
Original Articles: Case Study

**IMPLEMENTATION OF BRAIN GYM THERAPY IN ELDERLY WITH
DEMENTIA EXPERIENCING MEMORY IMPAIRMENT AT UPTD GRIYA
WREDA JAMBANGAN SURABAYA: CASE STUDY**

Rusdi Effendi

¹ Department of Nursing, Faculty of Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, Indonesia

Article history:

Received: September, 18, 2023

Accepted: January, 03, 2025

Correspondence:

Rusdi Effendi

Department of Nursing, Faculty of
Nursing and Midwifery, Universitas
Nahdlatul Ulama Surabaya,
Indonesia

Email:

1120022101@student.unusa.ac.id

Keywords:

Elderly, Brain Gym Therapy,
Dementia, Memory Disorder.

Page Number: 88-93

Abstract

Introduction: The aging process that occurs in the elderly can be described linearly through three stages: weakness (impairment), functional limitations, lack of ability (*disabled*), and obstruction (*handicap*). These will be experienced simultaneously with process setbacks, Good physique, mental or social. Wrong one system body which deterioration is a cognitive or intellectual system often called dementia. Efforts to prevent dementia include brain *gymnastics*.

Objective: This research aimed to determine the application of brain gym *at* UPTD Griya Wreda Jambangan Surabaya.

Methods: This research design uses a case study through nursing care for Mrs. M with memory problems and conducting assessments and evaluations. The data collection method is by interviewing and observing Mrs. M.

Results: The results of applying brain gym *for 6 x 2 weeks with a duration of 5-10 minutes showed that there was an increase in the MMSE examination score, which was obtained with a value of 21 (moderate cognitive impairment). There is an increase in the orientation section of 3 points, remembering 1 point, and language 1 point. Examination using the SPMSQ showed 3 (mild intellectual decline).*

Conclusions: Brain gym therapy can be used as a non-pharmacological therapy to treat memory disorders in elderly people with dementia. Health workers are expected to be able to teach and accompany the elderly in implementing brain gymnastics *as an effort to maintain the cognitive function of the elderly.*

INTRODUCTION

Aging is a continuous process and occurs naturally from the time humans are born until they grow old. Aging is identified with characteristics in the form of a decline in the body's biological functions which appear as a decline in a physical condition such as skin that is no longer firm. Another degenerative decline in cognitive function (intelligence/mind). Impaired cognitive function is a clinical syndrome that includes loss of intellectual function and memory so severe that it causes dysfunction in daily life (Marantika, 2019) (Sulistyarini et al., 2022).

According to the World Health Organization (WHO), elderly people will increase in 2025 compared to 1990 in several countries such as China 220%, India 242%, Thailand 337% and Indonesia 440% (Ginting et al., 2021). and according to the 2015 World Alzheimer Report, it is estimated that in 2015 there were more than 556,000 dementia sufferers in Indonesia. The prevalence of this dementia increases by 1% at age 60 years and doubles every five years, reaching 30%-50% at age 85 years. Most of the increase will occur in low- and middle-income countries, 58% in 2015, increasing to 63% in 2030 and 68% in 2050. The prevalence of dementia in Indonesia reached 1.2 million cases in 2015 and will continue to increase to 4 million by 2050 (Alzheimer's Indonesia, 2019) in (Mendrofa et al., 2020). Initial data obtained from the head of UPTD Griya Wreda Jambangan Surabaya was 170 elderly people, with 81 elderly women and 89 elderly men in the orphanage. 9 elderly people experience dementia.

The aging process that occurs in the elderly can be described linearly through three stages that are weakness (impairment), limitations functional, no ability (*disabled*), and obstruction (*handicap*). They will be experienced simultaneously with process setbacks, Good physiques, mental or social. Wrong one system body deterioration is a cognitive or intellectual system which is often called dementia (Muharyani, 2020), cognitive decline in dementia usually begins with a decline in memory or recall (forgetfulness) (Syifak et al., 2022).

Dementia is a symptom of decreased memory, thinking, behavior, and ability to carry out daily activities. Loss of intellectual capacity in dementia is not only in memory or recollection but also in cognition and personality (Lasmini & Sunarno, 2022). The problem of dementia is an intellectual and memory disorder in old age which is a problem that needs immediate preventive measures and good treatment. Efforts to prevent dementia include a brain gym which consists of a series of movements that can stimulate brain balance and is a training program to train right brain and left brain nerve cells which can contribute to a person's memory function and intelligence (Wulandari et al., 2020).

Brain gym is a series of simple movements that can balance each part of the brain or simple body movement-based exercises that can be done anywhere and at any time. Light movements with hands and feet can stimulate the brain. So, it can improve balance or harmonization between emotional control and logic, optimize the performance of the five senses, and maintain body flexibility and balance.

METHODS

Study Design

This analysis used a descriptive design that describes case management in applying evidence-based nursing practice using a nursing care process approach.

