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The Effect of a Reminiscence Program in Institutionalized Older Persons with Dementia: A Pilot Study

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Abstract

Objectives: The purpose of this pilot study was to analyze the impact of a reminiscence program, particularly in the dimensions of cognition, autobiographical memory, mood and behavior in older persons with dementia, institutionalized. **Material and Methods:** This study was a one-group pre-test and post-test design investigation with no control group. The design planned was a cross-sectional, exploratory and descriptive investigation. Six subjects participated in five weekly individual reminiscence sessions. Changes in the outcome measures were examined through Montreal Cognitive Assessment, Cornell Scale for Depression in Dementia, Alzheimer Disease Assessment Scale Non-Cog and Autobiographical Memory Test. **Results:** After the intervention, participants exhibited improvements in the entire outcome measures, although the differences were not statistically significant, except for the time of latency on AMT ($Z=-1.997$; $\varrho=0.046$). **Conclusions:** Reminiscence therapy can be helpful to maintain or improve mood, cognitive function, altered behavior and self-esteem, however further investigations are needed to redefine the results, and using more standardized research. This study supported the idea that that reminiscence therapy, directed to positive and specific life events, may improve autobiographical memory, and indirectly some symptoms associated with cognitive impairment.

Keywords: Reminiscence; Older Persons; Dementia; No Pharmacological Therapy

1. Background and Significance

1. Introduction

Dementia is an umbrella term to describe a diversity of conditions developed when nerve cells of the brain die or no longer function normally, causing changes in one's memory and ability to think clearly. This decline in cognitive abilities must be severe enough to interfere with daily life activities (Alzheimer´s Association, 2013). Cognitive impairments are often accompanied by behavioural and psychological disturbance defined as symptoms of disturbed perception, altered thought content, mood and behaviour (O´Shea et al., 2011).

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There are some drugs that temporarily improve symptoms, but the efficacy of these drugs is diverse and none of them change the course of terminal degenerative dementias (Alzheimer's Association, 2012). The current limits on the effectiveness of drugs and the need for a range of options highlight the call for robust evaluations of non-pharmacological interventions (Olazarán, Reisberg, Clare et al., 2010; Vasse, Vernooij-Dassen, Cantegreil et al., 2012). Cognitive and behavioural interventions may be used concurrently with pharmacological treatment, especially in the early to moderately advanced stages of disease (Lin, 2010).

1.1. Reminiscence therapy for dementia

Among the non pharmacological interventions identified as potentially effective in older persons with dementia is the use of reminiscence therapy. Caring for older persons with cognitive disorders offers the chance to develop a broad field of interventions which go well beyond medicinal therapies (Peix, 2009). Reminiscence is the recalling of personally relevant memories from the past (Cappeliez, Guindon & Robitaille, 2008) and something that happens in everyday life: the memories can be wilfully recollected or recalled, they are assumed as veridical and remembering them not only involves the simple recall but also a reconstruction related to the present schemas about the self and vice-versa (Westerhof, Bohlmeijer & Webster, 2010). Reminiscence therapy is based on the sensorial stimulation issuing from the patient's emotional memory of past events (Peix, 2009). Contributing to the popularity of reminiscence is the fact that it can be used with early memories, which remain relatively intact for people with dementia, thus drawing on the person's preserved abilities rather than focusing on the level of impairment caused by the disease (Cotelli, Manenti & Zanetti, 2012; O´Shea et al., 2011). The history of life of older persons with dementia may be a lift in the operational dimension of care that mobilizes the cognitive potential still available (Peix, 2009).

The positive outcomes found in recent studies about the use of reminiscence relate to cognition (Cotelli, Manenti & Zanetti, 2012; Woods, Spector, Jones et al., 2005; Wang, 2007; Tadaka & Kanagawa, 2007)**,** depression (Ashida, 2000; Chung, 2009; Hsieh et al., 2010; Wang, 2007), behavior (Akanuma et al., 2011; Ashida, 2000 ; Hsieh et al., 2010; Huang, Li, Yang & Chen, 2009; Lai, Chi e Kayser-Jones, 2004; Yamagami et al., 2007; Wang, Yen & OuYang, 2009; Woods et al., 2005) happiness (Okumura, Tanimukay & Asada, 2008), mood (Cotelli, Manenti & Zanetti, 2012; O`Rourke,Tobin, O´Callaghan, Sowman & Collins, 2011; Woods et al., 2005) and communication (Huang et al., 2009; Okumura, Tanimukay & Asada, 2008; O`Rourke et al., 2011).

