

NURSING CARE FOR GEROMIC ELDERLY OPENERS WITH OSTEOPOROSIS

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ABSTRACT

Aging process in the elderly impact on the decline quality live one problems that arise namely Osteoporosis, Osteoporosis is Osteoporosis is a systemic bone disease characterized by decreased bone density, making bones prone to fracture or osteoporosis. The purpose of this paper is to describe the implementation of geriatric nursing care at Oribuyama Hospital with a medical diagnosis of Osteoporosis. The method used is a descriptive method with a case study approach to nursing care which includes interviews and observations. The nursing care process includes assessment, nursing diagnosis, planning, implementation, and evaluation. The results of the assessment indicate that Mrs. T experiences impaired physical mobility, acute pain, and a risk of falling. The nursing diagnoses that emerged were impaired physical mobility related to pain, acute pain related to physical injury agents, and risk of falling related to a history of falls . The interventions carried out were the administration of analgesic drugs and non-pharmacological measures such as light walking using a quad walker and measured using a *breg balance scale* (BBS). The implementation of these results indicates an improvement in balance ability, although the patient is still at risk of falling and requires assistive devices. Evaluation of nursing problems for acute pain and impaired physical mobility was declared effective. The conclusion of this case study is that comprehensive and continuous nursing care can improve the quality of life of the elderly with Osteoporosis.

Keywords : elderly; gerontic; osteoporosis

INTRODUCTION

An elderly person is someone who is over 65 years old and elderly is not a disease but rather a continuing process characterized by a decline in the body's abilities (Pany & Boy, 2019). The World Health Organization (WHO) has designated osteoporosis as one of the world's ten major degenerative diseases, with approximately 200 million sufferers globally. The WHO also predicts that the global elderly population will reach 1.2 billion by 2025 and continue to rise to 2 billion by 2050. It is estimated that more than 75% of osteoporosis-related fractures worldwide will occur in Asia by 2050 (Amelia, 2018).

The nursing process includes five steps: assessment, diagnosis, planning, implementation, and evaluation. This means that a professional nurse will assess the patient's needs and problems or impairments. The nursing diagnoses that emerge are impaired physical mobility related to pain, acute pain related to physical injury agents, and risk for falls. These are priority diagnoses for the elderly with impaired physical mobility.

According to data from the Indonesian Osteoporosis Association, 41.8% of men and 90% of women have shown symptoms of osteoporosis. In 2023, Indonesia's population is estimated to reach 237 million, and by 2050, it is projected that there will be around 71 million people aged over 60. This condition is expected to cause an increase in the number of osteoporosis sufferers (Ministry of Health, 2023). Tandra (2009) stated that in 2050, Indonesia's population is estimated to reach 300

million, with around one-third at risk of experiencing bone fragility at the age of 50 years and over. This increase in osteoporosis cases is also influenced by unhealthy lifestyles, such as lack of physical activity, smoking, alcohol consumption, lack of exercise, and low vitamin D intake.

The International Osteoporosis Foundation (IOF) reports that globally, one in three women and one in five men over the age of 50 experience a fracture due to osteoporosis. Japan, a super-aging society, with more than 20% of the population aged 65 and over, is estimated to have had approximately 15.9 million osteoporosis sufferers in 2015 (Yamamoto, 2024). Globally, the prevalence of osteoporosis is 18.3%, and concurrent fragility fractures can reduce survival rates by approximately 20%. In Japan alone, the prevalence of osteoporosis is estimated at 12.8 million cases, or approximately 10% of the total population.

Balance is defined as the ability to maintain the projection of the body's center of mass over a support surface, whether standing, sitting, changing positions, or walking (Winter, 1995 in Howe et al., 2008). Balance is essential for maintaining body stability when moving from one position to another (Lee & Scudds, 2003). Osteoporosis can be managed pharmacologically or non-pharmacologically. Pharmacological therapy includes bisphosphonates, calcitonin, teriparatide, and calcium and vitamin D supplementation, which aim to increase bone density, slow bone loss, and reduce the risk of fractures. Meanwhile, non-pharmacological therapy includes balance training, lifestyle modifications such as smoking cessation and alcohol avoidance, and the use of walking aids. One of the main issues in the management of non-communicable diseases, including osteoporosis, is fall prevention through balance training. This training has been proven effective in improving the quality of life for the elderly, one example of which is the use of a quad walker. A quad walker is a walking aid with four legs that provides more stable support, thereby improving balance, mobility, and walking safety, while reducing the risk of falls in osteoporosis patients.

