Nursing Frontiers Research and Practice
2026.Vol. 1, No.2, (33-43)
https://doi.org/10.35730/f89evm72

Applying Brandt Daroff Exercises to Vertigo Symptoms in Medical Surgical Nursing Care

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Article type: Case Report

ARTICLE INFORMATION

Accepted: July 29th 2026
Revised: August 10th 2026
Approved: September 15th 2026
Available online: September 30th 2026

KEYWORDS

Nursing care, vertigo, *Brandt Daroff exercises*, *Vertigo Symptom Scale*, *Morse Fall Scale*, Vestibular Adaptation

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ABSTRACT

Background: Vertigo is a balance disorder that causes nausea, vomiting, and headaches, which can limit activity and increase the risk of falls in older adults. *Brandt-Daroff exercises* are a non-pharmacological intervention that nurses can teach to facilitate vestibular habituation and adaptation.

Objective: To analyze changes in vertigo symptoms, risk of falls, pain, and nausea in vertigo patients who received nursing care with *Brandt-Daroff exercises*.

Methods: A single case study on Mrs. E (73 years old) in the Internal Medicine Ward, 2nd Floor, Room 1.3, Madina Hospital, Bukittinggi, on December 7–10, 2025 (4 days of observation). Symptoms were measured using the Vertigo Symptom Scale–Short Form (VSS-SF), fall risk using the Morse Fall Scale (MFS), and pain using the Numeric Rating Scale (NRS), analyzed descriptively.

Results: The VSS-SF score decreased from 40 (moderate) to 23. Headache decreased from 6 to 0. Nausea and vomiting resolved on day 4 with food intake restored. The MFS score decreased from 35 (moderate) to 15 (low), and the patient was able to go to the bathroom without assistance.

Conclusion: Improvements in balance function occurred concurrently with *Brandt Daroff* therapy and other therapies, so their respective contributions cannot be separated. *Brandt Daroff exercises* are worthy of consideration as part of the care of vertigo patients and should be tested in a design with a comparison group.

INTRODUCTION

Vertigo is a false or distorted sensation of movement of the person or the surrounding environment. Dizziness and vertigo are common in the general population and may arise from a range of vestibular and non-vestibular conditions. Population-based evidence indicates that dizziness affects approximately 15% to more than 20% of adults annually; vestibular vertigo has an estimated 12-month prevalence of about 5%, with prevalence increasing with age and being higher among women [1-3]. Benign paroxysmal positional vertigo (BPPV) is a common peripheral vestibular disorder characterized by brief episodes of positional vertigo. A population-based study reported a lifetime prevalence of 2.4%, a 1-year prevalence of 1.6%, and a 1-year incidence of 0.6% [4].

Vertigo may interfere with daily activities and balance. In older adults, vestibular dysfunction is clinically important because it may coexist with impaired gait and falls. A systematic review and meta-analysis found vestibular dysfunction in a substantial proportion of adults with a history of falls, supporting the importance of assessing balance and fall risk in this population [5]. Current international guidance recommends multifactorial assessment and individualized interventions for older adults at increased risk of falling, including exercise, medication review, and environmental modification [6-7].

Brandt-Daroff exercises were introduced as repeated positional exercises for patients with positional vertigo [8]. They are commonly described as habituation exercises that can be taught for supervised or home practice. Nevertheless, their effectiveness should not be overstated: a systematic review of randomized trials found limited evidence and no significant superiority over other interventions such as the Epley or Semont maneuvers [9-11]. Current BPPV guidance emphasizes accurate diagnosis, appropriate canalith repositioning, assessment of modifying factors such as impaired mobility and fall risk, and patient education [12-13].

At Madina General Hospital in Bukittinggi, 112 vertigo visits were recorded over 11 months, averaging approximately 10 visits per month, with a peak of 19 cases in April (hospital service data). Nursing care for patients with vertigo therefore needs to address symptom burden as well as safe mobility. This case report describes changes in VSS-SF, MFS, headache, nausea, and mobility during four days of nursing care incorporating Brandt-Daroff exercises.

