodology is appropriate.	
3.	Was the research design appropriate to address the aims of the research?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4.	Was the recruitment strategy appropriate to the aims of the research?	Yes. "Twenty-eight people with dementia and 24 carers were consulted in a series of six focus groups and 10 Interviews".	Yes. "A sub-sample of 23 dyads of people with dementia and their family carers who completed the iCST intervention took part in semi-structured in-depth interviews"	Yes. "A total of twenty-one semi-structured in-depth interviews were conducted across four separate groups delivered in London, the East Midlands, South West and South East of England".	Yes. "A total of 38 participants were recruited through three existing CST groups run in greater London and the home-counties. These included community-dwelling people with dementia participating in the group (17), their carers (14) and staff facilitating the groups (7)".	Yes. "A focus group discussion with health professionals and caregivers provided the basis for cultural adaptation, as well as feedback from participants, caregivers, and facilitators after a pilot study".	Yes. "Two focus groups were conducted with healthcare professionals specialized in the care of people with dementia, a pilot study with a small sample size (*n* = 6), and individual interviews with participants, family caregivers, and group facilitators".	Yes. "Three semi-structured interviews were conducted with each participant".
5.	Was the data collected in a way that addressed the research issue?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6.	Has the relationship between researcher and	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Checklist Questions		Yates *et al.* (2015)	Leung *et al.* (2017)	Orfanos *et al.* (2020)	Spector, Gardner and Orrell (2011)	Alvarez-Pereira, Sousa and Vânia Silva Nunes (2022)	Perez-Saez *et al.* (2025)	Madsø, Weum and Holthe (2024)
	participants been adequately considered?							
7.	Have ethical issues been taken into consideration?	Yes. Information sheets for carers and people with dementia were approved by the Multi-centre Research Ethics Committee (ref no.10/H0701/71). Written consent was obtained on the day of the research activity. Continuing assent was established by informing participants that they were free to leave the group or terminate their interview at any time they wished. All participants were also specifically asked for permission to record the session using a dictaphone".	Yes "The iCST study was approved by the Multi-centre Research Ethics Committee (ref no.10/H0701/71)"	Yes. "Ethical approval was obtained through the Research Ethics Committee (12667/001) at University College London".	Yes. "Ethical and research governance approval was received from the Leicestershire, Northamptonshire and Rutland Research Ethics Committee. Following British Psychological Society guidelines on obtaining consent, an information sheet was provided to all potential participants, and consent was obtained in a subsequent CST session. This provided time for participants to discuss the study with their carers".	Yes. "The research project was approved by the ethics committee of the rehabilitation centre where the pilot study was conducted (Approval number 1/2018, minutes nº 14/2018 of ethics committee´s meeting February 16, 2018), and informed consent was obtained from participants".	Yes. "Before the beginning of the research, ethical approval from the Institutional Review Board of the National Reference Center for Alzheimer's and Dementia Care was obtained".	Yes. "Ethical approval and data management was assessed and granted by the Norwegian Centre for Research Data (ID 463683)".
8.	Was the data analysis	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Checklist Questions		Yates *et al.* (2015)	Leung *et al.* (2017)	Orfanos *et al.* (2020)	Spector, Gardner and Orrell (2011)	Alvarez-Pereira, Sousa and Vânia Silva Nunes (2022)	Perez-Saez *et al.* (2025)	Madsø, Weum and Holthe (2024)
	sufficiently rigorous?							
9.	Is there a clear statement of findings?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10	How valuable is the research?	"This research is valuable because this study yielded valuable insight into the needs of service users for the iCST programme, and the importance of mental stimulation, both from the point of view of carers and people with dementia".	"This research is valuable because it demonstrated that people with dementia and their family carers found iCST stimulating and enjoyable; however, many had difficulty delivering all the sessions as planned. This limitation suggested that providing extra support by involving other people in delivering the intervention may help to improve adherence to the intervention. However, iCST may be a useful tool to encourage people with	"This research is valuable because it explores the experiences of group interactions in CST and highlights the importance of longer-term maintenance CST (MCST) groups" .	"This research is valuable because it has shown that the views of people with dementia can add to creating a credible framework for understanding group processes in CST, to support quantitative findings and help explain how CST is effective in improving cognition".	"This research is valuable because it tested the feasibility and cultural appropriateness and adapted CST, a worldwide well-known program developed in the United Kingdom (UK), to Portuguese people with dementia; however, some modifications were required, especially related to linguistic issues".	"This research is valuable because the process of translating and culturally adapting CST showed it to be a valid and acceptable intervention that was positively valued by people with dementia, carers, and care professionals".	"This research is valuable because it contributes to a better understanding of iCST as a tool for co-occupation".

Checklist Questions		Yates *et al.* (2015)	Leung *et al.* (2017)	Orfanos *et al.* (2020)	Spector, Gardner and Orrell (2011)	Alvarez-Pereira, Sousa and Vânia Silva Nunes (2022)	Perez-Saez *et al.* (2025)	Madsø, Weum and Holthe (2024)
			dementia and their carers to communicate".					

