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ORIGINAL RESEARCH

The Effect of Reminiscence Therapy on the Functionality of Elderly Individuals: A Randomized Controlled Trial

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ARTICLE INFO	ABSTRACT
  	To examine the effect of reminiscence therapy on the level of functionality of individuals aged 65 and over. The sample consisted of 16 residents who lived in a public nursing home between December 2019 and February 2020. Participants were divided into intervention and comparison groups using the simple random sampling method. Reminiscence therapy was performed with each participant in the intervention group for 8 weeks. The comparison group received routine services and were regularly visited for 8 weeks. The data were obtained by the Personal Information Form, Multidimensional Observation Scale for Elderly Subjects, and Mini Mental State Examination. When the pre- and post-reminiscence therapy results were compared, a significant difference was found in the Mini Mental State Examination and Multidimensional Observation Scale for Elderly Subjects scores in the intervention group (p < 0,05). The intervention group had better functional and cognitive competency than the comparison group in the areas of self-care, depression/anxiety, and withdrawal from society. It was concluded that the reminiscence therapy contributed to increase the mental competence and functionality of the participants.

Introduction

Aging is the period when physical and mental changes affect all aspects of life as a result of the interaction between biological, genetic and environmental factors (Chalise, 2019; Wu et al., 2018). The older adult population has grown significantly in recent years as a result of the global decrease in birth rates, improved living standards, new and effective diagnosis and treatment methods, and higher life expectancy (Bell et al., 2016; World Health Organization, 2015). The current older adult population worldwide is 980 million 204 thousand and is expected to increase by more than three times, up to 3.1 billion by 2100 (United Nations Population Fund, 2021). As of 2024, the population aged 65 and over in Türkiye reached 9,112,298, accounting for 10.6% of the total population. According to the population projections of the Turkish Statistical Institute for the period 2023–2100, the proportion of older adults is expected to rise to 11% in 2025, 16.3% in 2040, and 22.6% in 2060 (Turkish Statistical Institute, 2023, 2024).

In the process of aging, individuals are often confronted with increasing disabilities, possibly minor at first, but leading to increasingly significant impairments. Functionality is the ability of an individual to maintain daily activities, adapt to society, have the skills necessary to perform self-care practices, meet social roles and expectations, and establish interpersonal relationships (Liberman, 2009). Functionality refers to the ability of individuals to perform the tasks and activities necessary to fulfill their main role in the society they live in and to meet their basic needs (Sheafor & Horejsi, 2015). The decrease in physiological capacity negatively affects the adaptation and functionality that older adults need in their daily lives (Tseng et al., 2019). The changes experienced in the aging process are not limited to physical changes and decrease in physiological capacity. Cognitive competence and psychological characteristics are also affected by the aging process (Westerhof & Bohlmeijer, 2014). While cognitive functions deteriorate in the aging process, some functions change at an imperceptible level, while some functions such as verbal skills and productivity can be preserved (Tseng et al., 2019). In old age, due to the slowdown in nerve conduction and loss of nerve cells, there is regression in attention, memory, and reactions. Changes in cognitive processes may differ from individual to individual, as well as changes in different cognitive functions and at different levels in the same individual (Westerhof & Bohlmeijer, 2014).

There are non-pharmacological psychosocial interventions that nurses can apply to prevent cognitive decline specific to old age, to stop existing cognitive decline, and to ensure recovery. There is an increasing interest in non-pharmacological psychosocial interventions such as humor therapy, mindfulness therapy, constructivist approach, reminiscence therapy, and cognitive behavioral therapy which are cost-effective (Kris & Henkel, 2017). The purpose of non-pharmacological psychosocial intervention methods is to enable the elderly to control their emotions, to support

their relations with the people providing treatment and their relatives, to talk about all their problems, to support them in solving their problems, and to help them adapt to changing conditions (Kwak et al., 2018). In this context, reminiscence therapy is an easy-to-apply, cost-effective psychosocial intervention method used as a therapeutic approach that activates memories (Kirk & Berntsen, 2017). Reminiscence therapy is an important approach that aims to help older individuals overcome developmental difficulties (Shropshire, 2020). In the reminiscence groups, a wide variety of topics such as childhood memories, school years, holidays, unforgettable days, graduation, wedding, birth of the first child, first job, work life, places lived, trips with memories, family life, holidays, tastes, nostalgic music, unforgettable historical periods and the lifestyle of those times can be addressed (Shropshire, 2020; Subramaniam & Woods, 2012).

