# Non-pharmacological interventions for dementia in an Elderly Day Care Center by Social Work students as part of their internship.

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***Abstract***

*The World Health Organization estimates that dementia cases will more than double, increasing from 55,000,000 in 2019 to 139,000,000 by 2050. Thus, the need to implement comprehensive interventions beyond pharmacological ones is intensifying. Non-pharmacological interventions are equally important for the prevention and management of dementia symptoms as they are flexible, diverse, and adaptable to the needs of each patient. During an internship by students from the Department of Social Work at the Hellenic Mediterranean University, a Cognitive Empowerment Group and a Social Skills Group were created, within which non-pharmacological interventions were implemented. These actions were implemented at an Elderly Day Care Center in the Heraklion region, where 22 beneficiaries are served daily. During the group sessions, tools for measuring depressive and cognitive deficits were used in two phases with a three-month interval. Upon completion of the groups, it was found that 50% of the beneficiaries who participated showed a reduction in depressive symptoms. 58.33% showed a reduction in cognitive deficits, while 25%—which consisted of already diagnosed dementia cases—showed stabilization. Thus, the data supports the purpose of this research, highlighting the usefulness of non-pharmacological interventions for the prevention and management of dementia symptoms.*

Keywords: Elderly Day Care Center, elderly, non-pharmacological interventions, social work.

JEL Classification: I00, I30, I31.

## Introduction

Dementia refers to a clinical syndrome that involves problems with memory, speech, and behavior, which hinder the performance of daily activities (Robinson, Tang & Taylor 2015). Neuropsychiatric symptoms, such as apathy, agitation, and depression, are often observed as well. As functionality decreases, the patient gradually loses their ability to be independent (van der Flier, 2005).

Alzheimer's disease is the most common cause of dementia (van der Flier, 2005). It is a neurodegenerative disorder characterized by a gradual loss of functions in cognitive domains. (Nasreddine, Garibotto, Kyaga & Padovani 2023). Primarily, it is considered to

result from the accumulation of neuritic plaques and neurofibrillary tangles in the brain. (van der Flier, 2005).

The next most common cause of dementia is vascular dementia, which can be due to various vascular conditions in the brain, such as "large vessel" disease (large focal or strategic infarcts), for example, or "small vessel" disease (lacunes and leukoaraiosis) (van der Flier, 2005). Some further causes of dementia include frontotemporal lobar degeneration as well as Lewy body dementia.

Studying the prevalence of dementia through a literature review, it was observed that the number of diagnoses has significantly increased in recent years on a global scale, with estimates predicting that cases will triple by 2050 (Alzheimer's Association, 2021). This increase is mainly due to the aging population, as more and more people are living beyond the age of 65 (Alzheimer's Association, 2021).

At this moment, more than 55 million people worldwide are suffering from dementia, with 60% or more of them living in low- and middle-income countries (World Health Organization [WHO], 2020). Annually, nearly 10 million new cases are recorded. Thus, dementia is currently the seventh leading cause of death and one of the main causes of disability and dependence among the elderly on a global scale (WHO, 2020). Even though the highest rates of dementia are observed in high-income countries, the greatest economic burden is noted in low- and middle-income countries, where the majority of people with dementia live (WHO, 2021). Wimo, Seeher, Cataldi & Cyhlarova (2022) point out that in 2019, the total social cost of dementia worldwide amounted to 1.3 trillion US dollars for 55.2 million people with dementia, which is 23,796 dollars per person (Wimo, Seeher, Cataldi & Cyhlarova 2022), while the corresponding cost is projected to dramatically increase to 2.8 trillion dollars by 2030 (WHO, 2021). As a result, these extremely high expenses put significant pressure on the care systems for dementia patients and their families.

On the other hand, Kosmidis, Vlachos, Anastasiou & Yannakoulia (2018) conducted a study in two regions of Greece to investigate the prevalence of dementia. The overall prevalence was 50%, with 75.3% of the cases suffering from Alzheimer's disease. Furthermore, it appeared that the risk of developing dementia increased by 15.8% for each additional year of age, while it decreased by 9.4% with each additional year of education (Kosmidis, Vlachos, Anastasiou & Yannakoulia 2018).