Despite the fact that reminiscence has been assumed as something adaptive in old age, researchers, particularly in the field of dementia, point to the need of further evidence drawn from longitudinal studies and controlled trials to test the effectiveness and efficacy of interventions (Cotelli, Manenti & Zanetti, 2012; Lin, Dai & Hwang, 2003; Pinquart & Forstmeier 2012; Westerhof, Bohlmeijer & Webster, 2010; Woods et al., 2005). Nevertheless, a recent review study pointed that the quality of the studies did not moderated the size of the effects obtained with this therapy (Pinquart & Forstmeier 2012). In addition, the same review observed that that there were no statistical differences on the results obtained both by individual or group reminiscence therapy, but that few studies had applied individual reminiscence therapy to older persons with dementia (Baillon et al., 2005; Lai, Chi & Kayser-Jones, 2004). In fact, reminiscence therapy among individuals with dementia is usually conducted in groups (Akanuma et al, 2011; Hsieh et al 2010; Huang, 2009; Lalanne & Piolino, 2013; Lin, 2010; Wang, Yen & OuYang, 2009).

1.2. Autobiographical memory in dementia

Autobiographical memories are transitory mental constructions generated from an underlying knowledge base; they are reconstructed memories from personal meaningfully experiences and not their direct and unalterable copy (Bluck & Levine, 1998; Conway & Pleydell-Pearce, 2000). Studies about autobiographical memory in Alzheimer´s disease are consensual on the fact that the progression of dementia involves decline in the two levels of autobiographical memory, namely in semantic memory and episodic events (Addis & Tippett, 2004; El Haj, Postal, LeGall & Allain 2011; Fromholt et al., 2003; Irish et al., 2011; Martinelli, Anssens, Sperduti & Piolino, 2013; Müller et al., 2012; Philippi et al., 2012; Seidl, Lueken, Thomann, Geider & Schröder, 2011). Some authors suggest dissociation between the two types of autobiographical memory, being that episodic memory (associated with the right temporal lobe structures) declines early in the disease, while the semantic memory (associated with the left temporal lobe structures) only declines in moderate stage of Alzheimer's disease (Gilboa et al., 2005; Seidl et al., 2011).

Unlike the studies in populations without dementia, in which autobiographical memories recovered in greater numbers are the most recent (Janssen, Chessa & Murre, 2005; Janssen, Rubin & Jacques, 2011) in studies with persons with Alzheimer, autobiographical memories for the recent years decrease (Müller et al., 2012; Naylor & Clare, 2008; Philippi et al., 2012; Seidl et al., 2011). This phenomenon is called positive temporal gradient and refers to a central characteristic of this pathology: the presence of retrograde amnesia. Another particularity observed in dementia persons was the presence of overgeneralization of the autobiographical memory (Fromholt et al., 2003; Irish et al., 2011; Lemos, Hazin & Falcão, 2012; Martinelli et al., 2013; Moses, Culpin, Lowe & McWilliam, 2004) a phenomenon also observed in populations with depression and suicide attempt (e.g. Fromholt et al., 2003; Williams et al., 2007). The overgeneralization of autobiographical memories affects the ability to solve problems and to generate specific images of the future, being a predictor of emotional disorders (Williams et al., 2007).

1.3. Reminiscence and autobiographical memory

Synergy at the fields of reminiscence and autobiographical memory could bring a new direction in these topics (Cappeliez, 2013; Lalanne & Piolino, 2013; Westerhof & Bohlmeijer, 2014). Both could grow from integrating each other's insights in a concerted collaborative effort, although they continued to expand in separate ways with minimal cross fertilization (Cappeliez, 2013). Experimental methods used in studies of autobiographical memory may provide a better understanding of the cognitive processes involved in the recall of personal memories (Westerhof & Bohlmeijer, 2014). Bluck and Levine (1998) analyzed reminiscence as a particular form of autobiographical memory, beginning the study of this relation. They considered reminiscence as a type of autobiographical memory, which means that reminiscence is a way of recalling information and autobiographical memory is the system that encode, store and retrieve information related to our personal experiences (Bluck & Levine, 1998).