METHOD

This report used a descriptive single-case study design with a nursing-process approach. The subject was a 73-year-old woman admitted on 6 December 2025 with a two-day history of dizziness, headache, nausea, and reduced appetite, and a reported history of vertigo for approximately three years. The case was selected because the patient experienced dizziness, balance difficulties, fear of falling, and required assistance when going to the bathroom. Case reporting should provide sufficient clinical detail while protecting patient privacy, consistent with established case-report guidance [14].

The patient was admitted to the Internal Medicine Ward, Madina General Hospital, Bukittinggi, Indonesia, on 6 December 2025. Assessment was conducted on 7 December 2025, and nursing care was provided for four days, from 7 to 10 December 2025. The subject was one patient (Mrs. E) who was determined purposively with a diagnosis of

Vertigo. Based on the assessment, the patient was conscious, experiencing complaints of spinning vision, nausea and headache. Intervention was conducted by following nursing ethical consideration such as informed conscent and author follow the nursing practical operational standard and evidence based of practical nursing. Written informed consent was obtained from the patient, and identifying details were minimized in this report. Data were analyzed descriptively as absolute changes in scores between observation days. No statistical tests were performed because only one participant was included.

The Brandt-Daroff exercise was taught by the research students according to the Practical Operational Standard: the patient sat upright on the edge of the bed with legs dangling and eyes open; the head turned 45° to the right, the body was quickly laid to the right side and held for 30 seconds; sat back for 30 seconds; then repeated to the left side. Supportive measures included deep breathing, environmental management, eating small portions, and patient safety (low bed, brakes and safety handles installed, bell within reach). Concurrent medical therapy was ondansetron, betahistine, ranitidine, and 0.9% NaCl infusion.

Instrument of this study was using VSS-SF consists of 15 items (scale 0–4; range 0–60), with higher scores indicating more severe symptoms. The Morse Fall Scale contains six components (fall history, secondary diagnosis, walking aid, intravenous therapy, gait, and mental status). Headache intensity is measured using a NRS of 0–10. Vital signs, food intake, nausea and vomiting, and mobility were recorded daily. The VSS-SF was used to monitor vertigo-related symptoms. Its psychometric properties have been evaluated in patients with dizziness, with evidence supporting internal consistency, construct validity, and test-retest reliability. [15] Fall risk was assessed using the Morse Fall Scale, which includes six components: history of falling, secondary diagnosis, ambulatory aid, intravenous therapy, gait, and mental status [16]. Studies have examined the validity and inter-rater reliability of the scale in acute-care settings [17-18]. Headache intensity was assessed using a 0–10 Numeric Rating Scale; numerical pain ratings are widely used to quantify subjective pain intensity [19]. Vital signs, food intake, nausea and vomiting, and mobility were recorded daily.

The nursing diagnoses were nausea, risk of falls, and acute pain, with interventions directed toward nausea management, fall prevention, and pain management. Brandt-Daroff exercises were taught according to the local standard operating procedure. The patient sat upright at the edge of the bed with legs dangling and eyes open, turned the head 45° to the right, and was assisted to lie quickly on the right side for 30 seconds. The patient then returned to sitting for 30 seconds, and the sequence was repeated on the left

side. Supportive measures included deep breathing, environmental management, small meals, and safety precautions (low bed, locked bed brakes, side rails, and call bell within reach).

Concurrent medical treatment included ondansetron, betahistine, ranitidine, and 0.9% sodium chloride infusion. The BPPV guideline recommends routinely using vestibular suppressants as the primary treatment for BPPV and emphasizes appropriate diagnostic assessment and repositioning procedures; therefore, the medication regimen in this case is reported as treatment administered rather than as a guideline-endorsed BPPV regimen [12].