Settings

The duration of the analysis of nursing care for clients is 2 weeks, starting from June, 19 until July, 02, 2023 at UPTD Griya Wreda Jambangan Surabaya.

Research subject

This nursing care analysis was carried out on a client (Mrs. M) aged 64 years who experienced dementia with memory problems at UPTD Griya Wreda Jambangan Surabaya.

Instruments

Using nursing care sheets using observation and interviews as well as patient medical records.

Data collection

The author approaches by introducing himself and explaining the goals and objectives to the client and family. The author asks for time to carry out the study. Obtain approval from the family, and the client or family representative is willing to take part in further research by signing *informed consent* to become a respondent. The author conducted interviews and direct observations of clients and families.

Data Analysis

The collected data is analyzed and synthesized. After the process is complete, the research data is then described descriptively.

Ethical Consideration

In its implementation, this study has been approved by the patient who is the object of the study through informed consent. In addition, this study has also received approval from the head of UPTD Griya Wreda Jambangan Surabaya, and also from the University of Nahdlatul Ulama Surabaya.

RESULTS

At the time of implementation, Mr. M was given therapy according to the intervention that had been prepared, namely the researcher applied brain gym therapy, which was carried out 6 times in 2 weeks with a duration of 10 minutes per meeting by the SOP (Standard Operating Procedure) starting from the equipment preparation phase client and environment, continued with the work phase and ending with the termination phase. The researcher monitors and accompanies clients during therapy, both subjectively by asking direct questions and the client's expressions or behavior during therapy. During the implementation of therapy, the researcher is also accompanied by another student to help carry out brain exercises and documentation.

Before carrying out brain exercise therapy, the researcher entered into a contract with Mrs. M for 6 times in 2 weeks with a duration of 10 minutes, from 19 June to 02 July 2023. The implementation of brain exercise therapy (brain gym) began with the researcher's early preparation and an informed consent sheet. Next, contract the time, place, and explain the objectives and also prepare the environment by creating a comfortable environment. The tools used in implementation are brain exercise videos and SOPs, MMSE, and SPMSQ questionnaires: Clients receive this therapy 3 times a week with a duration of 10 minutes.

The next day, three core movements were taught, namely the first meeting, the movement across the midline (The Midline Movement), the second meeting, the movement to stretch the muscles

(lengthening activities) and the third meeting, the movement to increase energy and strengthen attitudes (energy exercises and deepening attitude). The movements taught are different at each meeting but remain continuous to make it easier for seniors to learn the movements little by little from quite a lot of gym bra movements and to save time, namely 10 minutes per meeting.

Meetings for the second week were held 3 times with a duration of 10 minutes. The researcher accompanied the elderly to repeat all the movements taught in the first week accompanied by music and videos. The client's response after being given brain gym therapy said that they rarely forget to put things like a comb, toothbrush, and so on. Clients say it is easier to learn new skills than before. The client can mention certain behaviors that have been carried out before. Clients can perform previously learned abilities.

Researchers implemented brain exercise therapy (brain gym) referring to previous research conducted by Suyanti, (2021) which recommended brain exercise therapy be carried out 6 times in 2 weeks with a duration of 10 minutes per meeting. Brain exercise movements can stimulate or stimulate the brain through exercising the hands and feet. Gymnastic movements can improve cognitive abilities such as concentration, alertness, perception, speed, memory, learning, creativity, and problem-solving and can harmonize the ability to move and think simultaneously. Brain exercise is also useful for optimizing the performance of the five senses, improving the hormonal balance between emotional control and logic, and maintaining body balance and flexibility (Sigalingging et al., 2020).

DISCUSSION

Based on the data obtained, Mr. M, 64 years old, has a history of frequently forgetting things for 1 year. Clients say they often forget to put away personal items that have just been used, such as combs, toothbrushes, and so on. Main Symptoms Mrs. M has difficulty remembering certain behaviors she has done. The results of the assessment using MMSE showed that Mrs. M's score was 17, so it could be concluded that the client had severe cognitive impairment. The results of the assessment using the SPMSQ were found to be 5 so it could be concluded that the client experienced mild intellectual decline. From the data above, the main nursing diagnosis that emerged for Mrs. M was memory impairment.

Memory Disorders is the inability to remember some information or behavior. Causes of memory disorders include: inadequate intellectual stimulation, impaired circulation to the brain, fluid and/or electrolyte volume disorders, the aging process, hypoxia, neurological disorders (e.g. positive EEG, head injury, seizure disorders), effects of pharmacological agents, substance abuse, factors psychological (e.g. anxiety, depression, excessive stress, grief, sleep disorders), and environmental distractions.

