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**IMPACT OF NEUROCOGNITIVE DISORDERS SECONDARY TO ALZHEIMER'S  
DISEASE ON THE QUALITY OF LIFE OF AFFECTED PERSONS**

**PH.D. THESIS SUMMARY**

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Dementia is one of the most important disorders of our time; it is a burden for the countries' health systems, as well as for patients and their families. Alzheimer's disease accounts for 50-70% of all cases of dementia and is the most common form of dementia. There is still no curative treatment for this disease, and the primary purpose of current treatment is to optimize patients' quality of life [1].

It is preferable to investigate broad categories of diagnosis, to the detriment of studying the distinct and continuous dimensions of the disorder's symptoms.

Therefore, we propose a holistic approach to each patient and aim to identify resources to help specialists in their efforts to improve the quality of life of patients with dementia in Alzheimer's disease but also of their families.

The overall aim of this research is to identify all the factors that could influence the quality of life of patients diagnosed with dementia in Alzheimer's disease. Patient data (hereditary history, personal history, medical information), and information obtained from medical tests or the administration of treatments, can help doctors, nurses, and psychologists better manage this condition.

***The general hypothesis of this study:***

It is believed that by discovering the factors that have an influence on the quality of life of patients diagnosed with dementia in Alzheimer's disease, the medical staff can better manage this disorder.

Therefore, the project is structured into two parts: the general part and the part of the personal contributions.

In the ***General part***, we approached the aspects of the diagnosis and the elements associated with the diagnosis and etiopathogenesis of Alzheimer's disease; we also addressed issues related to factors influencing the quality of life of patients and their families as issues related to alternative therapies.

Thus, we learn that the management of the elderly has been a common topic of discussion among health professionals. A first aspect to consider is the effect of the aging process, which may include a general decrease in functional capacity and adaptability to daily life, decreased vitality, loss of mobility, slowing of cognitive processes, decreased efficiency of

vital organs, visual impairment, and hearing, but also other changes (non-cognitive psychiatric complications).

A high percentage of the elderly are at a significant level of morbidity due to multiple somatic comorbidities (brain disease, hypertension, type 2 diabetes, metabolic syndrome), and invariably their overlapping or cumulative effects (sedentary lifestyle, poor diet, smoking, genetic factors).

In addition to the impact on physical health, somatic comorbidities also affect mental health, necessitating interdisciplinary collaboration to provide quality health care [2–6]. Somatic and psychiatric pathology are frequently altered or atypical, making diagnosis much more difficult. Due to the frequent association of somatic comorbidities, the elderly represent the risk group that uses a high percentage of medical services, according to Harrison et al. (2017, p. 541), as the occupancy rate of the hospital bed by this category of patients is over 50%. The demand for those over 75 is particularly high [7, 8].

Regarding dementia in Alzheimer's disease, the cost of caring for a person diagnosed with such a condition is a global concern, given that this condition is progressive. The needs of the beneficiary change over time; According to the Alzheimer's Association, the standard costs of caring for institutionalized patients include medical services such as assessment, supervision, and therapeutic conduct for psychiatric and associated somatic pathology. Continuing care services in residential centers address the needs of the beneficiary, including assistance in maintaining its functional resource and social and family support services [9–11].

An article published in October 2019 on the official website "Dementia Care Central" details the costs of care depending on the type of care chosen. For all types of care, there is considerable geographical variation in prices; in the southern and midwestern United States, rates range from \$ 16.00 to \$ 21.50 per hour [12], while in England, the Mid-Atlantic, and the West, state averages range from \$ 21.00 to \$ 27.00 per hour for home care [13].

Choosing permanent home care usually provides higher levels of care. In this case, the average cost in the US, starting in October 2019, is between 1,250 - 7,000 USD / month, but the costs vary greatly depending on the community, geographical area, degree of difficulty of the case, etc. [15, 19]. For people with dementia who need care in residential centers, the national average in America has been estimated at \$ 247 / day in an asylum [13].

Unfortunately, there is currently not as much data available as we would like on the costs of caring for older adults diagnosed with dementia. However, we found general data in countries such as England, Italy, France, Sweden, Iceland, Belgium, and Slovenia on the per capita costs required for people in need of residential care. The estimated costs in these countries vary, for example, in Italy, the cost is from 1,000 euros/beneficiary/month, and in France, it can reach up to 7,000 euros/beneficiary/month. As a result, we will be guided by this information given that people with dementia are the group with the highest percentage who access this type of service [14].