Data were analyzed using descriptive narrative analysis. Assessment data were grouped into subjective and objective data, analyzed into nursing diagnoses, and then compared on the first, second, third, and fourth days. No statistical tests were performed because there was only one subject.

RESULTS

Characteristics and assessment.

During the assessment, data was found on Mrs. E, 73 years old, the patient complained of blurred vision, headache (NRS 6, felt hot and stabbing, appeared suddenly), nausea with 2 vomiting, and only finished 1/3 of the meal. The patient was afraid to walk far because of fear of falling and was helped by her child to the bathroom. Blood pressure was 150/98 mmHg, pulse 109 x / minute, respiratory rate 21 x / minute, temperature 36.6 ° C, oxygen saturation 99%, GCS 15, muscle strength 555 in all four extremities, and no pathological reflexes were found. The initial VSS-SF score was 40 (moderate vertigo) and MFS 35 (moderate risk; secondary diagnosis component 15 and intravenous therapy 20).

Table 1. Characteristics and Initial Assessment Data of Patients (May 12, 2026)

Aspect	Findings
Identity	Mrs. E, 73 years 7 months old, weighs 60 kg, and is 155 cm tall.
Medical diagnosis	vertigo
Main complaint	The patient said his vision was spinning, the patient said his head felt sore, the patient said he felt nauseous and vomited twice on the day of the assessment, the patient said he felt nauseous when he felt dizzy and spinning.
Medical history	The patient has a history of vertigo 3 years ago.
Vital signs	BP 150/98 mmHg; pulse 109 x/minute; respiration 21 x/minute; temperature 36.6 °C
Neurological	GCS 15 (E4V5M6); isochoric pupil 3 mm, light reflex +/+; Broca's aphasia; right muscle strength 5, positive physiological reflex, no neck stiffness.
cranial nerves	N. Vestibulo experiences disorders characterized by rotating vision
Nutrition and swallowing	Decreased appetite; ML diet, patient able to swallow

Aspect	Findings
Other functions	Eating, bathing and toileting are assisted by others, dressing can be done independently
Laboratory	Hb ;11.00g/dl, WBC ; 10,000/ul, Glucose ; 140mg/dl
Therapy	Ondanasetron; 16 ml 1 x 1 oral, betahistine; 6 ml 3 x 1 oral, ranitidine; 50 mg 2 x 1 injection

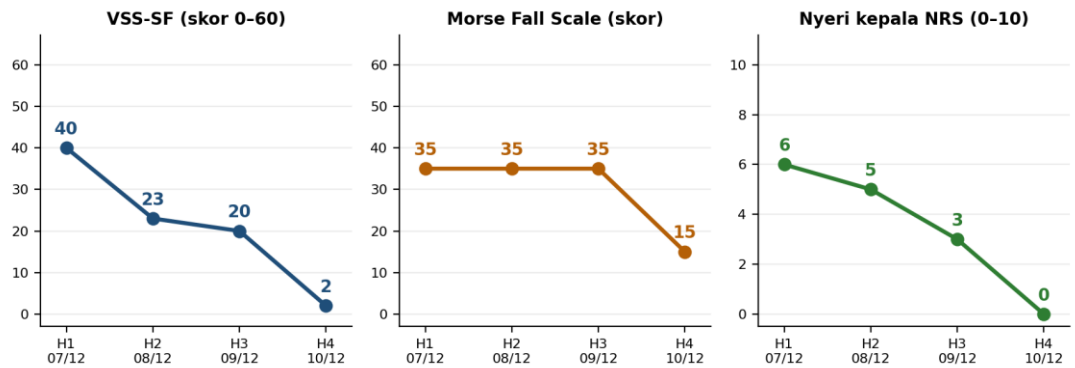
Change in scores during intervention of Evidence Based Nursing

The VSS-SF score decreased with each measurement, with the greatest decrease occurring between days 3 and 4. A final score of 2 was below the threshold of 12 used to distinguish low severity (6). Headache decreased steadily until it disappeared. The MFS score remained at 35 on days 1–3, then decreased to 15 on day 4.

