

RESEARCH ARTICLE (ORIGINAL) 

# Individual intervention protocol based on reminiscence therapy for older people with neurocognitive disorders

*Protocolo de intervenção individual baseado na terapia de reminiscência em idosos com perturbação neurocognitiva*

*Protocolo de intervención individual basado en la terapia de reminiscencia en personas mayores con trastornos neurocognitivos*

Susana Isabel Justo-Henriques <sup>1</sup>
 <https://orcid.org/0000-0002-8872-4307>
Enrique Pérez-Sáez <sup>2</sup>
 <https://orcid.org/0000-0001-9658-3519>
João Luís Alves Apóstolo <sup>3</sup>
 <https://orcid.org/0000-0002-3050-4264>

<sup>1</sup> Cediara - Social Solidarity Association of Ribeira de Fráguas, Aveiro, Portugal

<sup>2</sup> Centro de Referência Estatal de Atención a Personas con Enfermedad de Alzheimer y Otras Demencias (CREA) - Imsero, Salamanca, Spain

<sup>3</sup> Health Sciences Research Unit: Nursing (UICISA: E), Nursing School of Coimbra (ESEnFC), Coimbra, Portugal

**Abstract**

**Background:** The literature suggests that reminiscence therapy (RT) is one of the non-pharmacological treatments with better evidence for older people with neurocognitive disorders (NCD). RT stimulates neuroplasticity and cognitive reserve, and it may have a protective effect on the person with NCD.

**Objective:** To describe in detail the structure and contents of an individual RT intervention protocol applied to older people with NCD.

**Methodology:** Identification of the phases prior to the design of the intervention protocol.

**Results:** Individual RT intervention protocol, in a mixed format, consisting of 26 sessions, twice a week, of approximately 50 minutes each, conducted by trained therapists.

**Conclusion:** The detailed individual RT program can be adequately implemented and replicated, and it may delay the progression of NCD.

**Keywords:** dementia; aged; program development; cognitive dysfunction; reminiscence therapy; quality of life

**Resumo**

**Enquadramento:** A literatura sugere que a terapia de reminiscência (TR) é uma das terapias não-farmacológicas com melhores evidências na população idosa com perturbação neurocognitiva (PNC), permitindo estimular a neuroplasticidade e a reserva cognitiva, podendo ter um efeito protetor na pessoa com PNC.

**Objetivo:** Apresentar de forma pormenorizada a estrutura e o conteúdo de um protocolo de intervenção em idosos com PNC, baseado na TR individual.

**Metodologia:** Identificação das fases preliminares ao desenho do protocolo de intervenção.

**Resultados:** Protocolo de intervenção individual baseado na TR, em formato misto, composto por 26 sessões, com frequência bissemanal e com duração aproximada de 50 minutos por sessão, administrado por terapeutas treinados.

**Conclusão:** O programa de TR individual pormenorizado permite uma implementação e replicabilidade adequada, podendo contribuir para atenuar a progressão da PNC.

**Palavras-chave:** demência; idoso; desenvolvimento de programas; disfunção cognitiva; terapia reminiscência; qualidade de vida

**Resumen**

**Marco contextual:** La literatura sugiere que la terapia de reminiscencia (TR) es una de las terapias no farmacológicas con mejores resultados en la población anciana con trastorno neurocognitivo (PNC, en portugués), pues permite la estimulación de la neuroplasticidad y la reserva cognitiva, y puede tener un efecto protector en la persona con PNC.

**Objetivo:** Presentar de forma pormenorizada la estructura y el contenido de un protocolo de intervención para personas mayores con PNC, basado en la TR individual.

**Metodología:** Identificación de las fases preliminares al diseño del protocolo de intervención.

**Resultados:** Protocolo de intervención individual basado en la TR, en formato mixto, compuesto por 26 sesiones, con una frecuencia quincenal y una duración aproximada de 50 minutos por sesión, administrado por terapeutas capacitados.

**Conclusión:** El programa de TR individual pormenorizado permite una implementación y una replicabilidad adecuadas, y puede contribuir a suavizar el progreso de la PNC.

**Palabras clave:** demencia; anciano; desarrollo de programa; disfunción cognitiva; terapia de reminiscencia; calidad de vida

**Corresponding author:**

Susana Isabel Justo Henriques

E-mail: [cediara.dir.tec@gmail.com](mailto:cediara.dir.tec@gmail.com)

Received: 13.04.20

Accepted: 04.06.20



**How to cite this article:** Justo-Henriques, S. I., Pérez-Sáez, E. & Apóstolo, J. L. (2020). Individual intervention protocol based on reminiscence therapy for older people with neurocognitive disorders. *Revista de Enfermagem Referência*, 5(3), e20043. doi:10.12707/RV20043



## Introduction

There is a need to develop detailed protocols adjusted to the Portuguese culture for older people with neurocognitive disorders (NCD), based on non-pharmacological therapies (NPT) with evidence of positive outcomes for the target population.

An individual reminiscence therapy (RT) intervention protocol of medium duration, in Portuguese social care institutions for older people or specialized care institutions for people with dementia, can improve cognitive function and quality of life (QoL).