The costs of care in Romania for the elderly with somatic and psychiatric pathology vary depending on the type of institutionalization they choose, the degree of dependency, as well as the costs, and the level of contribution established by each local administration [15–17].

Regarding the cost for the elderly in the Care Center for the Elderly Arad subordinated to the Social Assistance Directorate Arad, Romania, the elderly with income have the legal obligation to pay a monthly share of maintenance in the amount of 60% of the value of monthly personal income, without exceeding the approved average monthly cost of support ", while the difference will be paid either by the patient's relatives," if they obtain a monthly income, per family member, in an amount higher than the minimum gross basic salary in the country guaranteed as payment, established according to the law", and those who do not have income or do not have legal caregivers, do not owe the support contribution, this being provided from the local budget, according to S.24 (2) of Law 17 /. 2000 with subsequent amendments and completions" [15–17], and those who opt for care in a residential center must cover the full fee regardless of the monthly income of the beneficiary or members.

Studies in which the Caregivers Burden Inventory was administered to Alzheimer's patient's relatives have shown a direct link between the severity of the disease and the caregiver's burden. Studies have also shown that the role of caregiver has often been taken over by the wife or daughter of a patient with Alzheimer's [2, 18, 19].

Numerous repercussions have been described in the literature on the physical and mental health of caregivers of patients with AD, as well as altered family relationships, job loss followed by financial difficulties, and even an increase in mortality [18].

Caring women often become physically, emotionally, and financially overwhelmed. Their time is permanently limited, and they may miss several opportunities. They generally look for strategies based on emotions, making their burden even more difficult [18].

It is well known that a good health and care service benefits the elderly by improving their self-esteem, quality of life, and mental health. According to recent studies, these benefits are also reported among family members [20].

Improving the quality of life of patients can be achieved through socio-economic measures that can be implemented in residential centers in order to prevent the occurrence of somatic comorbidities and psychiatric phenomena.

On the other hand, in Romania and the world, one or more family members assume the role of caregiver, sacrificing their own well-being / personal life to ensure that the person with this condition has the best care possible. Also, in the rural environment of Romania, dogmas persist, such as the fact that the older person does not have to leave their home, being the best cared for at home. In addition to these peculiarities of rural people, which impede access to social, medical, and related services, there is also a commendable aspect of self-help [15–17].

In addition, the chapter entitled "Alternative therapies and dementia management in Alzheimer's disease" describes ways to improve the quality of life.

Thus, non-pharmacological therapies are considered safe therapeutic interventions, relatively cheap compared to the costs associated with drug therapies, and whose effects can be monitored through evaluation scales. This type of therapy aims to facilitate, as far as possible, the maintenance of adequate cognition in people with Alzheimer's dementia or mild cognitive impairment [21–23]. Several prospective cohort studies have suggested that, in addition to antidementia psychotropic therapy, regular physical activity associated with standardized maceration of oilseeds such as garlic (*Allium sativum*), hawthorn (*Crataegus oxyacantha* - linne), and white mistletoe (*Viscum album*) may have a real effect on the risk factors involved in the etiopathogenesis of Alzheimer's dementia: diabetes, hypertension, cerebrovascular disorders, X-metabolic syndrome [13, 24].

In the absence of effective treatment options for dementia, complementary medication (CM) has been thoroughly explored. Randomized controlled trials have been performed on a series of CM for cognitive decline, mild cognitive impairment, and dementia, with many studies in progress [25, 26].



Throughout history, with the desire to improve the effects of drug therapy, steps have been taken to develop a complex care plan that will increase people's quality of life. In 1997, Cohen-Mansfield and Werner stated that in order to improve the daily life of elderly people in a residential center, they need to be involved in enjoyable and stimulating activities. [11] Various studies have attempted to demonstrate the effectiveness of music in various psychiatric conditions, including dementia. Because art is more suited to qualitative than quantitative evaluations, studies on this subject are challenging.

In 2010, a randomized clinical trial was conducted by Cooke et al. on the influences of music therapy on people with dementia who have suffered from both behavioral disorders and anxiety. Their results indicated that interventions such as music therapy or reading therapy had minimal benefits, and only some of the participants showed improvements [8].

