Nursing care management with brandt-darrof exercise in elderly patients with vertigo: a case study

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Abstract
Vertigo is a common vestibular disorder among the elderly that significantly reduces quality of life and increases the risk of falls. Non-pharmacological management, such as the Brandt-Daroff exercise, has been developed as an alternative to alleviate symptoms without drug dependence. This study aimed to evaluate the effectiveness of the Brandt-Daroff exercise in nursing care for an elderly patient with vertigo at Raudah Ward, PKU Muhammadiyah Hospital, Yogyakarta. This case study involved a 76-year-old male diagnosed with vertigo and hypertension. The intervention consisted of Brandt-Daroff exercise sessions conducted over three consecutive days for approximately 10 minutes each, combined with deep breathing relaxation techniques. The evaluation results indicated a significant reduction in dizziness from a scale of 6 to 0, improved patient awareness of vertigo triggers, and the ability to perform the exercise independently. Discussion highlights that this intervention enhances vestibular adaptation, promotes patient independence, and prevents recurrence. In conclusion, the Brandt-Daroff exercise is effective as a non-pharmacological nursing intervention for elderly patients with vertigo, safe even with comorbid hypertension, and feasible for independent home practice.

Keywords: Vertigo; Brandt-Daroff; Nursing; Elderly; Non-pharmacological intervention

1. Introduction

Vertigo is a clinical syndrome characterized by a false sensation of motion, imbalance, and nausea, which may severely disrupt mobility and increase the risk of falls in older adults (Casani et al., 2021). Its prevalence has been reported to affect up to one-third of individuals over 70 years of age, making it one of the most common neurological complaints after headache and stroke (Gopinath et al., 2024). Beyond physical discomfort, vertigo reduces independence, limits social participation, and diminishes overall quality of life (Ciorba et al., 2017).

Conventional management often relies on pharmacological agents, such as vestibular suppressants, which may relieve acute symptoms but do not address long-term adaptation of the vestibular system (Viola et al., 2022). Moreover, prolonged medication use carries the risk of side effects and poor adherence, especially in elderly patients with comorbidities such as hypertension (Di Mizio et al., 2021). These limitations highlight the need for safe, sustainable, and patient-centered interventions (Jilla et al., 2018).

Vestibular rehabilitation, particularly the Brandt-Daroff exercise, has been recognized as a practical non-pharmacological approach (Tsai et al., 2016). This maneuver promotes vestibular adaptation through reported head and body movements, and its simplicity allows patients to practice independently at home (Hall et al., 2022). Evidence suggests that it reduces dizziness intensity and recurrence while improving functional independence (Menant et al., 2018).

However, the application of Brandt-Daroff in elderly patients with both vertigo and hypertension remains underreported. Considering that hypertension is highly prevalent among older adults and may complicate pharmacological therapy, evaluating non-drug interventions in this population is highly relevant. This study aims to assess the effectiveness of Brandt-Daroff exercise as part of nursing care for an elderly patient with vertigo and hypertension. The findings are expected to strengthen the evidence base for nursing practice and emphasize the role of non-pharmacological interventions in enhancing patient autonomy and preventing recurrence.

2. Methods

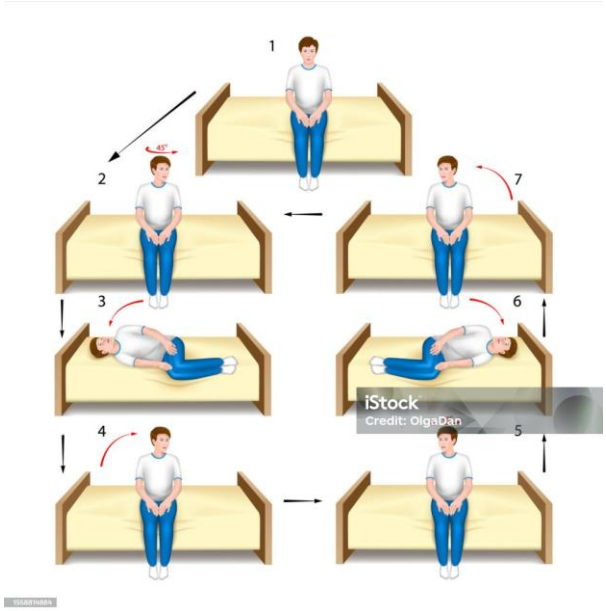
The study employed a case study design with an observational approach to evaluate the effectiveness of the Brandt-Daroff exercise in nursing care for an elderly patient with vertigo. The research was conducted in September 2024 at Raudah Ward, PKU Muhammadiyah Hospital, Yogyakarta.