This article aims to describe in detail an individual RT intervention protocol, in a mixed format, based on the principles of cognitive stimulation and adapted to older people with NCD who attend social care institutions in Portugal. This protocol can be easily understood, adapted, and implemented by the professionals who intervene in the therapeutic process.

## Background

NCD are a leading cause of disability in older people and have been increasing in prevalence with the aging population. NCD are estimated to affect 44.45 million people worldwide, reaching 135.46 million by 2050 (Prince, Guerchet, & Prina, 2013). In Portugal, the prevalence of dementia in older people was 20.8% in 2019, and this number is expected to increase to 40.5% by 2050 (Organization for Economic Co-operation and Development [OECD], 2019).

The treatment of patients with NCD is based on pharmacological and NPT for controlling the symptoms and delaying disease progression. NPT promote the stimulation of neuroplasticity and cognitive reserve by exposing older people diagnosed with NCD to new stimuli (Vemuri et al., 2014). Both neuroplasticity and cognitive reserve can have a protective effect on older people with NCD. Cognitive stimulation is one of the most effective therapies used in NCD, with benefits in cognitive function, QoL, and communication, being an essential complement to pharmacological therapy (Aguirre, Woods, Spector, & Orrell, 2013). Studies suggest the effectiveness of individual cognitive stimulation therapy in older adults diagnosed with NCD (Justo-Henriques, Marques-Castro, Otero, Vázquez, & Torres, 2019).

Moreover, reality orientation therapy (ROT), based on the presentation and repetition of temporal and spatial information throughout the day or in regular sessions of orientation-related activities, has been associated with a significant improvement in cognition (Hsiao-Yean, Pin-Yuan, Yu-Ting, & Hui-Chuan, 2018).

RT is one of the most studied NPT. It involves the discussion of past activities, experiences, and events using stimuli (e.g., photographs, objects, music) that trigger memories (Woods, O'Philbin, Farrell, Spector, & Orrell, 2018). RT has two formats. General or simple reminiscence consists of using prompt questions to stimulate recall on topics of the past such as travel, foods, clothes, and

professions and that can be used in individual or group therapy. Life review therapy is a more structured format that is usually applied individually. Participants are guided through a process of recalling significant experiences of their past life while trying to understand their meaning and representativeness (Subramaniam & Woods, 2012). The literature suggests that RT has positive effects on cognition, QoL, depressive symptoms, mood, and behavior of people with NCD.

In a systematic review of randomized controlled trials of RT for dementia, Woods et al. (2018) found that individual RT was used in only five trials, of which four trials (Haight, Gibson, & Michel, 2006; Lai, Chi, & Kayser-Jones, 2004; Morgan & Woods, 2012; Subramaniam, Woods, & Whitaker, 2013) used the life review format, and one trial (Van Bogaert et al., 2016) used an intervention based on the SolCos model. The number of participants ranged from 17 (Morgan & Woods, 2012) to 72 (Van Bogaert et al., 2016). Trials lasted from six weeks (Haight et al., 2006; Lai et al., 2004) to 12 weeks (Morgan & Woods, 2012; Subramaniam et al., 2013). The number of sessions ranged from six (Haight et al., 2006; Lai et al., 2004) to 16 (Subramaniam et al., 2013), each with 30 to 60 minute. All trials had only one session per week, except for the study of Van Bogaert et al. (2016) that had sessions twice a week.

Regarding the impact of individual RT on cognition, Haight et al. (2006) found a significant effect, with a large effect size ( $d = 0.92$ ). Similarly, Subramaniam et al. (2013) and Morgan and Woods (2012) found a significant effect on cognitive function, but with moderate size ( $d = 0.47$  and  $d = 0.67$ , respectively). However, other studies found no significant impact of individual RT on cognitive function (Lai et al., 2004; Van Bogaert et al., 2016). At follow-up, small effect sizes ( $d = 0.31$ ) and moderate effect sizes ( $d = 0.51$ ) were found by Lai et al. (2004) and Morgan and Woods (2012), respectively.

Only two individual RT studies analyzed the effect on QoL. Subramaniam et al. (2013) found a significant improvement in self-reported QoL, with a large effect size ( $d = 0.8$ ). Lai et al. (2004) found no significant impact of individual RT on observed QoL, neither after the intervention nor at follow-up.

With regard to depressive symptoms, Van Bogaert et al. (2016) found a significant difference in individual RT in depressive symptoms, with a small effect size ( $d = -0.45$ ). Haight et al. (2006) and Morgan and Woods (2012) found a significant effect, with a moderate effect size in mood ( $d = -0.53$  in both studies). At follow-up, Morgan and Woods (2012) found a large effect size of individual RT on depression ( $d = -1.63$ ). Finally, Subramaniam et al. (2013) found a small effect size ( $d = -0.08$ ). The follow-up results were not analyzed.

Most RT studies did not report the protocols in detail (Woods et al., 2018), which is a common limitation in most studies about NPT (Orrell et al., 2017).