Functional status, a key determinant of quality of life in older adults, is adversely affected by cognitive decline, reduced physical capacity, and social isolation associated with aging (United Nations, Department of Economic and Social Affairs, Population Division, 2020; Verver et al., 2018). In this context, the importance of non-pharmacological interventions aimed at maintaining functional independence in the elderly is increasingly emphasized. One such intervention, reminiscence therapy, seeks to enhance self-esteem, promote social interaction, and support cognitive functions by encouraging individuals to recall and share past life experiences (Chiang et al., 2008; Fathi et al., 2020). Although the positive psychosocial effects of reminiscence therapy are well documented in the literature, evidence regarding its impact on physical functionality remains limited, and randomized controlled trials in this area are insufficient (Henkel et al., 2017). Therefore, this study aims to evaluate the effect of reminiscence therapy on the functional status of older adults and to contribute to the development of holistic and evidence-based approaches in nursing care.

Hypotheses of the study

H0: Reminiscence therapy has no effect on the functioning of elderly individuals

H1: Reminiscence therapy affects the functioning of elderly individuals.

Material and Methods

Ethical Considerations of the Study

Ethical approval for this study was obtained from the Non-Invasive Clinical Research Ethics Committee of Sivas Cumhuriyet University, located in the city where the research was conducted (Approval No: 2019-03/40). Written informed consent was obtained from all elderly participants using the "Informed Consent Form for Individuals Residing in Nursing Homes." and written permission was obtained from the Ministry affiliated to the nursing home where the study was conducted. The study

was conducted in accordance with the Principles of the Helsinki Declaration.

Study Design

This study was conducted the randomized contolled trial method was used. Participants included in the sample were divided into two groups as intervention (8 individuals) and comparison (8 individuals) groups using the simple random sampling method (Figure 1). In the study, a sample size of 16 was used with a Type I error of 0.05. The power analysis indicated a statistical power of 0.959, demonstrating sufficient power to detect significant differences between test scores.

Study Setting

The population of the study consisted of older adults living in a public nursing home. The sample consisted of 16 residents who lived in a public nursing home between December 2019 and February 2020.

Study Population and Sample

The study sample was composed of 16 nursing home residents who met the sample selection criteria. Individuals who did not have communication difficulties and mental problems, had a Standardized Mini Mental Test (SMMT) score between 24 and 30, were 65 years of age and older, and agreed to participate in the study were included in the study sample. Adults who were younger than 65 years of age, did not agree to participate in the study, had an SMMT score of less than 24, and were to leave the nursing home for any reason within 8 weeks were not included in the sample.

Data Collection Tools

The study data were collected through face-to-face interviews using the Standardized Mini-Mental State Exam (MMSE), Personal Information Form, and the Multidimensional Observation Scale for Elderly Subjects (MOSES).

Personal information form: The personal information form used in the study was created by the researcher with reference to relevant sources in the literature and used to obtain information about the socio-demographic characteristics and certain health characteristics of the older adults living in the nursing home (Sok, 2015; Verver et al., 2018). The form consists of 10 questions about age, gender, educational status, marital status, occupation, status and name of chronic diseases, cigarette-alcohol-substance use, and regular medication taken.

Standardized mini-mental state exam (MMSE): Developed by Folstein, Folstein, and McHugh, MMSE is a short, useful, and standardized assessment tool that can be used to determine the cognitive level globally (Folstein, Folstein, & McHugh, 1975). The test consists of five subsections: orientation of time and space, recording memory, attention, recall, and language. MMSE can be applied by physicians, nurses, and psychologists in a short time. The highest score that can be obtained in MMSE is 30. In the test, a score of 24–30 points is considered normal, 20–23 mild dementia, 10–19 moderate dementia, and 0–9 advanced dementia (Folstein et al., 1975). The validity and reliability study of the test was completed by Güngen, Ertan, Eker, Yaşar, and Engin (2002).