However, improvements in speech, behavior, and depressive symptoms through melotherapy interventions have been demonstrated by Brotons, M. and Koger, S.M. The study mentioned above showed that the content and fluency of speech assessed by the spontaneous speech subscription of WAB (Western Aphasia Battery) were positively improved after music therapy rather than as a result of oral sessions with a therapist [27].

The effectiveness of individualized recreational therapy has been shown to be beneficial for subjects suffering from dementia by reducing their disruptive behavior described as passive (lack of motivation or initiative), agitated (wandering, verbal or physical aggression), or mixed [28]. Minimizing the agitation of elderly patients, either through soothing music or hand massage, or a combination of both, has been explored in a private sanatorium, and the results suggest that separate interventions offer the same improvement as combining the two types of interventions [29, 30].

Studies on the subject of cognition have taken various forms through history to aid in the development of prospective treatment strategies, and various blood biomarkers have been discovered that have been linked to the development of neurocognitive diseases. In particular, the neurodegenerative elements studied include  $\beta$ -amyloid plaques, plasma levels, and leukocyte telomeres. According to several research, short leukocyte telomeres are linked to rapid aging in Alzheimer's disease. However, further investigations are needed, and there is no unanimous consensus to support the hypothesis fully. Randomized studies have been performed to evaluate these hypotheses, such as research by Innes et al. on the effects of alternative

therapies, including music therapy and meditation, on blood biomarkers and improvements in quality of life and behaviors. However, further investigations are needed [31–35].

In conclusion, the reviewed literature suggests that the use of unconventional, non-pharmacological treatments as alternative therapies could prevent or delay the altered quality of life of patients with Alzheimer's dementia. Well-organized clinical investigations are still needed to support such a hypothesis. Most of the studies reviewed used relatively small samples of participants, so obtaining relevant statistics in this regard is a challenge. Another impediment is the use of different protocols in pre / inter and post-therapy evaluations due to the timing and lack of well-defined tools for such an analysis. Careful assessments of the stage of the disease and the level of cognitive impairment are needed to decide the best form of therapy, given that the evolution is progressive and that skills are lost along the way. Patients in the mild or mild/moderate stages may perform activities that are often difficult in the advanced stages, where a different type of care is needed, and the sensory and motor dysfunctions are much more severe.

The part of *personal contributions (original)* includes two studies that emphasize the multidisciplinary approach of patients with such psychiatric pathology, a fact mentioned in the general objective.

Between March 2018 and April 2019, data were taken from patients and relatives of beneficiaries institutionalized in the "Center for the Care of the Elderly" in Arad and the Residential Center "Casa Seniorilor Arad" with the free consent to participate in the study, signing the informed consent in accordance with the Helsinki Declaration.

At the time of expressing the informed consent, none of the participants was under any restrictions by the competent Romanian authorities.

During this period, the participants in the second study, depending on the group in which they were assigned, received either classic medication based on a prescription from their doctor and associated supplements (garlic, hawthorn, and mistletoe) or art therapy, or story therapy and role play. Therapy sessions were 1 / week / 60 minutes.

The 145 participants in the first study and the 146 participants in the second study ranged in age from 65 to 91 years.

The diagnosis was established according to the criteria of DSM IV-TR and ICD 10 [36, 37]. In all cases, the aim was:

- (1) Environmental factors (type of institutionalization, tax, type of fee contribution, classical medication and supplements, type of therapy, number of visits of members);
- (2) Personal factors (level of depression, associated diagnoses, characteristics such as level of schooling, marital status, gender, number of social interactions).

The data was converted to a set of binary variables.

The place of residence was coded using a classification according to the degree of urbanization. According to national legislation, areas with a population > 5,000 are considered urban, and those with a population below 5,000 are defined as rural areas.

All patients were evaluated by general clinical examination, psychiatric, neurological, and psychological evaluation, including blood tests, EKG, and neuroimaging evaluation (CT). Statistical data analysis was performed using IBM SPSS Statistics Version 22 software (IBM Corp for Windows, Armonk, NY), JASP, and JAMOVI software. Multinomial regression models, MANOVA were applied to verify the existence of relationships between variables, such as the quality of life perceived by patients and the level of depression or the number of social interactions, the type of institutionalization, the type of therapy or classical medication and supplements. The Exact Fisher test was applied to assess differences in outlook on quality of life on the basis of criteria such as type of institutionalization, the share of tax, tax, residence, gender, marital status, functional level, level of cognitive impairment, type of therapy and medication. The T-test for paired samples was also used to highlight the effects of alternative therapies.