Taking into account the need for well-defined and detailed NPT intervention protocols that allow their implementation (Orrell et al., 2017) and considering the evidence of the benefits of ROT, cognitive stimulation, and RT,

especially of the individual formats (Justo-Henriques et al., 2019; Woods et al., 2018), the protocol presented in this article was developed combining the benefits of the three therapies, with a view to improving the cognition and QoL of older people with NCD.

The protocol here described was developed as part of a multicenter study using a randomized, controlled, repeated measures experimental design (pre- and post-intervention). The study compared 13 weeks of RT sessions in the intervention group ( $n = 131$ ) and 13 weeks of usual care in the control group ( $n = 120$ ). Older people with NCD, of 24 Portuguese institutions, were selected to participate in a study aiming to assess the capacity of individual RT, using a mixed format of general reminiscence and life review, to improve overall cognitive function, mood, and QoL. The 26 intervention sessions were based on this protocol, using a detailed manual and based on RT principles. The sessions were conducted by a previously trained therapist. The results showed a significant effect on overall cognitive function, particularly on memory and QoL, both in the general sample of patients with NCD (Justo-Henriques, Pérez-Sáez, & Apóstolo, 2020) and in the sub-sample of older people diagnosed with Alzheimer's disease and vascular dementia (Pérez-Sáez, Justo-Henriques, & Apóstolo, 2020). There was high adherence to the intervention, a high degree of collaboration, and a low dropout rate.

## Research question

What are the structure and the contents of the individual RT program developed for older people with NCD attending social care institutions?

## Methodology

The intervention protocol was developed in five steps. The first step was a literature review on RT to identify the most studied formats and their effects on cognition, the support materials, and the beneficiaries' characteristics. RT presented encouraging evidence. In the second step, a search was done for materials adapted to the Portuguese culture, with memory-triggering contents, to stimulate the different cognitive domains. However, the existing materials did not follow the principles associated with RT, hence the need for a new step. The third step consisted of interviewing older people regarding the lifestyles and the most relevant facts and

personalities of Portuguese history and culture to find out which could facilitate the life review process. Then, both printed and digital materials were created including the most common topics reported by the older people. In the fourth step, the structure and content of the sessions were defined, using the materials prepared beforehand. Older people with NCD were then invited to participate voluntarily in the sessions. The intervention sessions used the individual format, which was more appropriate considering the therapeutic objectives as it adapts better to the needs and rhythms of each participant (Dreer, Copeland, & Cheavens, 2011). The sessions were conducted by two therapists who had received previous training in RT. At the end of each session, the therapist filled in the session registration form to assess the participants' level of acceptability of the material and degree of collaboration in the sessions. There was good adherence to and acceptability of the intervention.

The last step consisted of a review of the materials to improve the existing ones and develop complementary materials resulting from the therapists' diagnosis. The intervention contents were also reviewed to introduce new activities.

## Results

The intervention protocol consists of 26 sessions, twice a week, over 13 weeks, with a duration of approximately 50 minutes each. All sessions follow the same structure (Table 1). In the first 7 minutes, the participant is welcomed, and reality orientation is trained, with the participant being encouraged to fill in the information regarding the date, time, and place, using a timeframe. Then, the cognitive domains are stimulated for approximately 40 minutes, using various cognitive stimulation materials, namely the *Livro do Passado e do Presente*<sup>®</sup> (Book of the Past and the Present) (LPP; Justo-Henriques, 2018). This book includes various topics distributed in two columns: one about the past and another one about the present, with images and stories about several topics of everyday life and the comparison between past and present experiences. The last 3 minutes of each session are dedicated to returning the participant to a calm state of mind, through a brief relaxation and a short dialogue about the difficulties, interests, and benefits of the session. Finally, the participant and the therapist say goodbye, with the participant being reminded of the date and time of the next session. After completing the session, the therapist must fill in the session evaluation form.

Table 1  
*Basic structure of the individual RT program*

Duration	Content	Activities
7 minutes	Session introduction	Greetings. Mood check. Explain the session objectives.
	Reality orientation	Identify time and space elements using a timeframe.
40 minutes	Stimulation of cognitive domains	Use printed and digital images, cards, stories, and sounds to explore cognitive stimulation materials representing: means of transportation; appliances; house; media; professions; clothing; actors and TV hosts; politics; regional/local references.
3 minutes	Session closure	Analysis of the difficulties, interests, and benefits of the session. Return to calm. Goodbye. Session evaluation in an appropriate specific form.

Intervention sessions are individual and should be conducted by therapists with previous training in RT intervention protocol and principles. The activities carried out in each session follow the contents of the RT program (Table 2). The contents of the intervention program, using both printed (e.g. image and text cards) and digital (e.g. sounds, PowerPoint presentations) activities, are organized around nine general RT-related topics. The topic “regional/local references” is personalized according to the region where the participant lives. The sessions are held in a comfortable, quiet, and private place that allows the activities to take place without interruptions.