Bluck and Alea (2002) also made an attempt to group the functions of reminiscence in the three main functions of autobiographical memory: self, directive and social. Reminiscence and autobiographical memory implicitly involve thinking about the past, in the present (Bluck & Alea, 2002; Westerhof, Bohlmeijer e Webster, 2010) and particularly autobiographical memory is fundamental to the self, to the emotions and the experience of personhood, namely for the duration of experience as an individual set in a culture over time (Conway & Pleydell-Pearce, 2000**).** Memories for personal experience are partially reconstructed in relation to current preoccupations and goals (Bluck & Levine, 1998; Conway, 2005 and the purpose of recovery, integration and reconstruction of autobiographical memories in old age is to achieve the integrity of the self, the development of a set of self positive, realistic and united schemes that provides a sense of coherence and integrity to the individual (Afonso, 2011).

There is a small body of evidence supporting the prediction that memory impairment in dementia is accompanied by a loss of identity (Bevins, 2008). Naylor and Clare (2008) explored the relationships between autobiographical memory, identity and awareness in early-stage dementia, and observed that lower levels of awareness of memory functioning were associated with poorer autobiographical recall and with a more positive and definite sense of identity. Reduced awareness may serve a protective function against the threats to self posed by the onset and progression of dementia. The loss of autobiographical memories related to early adulthood was found to be correlated with a change in the identity of the participant, more specifically with the strength and quality of this dimension, which was weaker, vaguer and more negative (Addis & Tippett, 2004). Although the evidence suggests that memory decline may be associated with self discontinuity and an impaired sense of identity, an experimental study about the impact of reminiscence therapy in institutionalized and cognitively impaired older persons, showed no change between the two groups on measures of identity (Bevins, 2008). There is some investigation about reminiscence and life review interventions focused on the autobiographical memory, although it is directed to persons with depression. Participants of these studies significantly reduced depressive symptoms (Afonso, Bueno, Loureiro et al., 2011; Serrano, Latorre & Montañes, 2005; Serrano, Latorre, Ros et al., 2012) and increased the number of retrieval for specific autobiographical memories (e.g. Serrano, Latorre & Montañes, 2005), particularly for positive specific autobiographical memories (Afonso & Bueno, 2010). The focus on knowledge reactivation and past memories is already practiced for several decades by methods of reminiscence; however, few studies have practice in individual reminiscence sessions structured and are interested in taking into account the complexities of autobiographical memory (Lalanne & Piolino, 2013). The purpose of this pilot study is to analyze the impact of a reminiscence living in a nursing home.

More specifically, we intend to evaluate the effect of reminiscence therapy in the participants in the dimensions of cognition, mood, behavior and autobiographical memory. In addition, this pilot study pretends to extend the knowledge about the application of individual reminiscence therapy in older people with dementia.

2. Methods

This pilot study was a one-group pre-test and post-test design investigation with no control group. The design planned was a cross-sectional, exploratory and descriptive investigation.

2.1. Settings and subjects

The study population considered 112 older persons living in a nursing home in Portugal. Subjects that met the inclusion criteria were invited to participate in the study. Inclusion criteria were: (i) being 65 years of age or more; (ii) present a Montreal Cognitive Assessment (MoCA) score between 26 and 12 (cut off point for the Portuguese population); (iii) present a Global Deterioration Scale (GDS) score between 2 and 4. After applying the screening test (MoCA) to 27 subjects that were able to fulfill the test, a final convenience sample of 9 subjects agreed to participate in the study.

2.2. Outcome measures

The MoCA, validated for the Portuguese population, was used to assess cognitive status. This cognitive screening instrument is sensitive to lighter stages of cognitive decline, being a fast, convenient and effective method to distinguish between performances of adults with a sensitivity of 100% for dementia (Freitas, Simões, Martins, Vilar & Santana, 2010).

The Cornell Scale for Depression in Dementia (CSDD) (Alexopoulos, Abrams, Young & Shamolan, 1988), translated to Portuguese (Grupo de Estudos de Envelhecimento Cerebral e Demência, Vieira & Lopes, 2008) was used for assessing depressive symptoms. The scale measures 5 manifestations of depressive symptoms: mood related signs, behavioral disturbance, physical signs, cyclic functions and ideational disturbance (Alexopoulos, 2002). This instrument was selected because of its specificity for this population (Alexopoulos, 2002), obtaining also sensitive results to the application of reminiscence therapy (Wang, 2007). Scores below 6 are associated with absence of significant depressive symptoms, scores above 10 indicates a probable major depression and scores above 18 indicates a major depression (Alexopoulos, 2002). The CSDD was applied to the nursing staff of the institution in the pre and post-test.