Multidimensional observation scale for elderly subjects (MOSES): Multidimensional Observation Scale for Elderly Subjects (MOSES) is a multi-dimensional measurement tool developed by Helmes to evaluate the functionality of older adults. The scale consists of 40 questions and provides evaluation in 5 functional sub-dimension areas. The dimensions of the scale are Self-Care (1–8), Disorientation (9–16), Depressed/Anxious Mood (17–24), Irritable behavior (25–32), and Withdrawal from society (33–40) (Helmes, 1988).

In terms of self-care, skills such as clothing of the older adult, nail clipping, shaving, dental care, bathing, going to the restroom, bladder and bowel incontinence, going to bed and getting out of bed on their own, physical mobility, and the use of constraints are evaluated. For disorientation, an older adult's understanding of communication, talking, remembering recent events, remembering important past events, being aware of time and place, recognizing people, and finding their way around the building are evaluated. For depressed/anxious mood, unhappy and depressed appearance, speech and tone of voice, worried and anxious appearance and speech, frequency of crying other than moaning, sighing, and yelling, pessimism about the future, and excessive preoccupation with oneself are evaluated. For irritability, cooperation of the older adult with caregivers, compliance with the caregiver's demands and instructions, irritability and moodiness, reactions to frustration, verbal attack on caregivers and other people, physical attack on others, and arguing with other people are evaluated. For the functional area of withdrawal from society, the older adult's preference of solitude, initiation of social relations, reaction to attempts to establish social relations, friendship with other people, interest in daily events, interest in external events, being busy with a job and helping others are evaluated (Morris et al., 1994; Rubenstein et al., 1991).

Each item in the scale is scored between 0 and 4. Twenty-two items of the scale have 4 choices and 18 items have 5 choices. The last option in the five-choice items was created with the thought that the older adult would not be able to answer the question and/or the question would not be suitable for the older adult. The lowest score that can be obtained from the scale is 0, and the highest score is 138. A low score indicates that the functionality of the older adult is high, while a high score indicates that the functionality of the older adult is low. The validity and reliability study of MOSES was performed by Soygör, Duyan, Hasgül, and Adıbatmaz (2017), and the Cronbach Alpha values of the functional dimensions of the scale were found to be 0.89 for self-care, 0.85 for disoriented behavior, 0.80 for depressed/anxious mood, 0.77 for irritable behavior, and 0.87 for withdrawn behavior (Güngen et al., 2002; Helmes, 1988).

Data Collection

In the first interview, the researcher met with the participants and explained the purpose of the study and the research process. Personal Information Form, Multidimensional Observation Scale for Elderly Individuals and Standardized Mini Mental Test were administered by the researcher to all participants who agreed to participate in the study. The participants in the intervention group received reminiscence therapy which was implemented by the researcher as one session per week for eight weeks. Reminiscence sessions were held in a meeting room in the nursing home and arranged in accordance with the interviews. In the reminiscence sessions, mnemonic materials selected specifically for the determined interview topic were used. The materials to be used in the reminiscence sessions were determined in accordance with the education level and cultural characteristics of the participants. In the sessions, topics such as childhood life, work life, religious holidays, national holidays, old songs, military ceremonies, wedding ceremonies, gardening and field work were shared. In the reminiscence sessions, the participants were encouraged to verbally express the feelings and thoughts they remembered about the mnemonics. The interviews were recorded by the researcher and each session lasted 45-60 minutes. At the end of the reminiscence session, the topics addressed in the session were summarized by the researcher, the following week's topic was determined and the interview was concluded.