Throughout the session, the therapist should follow the principles of cognitive stimulation therapy formulated by Spector, Thorgrimsen, Woods, and Orrell (2006): a person-centered approach (i.e., the therapy should focus on the person), respect for the participant (i.e., supporting his/her identity and maintaining his/her dignity), promote his/her involvement (i.e., the therapist should not talk more than the participant), inclusion (i.e., promoting an environment where the participant’s contributions are valued), fun (i.e., promoting learning in a relaxed and enjoyable environment, using sense of humor), maximizing potential (i.e., promoting learning with the ap-

propriate stimuli, providing the necessary time, without overloading and tiring the participant), and building and strengthening social relationships (i.e., promoting a one-on-one relationship, in which both the therapist and the participant have the same level of importance). At the beginning of each session, the therapist greets the participant, shifts him/her towards insight, and explains the session objectives. Next, using a space-time orientation board (which should include the day of the week, month, day of the month, year, season, weather conditions, and clock), the therapist starts the reality orientation training. Then, according to the topic of each session (Table 2), the therapist develops the main activity for stimulation of various cognitive domains (e.g., attention, language, perceptual-motor skills, executive function, memory) while encouraging the participant to share past experiences, events, and activities that fit the topic of the session. The activities are carried out using printed (e.g., image and text cards, posters) and digital (e.g., sounds, PowerPoint presentations) materials that stimulate the cognitive function of older people with NCD.

At the end of each session, the therapist asks the participant’s opinion about the session and reminds him/her of the topic, date, and time of the next session.

Table 2  
*Contents of the activities, objectives, and materials of the intervention program sessions*

Session	Topics/objectives/stimulated domains	Materials
1	<p><i>Activity(ies):</i> explain the objectives of the intervention program, the topics addressed in the sessions, and the support materials; ask the participant to mention the content of the images and their relationship with the respective topic.</p> <p><i>Objective:</i> to stimulate, in particular, attention, language, and semantic memory.</p>	<p>Image cards about the topics (means of transportation, appliances, house, media, professions, clothing, actors and TV hosts, politics, regional/local references). For examples, see LPP (pp. 10-27).</p>
2	<p><i>Activity(ies):</i> ask the participant about the activity carried out in the previous session; using the topic <i>means of transportation</i>, classify the images by type of means of transportation, associate them with the past and the present, list and sort the means of transportation used in each stage of life.</p> <p><i>Objective:</i> to stimulate, in particular, attention, semantic and episodic memory.</p>	<p>Image cards of means of transportation associated with the past and the present (e.g., see LPP, pp. 10-11).</p>
3	<p><i>Activity(ies):</i> ask the participant about the activity carried out in the previous session; using the topic <i>means of transportation</i>, associate the images with the past and the present by asking questions related to them; sort the means of transportation according to several characteristics (e.g., speed, cost).</p> <p><i>Objective:</i> to stimulate, in particular, attention, language, semantic memory, and executive functions.</p>	<p>Image cards of means of transportation associated with the past and the present (e.g., see LPP, pp. 10-11).</p>
4	<p><i>Activity(ies):</i> ask the participant about the activity carried out in the previous session; using the topic <i>appliances</i>, classify and associate the images with the past and the present; ask which appliances he/she had/has and how to use them; using a story with the names of the appliances represented in the images, ask him/her to remove the images referred to throughout the story.</p> <p><i>Objective:</i> to stimulate, in particular, attention and semantic and episodic memory.</p>	<p>Image cards of appliances associated with the past and the present (e.g., see LPP, pp. 12-13). Topic-related story.</p>
5	<p><i>Activity(ies):</i> ask the participant about the activity carried out in the previous session; using the topic <i>appliances</i>, associate the images with the past and the present by asking questions related to them; sort the appliances according to several characteristics (e.g., cost, functionality, weight).</p> <p><i>Objective:</i> to stimulate, in particular, attention, language, semantic memory, and executive functions.</p>	<p>Image cards of appliances associated with the past and the present (e.g., see LPP, pp. 12-13).</p>
6	<p><i>Activity(ies):</i> ask the participant about the activity carried out in the previous session; using the topic <i>house</i>, classify and associate the images of the rooms of the house with the past and the present; ask the participant about the story and evolution of his/her house.</p> <p><i>Objective:</i> to stimulate, in particular, attention, language, and declarative memory.</p>	<p>Image cards of rooms of the house associated with the past and the present (e.g., see LPP, pp. 14-15).</p>
7	<p><i>Activity(ies):</i> ask the participant about the activity carried out in the previous session; using the topic <i>house</i>, associate the images with the past and the present by asking questions related to them; order and associate the rooms of the house where one is supposed to be at each time, using images of analogue clocks, with different times of the day, and activities of daily living (e.g., get out of bed, brush the teeth, prepare breakfast, watch television); ask him/her to calculate how much time has passed between the first and the last activity, and predict what he/she will do after that last activity (e.g. go out of the house).</p> <p><i>Objective:</i> to stimulate, in particular, attention, declarative memory, and executive functions.</p>	<p>Image cards of rooms of the house associated with the past and the present (e.g., see LPP, pp. 16-17).</p> <p>Images of analogue clocks, activities of daily living.</p>
8	<p><i>Activity(ies):</i> ask the participant about the activity carried out in the previous session; using the topic <i>media</i>, classify and associate the images with the past and the present; ask about the media he/she uses or used, what changes they have undergone over time, and how he/she adapted to them.</p> <p><i>Objective:</i> to stimulate, in particular, attention, language, and declarative memory.</p>	<p>Image cards of media associated with the past and the present (e.g., see LPP, pp. 16-17).</p>