2.1. Participant and Setting

The subject was a 76-year-old male patient diagnosed with vertigo and hypertension, admitted to Raudah Ward. The patient had a history of recurrent vertigo since 2016 and routinely consumed antihypertensive medication (amlodipine 10 mg daily). Written informed consent was obtained prior to data collection, and confidentiality was ensured.

2.2. Intervention

The intervention consisted of the Brandt-Daroff exercise performed once daily for three consecutive days, with each session lasting approximately 10 minutes. The maneuver followed the standard protocol described by (Choi et al., 2020), involving repeated transitions between sitting and side-lying positions while rotating the head to facilitate vestibular habituation (Figure 1). To complement the exercise, the patient was also guided in deep breathing relaxation techniques to reduce discomfort during episodes of dizziness.



Steps of Brandt-Daroff Exercise:

1. Start in a seated position
2. Turn head 45° to the side of the affected ear.
3. Lie down quickly on the opposite side.
4. Hold for a duration
5. Sit up again.
6. Repeat to the other side.
7. Perform multiple repetitions.

Figure 1. Brandt-Daroff Exercise

2.3. Data Collection and Instruments

Data were collected using a structured nursing process based on the SOAP format (Subjective, Objective, Assessment, Plan). The intensity of dizziness was assessed using a numeric rating scale (0-10), along with observations of physical responses such as restlessness and facial grimacing. Daily progress was documented to capture symptom changes and patient adaptation.

2.4. Data Analysis

The evaluation focused on changes in dizziness intensity and patient independence across the three days of intervention. Descriptive analysis was applied to compare symptom reduction and functional improvement.

2.5. Data Collection and Instruments

Ethical approval for this study was aligned with the institutional guidelines of PKU Muhammadiyah Yogyakarta Hospital. The patient provided informed consent, and personal data were anonymized to protect privacy.

3. Results and Discussion

3.1. Results

The patient, a 76-year-old male diagnosed with vertigo and hypertension, initially presented with severe dizziness characterized by a spinning sensation, nausea, and weakness. On the first day of intervention, dizziness intensity was rated at six on a numeric rating scale (0-10), accompanied by restlessness and facial grimacing. After three consecutive days of Brandt-Daroff exercises combined with deep breathing relaxation, the patient demonstrated significant improvement. By day three, dizziness was no longer reported (score 0), and the patient was able to recognize triggering factors and independently perform the exercise at home.

Table 1. Evaluation of Symptoms Across Three Days of Intervention

Day	Dizziness Intensity (0-10)	Restlessness	Facial Grimacing	Patient Remarks
1	6	Present	Present	Sudden spinning sensation, nausea, weakness
2	4	Mild	Occasional	Dizziness reduced, more relaxed after deep breathing
3	0	Absent	Absent	No dizziness, able to perform exercise independently.

A line graph was generated to visualize the improvement (Figure 2). The progressive decline in dizziness intensity from day 1 to day 3 clearly demonstrates the effectiveness of the intervention.

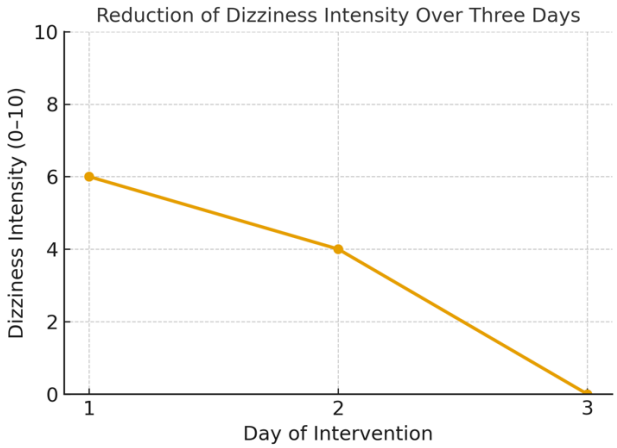


Figure 3. Reduction of Dizziness Intensity Over Three Days

Nursing care evaluation further highlights the systematic role of the nurse in managing vertigo symptoms through assessment, intervention, and patient education.

