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Implementation of Balance Exercise to Prevent the Risk of Falls in the Elderly at Nursing Home Damai Ranomuut Manado

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ABSTRACT
Background: The decline in functional ability in the elderly, which begins with the weakening of body cells, the function of the immune system becomes weaker, resulting in increased risk factors for falls. The risk of falling is a condition that is at risk of physical damage or health problems. The risk of falling can be done with balance exercises to identify and reduce the risk of falling due to changes in physical or psychological conditions.
Method: Objectives Obtain a picture of Balance Exercise in Preventing the Risk of Falls in the Elderly. This research method is a case study with a descriptive type of research, the subjects of the case study are 2 elderly people who are at risk of falling
Result: after three days of implementation can be concluded that subject I and subject II experienced increased balance and decreased risk of falling
Conclusion: Balance Exercise can help prevent the risk of falls in the elderly. Suggestions Balance Exercise needs to be taught to the person in charge of the nursing home so that it can be applied to the elderly who are at risk of falling in the nursing home.

Keywords: *Elderly; Balance Exercice; Risk of Falls*

Introduction

Elderly (senior age) is someone who has entered the final three stages of the life phase and is experiencing the aging process. Problems that often occur in the elderly are decreased body tissue function capabilities characterized by weakness, limitations and inability to carry out activities. Data from the World Health Organization, in 2018 to 2050 shows that the results of population growth in the world, the number of elderly people (aging population), obtained at the age of> 60 exceeds 7% or around 962,000,000 elderly. This figure will increase in 2050 which is predicted to increase by around 2,100,000,000 elderly people in the world (WHO, 2021).

According to the Indonesian Central Statistics Agency (CSA), the elderly population aged> 60 years shows that it has increased from year to year, data obtained in 2018 obtained a total of 9.27% or 24,490,000 of the total population of Indonesia. This figure shows that there has been an increase compared to previous years in the elderly population density with a total of 8.97% or 23,400,000 elderly in Indonesia (BPS, 2023). The increasing elderly population, the more problems arise, one of which is falling (Lilyanti, 2022). The prevalence of falls at the age of 65 and over is around 28-35% and at the age of 70 and over around 32-42%. The prevalence of elderly falls in the United States is 2,500,000 treated in the emergency department for injuries due to falls and more than 700,000 are hospitalized each year (WHO, 2022). In the Southeast Asian region, the number of people over 60 years old is 142 million, which is certain to continue to increase up to 3 times by 2050. Overweight and underweight elderly people have a high risk of falling with the same percentage. This can be explained that what influences the risk of falling is more due to the instability of the elderly's posture (WHO, 2022).

Postural instability in the elderly results in decreased balance which causes the risk of falling to death and can reduce the quality of life of the elderly (OASH, 2020). Balance training is one way to overcome falls in the elderly. Balance training aims to improve the vestibular system and body balance and increase leg muscle strength. Balance training is very important for the elderly to help maintain a stable body and prevent falls (Avelar, 2016).

Research from Saraswati (2022), entitled Balance Exercise Reduces the Risk of Falls in the Elderly, states that balance exercise can improve balance and reduce the risk of falls. A preliminary study at the Damai Ranomuut Werdha Home in January 2024, the number of elderly people at risk of falling was five people.

The role of nurses in providing direct and indirect nursing care can use a nursing process approach that includes assessment, diagnosis, planning and evaluation as an effort to overcome health problems in the elderly.

Method

Descriptive research type using a case study approach. This case study describes the implementation of balance exercise in the elderly in preventing the risk of falls in the elderly. The number of respondents in this case study was 2 elderly people with inclusion criteria of the elderly with changes in gait and hunched body posture, using walking aids (crutches/sticks), cooperative elderly and willing to be respondents. The instruments used were geriatric nursing assessment, fall assessment (Morse fall risk and Berg Balance Scale (BBS). This case study was conducted on May 18, 21 and 24, 2024 at the Panti Werdha Damai Ranomuut Manado.

Results

The results of the initial assessment on Subject I and Subject II on May 18, 2024, focused data to prevent the risk of falls with the implementation of balance exercises marked by the Criteria for major signs and symptoms. Respondent 1 Mrs. Y.M 73 years old, said that there was pain in the knee when walking, the pain came and went, experienced a decrease in limb strength and had fallen one month ago. Katz Index Assessment, score A (Independence In terms of eating, defecating or urinating moving, going to the toilet, getting dressed and bathing Fall assessment using the Morse Fall Scale Score 55 (implementation of high-risk fall prevention interventions) Barthel Index assessment results 100 (Independent), position and balance assessment score 37, namely (Able to provide a little help), Berg Balance Scale assessment results 29 (Moderate fall risk), the client walks using a walker, activities are always assisted by the home's caregiver. Respondent 2 Mrs. Y.T 72 years old, the client said that the right leg was difficult to move freely like the left leg due to falling off a motorbike, and the client said

it was difficult to stand for a long time, the client also said that she felt itchy and had fallen 2 weeks ago. Katz Index Assessment, score A (Independence In terms of eating, defecating or urinating moving, going to the toilet, getting dressed and bathing Fall assessment using the Morse Fall Scale Score 55 (implementation of high-risk fall prevention interventions) Barthel Index Assessment results 100 (Independent), assessment of position and balance score 37, namely (Able to provide a little assistance), Berg Balance Scale assessment result 34 (Low Risk of Falling), the client appears to be walking using a walker, activities are always assisted by the home caregiver.