METHODS

This study uses a descriptive case study method. The subject of the study was an 88-year-old elderly woman, Mrs. T, diagnosed with osteoporosis and impaired physical mobility. The study was conducted in the B3 rehabilitation room of Oribuyama Hospital, Okinawa, Japan. Walking therapy, which is to train the patient's body balance, was carried out from September 7, 2025, to September 10, 2025. Data collection techniques include primary data directly based on observation and interviews (anamnesis), as well as secondary data in the form of medical records, nursing notes, or other documents that support the study. Data presentation includes nursing care (assessment, diagnosis, nursing plan, implementation, and evaluation).

RESULTS AND DISCUSSION

The case study in this case involved one of the patients treated in the B3 floor room of Oribuyama Hospital, Okinawa, Japan for 3 days of management for outcome evaluation, named Mrs. T aged 88 years with a medical diagnosis of Osteoporosis. Mrs. T experienced nursing problems of impaired physical mobility. The assessment was conducted on September 7, 2025 with the main complaint of complaining of pain. The results of measurements using the Berg Balance Scale showed an increase in balance scores after balance training using a quad walker. The patient showed a more stable ability to stand and walk compared to before the intervention. In addition, the patient seemed more confident when mobilizing with assistive devices.

In this case study of geriatric nursing care for the elderly, the researcher will discuss several nursing diagnoses and nursing interventions performed on Mrs. T with osteoporosis at Oribuyama Hospital, Japan. The activities carried out include assessment, nursing diagnosis, nursing interventions, nursing implementation, and nursing evaluation. Nursing assessment is an act of reviewing a human situation to obtain data about the client with the aim of confirming the disease situation (Novera, 2021). A comprehensive assessment of the elderly with osteoporosis has been carried out on Mrs. T.

NURSING DIAGNOSIS

Nursing problems experienced by patient Mrs. T show the nursing diagnoses that arise, namely: impaired physical mobility related to pain, acute pain related to physical injury agents, risk of falling related to a history of falling. The priority nursing diagnosis according to Mrs. T's case is acute pain. Based on the SDKI, the major symptoms and signs are limited movement, decreased muscle strength and body balance, resulting in difficulty standing and walking, while the minor signs are the patient complaining of back pain when moving, feeling tired quickly when doing walking activities.

Physical mobility disorders: Physical weakness, pain when moving, and limited movement in carrying out daily activities, requiring assistance from a nurse in these activities. Acute pain: Appears to be grimacing, restless, pain scale 4 (moderate). Fall Risk: the path appears unstable.

This case is consistent with previous research by Fangxin Wei and Ziqihu et al. (2023). From 10 randomized controlled trials involving 684 participants, a meta-analysis showed that balance training provided significant improvements in dynamic balance based on the Berg Balance Scale assessment. The analysis results showed a mean difference of 5.31 points (MD = 5.31; 95% CI: 0.65 to 9.96; Z = 2.23; p < 0.03), indicating that the balance training intervention significantly improved balance scores compared to the control group.

NURSING INTERVENTION

The nursing care interventions implemented by researchers to address the problem included conducting daily checks, checking vital signs, and monitoring the patient's condition. Non-pharmacological techniques were also provided. Collaboration with other health care teams is essential for patient recovery (e.g., activity therapists, exercise physiologists, occupational therapists, recreational therapists, physical therapists) in planning, teaching, and monitoring therapy programs.

Interventions for osteoporosis patients undergoing therapy include providing education regarding adherence to paracetamol analgesic medication and performing joint strengthening exercises such as light walking. Follow-up includes observing patient activity to identify pain location, characteristics, duration, pain scale, and factors that may aggravate or alleviate pain. Evaluation of the effectiveness of the therapy provided. Follow-up interventions focus on non-pharmacological therapeutic measures, specifically joint strengthening exercises through walking (Putri & Haryani, 2023).

NURSING IMPLEMENTATION

The implementation of nursing care that has been carried out on Mrs. T, aged 88 years in Room B3 during September 7–9, 2025, can be concluded that nursing actions went according to plan and

showed progress in the patient's condition. During treatment, the patient continued to complain of back pain, particularly during movement, with a pain scale ranging from 3–4. However, the pain was managed with the administration of analgesics without any side effects. The patient's vital signs were relatively stable, and her level of consciousness remained *compos mentis* (GCS 15).