Structured interviews with the comparison group participants were held weekly in the designated lounge area of the nursing home. The researcher interviewed the individuals in the comparison group once a week for eight weeks. During these meetings, daily issues and events such as health, sports, and weather were discussed. Each of the mentioned interviews lasted 45-60 minutes. At the end of eight weeks, SMMT and the MOSES were implemented again to the participants in the intervention and comparison groups.

This study design and reminiscence therapy protocol are consistent with established methods in previous research on reminiscence therapy interventions in elderly populations (King et al., 2019; Shellman et al., 2019).

Data Analysis

Data were analyzed using the SPSS (22.0) program. In the analyses performed, it was seen that the data were normally distributed, but as the sample size was smaller than 30, non-parametric analyses were completed. In terms of significance test of the difference between two means, Wilcoxon Rank Differences test and Mann Whitney U test were used to test the significance of the difference between two pairs in repeated measurements in individuals in the same group, and a Chi-square analysis (Fisher's Exact test) was performed to compare the descriptive characteristics of individuals in the intervention and comparison group. Statistical significance was set at p<0.05.

Results

In the intervention group, 62.5% of the participants were in the 75-84 age group, 37.5% were elementary school graduates, 50% were women, 87.5% had a chronic disease and were on medication due to these health problems, 62.5% were non-smokers. It was determined that 62.5% of the individuals in the comparison group were in the 65-74 age group, 62.5% were male, 50% were elementary school graduates, all had chronic diseases and were on regular medication due to these health problems, and 50% were smokers. No significant difference was found between the participants in the intervention and comparison groups in terms of descriptive characteristics. Information on the comparison of the individuals in the intervention and comparison groups in terms of descriptive characteristics is presented in Table 1.

When the mean scores of the individuals in the intervention group before and after the reminiscence therapy in MMSE and MOSES are examined in Table 1, it was found that the scores that individuals in the intervention group got in the MMSE and MOSES and the sub-dimensions of disoriented behavior, depressed/anxious mood, and withdrawn behavior after the reminiscence therapy were statistically significant (p<0.05). It can be said that the cognitive competence and functionality of the individuals in the intervention group improved after the reminiscence therapy (Table 1).

There was no statistically significant difference in the first measurement and last measurement MMSE and MOSES total scores of the individuals in the comparison group and the MOSES sub-dimensions (p>0.05). The mean scores of the individuals in the comparison group included in the study before and after their routine nursing home visits in MMSE and MOSES are given in Table 1.

In this study, the MMSE score was used as the inclusion criterion of the participants. There was no significant difference between the intervention and comparison groups in the MMSE scores before and after reminiscence therapy (p=0.787, p=0.122, p>0.05). Although the difference between the intervention and comparison groups was not significant, when the MMSE scores were examined, it was determined that the scores of the individuals in the comparison group were higher than the intervention group before the reminiscence therapy, and the MMSE scores of the individuals in the comparison group did not change after the reminiscence therapy. However, the scores of the individuals in the intervention group increased.

There was no statistically significant difference in the total mean scores of the MOSES before the reminiscence therapy of the individuals in the intervention and comparison groups (p>0.05). In the evaluation performed at the end of the reminiscence therapy, it was determined that the mean score of the intervention group in the MOSES was lower, and the difference between the groups was statistically significant (p<0.05). It can be said that reminiscence therapy positively affects the functionality of older adults.

Table 1. Demographic information and before and after the reminiscence therapy mean MMSE and MOSES scores of the individuals in the intervention and comparison groups (n=16)

Variables		Intervention (n=8)		Comparison (n=8)		Test statistics	p
		n	%	n	%		
Age	65-74	2	25.0	5	62.5	2.286[a]	0.315
	75 and older	6	75.0	3	37.5		
Gender	Female	4	50.0	3	37.5	0.255[a]	0.614
	Male	4	50.0	5	62.5		
Level of Education	Literate	3	37.5	3	37.5	0.000[a]	1.000
	Elementary School	5	62.5	5	62.5		
Smoking	Yes	3	37.5	4	50.0	0.255[a]	0.614
	No	5	62.5	4	50.0		
		$\overline{X}$	S.s	$\overline{X}$	S.s	Test statistics	p
MOSES Total	Pre Test	86.00	15.55	83.75	13.54	0.309[b]	0.762
	Post Test	67.00	11.35	84.25	13.24	-2.797[b]	0.014*
SMMT	Pre Test	25.88	1.73	26.13	1.81	-0.283[b]	0.781
	Post Test	27.88	1.64	26.13	2.23	1.786[b]	0.096