Table 2. Development of Mrs. E's scores and vital signs during the four days of intervention

Indicator	Day 1 (07/12)	Day 2 (08/12)	Day 3 (09/12)	Day 4 (10/12)
VSS-SF (0–60)	40 (medium)	23 (medium)	20 (light)	2 (minimum)
Morse Fall Scale	35 (medium)	35 (medium)	35 (medium)	15 (low)
Headache (NRS 0–10)	6	5	3	0
Nauseous	Still; want to vomit	Only in the morning	Once in a while	There isn't any
Meal portion	1/3 portion	Increase	Increase	Finished
Blood pressure (mmHg)	148/87	140/89	138/79	136/83
Pulse (x/minute)	110	99	86	76
Respiratory rate (x/minute)	21	21	21	20

Figure 1. Trends of VSS-SF, Morse Fall Scale, and headache (NRS) from day 1 to 4



Nursing Problem Results

Nausea. Nausea and vomiting gradually decreased: only in the morning on day 2, occasionally on day 3, and disappeared on day 4. The patient's face was no longer pale from day 3 and the patient finished his meal on day 4. The problem was resolved on day 4.

Fall risk. There were no falls during treatment. On day 2, the patient moved from lying to sitting without support and was able to perform Brandt-Daroff exercises, although not for long. On day 3, she moved without assistance. On day 4, the patient no longer experienced dizziness, went to the bathroom without assistance, prayed in bed, and stated that she would continue the exercises at home. The MFS score decreased to 15 (low risk).

Acute pain. The NRS decreased from 6 to 5 to 3 and continued to decrease. The burning and stabbing sensations disappeared on day 2, the neck tension disappeared on day 4, and the grimacing expression was no longer visible from day 2. The pulse decreased from 110 to 76 beats/min and the blood pressure from 148/87 to 136/83 mmHg. The problem was declared resolved on day 4.

DISCUSSION

Mrs. E, with medical record number 376361, is a 73-year-old female of Minang ethnicity, Muslim, with a high school education, and a Quranic teacher. Epidemiologically, vertigo is more common in women than in men, with a higher incidence in the age group over 50 years. This condition indicates that the patient's age and gender characteristics are included in the risk group for vertigo.

Based on the assessment results, the patient's complaints align with the theory of vertigo, so there was no significant difference between the theoretical concept and actual conditions in the field. The patient's age, which had entered her fifth decade of life, was also a predisposing factor, given that balance system function tends to decline with age.

During the assessment on 7/12/2025 the patient said his vision was spinning, the patient said his head felt sore and tense, the patient said his headache felt like it was hot and sometimes stabbed by a blunt object, the patient said the pain scale he felt was in the range of 6, the patient also said his headache recurred suddenly, the patient said that he had felt nauseous and vomited twice, the patient said he felt nauseous when the dizziness attacked, the patient said his appetite was reduced, the patient said he only ate 1/3 of the portion because he felt nauseous, the patient said that during his dizziness he did not dare to do activities or walk far because he was afraid of falling, the patient said that during his dizziness he was helped by his child to go to the bathroom.

This case describes a 73-year-old woman with vertigo symptoms, nausea, headache, reduced oral intake, and impaired confidence in mobility. The patient's age and sex are consistent with epidemiological findings that vestibular vertigo becomes more prevalent with increasing age and is reported more often by women. [1-3] However, the case information does not establish a specific vestibular etiology. In particular, a medical diagnosis of vertigo alone is insufficient to confirm BPPV; diagnostic criteria and positional testing are important to distinguish BPPV from other causes of dizziness and imbalance [12-13].

Over four days, the VSS-SF score decreased from 40 to 2, headache intensity decreased from 6 to 0, nausea and vomiting resolved, and the patient regained independent bathroom mobility. The VSS-SF is a patient-reported measure with published psychometric evaluation, while the MFS is a structured tool for assessing inpatient fall risk [15-18]. These changes describe the patient's clinical course; they should not be interpreted as proof that Brandt-Daroff exercise alone caused the improvement.