9	<p><i>Activity(ies)</i>: ask the participant about the activity carried out in the previous session; using the topic <i>media</i>, identify and associate the main television channels, programs, and personalities with the past and the present; identify the radio stations and songs of the past and the present; ask him/her for his phone number and the number of someone close to him/her; simulate the use of an old phone and a smartphone and make a phone call; ask to distinguish between a letter and a telegram; simulating a telegram, discuss its usefulness and costs in the past, promoting currency conversion.</p> <p><i>Objective</i>: to stimulate, in particular, attention, implicit, semantic, and episodic memory, language, and calculus.</p>	<p>Image cards of media associated with the past and the present (e.g., see LPP, pp. 16-17).</p>
10	<p><i>Activity(ies)</i>: ask the participant about the activity carried out in the previous session; using the topic <i>professions</i>, associate the images with the past and the present; using an image representing the participant's profession, discuss the changes in the profession over time; make a summary of the information provided by the participant.</p> <p><i>Objective</i>: to stimulate, in particular, attention, declarative memory, and language.</p>	<p>Image cards representing professions from the past and the present (e.g., see LPP, pp. 18-19).</p>
11	<p><i>Activity(ies)</i>: ask the participant about the activity carried out in the previous session; using the topic <i>professions</i>, discuss the differences between past and current characteristics of the professions; using cards representing professions' wages, organize the professions according to a given order; ask him/her about the salary difference between two professions.</p> <p><i>Objective</i>: to stimulate, in particular, attention, semantic memory, calculus, and executive functions.</p>	<p>Cards with the professions' wages. Image cards representing professions from the past and the present (e.g., see LPP, pp. 18-19)</p>
12	<p><i>Activity(ies)</i>: ask the participant about the activity carried out in the previous session; using the topic <i>clothing</i>, classify and associate the images with the past and the present; ask about in which situations is/was each outfit used, and what changes have occurred over time.</p> <p><i>Objective</i>: to stimulate, in particular, attention, semantic memory, and language.</p>	<p>Image cards of clothes associated with the past and the present (e.g. see LPP, pp. 20-21).</p>
13	<p><i>Activity(ies)</i>: ask the participant about the activity carried out in the previous session; using images of clothing suitable for different occasions (e.g., wedding party, christening, business dinner, theater play, graduation ball), associate the images of clothes with the past and the present and with different occasions; ask about the social-cultural transformations of each outfit.</p> <p><i>Objective</i>: to stimulate, in particular, attention, language, and semantic memory.</p>	<p>Image cards of clothes and outfits suitable for different occasions.</p>
14	<p><i>Activity(ies)</i>: ask the participant about the activity carried out in the previous session; name, classify, and associate the images of actors and TV hosts with the past and the present; ask about television shows, movies, or soap operas, in which the celebrities in the images have participated.</p> <p><i>Objective</i>: to stimulate, in particular, attention, semantic memory, and language.</p>	<p>Image cards of actors and TV hosts from the past and the present (e.g., see LPP, pp. 22-23).</p>
15	<p><i>Activity(ies)</i>: ask the participant about the activity performed in the previous session; using various images of actors and TV hosts in different decades and cards with birth and death dates, associate and identify the odd one out; sort the personalities by birth and death date and calculate their age.</p> <p><i>Objective</i>: to stimulate, in particular, attention, semantic memory, calculus, and executive functions.</p>	<p>Image cards of actors and TV hosts from the past and the present (e.g., see LPP, pp. 22-23). Images of some emblematic actors and TV hosts from different decades. Cards with birth and death dates.</p>
16	<p><i>Activity(ies)</i>: ask the participant about the activity carried out in the previous session; using the topic <i>politics</i>, identify, classify, and associate the images with the past and the present; ask about political opinions and the politicians in question; remember important political events.</p> <p><i>Objective</i>: to stimulate, in particular, attention, semantic memory, and language.</p>	<p>Image cards of politicians associated with the past and the present (e.g., see LPP, pp. 24-25).</p>
17	<p><i>Activity(ies)</i>: ask the participant about the activity carried out in the previous session; using images of various politicians and cards with spaces to fill in with images of the political parties' logo (e.g., PS), their current leaders (e.g., António Costa), and some former leaders (e.g., Mário Soares, José Sócrates), identify the political leaders and former leaders; identify those who have passed away and link the remaining leaders to their political party; ask who are the current leaders and their predecessors.</p> <p><i>Objective</i>: to stimulate, in particular, attention, language, semantic memory, and executive functions.</p>	<p>Images of political parties' logos, current leaders, and some former leaders and cards for the participant to place the images.</p>