*$p<0,05$; a: Fisher's Exact test; b: Independent samples t-test
MOSES : Multidimensional Observation Scale for Elderly Subjects
SMMT: Standardized Mini-Mental State
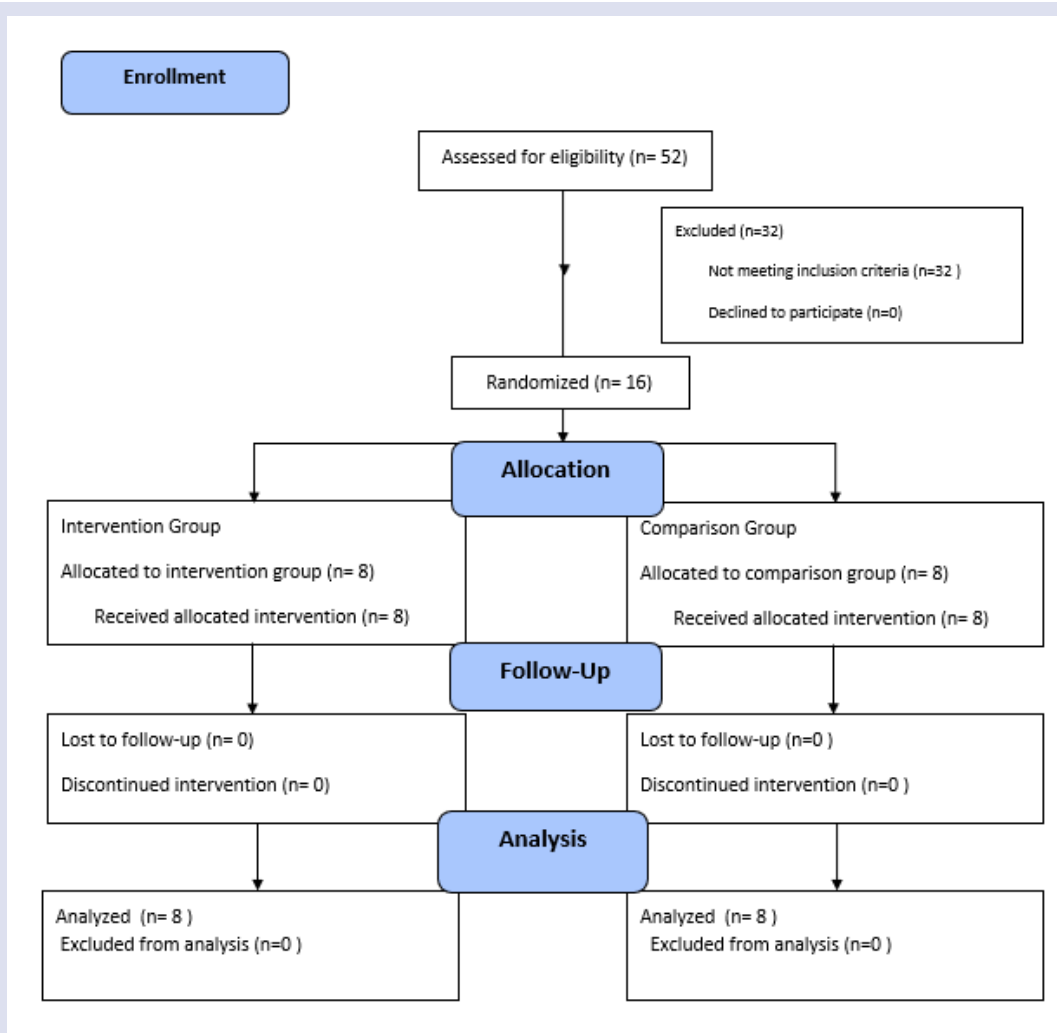
Figure 1. CONSORT Flow Diagram