Implementation

On May 18, 2024 at 11.30-12.25, the first respondent conducted a pre-interaction phase by greeting and introducing himself to the client, which was then continued with an orientation phase to provide an explanation of the procedures and objectives of the balance training actions according to the SOP and ask for approval. After that, the respondent conducted a work phase by assessing vital signs and implementing balance training. As a result, the client was able to respond to greetings, was willing to be contracted for time, was willing to participate in balance training, and was able to perform balance training with the help of the researcher. The score obtained for the Berg Balance Scale was 25, indicating a moderate risk of falling.

On May 21, 2024 at 1.00-1.30 p.m., the first respondent conducted a pre-interaction phase by greeting the client and asking how they were, and asking if the client still remembered the balance training actions given the previous day. Furthermore, the respondent conducted an orientation phase by re-delivering the balance training actions to the client, followed by a work phase to assess vital signs and implement balance training. As a result, the client still remembered the balance training given previously, was willing to participate in balance training, and was able to perform balance training with the help of the researcher. The Berg Balance Scale score obtained was 20, indicating a moderate risk of falling.

On May 24, 2024 at 10:00-10:30, the first respondent carried out the pre-interaction phase by greeting the client and asking how the client was on the 3rd day, and asking

whether the client still remembered the balance training given previously. Furthermore, the respondent carried out the orientation phase by re-delivering the balance training actions to the client, followed by the work phase to assess vital signs and implement balance training. As a result, the client still remembered the balance training method, and was willing to participate in balance training. The Berg Balance Scale score obtained was 24, indicating a moderate risk of falling.

On May 18, 2024 at 12.00-12.25, the second respondent also carried out the pre-interaction phase, orientation phase, and work phase, with almost the same results as the first respondent. As a result, the client was able to respond to greetings, was willing to do a time contract, was willing to take part in balance training, and was able to do balance training with the help of the researcher. The Berg Balance Scale score obtained was 25, indicating a low risk of falling.

On May 21, 2024 at 14.00-14.25, the second respondent carried out the pre-interaction phase, orientation phase, and work phase, with almost the same results as the first respondent. As a result, the client still remembered the balance training given previously, was willing to take part in balance training, and was able to do balance training with the help of the researcher. The Berg Balance Scale score obtained was 25, indicating a low risk of falling.

On May 24, 2024 at 11.00-11.25, the second respondent carried out the pre-interaction phase, orientation phase, and work phase, with almost the same results as the first respondent. As a result, the client still remembers the balance training method, and is willing to follow the balance training. The Berg Balance Scale score obtained was 31, indicating a low risk of falling. From the evaluation results, both respondents were able to carry out pre-interaction, orientation, and work well, and were able to implement balance training according to the specified procedures. The Berg Balance Scale score showed an increase from a moderate risk of falling to a low risk of falling, indicating that balance training had a positive impact on the client.

Discussion

The results of the case study of the two female subjects experienced many balance disorders caused by decreased hormone levels so that women are more susceptible to balance disorders (Otero, Esain, Gonzlez-suares, & Gil, 2017).

The subjects in this case study were 73 and 72 years old where the elderly were included in the (elderly) category. As age increases, the body will experience decreased function, one of which is balance disorders. In people with advanced age, muscle strength will decrease, this is due to decreased protein levels in the body (Fry & Rasmussen, 2016).

In this case study, the nursing problem raised is the risk of falling. The risk of falling is a condition where the elderly have a high probability of disability that will interfere with daily activities. Several risk factors for falling can be identified and changed by creating a safe environment and doing balance exercises for the elderly (Lee & Song, 2018). Balance exercise is one of the interventions that can be used to reduce the risk of falling in the elderly (Supendi, Haroen, & Sari, 2003). The outcome criteria based on SLKI (Indonesian Nursing Outcome Standards) 2018, namely falling while walking, falling while standing, falling while bending, falling while in the bathroom.

The evaluation results of the two respondents showed that body balance can be improved in the elderly by using balance exercises using the Berg Balance Score (BBS) for 3 times a week. The results of Respondent I Mrs. Y.M 73 years old, the balance score before 20 after Balance Exercise became 27. Respondent II Mrs. Y.T 69 years old, the balance score before 23 after Balance Exercise became 34. The interpretation of the score 21 - 28 is a low risk of falling with a maximum score of 56 which means that both subjects have a low risk of falling. With balance exercises with the right movements, the elderly can activate the movement system and posture response, in movements such as single limb stance, tendon stance, three-way hip kick, lateral stepping, standing marching, mini lunge, calf stretch, heel raises, hamstring stretch, and foot taps to step, the body provides information to the sensory through receptors because of changes from the joints to the nervous system and then continued to the brain. In somatosensory, the response resulting from muscle contractions is given to the motor through receptors. Balance training increases muscle strength, which results in stability when performing movements. Doing balance exercises also produces an automatic postural response in the body (Aprilia, Jihad, & Aisha, 2023). This case study is in accordance with research conducted by (Amalia, MeutiahMutmainnah, Lestari, & Sulastri, 2022), that there is an effect of providing balance training and ASE on the risk of falls in the elderly with a

value (p <0.05). This is also supported by (Papalia, et al., 2020) the incidence of falls showed a decrease in the elderly who did balance exercises with the intervention group (p = 0.02) where balance training was effective in improving balance and reducing the rate of falls in the elderly.

Conclusion

Balance exercise as an intervention in reducing the risk of falls and improving balance in the elderly at Panti Werdha Damai Ranomuut Manado. After doing balance exercises on both subjects, Mrs. Y.M 73 years old balance score before 20, after Balance Exercice to 27. Respondent II Mrs. Y.T 72 years old balance score before 23, after Balance Exercice score to 34. The interpretation of the score 21 - 28 is a low risk of falling with a maximum score of 56 which means that both subjects have a low risk of falling.

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