The subscale Alzheimer Disease Assessment Scale Non-Cog (ADAS n Cog) from the Alzheimer Disease Assessment Scale, measured and translated to Portuguese (Guerreiro, Fonseca, Barreto et al., 2003) was also used. The scale assesses 10 domains of behavior, often associated with changes present in persons with dementia like crying, depressive symptoms, dispersion, lack of cooperation in the tests, delirium, hallucination, deambulation, increased motor activity, shaking and eating behavior. The ADAS n Cog was applied to the participants on the pre and post-test. Finally, the Autobiographical Memory Test (AMT) was used to evaluate the ability to assess the recovery of specific autobiographical memories, in a limited time, upon presentation of a stimulus word. The instrument was implemented by Williams and Brodbent (1986) and is validated for the Portuguese population (Afonso, 2007). For this pilot study we used 10 of the 15 original stimulus words, 8 of affective valence (happy, unhappy, cheerful, sad, amused, isolated, hopeful, and rejected) and 2 neutral words (home and family), applied to the participants in the pre and post-test.

2.3. Procedures

The formal request for permission to conduct the study was addressed to the direction of the nursing home which approved its implementation. Access and recruitment of the sample were conducted with the assistance of two nurses and a psychologist of the institution. Informed and voluntary consent was obtained both from the participants with dementia and from their family/legal representative. The outcome measures were administered by independent researchers (HQ and DP), a nurse and a psychologist working in the nursing home. These researchers applied the screening test (MoCA) between January and February of 2014.

The other quantitative measures and the interview with the participants were administered in the 2 weeks prior and following the intervention, by the same researchers. The AMT was quoted by two psychologist (RA and OR) experienced in clinical geropsychology.

2.4. Reminiscence intervention

The intervention was an individual reminiscence program based on a protocol focused in older persons with dementia living in nursing homes (Lopes, Afonso & Ribeiro, 2013). Although there are three forms of application as reminiscence therapy (simple reminiscence, life review and life review therapy, Pinquart & Forstmeier 2012; Webster, Bohlmeijer & Westerhof, 2010; Westerhof, Bohlmeijer & Webster, 2010), in this pilot study we focused our intervention on simple reminiscence. Simple reminiscence aims to stimulate social functions of reminiscence (communication, education, information), creating ties and retrieving positive past events spontaneously to promote positive feelings (Pinquart & Forstmeier, 2012; Westerhof, Bohlmeijer & Webster, 2010). The protocol is therefore based on creating an unstructured autobiographical narrative, encouraging the use of narrative reminiscence and directed to positive events, which are ought to bring higher therapeutic benefits (Cappeliez, Guindon & Robitaille, 2008; Parker, 1995; Webster, Bohlmeijer & Westerhof, 2010). In overall, the program comprised five weekly reminiscence sessions, lasting up to 30-40 minutes each and took place from March to April of 2014. The reminiscence therapy was applied by a nurse with experience in geriatric care, and all sessions were filmed and audio taped.

2.5. Statistical analysis

SPSS 19.0 for Windows was used for data analysis. Descriptive statistics were generated for the demographic information (age, sex, education) and health related data (medication in use, diagnosed diseases, and dementia and depression diagnosis). To evaluate the correlation between the domains in our baseline assessment we used the Spearman´s Rho, a non parametrical test, with a significance level of $\varrho < 0.05$. To analyze the impact of reminiscence therapy in the outcome measures, and due to the short size of this sample (n=6), we used descriptive statistics to verify the effects in each participant in the pre and post test. We used a non parametrical test, the Wilcoxon Signed Ranks Test (Z) with a significance level at $\varrho < 0.05$ to verify the changes in outcome measures and the correlation between the analyzed variables, using again the Spearman´s Rho Test with a significance level of $\varrho < 0.05$.

3. Results

3.1. Sample characteristics

A total of 6 subjects completed all sessions of the study and 3 participants did not complete the study protocol (dropout =33.3%). Reasons for dropout included sickness and absence during intervention time due to holidays with family. Table 1 lists the baseline sample characteristics of the participants.