At the same time, the following tools were used in this research paper:

MMSE 2 - Mini-Mental State Examination, Second Edition, which is a tool that measures cognitive impairment [38]. It was adapted to the Romanian population in 2013. The degrees of severity of the cognitive deficit are established according to the scores obtained by patients as follows: initial cognitive disorders 24-27 points, mild cognitive deficit 21-23 points, moderate cognitive deficit 18-20 points, marked cognitive deficit 15-17 points, severe cognitive deficit 12-15 and severe cognitive deficit  $\leq 10$ .

The clock drawing test is a tool used to detect early dementia, such as Alzheimer's disease. This involves drawing a clock on numbered paper, with the hands of the clock indicating a specific time. Failure to do so is a clear sign of cognitive decline. [39]

GAFS - The Global Functional Assessment Scale is well known internationally and widely for scoring psychiatric disorders' severity [40].

The Reisberg Scale - The Global Cognitive Impairment Scale was developed to assess primary degenerative dementia and delineate its stages [41].

Cornell Scale - This scale was developed specifically to assess the signs and symptoms of major depression in patients with dementia. Some patients with dementia are unable to provide reliable reports, so this scale uses information from the patient and a caregiver/informant. The focus is on the signs and depressive symptoms that appear during the week before the interview. The caregiver should be interviewed first, followed by the patient. Items are rated for severity on a scale of 0 to 2 (0 = absent, 1 = mild or intermittent, 2 = severe). Scores are cumulative. A score below 6 is associated with the absence of depressive symptoms; scores above 10 indicate probable major depression, and those above 13 major depression [42].

The QOL-AD / Quality of Life in Alzheimer's Disease Scale - Patient and Caregiver Forms - is a short 13-item tool designed to assess the patient's quality of life for both the patient and the caregiver. It was developed for people with dementia, based on the contribution of the patient, caregiver, and experts, to maximize the validity of the construct and to ensure that the measure focuses on areas of quality of life that are considered important in older adults with cognitive impairments. The score represents the sum of all items. Intervals such as 13-26 low quality of life, 27-39 average quality of life, and 40-52 high quality of life can also be achieved [43].

Because this scale was not calibrated on the Romanian population, and, at the same time, in order to respect the methodological norms, we translated the scale, adapting it to the specifics of the Romanian language, then we conducted a pilot study on 30 people with Alzheimer's dementia. The Cronbach Alpha fidelity index had a value of 0.88, which means that the test measures exactly what it set out to do. In addition, it is necessary to mention the fact that the adaptation to the specifics of the Romanian language was made in the following way: a doctor, a psychologist, and a translator independently translated the scale, then, depending on the

observations of each the best decision was made. Subsequently, the scale, together with the informed consent, was transmitted to the patients.

The fidelity index expressed by Cronbach Alpha for the first study was 0.91, and for the second, it was 0.94, which indicates that the test measures what it set out to do.

***In the first study, we set the following objectives:***

O1. Identify differences in gender, level of depression, number of interactions, level of functioning and cognitive impairment, and marital status, but also in terms of the type of institutionalization, type of fee and share of the fee, and number of visits depending on the perceived quality of life of patients diagnosed with dementia in Alzheimer's disease.

O2. Identifying differences in quality of life depending on the perspective of the patient and their relatives

O3. Identification of possible influences of personal factors (gender, marital status, interactions, level of depression, level of functioning, and level of cognitive impairment) and socio-demographic factors (type of institutionalization, type of tax, the share of tax) on the level of quality of life perceived by the patient with dementia in Alzheimer's disease.

In order to fulfill the above objectives, we tested the following hypotheses:

H1. It is assumed that there are statistically significant differences in personal factors (gender, background, level of education, level of depression, number of interactions, level of functioning, level of cognitive impairment, and marital status), but also regarding terms such as environmental factors (type of institutionalization, type of fee, the share of fee and number of visits) depending on the quality of life perceived by patients diagnosed with dementia in Alzheimer's disease.

H2. It is assumed that there are statistically significant differences in quality of life depending on the patient's perspective and their relatives.