Tablo 2. Mean scores of MMSE and MOSES of individuals in the intervention and comparison groups before and after reminiscence therapy (n=16)

		Intervention $\overline{X}$ ±SS	Comparison $\overline{X}$ ±SS	Test statistics	p
SMMT	Pre Test	25.88±1.727	26.13±1.808	-0.283a	0.781
	Post Test	27.88±1.642	26.13±2.232	1.786a	0.096
	Test statistics	-4.000b	0.000b		
	p	0.005**	1.000		
Self-Care	Pre Test	10.88±3.907	13.13±2.357	-1.395a	0.185
	Post Test	10.38±2.669	13.38±2.134	-2.483a	0.026*
	Test statistics	0.935b	-0.683b		
	p	0.381	0.516		
Disoriented Behavior	Pre Test	17.63±4.033	18.13±2.588	-0.295	0.772
	Post Test	14.75±5.036	18.50±1.690	-1.997	0.079
	Test statistics	2.520b	-0.814b		
	p	0.040*	0.442		
Depressed/Anxious Mood	Pre Test	23.25±4.027	22.75±3.370	0.269a	0.792
	Post Test	16.75±3.412	21.50±2.976	-2.967a	0.010*
	Test statistics	5.245b	2.376b		
	p	0.001**	0.050		
Irritable Behavior	Pre Test	12.75±3.732	11.13±4.357	0.801a	0.436
	Post Test	11.25±1.753	11.38±4.627	-0.071a	0.944
	Test statistics	1.305b	-1.000b		
	p	0.233	0.351		
Withdrawn Behavior	Pre Test	19.50±4.690	18.63±4.241	0.391a	0.701
	Post Test	13.88±2.357	19.50±5.529	-2.647a	0.026*
	Test statistics	4.130b	-0.826b		
	p	0.004**	0.436		
MOSES Total	Pre Test	86.00±15.547	83.75±13.541	0.309a	0.762
	Post Test	67.00±11.352	84.25±13.242	-2.797a	0.014*
	Test statistics	5.144b	-0.435b		
	p	0.001**	0.677		

*p<0,05, **p<0,01; a: Independent samples t-test; b: Dependent samples t-test
MOSES : Multidimensional Observation Scale for Elderly Subjects   SMMT: Standardized Mini-Mental State

In terms of a difference between the intervention and comparison groups in the mean scores of the MOSES sub-dimensions, it was determined that there was no significant difference between the groups in the mean scores of the scale sub-dimensions before reminiscence therapy (p>0.05). In the evaluation performed after the reminiscence therapy, it was determined that there was a statistically significant difference between the intervention and comparison group in the sub-dimensions of MOSES such as self-care, depressed/anxious mood and withdrawn behavior (p=.045, p<0.05).

It was determined that the difference between the pre-test and post-test scores of the older adults in the intervention and comparison groups in the disoriented behavior sub-dimension, one of the sub-dimensions of the MOSES, was not statistically significant (p>0.05). It was determined that the difference between the post-test scores of the older adults in the intervention and comparison groups in the irritable behavior dimension, one of the sub-dimensions of the MOSES, was not significant (p>0.05). Table 2 shows the findings on the comparison of the total scores of MMSE and MOSES before and after reminiscence therapy, and the scores obtained in the sub-domains of the scale in the intervention and comparison groups.

Discussion

In the study conducted to determine the effect of reminiscence therapy on the functionality of older adults, it was found that reminiscence therapy significantly increased the functionality levels of participants. No similar studies directly examining the impact of reminiscence therapy on older adults' functionality were found in the national or international literature. However, King, Cappeliez, Canham, and O'Rourke (2019) reported that recalling positive emotions may be directly related to improvements in physical health, a key component of functionality. Similarly, Shellman, McDonald, Ferraro, and Milner (2019) found that reminiscence therapy increased physical activity levels among older adults.