The patient experienced limited mobility and still required a wheelchair, but showed gradual improvement in balance. Assessment using the Berg Balance Scale (BBS) showed a score increase from 15 points on the first day to 25 points on the third day, indicating progress in balance, although the patient remained at risk of falls and required assistive devices.

The patient's nutritional intake improved, from initially consuming only half a portion of food to being able to consume the entire portion on the last day. The patient also appeared cooperative, able to follow therapy well, and understood the objectives of the procedures provided, despite experiencing fatigue easily. Overall, the implementation of nursing care had a positive impact on the patient's condition, characterized by general stability, a decrease in subjective complaints, improved balance, and better activity ability. Nursing care needs to be continued and periodically evaluated to support the patient's increased independence and quality of life.

NURSING EVALUATION

Evaluation is a nursing action in the form of final results related to the success of nursing actions that have been carried out on patients. In this case, the author uses Osteoporosis assessment with Berg Balance Scale (BBS) therapy walking using a quad walker. Nursing evaluation in this case study is carried out in two types of evaluations, namely formative evaluation or response to results carried out immediately after carrying out the action and summative evaluation or development carried out after the action by comparing the patient's response with the goals that have been determined using the SOAP method, namely S (Subjective), O (Objective), A (Analysis), P (Planning). The following are the results of the development evaluation on the third day in the elderly with osteoporosis: Acute pain related to physical injuring agent, problem resolved Impaired physical mobility related to pain, problem resolved

Research conducted by Rahman et al. (2022) showed that balance training therapy was effective. Balance training has been shown to improve balance in people with osteoporosis. This technique can be administered by physiotherapists to treat balance disorders (Rhodia & Wardhani, 2021).

CONCLUSION

A comprehensive initial nursing assessment of the elderly with osteoporosis was conducted on Mrs. T on September 7, 2025. The results of the assessment indicated that Mrs. T experienced impaired physical mobility characterized by physical weakness, pain when moving, and limitations in carrying out daily activities, requiring nursing assistance. In addition, acute pain was found, characterized by grimacing, restlessness, and a pain scale of 4 (moderate pain). Mrs. T also had a risk of falling, as indicated by an unstable gait. This condition indicates the need for appropriate nursing interventions to improve mobility, reduce pain, and prevent the risk of falls.

Based on the assessment results, Mrs. T experienced several nursing diagnoses, namely impaired physical mobility, acute pain, and risk of falls. However, the priority nursing diagnosis was impaired physical mobility (D.0054). This was characterized by limited movement, decreased muscle strength, and impaired body balance, which made it difficult for the patient to stand and

walk. Furthermore, the patient also complained of back pain when moving and fatigue when walking, which further exacerbated the mobility impairment.

Nursing care interventions for Mrs. T, who has osteoporosis, focused on monitoring the patient's condition through vital signs, providing education on adherence to analgesic medication, and implementing non-pharmacological measures such as joint strengthening exercises through light walking. Collaboration with the healthcare team was carried out to support the effectiveness of the therapy. Continuous evaluation of the patient's pain and activity levels was conducted to improve mobility and prevent further complications.

Nursing care for Mrs. T, 88 years old, in Room B3 from September 7–10, 2025, was carried out as planned and showed positive results. The patient's general condition was stable with vital signs within normal limits and a *compos mentis* level of consciousness (GCS 15). Back pain with a scale of 3–4 was still felt but could be controlled with analgesics without side effects.

The patient still has limited mobility and requires a wheelchair, but there has been an improvement in balance, as indicated by an increase in the Berg Balance Scale (BBS) score from 15 to 25. Nutritional intake has improved, and the patient is cooperative in following therapy. Overall, nursing interventions have had a positive impact and need to be continued and evaluated periodically to improve the patient's independence and quality of life.

Nursing evaluation on the third day concluded that the intervention provided to elderly patients with osteoporosis using Balance Training (Berg Balance Scale) therapy and walking with a quad walker demonstrated effective results. Nursing problems of acute pain and impaired physical mobility were resolved. These results align with previous research indicating that balance training is effective in improving balance and mobility function in patients with osteoporosis.

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