H3. It is assumed that personal factors (gender, marital status, interactions, level of depression, level of functioning, and level of cognitive impairment) and socio-demographic factors (type of institutionalization, type of tax, and share of the tax) influence the perceived level of quality of life by the patient diagnosed with dementia in Alzheimer's disease.

The results showed that a good level of functionality, a relatively normal number of interactions with others, a number of visits from relatives so that patients feel protected, financial

independence of the patient, but also the type of institutionalization contribute to a medium and high quality of life.

Therefore, hypothesis 1 is partially confirmed, being partially supported by the data collected.

In addition, the results also revealed that hypothesis 2 is confirmed. Thus, a real improvement in patients' quality of life requires a balance of the two perspectives. Thus, we can promptly meet the needs of our patients. It is essential to see what the expectations of the two parties involved, the patient and the caregiver, are in terms of quality of life and then to make an intervention plan that targets all parties involved.

Last but not least, also in this study, we could see that an influence on the moderate and low level of quality of life perceived by the patient has: the level of functionality, the type of institutionalization, the share of the fee supported by the Local Public Administration and moderate-level interactions ( $p < 0.05$ ).

The high quality of life is influenced by marital status, the degree of cognitive decline, the number of interactions, and the low level of depression ( $p < 0.05$ ).

Therefore, the last hypothesis is partially supported by the data collected.

***In the second study, the following objectives were pursued:***

O1. Identify possible differences in factors such as the type of alternative therapy (occupational therapy) and medication depending on the perceived quality of life portrayed by patients diagnosed with dementia in Alzheimer's disease.

O2. Identify possible effects of alternative therapy (occupational therapy) on the quality of life perceived by patients, their level of depression, and their number of interactions.

O3 Identify possible cumulative effects of alternative therapy (occupational therapy) and medication on patients' perceived quality of life and depression.

In order to fulfill the above objectives, we tested the following specific hypotheses:

H1. It is assumed that there are statistically significant differences in factors such as the type of alternative therapy and medication depending on the perceived quality of life acknowledged by patients diagnosed with dementia in Alzheimer's disease.

H2. Alternative therapy (occupational therapy) is thought to have an effect on patient's perceived quality of life, their level of depression, and their number of interactions with others.

13. Alternative therapy (occupational therapy) and medication are thought to have a cumulative effect on patients' quality of life, both from their perspective and from the perspective of their relatives.

Our scientific approach is complex this time.

Initially, participants were divided into groups as follows:

1. One group with classical anti-dementia treatment and one with classical anti-dementia treatment plus supplements (garlic, hawthorn, and mistletoe),

2. A group that received non-pharmacological treatment such as art therapy, one with non-pharmacological treatment such as life story, drawing, and role play, and a control group.

Both the psychotherapeutic and therapeutic interventions were performed for a period of one year.

Regarding the level of functionality and the level of cognitive impairment, all groups met the condition of homogeneity.

The findings found that there are significant differences in the quality of life perceived by patients with dementia in Alzheimer's disease depending on the type of medication, with higher averages for patients receiving a classic medication complex and supplements. At the same time, there are significant differences between the types of therapy and the control group in terms of the quality of life perceived by patients; the ANOVA test justifies this by reaching the threshold of statistical significance.

In addition, we have seen that psychotherapy affects patients' perceived quality of life, level of depression, and the number of interactions with others.

Last but not least, psychotherapy and medication have a cumulative effect on the quality of life of patients, both from their perspective and from the perspective of their relatives.

The limits of the paper refer to the relatively unequal number of participants in each group and the short period of application of the intervention program caused by the restrictions applied at the national level in the context of the pandemic generated by the SARS-COV2 virus.

***The original elements*** of this project lie in the fact that we have translated and adapted to the specifics of the Romanian language, an essential tool in evaluating patients with dementia in Alzheimer's disease, but also in the fact that we decided to approach patients with dementia in Alzheimer's disease from a holistic perspective. Through the intervention program, we aimed

to improve several levels of patients' lives, especially the social area and adaptation to the social context, as much as the disease allows.

First of all, in terms of the QOL-AD Scale / Quality of Life in Alzheimer's Disease - forms for patients and relatives, we can say that this is a short tool with 13 items, specially designed to get an assessment of the patient's quality of life both for the patient as well as from the caregiver. It was developed for people with dementia, based on the contribution of the patient, caregiver, and experts, to maximize the validity of the construct and to ensure that the measure focuses on areas of quality of life that are considered important in older adults with cognitive impairments. The score represents the sum of all items. Intervals such as 13-26 low quality of life, 27-39 average quality of life, and 40-52 high quality of life can also be achieved [43].