Table 1: Baseline participant characteristics

Variables	Sample
Age mean (years, ±standard deviation)	80 ±11.28
Female, no (%)	3 (50.0%)
1-4 Years of education, no (%)	5 (83.3%)
Widowed, no (%)	4 (66.7%)
1 to 5 years of institutionalization, no (%)	3 (50.0%)
Mean diagnosed disease (no, ±standard deviation)	5.83±4.07
Mean medication in use (no, ±standard deviation)	3.67±0.82
Anti-depressive in use, no (%)	4 (66.7%)
Dementia diagnostic, no (%)	1 (16.7%)
MoCA, mean score (±standard deviation)	19.17±5.19
GDS=3, no (%)	4 (66.7%)
CSDD, mean (±standard deviation)	7.17±6.55
ADAS n Cog, mean (±standard deviation)	7.50±8.53

The sample was equally composed by males and females with a mean age of 80 years old (SD=11.28). The majority of participants were widowers (66.7%), literate (83.3%) and lived in the institution for more than one year (50%). The mean number of diagnosed diseases was 5.83±4.07; the mean number of medications taken was 3.67±0.82, with none of the participants medicated for dementia and 66.7% of them using antidepressants. Only one participant had medical diagnose of dementia. The mean MoCA value of the sample was 19.17±5.19 and the majority of the subjects had a GDS of 3. Levels of depression (CSDD=7.17±6.55) and altered behaviour (ADAS n Cog =7.5±8.53) were low. Most of the signals identified by the caregivers were related to altered humour: 66.7% of the participants presented anxiety, 50% appeared sad, had crying episodes (50%) and presented depressive symptoms (50%). Other frequent disturbances observed at the baseline were the presence of trembling and lack of concentration in 50% of the participants.

Table 2 summarizes the correlations between scales at the pre test moment. Cognition status correlated positively with an increase in specific answers on AMT and a decrease in general answers. We also observed a positive correlation between CSDD and ADAS n Cog measures, indicating that an increase in depressive symptoms corresponds to an increase in observed altered behaviour. When altered behaviour scores increase, the cognition status (MoCA) tends to decline (-0.883, ϱ=0.020), such as the specific answers (-0.883, ϱ=0.020) and general answers increase (0.875, ϱ=0.022).

Table 2: Spearman´s rho correlations coefficients between scales at the pre test

Measures	MoCa		CSDD		Adas n Cog	
	Correlation Coefficient	ϱ	Correlation Coefficient	ϱ	Correlation Coefficient	ϱ
CSDD	- 0.657	0.156				
ADAS n Cog	**-0.883**	**0.20***	**0.912**	**0.011***		
AMT						
Recuperation, no	0.370	0.470	-0.247	0.470	-0.461	0.358
Latency time	-0.143	0.787	-0.086	0.872	0.147	0.781
Specific answer	**0.886**	**0.019***	-.657	0.156	**-0.883**	**0.020***
General answer	**-0.820**	**0.046***	0.759	0.080	**0.875**	**0.022***
Positive valence	0.676	0.140	-0.169	0.749	-0.435	0.388
Negative valence	-0.441	0.381	0.000	1.000	0.121	0.819

Legend: (ϱ) significance level at ϱ<0.05.

3.2. Changes in individual outcome measures

Table 3 and table 4 describe individual evolution of the participants in outcome measures, after 5 reminiscence therapy sessions. An improvement on MoCA post test was observed in 66.7% of the sample (n=4) and in 2 subjects MoCA values remained equal. Depressive symptoms decreased in 3 subjects and increased in 1 participant. Altered behaviours increased in 3 subjects (50%) and decreased in 2.

Table 3: Individual evolution of the participants on MoCA, CSDD and ADAS n Cog (pre and post-test)

Participant	MoCA		Variance	CSDD		Variance	ADAS n Cog		Variance
	Pre	Post		Pre	Post		Pre	Post	
P1	21	21	0	0	0	0	0	3	3
P2	26	26	0	2	0	-2	0	1	1
P3	12	13	1	13	12	-1	18	17	-1
P4	15	19	4	17	15	-2	18	8	-10
P5	23	27	4	6	6	0	2	4	2
P6	18	19	1	5	6	1	7	7	0

In what regards AMT pre and post test individual results, 4 participants (66.7%) improved the number of recovered memories trough this test and increased the number of positive autobiographical memories retrieved.