This is by the statement (Suyanti Prasuci Pamungkas, 2021). Entering old age, there will be several changes both physically, psychologically, and psychosocially. Psychological changes in the elderly, one of which is memory impairment. Memory impairment is the inability to remember some

information or behavior, this will have an impact on the mental health of the elderly, namely depression and quality of life. This statement is also supported by research (Sigalingging et al., 2020), the research results obtained from 41 respondents, the majority of whom were aged 60-74 years, 32 people (78%), of these 32 people, the majority experienced mild memory disorders, 25 people (60 .9%) where respondents were able to answer 6-8 questions correctly, as well as those aged 75-90 years there were 9 people (22%), of these 9 people respondents who experienced moderate memory problems were 3 people where respondents can answer 3-5 questions. The results of the research from 41 respondents aged 75-90 years were 9 people (22%) who experienced severe memory problems, 6 of whom were only able to answer 0-2 questions. This is by the results of a survey by the Indonesian Ministry of Health, which stated that memory impairment at the age of 45-64 years old reached 7.9%. Meanwhile, 12.3% of those aged 65 years and over experienced memory problems, this figure is estimated to increase with increasing age (Sigalingging et al., 2020).

As they age, the elderly experience physical, psychological, and social changes that will reduce intellectual abilities. Decreased intellectual function is the most serious problem during the aging process which will result in nursing problems, memory disorders that continue without intervention, can make it difficult for elderly people to live independently, and increase the risk of dementia so that elderly people will experience behavioral disorders and decreased quality of life. Like Mrs. M, who is elderly and has memory problems, there is an increased risk of dementia which will result in behavioral disorders and a decrease in quality of life, so the problem of memory problems in Mrs. M must be considered and addressed immediately.

LIMITATIONS

No limitation.

CONCLUSION

Conclusions obtained from the results of the case study and discussion regarding the application of brain gym therapy to Mrs. M with memory impairment nursing problems at UPTD Griya Werdha Jambangan Surabaya. The first meeting was held on June 19, 2023, for Mrs. M, an elderly client, who obtained an MMSE score of 17 (severe cognitive impairment), and an SPMSQ score of 5 (moderate intellectual decline). After implementing nursing which was adjusted to the nursing plan that had been prepared, namely the application of brain gym therapy, there was a decrease in memory impairment, the MMSE score was obtained at 22 (moderate cognitive impairment), and the SPMSQ score was obtained at 3 (mild intellectual impairment).

AUTHOR CONTRIBUTION

Authors' contributions: All the authors contributed equally to the study.

ORCHID

Rusdi Effendi : None.

CONFLICT OF INTEREST

The authors declare that there was no conflict of interest.

ACKNOWLEDGEMENT

The author would like to express his deepest gratitude to the Supervisor, Head of the Nursing Professional Education Study Program, Dean of the Faculty of Nursing and Midwifery, Chancellor of the University of Nahdlatul Ulama Surabaya, Head of UPTD Griya Wreda Jambangan Surabaya, Family, Respondent, and all parties involved in this case study.

REFERENCE

- Ginting, S., Afniwati, A., & Yufdel, Y. (2021). The Effect of Brain GYM on the Dementia and Depression Reduction of the Elderly. *Journal of Advanced Pharmacy Education and Research*, 11 (2), 40–44. <https://doi.org/10.51847/Cj6189cIbl>
- Lasmini, L., & Sunarno, RD (2022). Application of Brain Gym to Improve Cognitive Function in Elderly People with Dementia. *Journal of Nursing and Midwifery Science*, 13 (1), 205. <https://doi.org/10.26751/jikk.v13i1.1308>
- Mendrofa, FAM, Iswanti, DI, & Hani, U. (2020). Efficacy of Brain Gym on the Cognitive Function Improvement of People with Dementia. *Journal of Psychiatric Nursing*, 8 (4), 557. <https://doi.org/10.26714/jkj.8.4.2020.557-564>
- Muharyani. (2020). *Recognizing Elderly Age and Getting to Know It*. Jakarta: Salemba Medika.
- Sigalingging, G., Sitopu, S., & Sihalo, L. (2020). Characteristics of Elderly People Who Experience Memory Disorders. *Journal of Darma Agung Husada*, 7 (1), 33–44.
- Sulistyarini, WD, Mukharomah, S., Anggun, A., Astuti, S., Pratama, LP, & Ernawati, E. (2022). Improving Cognitive Function Through Assisting the Elderly Using Brain Exercise Methods at the Tresna Wredha Nirmala Puri Samarinda Social Home. *Abdimas Medika*, 3 (1), 33. <https://doi.org/10.35728/pengmas.v3i1.1009>
- Suyanti Prasuci Pamungkas, RS (2021). Brain Exercises to Improve Memory Function in the Elderly. *URECOL Journal*, 10, 858–865.
- Syifak, S., Noventi, I., & Zahro h, C. (2022). Caregiver Knowledge and Skills in Caring for Elderly People with Dementia. *National Seminar on Community Service 2022*, 1–13. <https://snpm.unusa.ac.id>
- Wulandari, R., Sari, DK, & Fatmawati, S. (2020). Application of Brain Gym on Dementia Levels in the Elderly. *Bima Nursing Journal*, 2 (1), 1–6. <http://jkp.poltekkes-mataram.ac.id/index.php/bnj/index>