18	<p><i>Activity(ies)</i>: ask the participant about the activity carried out in the previous session; using images previously gathered by the therapist of current and former personalities from the participant's region, identify and associate the images of local personalities with the past and the present; ask about what memories he/she has of these people and how they made their mark in the region.</p> <p><i>Objective</i>: to stimulate, in particular, attention, declarative memory, and language.</p>	<p>Images of local personalities from the past and the present.</p>
19	<p><i>Activity(ies)</i>: ask the participant about the activity carried out in the previous session; using images of local places that illustrate the past and the present, put the images in their respective columns; ask about what memories they have of these places and what changes they have undergone; ask about what changes the participant's street/neighborhood has undergone over time.</p> <p><i>Objective</i>: to stimulate, in particular, attention, declarative memory, and language.</p>	<p>Images of local places in the past and the present.</p>
20	<p><i>Activity(ies)</i>: ask the participant about the activity carried out in the previous session; using a narrated story (e.g., "Memory Album"), ask the participant to look for and remove the images from the book as they are mentioned in the story; at the end, he/she must return the images to the same position.</p> <p><i>Objective</i>: to stimulate, in particular, attention, short-term memory, working memory, and perceptual-motor skills.</p>	<p>Story identifying the contents of card images related to the several topics addressed in previous sessions (e.g., see LPP, pp. 29-30).</p>
21	<p><i>Activity(ies)</i>: ask the participant about the activity carried out in the previous session; using a poster (e.g. A3 format) with images of television shows, soap operas, and movies from the past and the present, their name and broadcast date, ask the participant to identify and link the personalities to the television shows; ask about his/her memories of these shows and movies; match the images of former and current personalities to the broadcasting dates of television shows; ask about favorite shows.</p> <p><i>Objective</i>: to stimulate, in particular, attention, semantic memory, episodic memory, and executive functions.</p>	<p>Poster with images of television shows and movies of the past and the present. Image cards of former and current actors and TV hosts (e.g., see LPP, pp. 22-23).</p>
22	<p><i>Activity(ies)</i>: ask the participant about the activity carried out in the previous session; using digital materials, present, discuss, and associate the images about the various steps involved in making bread in the past and the present (e.g., resources and equipment used for ploughing, watering, grinding the cereals), match the pictures to the agricultural activity.</p> <p><i>Objective</i>: to stimulate, in particular, attention, episodic memory, and language.</p>	<p>Digital presentation (e.g. PowerPoint presentation, video) about the various steps involved in growing cereals and making bread. Image cards associated with agriculture (e.g., see LPP, p. 18).</p>
23	<p><i>Activity(ies)</i>: ask the participant about the activity carried out in the previous session; using the images about the topics <i>actors and TV hosts</i> and <i>politics</i>, identify and associate the audio clips and show intros with the personalities' images; ask about the context of the expression or sound to which he/she is listening; ask him/her to put the images back in place.</p> <p><i>Objective</i>: to stimulate, in particular, attention, semantic memory, and perceptual-motor skills.</p>	<p>Audio clips (e.g., voices, television or radio intros) from politicians, actors, and TV hosts. Image cards related to the topics addressed (e.g., see LPP, pp. 22-25).</p>
24	<p><i>Activity(ies)</i>: ask the participant about the activity carried out in the previous session; by presenting only a part of objects or people (e.g. one side of the face) through digital support, identify the objects or people; associate and remove the images from the book that refer to the objects or persons represented in the topics <i>means of transportation, appliances, house, media, professions, clothing, actors and TV hosts</i>, and <i>politics</i>; at the end, ask the participant to put the images back in place.</p> <p><i>Objective</i>: to stimulate, in particular, attention, short-term memory, semantic memory, and perceptual-motor skills.</p>	<p>Digital presentation (e.g., PowerPoint presentation) with the cut-out images of objects and people. Image cards related to the topics addressed (e.g., see LPP, pp. 10-25).</p>

25	<p><i>Activity(ies)</i>: ask the participant about the activities carried out in the previous session; using the cards with the name and images of a personality and other personalities, identify and remove the images of the personalities from the book and the card; highlight with different colors the image of this person as a young adult and his/her current image; ask the participant to return the image cards to where they were initially.</p> <p><i>Objective</i>: to stimulate, in particular, attention and semantic working memory.</p>	<p>Cards with the names and images of personalities with a significant time difference (e.g., as young adults and today).</p> <p>Image cards related to the topics addressed (e.g., see LPP, pp. 22-25).</p>
26	<p><i>Activity(ies)</i>: ask the participant about the activity carried out in the previous session; using a narrated story (e.g., “Detached from the past and the present”), select the images mentioned throughout the story and put them in the place indicated by the therapist; ask the participant which is the first and last image mentioned in the story.</p> <p><i>Objective</i>: to stimulate, in particular, attention, perceptual-motor skills, declarative memory, and short-term memory.</p>	<p>A story that identifies the images on cards from various topics addressed in previous sessions (e.g., LPP, p. 30).</p>

Note. LLP = Livro do Passado e do Presente® (Book of the Past and the Present).

## Discussion

Individual interventions are associated with better outcomes because they facilitate access to the intervention, allowing closer contact with the participant, and use personalized activities that can increase intervention adherence. They promote a stronger therapeutic relationship and adjust the rhythm of the intervention to the participant, focusing on the person as a unique individual (Justo-Henriques et al., 2019; Subramaniam & Woods, 2012). In an individual intervention, the exercises are based on the participant’s needs, preferences, and references, promoting the participant’s declarative memory and collaboration during the session.