Half of the sample improved the number of specific autobiographical memories recovered, 2 remained equal and 1 participant diminished this value.

Table 4: Individual evolution of the participants on AMT (pre and post-test)

AMT	Recuperation		Variance	Positive valence		Variance	Specificity		Variance
Participant	Pre	Post		Pre	Post		Pre	Post	
P1	10	10	0	5	6	1	6	6	0
P2	9	10	1	5	6	1	7	6	-1
P3	9	10	1	2	4	2	2	5	3
P4	9	10	1	5	7	2	4	4	0
P5	10	9	-1	7	7	0	5	6	1
P6	8	9	1	5	5	0	3	4	1

3.3. Changes in outcome measures

At the end of the 5 week intervention, participants exhibited pre-to-post-intervention improvements in the entire outcome measures, although the differences were not statistically significant, except for the time of latency on AMT. Table 5 describes the changes in outcome measures after reminiscence intervention in the 6 participants that completed the program.

Table 5: Changes in outcome measures after reminiscence intervention

Measures	Pre-test		Post-test		*Z*	*P* value
	Mean	SD	Mean	SD		
MoCA	19.17	5.19	20.83	5.15	1.857	0.063
CSDD	7.17	6.55	6.50	6.12	-1.300	0.194
ADAS non COG	7.50	8.53	6.67	5.68	-2.271	0.786
AMT						
Recuperation, no	9.17	0.753	9.67	0.52	1.342	0.180
Latency time	62.17	19.47	38.8	19.2	-1.997	0.046*
Specific answer	4.50	1.87	5.17	0.98	1.134	0.257
General answer	4.67	1.63	4.50	1.05	-0.378	0.705
Positive valence	4.83	1.60	5.83	1.17	1.857	0.063
Negative valence	4.33	1.51	3.83	1.33	-1.342	0.180

Legend: (ϱ) significance level; (*) $\varrho<0.05$; (Z) Wilcoxon signed ranks test.

When analyzing the correlations in the post-test we found that observed behavioral symptoms (ADAS n Cog) decreased with increasing MoCA scores (-0812, $\varrho=0.05$), and decreased depressive symptoms (0.912, $\varrho = 0.011$). Increased cognition was also correlated with a statistically significant decrease in general answers in the AMT (-0851, $\varrho = 0.032$). Table 6 summarizes the correlations between measures at post test.

Table 6: Spearman´s rho correlations coefficients between scales at the post test

Measures	MoCa		CSDD		ADAS n Cog	
	Correlation Coefficient	ϱ	Correlation Coefficient	ϱ	Correlation Coefficient	ϱ
CSDD	- 0.612	0.197				
ADAS n Cog	**-0.812**	**0.050***	**0.912**	**0.011***		
AMT						
Recuperation, no	-0.315	0.543	0.000	1.000	0.000	1.000
Latency time	-0.667	0.148	0.677	0.140	0.771	0.072
Specific answer	0.751	0.085	-0.747	0.088	-0.741	0.092
General answer	**-0.851**	**0.032***	0.712	0.112	0.706	0.117
Positive valence	0.642	0.169	0.076	0.887	-0.294	0.571
Negative valence	-0.647	0.165	-0.125	0.813	0.213	0.686

Legend: (ϱ) significance level at $\varrho<0.05$

4. Discussion

The present investigation, to the best of our knowledge, is the first study about the effects of individual reminiscence therapy, designed for a Portuguese population with cognitive impairment. Most of the studies, with older persons with cognitive impairment, are conducted in groups (Pinquart & Forstmeier 2012; Subramaniam & Woods, 2012), although, our investigation points that individual reminiscence therapy may also be effective with these persons. A previous review about individual reminiscence interventions, besides the small amount of available evidence, noted some benefits in cognition and depression (Subramaniam & Woods, 2012) after personalized therapy (life review, structured reminiscence). Our pilot study intended to fulfill this gap in research adding new evidences about the effects of individual reminiscence to persons with cognitive impairment. Traditionally, simple/unstructured reminiscence therapy is based on group intervention, with the purpose of increase socialization and short term well-being (Webster, Bohlmeijer & Westerhof, 2010). Due to the specificities inherent to persons with cognitive decline (lack of attention, irritability, language difficulties) it seems logical this attempt to individualize this care. This pilot study, even though the differences were not statistically significant, revealed improvements in the entire outcome measures, namely in cognition, depressive symptoms, observed behavior and autobiographical memory recuperation, between the pre and post-test.