The present study highlights the usefulness and necessity of implementing non-pharmacological interventions within the framework of open elderly care in the community, particularly in an Elderly Day Care Center in Heraklion.

Non-pharmacological interventions are characterized as treatments aimed at improving the quality of life of patients with complex medical problems as well as better management of a chronic condition through non-medical approaches (Akintola, Achterberg & Caljouw, 2019). These interventions refer to activities such as cognitive enhancement, art therapy, and physical exercise, which aim to improve the psychological and social condition, as well as the functionality of the benefiting individual (Akintola, Achterberg & Caljouw, 2019).

At this point, Douglas, James & Ballard (2018) emphasize that both conventional therapies, such as behavioral therapy and recall

therapy, as well as alternative therapies like music therapy, aromatherapy, and activity therapy, have the power to reduce or stabilize dementia symptoms and enhance the individual's well-being. At the same time, they aim to reduce the harm that could arise from long-term use of medication (Douglas, James & Ballard, 2018).

The Elderly Day Care Centers aim to prevent the institutionalization of the elderly by promoting the maintenance of family homeostasis by encouraging the elderly to remain in the family and social environment they are familiar with. Their primary goal is to support the elderly and their families with the aim of ensuring and securing a dignified and functional daily life.

The program is aimed at elderly individuals who are unable to fully care for themselves and whose caregivers face work-related, social, or financial difficulties, resulting in their inability to entirely meet the demanding needs and care of their loved ones. Thus, the Elderly Day Care Centers provide nursing care and assistance in fulfilling practical living needs, maintaining personal hygiene, implementing creative engagement programs, and developing skills.

**Methodology**

The purpose of this study is to record the results of non-pharmacological interventions during their application to elderly individuals, regardless of the state of their cognitive functions. It is a fact that the utilization of non-pharmacological interventions may not have the power to cure dementia, but it lays the foundation for its progressive prevention, to the extent possible, as well as delaying the progression of its symptoms. It's true that non-pharmacological interventions can't cure dementia, but they can prevent it and delay its symptoms.

The primary aim of implementing the cognitive empowerment group was to prevent the symptoms of dementia and reduce its impacts through the interaction of members during group activities. Thus, specific goals were set to strengthen the cognitive functions that had weakened, support the elderly in maintaining their healthy compensatory strategies, and empower them to create new ones.

The implementation of the social skills group, on the other hand, aimed to maintain and develop the social skills of the beneficiaries. Thus, the main goal was to achieve communication and interaction, foster a sense of belonging, and strengthen basic skills such as respect, acceptance of diversity, and the enhancement of teamwork.

Regarding the means of implementing the intervention, during the planning of the groups, activities were selected and tailored to the needs and capabilities of the beneficiaries of the Elderly Day Care Center.

The cognitive empowerment group specifically selected exercises with the following goals:

- Auditory attention: The elderly were listening to certain songs, which they then had to match with images in front of them.
- Visual memory: Activities such as the well-known game "bingo" and exercises to find the differences between identical images were used.

- Memory therapy: An activity with music was created. Songs by old artists were deliberately chosen, and the elderly were invited to find the title of the song and the artist.
- Training to associate faces with names. An activity was created with famous figures from various fields of the past and present, which the elderly were invited to recognize.
- Discussion and speech production exercises. Exercises such as crossword puzzles, word categorization, riddles, and brain teasers were applied.
- Intergenerational activity. An intergenerational activity was held between the elderly and elementary school students.

For the social skills group, the activities were created and divided into thematic units:

- Communication: The well-known game of charades was played.
- Collaboration: The elderly were invited to create a story together from the beginning.
- Self-esteem: The elderly were invited to write positive adjectives about themselves using the letters included in their name.
- Emotional education: Positive and negative emotions, words, and phrases were written on a piece of cardboard.

The implementation of the intervention lasted three months.

The evaluation of the intervention was conducted using psychometric tests on the participants served by the facility. Thus, for the present study, the psychometric assessments Mini Mental State Examination (MMSE) and Hindi Mental State Examination (HMSE) as well as the Geriatric Depression Scale (GDS) were used.