Table 2. Nursing Care Process and Evaluation

Day	Nursing Diagnosis	Intervention	Patient Response	Outcome
1	Acute pain-related dizziness (NANDA-I D.0077)	Provided Brandt-Daroff exercise, guided deep breathing relaxation, and explained triggers of vertigo.	Patient reported severe dizziness (score 6), restlessness, and grimacing	With partial relief, the patient began to understand the cause of dizziness.
2	Acute pain improving	Continued Brandt-Daroff exercise, reinforced relaxation technique, and identified aggravating factors.	Patient reported dizziness decreased to score 4, more relaxed, cooperative.	Symptoms reduced, improved participation in care.
3	Acute pain resolved	Evaluated the patient's ability to perform exercise	Patient reported no dizziness (score 0), demonstrated.	The nursing goal was achieved; the patient was discharged without complaints.

3.2. Discussion

The present case study demonstrated that the Brandt-Daroff exercise effectively reduced vertigo symptoms in an elderly patient with comorbid hypertension. Dizziness intensity decreased from a score of 6 on the first day to 0 on the third day of intervention (Table 1, Figure 2). This progressive improvement is consistent with previous reports showing that vestibular rehabilitation promotes central compensation and habituation, thereby alleviating recurrent vertigo episodes (Choi et al., 2020; Han, 2021).

From a physiological perspective, the Brandt-Daroff maneuver enhances vestibular adaptation by repeatedly stimulating the semicircular canals through controlled head and body movements (Teixido et al., 2021). This repeated stimulation facilitates neural plasticity, enabling the central nervous system to re-establish balance perception and reduce sensitivity to abnormal vestibular signals (Wu et al., 2024). In the current study, the patient not only experienced symptomatic relief but also developed the ability to independently perform the exercise, reflecting both physical and behavioral adaptation.

The novelty of this study lies in applying the Brandt-Daroff exercise to an elderly patient with hypertension. Pharmacological therapies are often problematic in such populations due to drug side effects, interactions with antihypertensives, and the potential for reduced adherence (Poulter et al., 2020). By integrating a non-pharmacological intervention into nursing care, this study highlights an alternative pathway that is safe, low-cost, and feasible for long-term management of vertigo in patients with multiple morbidities (Liu et al., 2025). This expands the scope of nursing practice beyond symptom relief, emphasizing empowerment and self-management.

Moreover, the role of nurses in implementing and supervising the intervention was critical. As shown in Table 2, systematic assessment, patient education, and daily evaluation not only reduced acute symptoms but also strengthened the patient's confidence in managing vertigo at home (Regauer et al., 2020, 2021). This aligns with the principles of patient-centered care and supports the growing recognition of nurses as primary providers of vestibular rehabilitation, especially in resource-limited settings where access to specialists may be restricted (Ghosh et al., 2025).

Globally, vestibular rehabilitation has been widely practiced in Europe and North America, but reports focusing on its implementation in Southeast Asian elderly populations remain scarce (Meldrum et al., 2020). Therefore, this study adds valuable local evidence to the international discourse, suggesting that Brandt-Daroff can be safely adapted to older adults in Indonesia (Kapri et al., 2025).

Despite its promising outcomes, the single-case design represents a limitation, as the findings cannot be generalized. Future research should include larger sample sizes, control groups, and long-term follow-up to confirm the sustainability of benefits and explore its impact on quality-of-life indicators such as fall prevention, independence, and psychological well-being.

4. Conclusion

The Brandt-Daroff exercise effectively reduced vertigo symptoms in an elderly patient with hypertension, with dizziness decreasing to zero within three days. This case highlights its safety, simplicity, and feasibility as a nursing intervention, offering a non-pharmacological option that promotes patient independence. Broader studies are recommended to confirm its long-term benefits.

5. Acknowledgments

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Conflict of Interest

The authors declare no conflict of interest.

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