The difference between the pre and post-test mean value of MoCa was not significant (ϱ= 0.063), probably due to the short sample size that limited statistical analyses. Nonetheless, as in other studies, we observed a tendency to an improvement in cognition (Z=1.857) after reminiscence therapy (Akanuma et al., 2011; Chung, 2009; Huang et al., 2009; Ito et al., 2007; Su, Wu & Lin., 2012). Mean value of MoCA has increased after the reminiscence therapy, which is congruent with the results found previously (Cotelli et al., 2012; Haight et al., 2003; Haight, Gibson & Michel, 2006; Nawate et al., 2008; Tadaka & Kanagawa, 2007; Wang, 2007; Woods et al., 2005). Studies using the same depression scale (Ashida, 2000; Wang, 2007) and several authors in reminiscence field (e.g. Chung, 2009; Cotelli et al., 2012; Hsieh et al., 2010) pointed to significant statistical differences in depressive symptoms after reminiscence therapy. In our study, although there was found a decrease in depressive symptoms (Z= -1.300) in subjects undergoing reminiscence therapy, this was not statistically significant (ϱ=0.194), in line with the consulted literature (Akanuma et al., 2011; Haight et al., 2003; Haight et al., 2006; Huang et al., 2009; Su, Wu & Lin, 2012). These observed improvements in the humor of the participants highlight the idea that as persons with dementia accumulate impairments, they tend to depression and reminiscence therapy may reverse this trend transmitting feelings of belonging (Wang, 2007), improving self-acceptance and purpose in life (Pinquart & Forstmeier, 2012), enabling a sense of continuity of the self (Afonso, 2011; Peix, 2009). Our investigation reveled improvements in the subscale of thought disorders, expressed by the decline (Z=-1.414; ϱ=0.157) of suicide, low self-esteem and pessimism. Some reminiscence studies with persons without dementia pointed to similar results, namely to the improvement of self-esteem after the therapy (Chao, Liu, Wu et al., 2006).

Observed behavior disturb diminished on the reminiscence therapy participants, although unlike other investigations on this theme ((Akanuma et al., 2011; Ashida, 2000; Hsieh et al., 2010; Huang et al., 2009; Lai, Chi & Kayser-Jones, 2004; Wang, Yen & OuYang, 2009; Woods et al., 2005; Yamagami et al., 2007) our results were not significant. We observed a decline in altered behaviors (Z=-2.271) as observed by the caregiver, but the change was not statistically important (ϱ=0.786). The ADAS non Cog scale has been pointed as specific for the evaluation of this outcome, although its use is very sparse (Robert et al., 2010) and to our knowledge there are no studies in reminiscence using this instrument. Our results showed a reduction on crying (Z=-1.414; ϱ=0.157), lack of collaboration (Z=-1.342; ϱ=0.180), delirium (Z=-1.414; ϱ=0.157) and hallucination (Z=-1342; ϱ=0.180), congruent with some findings from other authors (Ashida, 2000; Huang et al., 2009; Wang, Yen & OuYang, 2009).

In what regards the AMT results, we found statistically significant improvements in the post-test in the latency time before the recuperation of events (Z= -1.997; ϱ=0.046) and an increase in the total number of personal memories recovered (Z=1.342; ϱ=0.180) and of specific answers (Z=1.134; ϱ=0.257), and positive content of the events (Z=1.857; ϱ0.063) after the reminiscence therapy. These results expressed a positive impact of reminiscence in the recuperation of personal memories. Although this effect was not found to be as evident as in studies with other populations (e.g. Afonso & Bueno, 2010; Serrano, Latorre & Montañes, 2005), more investigation in this area will probably produce significant results.