The HMSE and MMSE are diagnostic tools for measuring cognitive functions in the elderly. The MMSE consists of two parts (Folstein, Folstein & McHugh, 1975). In the first part, the answers are given orally, and orientation, memory, and attention are assessed, with a maximum possible score of 21. The second part assesses the examinee's ability to name objects, follow verbal and written instructions, write spontaneously, and copy. The maximum score for the second part is 9. The total maximum score that can be achieved is 30. The examination is not timed, and detailed instructions for conducting it are provided in the appendix (Folstein, Folstein & McHugh, 1975).

The HMSE is a tool designed for the detection of cognitive impairment in individuals who are illiterate (Tsolaki, Iakovidou, Navrozidou & Aminta, 2000). It includes questions that examine various cognitive abilities, such as orientation in time and space, memory, attention, concentration, object recognition, language function, comprehension, and expressive speech, as well as mobility and the execution of tasks. The HMSE is a modified version of the MMSE, in which the questions requiring writing, reading, or numerical knowledge have been adapted to be understandable and answerable by individuals who do not know how to read or write (Tsolaki, Iakovidou, Navrozidou & Aminta, 2000).

For the assessment of the mood of the elderly, the diagnostic tool GDS (Geriatric Depression Scale) was used. The GDS is a psychometric test for use with the elderly, consisting of 15 yes/no questions (scored 1/0), which identifies mental concerns of the elderly as well

as potential symptoms of clinical depression (Van Marwijk, Wallace, de Bock & Hermans, 1995).

Out of the 12 elderly participants, 9 completed the MMSE assessment tool, while the others used the HMSE. The GDS tool was applied to all participants. As prerequisites for participation in the groups, it was stipulated that participants must be beneficiaries of the Day Care Center, wish to participate in the groups, and be in a physical, mental, and emotional state that allows it.

The diagnostic tests were applied in two phases within the three-month period of the intervention's implementation. Initially, at the start, and then at the conclusion of the groups.

The selected sample consisted of 12 elderly individuals, 9 men and 3 women, aged between 73 and 89 years. Regarding their educational level, 3 were illiterate, 6 had completed primary education, 2 had secondary education, and one had completed tertiary education. On the other hand, 2 out of 12 elderly individuals lived in urban areas, while the remaining 10 were residents of rural areas. As for their marital status, 8 were married, 3 were widowed, and one was divorced.

**Table 1: User of services' demographic data.**

| User of services | Age | Gender | Education | Residence | Marital Status | Dementia Diagnosis |
|---|---|---|---|---|---|---|
| U1 | 76 | Male | Primary | Urban | Widower | Non-demented |
| U2 | 73 | Male | Primary | Rural | Married | Diagnosed |
| U3 | 87 | Male | Primary | Rural | Married | Non-demented |
| U4 | 87 | Male | Secondary | Rural | Married | Undiagnosed |
| U5 | 84 | Female | Secondary | Rural | Married | Non-demented |
| U6 | 78 | Male | Primary | Rural | Married | Non-demented |
| U7 | 73 | Male | Primary | Urban | Divorced | Non-demented |
| U8 | 80 | Male | Tertiary | Rural | Married | Diagnosed |
| U9 | 80 | Male | Illiterate | Rural | Married | Diagnosed |
| U10 | 78 | Male | Primary | Rural | Married | Undiagnosed |
| U11 | 89 | Female | Illiterate | Rural | Widow | Diagnosed |
| U12 | 89 | Female | Illiterate | Rural | Widow | Diagnosed |

Out of the 12 individuals in the sample, 5 did not show any decline in their mental and cognitive functions. Five of the remaining individuals received a dementia diagnosis, while two displayed early-stage symptoms without an official diagnosis. The observed symptoms, apart from cognitive decline, included disorientation in space and time, mild behavioral disorders, inappropriate clothing choices according to weather conditions, as well as difficulties in concentration, following instructions, and finding words. Additionally, a slow speech rate and tendencies to wander were noted. In conjunction with dementia, the participants also faced other health issues, such as diabetes, prostate conditions, heart problems, and vision difficulties.