Because this scale was not calibrated on the Romanian population, and, at the same time, in order to respect the methodological norms, the scale was translated, adapting it to the specifics of the Romanian language, then a pilot study was performed on 30 people with dementia in Alzheimer's disease. And the Cronbach Alpha fidelity index had a value of 0.88, which means that the test measures exactly what it set out to do. In addition, it is necessary to mention the fact that the adaptation to the specifics of the Romanian language was made in the following way: a doctor, a psychologist, and a translator independently translated the scale, then, depending on the observations of each the best decision was made. Subsequently, the scale, together with the informed consent, was transmitted to the patients.

The fidelity index expressed by Cronbach Alpha for the first study was 0.91, and for the second, it was 0.94, which indicates that the test measures what it set out to do.

Secondly, we proposed three types of therapy: drug therapy, art therapy, and storytelling therapy. Following the data analysis, we concluded that psychotherapy and medication have a cumulative effect on patients' quality of life, both from their perspective and from the perspective of caregivers.

At the same time, another element of originality lies in the fact that it has been demonstrated the existence of an influence on the moderate and low level of quality of life perceived by the patient; from the level of functionality, type of institutionalization, the share of the fee borne by the Local Public Administration and by moderate-levels interactions.



High quality of life is influenced by marital status, level of cognitive decline, number of social interactions, and low levels of depression.

Therefore, the more appropriate the support provided by the family to the patient's needs, the higher the level of personal and financial autonomy, and the higher the level of patient involvement, either in the form of therapy or in interpersonal interactions, the quality of life increases.

In addition, another element of originality lies in the fact that the quality of life was approached from a holistic perspective, bringing together the point of view of both the patient and the relatives. Thus, significant differences could be observed, which could help in the case of a complex intervention when working with relatives. In order to really improve the quality of life of patients, it is necessary to standardize the perspectives of all those involved, and through this, it will be possible to reach the basic need of all our patients.

Last but not least, we can generalize the data by randomly selecting and including participants in groups, using standardized tools, and by a large number of participants. Thus, the need for objectivity in literature studies was met.

Data from the literature suggest that using unconventional, non-pharmacological treatments as alternative therapies could prevent or delay the impaired quality of life of patients with Alzheimer's dementia. Well-organized clinical investigations are still needed to support such a hypothesis. Most of the studies reviewed used relatively small samples of participants, so obtaining relevant statistics in this regard is a challenge.

Another impediment highlighted in the literature is the use of different protocols in pre-, intra-, and post-therapy evaluations due to the timing and lack of well-defined tools for such an analysis. Careful assessments of the stage of the disease and the level of cognitive impairment are needed to decide the best form of therapy, given that the evolution is progressive and that skills are lost along the way. Patients in the mild or mild/moderate stages may perform activities that are often difficult in the advanced stages, where a different type of care is needed, and the sensory and motor dysfunctions are much more severe.

In conclusion, through all the above, this paper answers many questions of specialists in the field, both through the rich literature analyzed but also through experimental and correlational studies.

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*List of scientific papers published as a result of doctoral research*

**1. Alternative therapies and management of dementia in Alzheimer's disease**

Cristina L, Făget D, Chiriță V, et al. Alternative therapies and management of dementia in Alzheimer's disease. *Bull Integr PSYCHIATRY* 2019; 83: 63–70.

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<http://dev.buletindepsihiatrie.ro/bpi-nr-4-2019/>

**2. Impact of Alzheimer's Dementia on Caregivers and Quality Improvement through Art and Music Therapy**

Popa, L.-C.; Manea, M.C.; Velcea, D.; Șalapa, I.; Manea, M.; Ciobanu, A.M. Impact of Alzheimer's Dementia on Caregivers and Quality Improvement through Art and Music Therapy. *Healthcare* 2021, 9, 698. <https://doi.org/10.3390/healthcare9060698>

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<https://www.mdpi.com/2227-9032/9/6/698>

**3. Quality of life predictors in patients with Alzheimer's disease dementia**

Doliș L, Manea M, Puiu M, et al. Quality of life predictors in patients with Alzheimer's disease dementia. *Bull Integr Psychiatry* 2022; 93: 63–70.

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