Like in studies about autobiographical memory in dementia, we observed that at the baseline, participants presented high levels of general answer, positively correlated with the cognition level (correlation coefficient=0.886; ϱ=0.017) and negatively with disturbed behavior (correlation coefficient=-0.883; ϱ=0.02). Participants with lower cognition decline (P1; P2 and P5) presented higher specificity in the recovered memories at baseline, which is congruent with the idea that dementia origins overgeneralization of the autobiographical memory (Fromholt et al., 2003; Irish et al., 2011; Lemos, Hazin & Falcão, 2012; Martinelli et al., 2013; Moses, Culpin, Lowe & McWilliam, 2004). Our pilot study related a decrease of general recuperation of events in the post test, higher in patients with more cognition decline (correlation coefficient=-0.851; ϱ=0.032) pointing to the positive impact of reminiscence in autobiographical memory. The participants reported more specific events, decreasing overgeneralization of autobiographical memory after reminiscence therapy. These positive results in autobiographical memory recuperation are important because autobiographical memory is essential for having a sense of self-continuity that allows the varied and sophisticated human behavior (Bluck & Liao, 2013) and overgeneralization impairs the skills to solve problems (Williams et al., 2007).

4.1. Limitations

Our study, being a pilot investigation, has important methodological weaknesses, such as its small sample size (n=6), the lack of randomization of the participants who were all selected from a single institution, and the lack of a control group. These limitations lead also to the difficulty of performing a blinded assessment of the outcomes and made constrained the possibility of comparing context effect in the impact of this therapy. These restrictions had already been pointed as important gaps in the study of the reminiscence effects in general (Lin, Dai & Hwang, 2003; Pinquart & Forstmeier 2012; Westerhof, Bohlmeijer & Webster, 2010) and in persons with dementia in particular (Cotelli, Manenti & Zanetti, 2012; Woods et al., 2005), but are difficult to surpass. We recommend in future investigations, as other authors previous said, the use of randomized controlled trials designs to evaluate the effects of this intervention. Besides its methodological weaknesses, this pilot study achieved the objective of testing the possibility of carrying out an individual and unstructured reminiscence program with this population.

Another limitation of this investigation was the recruitment method used to select the sample. Indeed, in the absence of dementia diagnosis, we contoured this restraint using a screen test which is sensitive to dementia (Freitas et al., 2010; Freitas et al., 2013) and the Global Deterioration Scale. Dementia is under diagnosed worldwide and typically this diagnose emerges only in later stages of the dementia process, estimating that about 50% of the cases are not reported (World Health Organization, 2012). There is an urgent need to create new multidimensional scales and strategies that enable the access to the multitude of symptoms and become applicable to various stages of dementia (Robert et al., 2010). However, recognizing the wide range of signs and symptoms of dementia constitute themselves as a challenge and a priority target of attention (Passos, Sequeira & Fernandes, 2014).Despite the attempt to use specific instruments for dementia, the limitation was huge due to the lack of scales adapted to the Portuguese population. This difficulty was bypassed with the use of scales translated and applied in qualitative version, by reporting the observation of the caregiver (ADAS non Cog, CSDD). This idea was based on the knowledge that the scales for dementia have low sensitivity and do not assess important aspects with impact in the participant and caregiver (Robert et al., 2010), and so, it seemed clear that using even less sensitive scales, the results would not be visible. To overcome this limitation of the study, it is suggested that in future research, the concomitant use of self-reported scales with these observation scales to address mood and behavioural changes.

5. Conclusions

Despite the methodological constraints, we managed to evaluate the effects of individual reminiscence therapy in a population with cognitive impairment. We observed that the therapy improved cognition and autobiographical memory retrieval and diminished depressive symptoms and observed behavior disturb in our participants, even if our data were not statistically significant. Reminiscence therapy can be helpful to maintain or improve mood, cognitive function, altered behavior and self-esteem, however further investigations are needed to redefine the results, using more standardized research methodologies (Cotelli, Manenti & Zanetti, 2012; Lin, Dai & Hwang, 2003; Woods et al., 2005).

Based on the facts that psychological and behavioral symptoms are the focus and burden of caregivers (WHO, 2012) and that autobiographical memory declines as the dementia progresses (Martinelli, Anssens, Sperduti & Piolino, 2013; Philippi et al., 2012) supported the idea that reminiscence therapy, directed to positive and specific life events, may improve autobiographical memory, and indirectly some symptoms associated with dementia (Bluck & Liao, 2013). Indeed, by focusing on preserved abilities of the person, reminiscence values life paths, responds to the basic human need to communicate and promotes basic skills to deal with everyday solicitations (Cotelli, Manenti, & Zanetti, 2012; Gonçalves, & Martin, 2008; Peix, 2009).

Conflict of Interests Statement

All authors declare no conflict of interest.

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