Brandt-Daroff exercises were introduced as repeated positional exercises for positional vertigo [8]. Evidence from randomized trials and systematic reviews suggests that their effects may be less pronounced than those of canalith repositioning procedures in some patients with posterior-canal BPPV [9-11]. The 2017 clinical practice guideline recommends canalith repositioning for confirmed posterior-canal BPPV and allows vestibular rehabilitation as an option in selected patients. It also recommends assessment of mobility, balance, fall risk, and factors that may modify management [12]. Thus, the exercise in this case should be viewed as one element of a broader nursing and clinical care plan, rather than a substitute for diagnostic assessment or guideline-directed treatment.

The decline in fall-risk score and improvement in mobility are clinically relevant because vestibular dysfunction is frequently identified among people who fall [5]. International fall-prevention guidance recommends individualized, multifactorial strategies, including exercise, medication review, and environmental modification [6-7]. In acute-care settings, structured fall-prevention programs have also been evaluated as strategies to reduce inpatient falls [20]. In this case, low-bed

positioning, locked brakes, side rails, and access to the call bell were used alongside supervised mobility and symptom management.

Repeated head and body movements are used in vestibular rehabilitation to promote adaptation, substitution, and habituation, with the broader goals of improving gaze stability, postural stability, and daily function [21-22]. These mechanisms provide a plausible rationale for vestibular exercise, but the present case did not measure vestibular function objectively or isolate the exercise dose. The patient's improvement also occurred during concurrent pharmacological treatment and other nursing interventions. Evidence concerning betahistine for vertigo is heterogeneous, and the evidence base does not support attributing this patient's improvement to betahistine or to the exercises separately [23].

The disappearance of nausea and headache may have reduced barriers to eating and mobilizing. Pain intensity was monitored with the NRS, a commonly used numerical measure of subjective pain [19]. Dizziness can also affect functional, emotional, and physical aspects of daily life, as reflected in patient-reported instruments such as the Dizziness Handicap Inventory [24]. Future case reports and intervention studies should include a clearly documented etiological diagnosis, standardized exercise dosage, validated outcome measures, and follow-up after discharge. Reporting should also follow recognized case-report standards [14] . The practical implication is that nurses may teach and supervise appropriate vestibular exercises when clinically indicated, while maintaining fall precautions and ensuring that the intervention is suitable for the patient's diagnosis, mobility, and physical limitations. The patient expressed willingness to continue the exercises at home; this supports discharge education but does not establish long-term adherence or prevention of recurrence.

CONCLUSION

In this older patient with vertigo, nursing care that incorporated Brandt-Daroff exercises was accompanied by a decrease in VSS-SF score from 40 to 2, headache intensity from 6 to 0, resolution of nausea and vomiting, a decrease in MFS score from 35 to 15, and recovery of independent bathroom mobility over four days. No falls were recorded. Because pharmacological treatment and other nursing interventions were provided

concurrently, the independent effect of Brandt-Daroff exercises cannot be determined from this single case.

Clinicians may consider vestibular exercises as part of individualized care after appropriate assessment, while maintaining fall-risk screening and environmental safety measures. Further studies should use a comparison group, confirm the underlying vestibular diagnosis, document exercise frequency and duration, and include post-discharge follow-up.

AUTHOR CONTRIBUTION

Yuni Aidil Fitri: Conceptualization, data curation, investigation, and preparation of the first draft. Dwi Apriadi and Febrian Rahmad Suwandi SN: Supervision, validation, writing, and editing.

ACKNOWLEDGEMENT

The author would like to thank the KIA-N supervisor, who has provided direction and input for the perfection of the writing, the patient and family who have given permission to the researcher to implement the training, and RSU Madina Bukittinggi for permission and support during case collection.

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