A detailed description of an intervention protocol is a technical guide for therapists that can mitigate the relevance of the heterogeneity of the participants and the institutions where it is implemented.

The material used in RT is adapted to the participant’s characteristics (i.e., an older adult with cognitive decline) and used in cognitive stimulation activities for training several cognitive domains (e.g., attention, memory, language). It seems that remembering the past on a regular basis positively affects the cognitive function as the participant makes a conscious effort (Duru Aşiret & Kapucu, 2016). Based on the principles of cognitive stimulation therapy, ROT and RT, an individual intervention program was developed for older people diagnosed with NCD and attending Portuguese social care institutions (e.g., residential structures and day-care centers for older people, home care services). The literature shows that these therapies bring benefits to this population through an improvement in their cognitive function, mood, and QoL.

The individual intervention protocol consists of 26 sessions, twice a week, for approximately 50 minutes each. The main objective of this program, which should be applied by therapists (e.g., psychologists, occupational therapists, or other qualified professionals) of care institutions for older people, is to decrease the progression of cognitive decline, through the stimulation of cognitive domains, and, consequently, improve cognitive function, mood, and QoL.

Despite this, although it helps to overcome a recurrent limitation in the majority of studies and the results of its application have shown a significant contribution to the overall cognitive function of participants diagnosed with Alzheimer’s disease and vascular dementia, further studies should be conducted to assess its effectiveness in different etiologic subtypes and severity levels of neurocognitive disorders.

## Conclusion

The results suggest an intervention program with detailed structure and contents, easy to understand, and possible to replicate.

This intervention program may have important implications for clinical practice and research. It can be implemented in care institutions for older people, and it is a starting point for new programs and scientific studies.

### Author contributions

Conceptualization: Justo-Henriques, S. I.

Formal analysis: Justo-Henriques, S. I., Pérez-Sáez, E., Apóstolo, J. L. A.

Methodology: Justo-Henriques, S. I., Pérez-Sáez, E., Apóstolo, J. L. A.

Investigation: Justo-Henriques, S. I., Pérez-Sáez, E., Apóstolo, J. L. A.

Writing – original draft: Justo-Henriques, S. I., Pérez-Sáez, E.

Writing – review and editing: Justo-Henriques, S. I., Pérez-Sáez, E., Apóstolo, J. L. A.

### Acknowledgments

Aparsin (Marta Abreu, Natália Carralo); Assoc. Alzheimer Portugal (Bárbara Coutinho, Filipa Gomes, Joana Florêncio); Assoc. de Solidariedade Social de S. Tiago de Rebordões (Ana Rita Fernandes, Maria João Azevedo); Cediara (Ana Elisa Castro, Ana Rita Teixeira); Centro Social de Tolosa (Ana Salomé Jesus, Paulo Parracho); Centro Social Paroquial de Dornelas (Ana Cristina Santos, Cindy Santos); Centro Social Paroquial de Recarei (Ana Isa Sousa, Ana Soraia Mendes); Centro Social Vale

do Homem (Alberta Duarte, Sandra Cerqueira); Centro Zulmira Pereira Simões (Angelina Senra, Débora Fernandes); Delicate Age (Ana Luísa Vicente, Rita Marranita); Irmãs Hospitaleiras (Cátia Gameiro, Marta Dábrio, Sofia Rosado); Lar D. Pedro V (Carmen Gonçalves, Salomé Vasconcelos); Pesqueirama (Elsa Matias, Sara Pires); Primavera (Inês Rebelo, Sónia Carvalho); Replicar Socialform (Joana Ribeiro, Rui Maia); Misericórdia de Alcobça (Ivone António, Tânia Miguel); Misericórdia de Almada (Ana Cristina Coelho, Sónia Andrade); Misericórdia de Castelo Branco (Sofia Fernandes, Vítor Reis); Misericórdia de Coruche (Ana Ferreira, Rita Filipe); Misericórdia de Melgaço (Alexandrina Rodrigues, Diana Domingues); Misericórdia de Ovar (Daniela Martins, Márcia Barbosa); Misericórdia de Vila Velha de Ródão (Marta Pinto, Patrícia Cesário); Misericórdia de Vila Verde (Branca Pimentel, Patrícia Ferreira); Misericórdia de Vouzela (Daniela Tojal, Rui Dionísio); Misericórdia do Alvor (Maria Solange Santos, Sílvia Lopes).