***Results***

The cognitive function diagnostic tests (MMSE and HMSE) showed that 58.33% of the sample exhibited a reduction in cognitive deficits, 25%

—consisting of already diagnosed dementia cases—showed stabilization, and 16.67% exhibited a worsening of symptoms.
At the same time, according to the results of the GDS psychometric test, 50% of the sample showed a reduction in depressive symptoms, 33.33% stabilization, while 16.67% exhibited an increase in depressive symptoms.

**Table 2: Scores before and after the implementation of the MMSE, HMSE, and GDS tests.**

| | **BEFORE** | | **AFTER** |
|---|---|---|---|
| **User of services** | **H.M.S.E./ M.M.S.E.** | **G.D.S.** | **H.M.S.E./ M.M.S.E.** |
| **U1** | 28/30 | 2/15 | 27/30 |
| **U2** | 13/30 | 3/15 | 13/30 |
| **U3** | 27/30 | 3/15 | 29/30 |
| **U4** | 23/30 | 4/15 | 24/30 |
| **U5** | 29/30 | 5/15 | 29/30 |
| **U6** | 24/30 | 3/15 | 29/30 |
| **U7** | 29/30 | 5/15 | 30/30 |
| **U8** | 14/30 | 1/15 | 10/30 |
| **U9** | 16/30 | 4/15 | 17/30 |
| **U10** | 13/30 | 6/15 | 10/30 |
| **U11** | 21/30 | 4/15 | 24/30 |
| **U12** | 15/30 | 5/15 | 18/30 |

***Discussion***

Upon completion of the groups, it was observed that 50% of the participants who took part in the groups showed a reduction in depressive symptoms. 58.33% showed a reduction in cognitive deficits, while 25%—which consisted of already diagnosed dementia cases—showed stabilization. The findings of the present study show similarities with those of Tsandali, Economidis & Rigopoulou (2017), who, following the implementation of a cognitive training group, observed that the elderly, who constituted their reference group, showed encouraging improvements during their follow-up assessment using the MMSE tool. At the same time, Bossers, van der Woude, Boesma & Hortobágyi (2015) also identified a significant impact of their non-pharmacological intervention on the overall cognitive function of the elderly participants in their study, as well as on their visual and verbal memory and executive function (Bossers, van der Woude, Boesma & Hortobágyi, 2015).
It is particularly important to emphasize that the value of medical intervention for the best possible management of dementia symptoms is indisputable. However, combining these with non-pharmacological interventions appears to be the most effective strategy for preventing and delaying the worsening of dementia symptoms.
This view is also confirmed by Kampragkou, Iakovidis, Kampragkou & Kellis (2017). The results of their own research demonstrated a mild enhancement in the functional and cognitive condition of the beneficiaries who participated in their non-pharmacological therapy group, as well as a slowdown in the progression of the disease, which was also reflected in the stability of the MMSE score (Kampragkou, Iakovidis, Kampragkou & Kellis, 2017).
Moreover, the inclusion of non-pharmacological interventions in a therapeutic program promotes person-centered care for the elderly with dementia, contributes to the holistic management of the disease,

and improves the daily lives of both patients and their families. At the same time, it enhances their social participation and empowers them to utilize their existing skills while also promoting the development of new ones.

And at this point, Tsandali, Economidis & Rigopoulou (2017) seem to agree. More specifically, they report that the elderly showed significant progress, with moderate effects on skills developed through training such as naming, semantic memory, and recall ability (Tsandali, Economidis & Rigopoulou, 2017). At the same time, they identified small effects on the improvement of untrained skills, such as face recognition, route and message recall (immediate and delayed), as well as prospective memory, such as memory of appointments.

The presence of non-pharmacological interventions plays a crucial role in the life of an elderly person with dementia as it gives them the opportunity to remain functional within their daily routine. Therefore, it is extremely important to strengthen their implementation both in the context of treatment and in the prevention of dementia.

Finally, every Elderly Day Care Center should include non-pharmacological interventions in its weekly program and communicate their usefulness to the community. Therefore, comprehensive information and training for the staff of each service, as well as their informal caregivers, are deemed necessary so that every elderly person can receive the care they deserve.

## Conflict of Interest and originality of work

The authors declare the current work is free from plagiarism and there is no conflict of interest to it

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