Appendix 2: Data Extraction Table

Study	Location	Study Aim	Design and Methodes	Participants	Key findings	Limitations	CASP score
Yates *et al*. (2015)	UK	"To gain insight into perceptions of mental stimulation from the point of view of carers and people with dementia, to ensure the materials are easy to use, clear, and appropriately tailored to the needs of people with dementia and their carers, and to assess the feasibility of the intervention".	Semi-structured interviews and focus groups	"52 participants; 14 carers and 18 people with dementia took part in the focus groups, and 10 carers and 10 people with dementia participated in the interviews".	"The importance of mental stimulation was emphasized by carers and people with dementia. People with dementia saw activities as a way of 'keeping up to date' and spending time in a meaningful way. Carers reported benefits such as improved quality of life, mood and memory. The concept of iCST was well received, and both carers and people with dementia responded positively to the first drafts of materials".	Feasibility issues, such as finding time to do sessions.	10/10
Leung *et al*. (2017)	UK	"To explore people with dementia and family carers' concepts of mental stimulation and experiences of participating in the iCST intervention".	Semi-structured in-depth interviews.	"23 dyads of people with dementia and their carers".	"The overall experience of participating in iCST was described as having opportunities to engage in enjoyable mentally stimulating activities, motivation to stay active and bringing people with dementia and their carers 'together'".	"A possible bias is that most participants who were interviewed had done well with the intervention. The data may have been affected by social desirability bias such as participants' positive perceptions of the intervention.	10/10

Study	Location	Study Aim	Design and Methodes	Participants	Key findings	Limitations	CASP score
						The qualitative findings indicated that although most people with dementia and carers enjoyed the sessions, there were also a few comments that the iCST sessions were not challenging enough".	
Orfanos *et al*. (2020)	UK	"The main aim of the present study was to explore experiences of group interactions in CST and longer-term maintenance CST (MCST) groups".	Semi-structured in-depth interviews.	"21 participants was recruited from three independent branches of the same charity across the East Midlands, South West and South East of England, and a private homecare organisation within a multicultural borough of inner-city London".	"Findings support the notion that therapeutic advantages inherent to the group format exist in group-based CST".	There are several limitations to consider. Asking individuals with cognitive impairments to remember and recall their group experiences was challenging. Lack of ethnic diversity of participants included in the study".	10/10
Spector, Gardner and Orrell (2011)	UK	"To investigate whether improvements found in clinical trials were also noted by people with dementia, their carers and group facilitators in everyday life".	Qualitative interviews and focus groups	"A total of 38 participants were recruited through three existing CST groups run in greater London and the home-counties."	"The overall experience of attending CST was seen as being emotionally positive and most participants reported some cognitive benefits".	Limitations include the inherent difficulty of asking people with memory problems to remember, in some detail, the experiences of the CST group sessions. The study,	10/10

Study	Location	Study Aim	Design and Methodes	Participants	Key findings	Limitations	CASP score
						therefore, did not provide any indication of whether people thought that some activities were more beneficial than others".	
Alvarez-Pereira, Sousa and Vânia Silva Nunes (2022)	Portugal	"To test the feasibility and cultural appropriateness and adapted CST to Portuguese people with dementia".	Individual interview and focus groups	29 participants was selected. Participants included health professionals and family caregivers, PwD, caregivers, staff, and group leaders".	"Some modifications were required, especially related to linguistic issues, in 11 of the 14 CST sessions. The adapted program was found to be acceptable and enjoyable in a small sample of people with dementia in a rehabilitation context".	Some information might have been lost in both focus groups and individual interviews as the notes were "recorded on paper" and not audio-recorded. The fact that participant´s interest, communication, enjoyment, and mood were assessed by group leaders could have a bias. Despite interviews with PwD, a simple self-rated scale could complement and reinforce this information.	10/10
Perez-Saez *et al*. (2025)	Spain	"To assess the validity and acceptability of an adapted version of Cognitive Stimulation Therapy (CST) for the Spanish population and	Individual interview and focus groups	24 participants was selected.	"The adapted CST principles and structure were deemed suitable for the Spanish context, with necessary linguistic and cultural	"The main limitation of the study was the difficulty the interviewers had in getting people with dementia and their	10/10

Study	Location	Study Aim	Design and Methodes	Participants	Key findings	Limitations	CASP score
		culturally adapt the original UK manuals".			adjustments. The pilot study reported no implementation issues, with positive feedback from participants, caregivers, and facilitators, alongside significant cognitive and quality of life improvements".	carers to respond specifically to the questions asked during the individual interviews. The study's pilot nature, involving a small, exclusively mild dementia sample and a specialised care centre setting, limits its generalisability to other contexts, requiring caution in the interpretation of the results".	
Madsø, Weum and Holthe (2024)	Norway	"To investigate how family carers in Norway experienced delivering iCST, their need for supervision and the potential for co-occupation".	semi-structured interviews	11 participants was selected initial and 2 withdrew from study later	"Most carers described the manual as self-instructive. Most participants described positive experiences, in which shared interaction, engagement and mastery were common".	"The main limitation to this study is the homogeneity of the group of participants, who came from a similar cultural and sociodemographic background. The sample was small, but several interviews with the same participants made it possible to analyse the material in depth.	10/10