## References

- Aguirre, E., Woods, R. T., Spector, A., & Orrell, M. (2013). Cognitive stimulation for dementia: A systematic review of the evidence of effectiveness from randomised controlled trials. *Ageing Research Reviews, 12*(1), 253–262. doi:10.1016/j.arr.2012.07.001
- Dreier, L. E., Copeland, J. N., & Cheavens, J. S. (2011). Integrating neuropsychological functioning into cognitive behavioral therapy: Implications for older adults. In S. H. Sorocco & S. Lauderdale (Eds.), *Cognitive behavior therapy with older adults: Innovations across care settings* (pp. 317–365). New York, NY: Springer Publishing Company.
- Duru Aşiret, G., & Kapucu, S. (2016). The effect of reminiscence therapy on cognition, depression, and activities of daily living for patients with Alzheimer's disease. *Journal of Geriatric Psychiatry and Neurology, 29*(1), 31–37. doi:10.1177/0891988715598233
- Haight, B., Gibson, F., & Michel, Y. (2006). The Northern Ireland life review/life storybook project for people with dementia. *Alzheimer's & Dementia, 2*(1), 56–58. doi:10.1016/j.jalz.2005.12.003
- Hsiao-Yean, C., Pin-Yuan, C., Yu-Ting, C., & Hui-Chuan, H. (2018). Reality orientation therapy benefits cognition in older people with dementia: A meta-analysis. *International Journal of Nursing Studies, 86*, 20–28. doi:10.1016/j.ijnurstu.2018.06.008
- Justo-Henriques, S. I. (2018). *Livro do passado e do presente*. Mealhada, Portugal: Replicar Socialform.
- Justo-Henriques, S. I., Marques-Castro, A. E., Otero, P., Vázquez, F. L., & Torres, Á. J. (2019). Long-term individual cognitive stimulation program in patients with mild neurocognitive disorder: A pilot study. *Revista de Neurología, 68*(7), 281–289. doi:10.33588/rn.6807.2018321
- Justo-Henriques, S. I., Pérez-Sáez, E., & Apóstolo, J. L. (2020). *Multicentre randomised controlled trial about the effect of individual reminiscence therapy in older adults with neurocognitive disorders* [Manuscript submitted for publication].
- Lai, C. K., Chi, I., & Kayser-Jones, J. (2004). A randomized controlled trial of a specific reminiscence approach to promote the well-being of nursing home residents with dementia. *International Psychogeriatrics, 16*(1), 33–49. doi:10.1017/s1041610204000055
- Morgan, S., & Woods, R. T. (2012). Life review with people with dementia in care homes: A preliminary randomized controlled trial. *Dementia: Non-Pharmacological Therapies, 1*(1), 43–59.
- Organization for Economic Co-operation and Development. (2019). *Health at a glance 2019: OECD indicators*. Retrieved from <https://www.oecd-ilibrary.org/docserver/4dd50c09-en.pdf?expires=1591374142&id=id&accname=guest&checksum=5486CD929E4120E2899CB00FFDD839C3>
- Orrell, M., Hoe, J., Charlesworth, G., Russell, I., Challis, D., Moniz-Cook, E., ... Rehill, A. (2017). *Support at home: Interventions to enhance life in dementia (SHIELD) - evidence, development, and evaluation of complex interventions*. Southampton, UK: NIHR Journals Library.
- Pérez-Sáez, E., Justo-Henriques, S. I., & Apóstolo, J. L. (2020). *Multicentre randomised controlled trial of the effects of individual reminiscence therapy on cognition, depression and quality of life: Analysis of a sample of older adults with Alzheimer's disease and vascular dementia* [Manuscript submitted for publication].
- Prince, M., Guerchet, M., & Prina, M. (2013). *The global impact of dementia 2013-2050: Alzheimer's disease international*. Retrieved from [https://www.researchgate.net/publication/259193075\\_The\\_Global\\_Impact\\_of\\_Dementia\\_2013-2050](https://www.researchgate.net/publication/259193075_The_Global_Impact_of_Dementia_2013-2050)
- Spector, A., Thorgrimsen, L., Woods, B., & Orrell, M. (2006). *Making a difference: An evidence-based group programme to offer cognitive stimulation therapy (CST) to people with dementia*. London, England: Hawker Publications.
- Subramaniam, P., & Woods, B. (2012). The impact of individual reminiscence therapy for people with dementia: Systematic review. *Expert Review of Neurotherapeutics, 12*(5), 545–555. doi:10.1586/ern.12.35
- Subramaniam, P., Woods, B., & Whitaker, C. (2013). Life review and life story books for people with mild to moderate dementia: A randomised controlled trial. *Ageing & Mental Health, 18*(3), 363–375. doi:10.1080/13607863.2013.837144
- Van Bogaert, P., Tolson, D., Eerlingen, R., Carvers, D., Wouters, K., Paque, K., ... Engelborghs, S. (2016). SolCos model-based individual reminiscence for older adults with mild to moderate dementia in nursing homes: A randomized controlled intervention study. *Journal of Psychiatric and Mental Health Nursing, 23*(9–10), 568–575. doi:10.1111/jpm.12336
- Vemuri, P., Lesnick, T. G., Przybleski, S. A., Machulda, M., Knopman, D. S., Mielke, M. M., ... Jack, C. R. (2014). Association of lifetime intellectual enrichment with cognitive decline in the older population. *Journal of American Medical Association, 311*(8), 1017–1024. doi:10.1001/jamaneurol.2014.963
- Woods, B., O'Philbin, L., Farrell, E. M., Spector, A. E., & Orrell, M. (2018). Reminiscence therapy for dementia. *Cochrane Database of Systematic Reviews, 3*, CD001120. doi:10.1002/14651858.CD001120.pub3