This study also showed that reminiscence therapy positively affected self-care functioning, one of the sub-dimensions of the Multidimensional Observation Scale for Elderly Subjects (MOSES). Consistent with these findings, Sok (2015) demonstrated that individual reminiscence therapy applied to older women living alone led to improvements in quality of life, including self-care abilities.

Furthermore, reminiscence therapy contributed to reducing depressed and anxious moods among the elderly. Through reminiscence therapy, individuals recall and share past experiences imbued with positive

emotions (Wu et al., 2018), which is believed to positively influence their emotional well-being. Numerous studies both nationally and internationally support the positive effects of reminiscence therapy on depression (Wu et al., 2018; Sok, 2015; Shellman et al., 2019; Mikkelsen et al., 2019). The present study's findings align with this literature regarding improvements in depressive and anxious mood.

Reminiscence therapy was also found to positively impact withdrawn behaviors, another key functional domain. Older adults engaged more with both the researcher and their environment through the therapy and the materials used during sessions. Several studies have demonstrated that reminiscence therapy alleviates feelings of loneliness in older adults (Westerhof & Bohlmeijer, 2014; Mikkelsen et al., 2019; Syed Elias, Neville, & Scott, 2015). In one study, reminiscence implemented as part of a psychosocial care model yielded positive outcomes in loneliness perception, quality of life, and elderly attitudes (Esmaeilzadeh & Oz, 2020). Additionally, Duru Aşiret and Kapucu (2016) reported that participants valued the opportunity to speak and listen to themselves during reminiscence therapy. Unlike previous studies, the individual application of reminiscence therapy in this study appeared to enhance communication between older adults and their environment, further contributing to increased functionality.

Within the intervention group, comparisons over time revealed that reminiscence therapy also improved disoriented behavior and cognitive competence. The current results support findings from numerous studies demonstrating that reminiscence therapy contributes to cognitive function improvements in individuals with dementia and Alzheimer's disease who have cognitive impairments (Duru Aşiret & Kapucu, 2016; Mikkelsen et al., 2019; Esmaeilzadeh & Oz, 2020; Li et al., 2017; Siverová & Bužgová, 2018; Syed Elias, Petriwskyj, Scott, & Neville, 2019).
The limitations of the study include the fact that the study was conducted in a single center and the number of elderly individuals who met the inclusion criteria.

Conclusion

Based on the findings of this study, it was concluded that reminiscence therapy can increase cognitive competence and positively affect the functionality of older adults. Findings show that reminiscence therapy can improve individuals' communication levels with their environment and their ability to perform self-care activities and decrease their depressed/anxious moods. For nurses working in senior institutions, it is recommended that they include reminiscence therapy in the nursing services offered to older individuals. In future studies, investigating whether there is a difference in the effects of group or individual application of reminiscence therapy on the functionality of older adults will provide more comprehensive data on the effectiveness of reminiscence therapy. In this study, current issues were discussed in a planned way during the interviews with the individuals in the comparison group. However, it is thought that there may be times when it is not possible to prevent reminiscences due to the connotations that these subjects may create which can be considered as a limitation of the study.

Declarations

Conflict of Interest
Authors disclose no potential conflicts of interest.

Ethics Statement
For the study, ethics committee approval No. 2019-03/40 was obtained from the Clinical Research Ethics Committee of a state university and written permission was obtained from the Ministry affiliated to the nursing home where the study was conducted.

Informed Consent
In this study informed that consent was obtained from all participants.

Author Contributions
Concept: HTA / Design: HTA, DG / Definition of intellectual content: HTA, DG / Literature search: HTA, DG / Clinical studies: HTA, DG / Data acquisition: DG/ Data analysis: HTA, DG / Statistical analysis: HTA, DG / Manuscript preparation: HTA, DG/ Manuscript editing: HTA, DG and Manuscript review HTA, DG.

Data Availability
The data used to support the findings of this study can be made available upon request to the corresponding author.

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