RJNMSR
Review Journal of Neurological & Medical Sciences Review

Volume 4, Issue 2, 2026

ASSESSMENT OF DIZZINESS AND BENIGN PAROXYSMAL POSITIONAL VERTIGO AMONG OLDER ADULTS USING THE DIX-HALLPIKE MANEUVER

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DOI: https://doi.org/10.5281/zenodo.18595661

Received	Accepted	Published
11 December 2025	26 January 2026	10 February 2026

ABSTRACT

Background

It is more common in older people the estimated age range of 65 years old. The annual consultation rate due to dizziness is higher, from 8 to 18 percent, among individuals whose age is between 85 and older. Basically, Benign paroxysmal positional vertigo is a common disorder of the inner ear that causes intense spinning situation by performing head movements.

Objective

To evaluate the diziness and benign paroxysmal positional vertigo among older adults using the dix-hallpike maneuver

Methodology

It was a cross-sectional survey conducted among the older adults of Karachi. The sample size of 348. The duration of our study was July 2025 to January 2026. A validated questionnaire named: Amer Dizziness Diagnostic Scale (ADDS) was used to determine the diziness and benign paroxysmal positional vertigo among older adults. Statistical analysis was done through SPSS Version 23.

Result

A total of 348 research participants were recruited for the study. Most of the research participants highlighted some issues, like they felt dizzy while lying down, around 20.75%. Parrticipants who feel ringing in the ears around 29 (27.35%). Majority of participants feel dizzy when they move their head, they replied yes around 208 (85.95%). The participants who they feel more dizzy while turning their head to the left, around 147 (60.74%).

Conclusion

Benign paroxysmal positional vertigo could be demonstrated in about one tenth of older adults with dizziness or recent dizziness. Our finding suggests that older adults suffering from dizziness should be regularly tested for BPPV and treated with appropriate maneuvers, ideally on turntable to reduce strain.

Keywords

BPPV, Epidemiology, Geriateric population, Quality of life, Risk of fall etc.

INTRODUCTION

The term dizziness is a combination of many symptoms, like feeling unsteady, lightheaded, faintness, or spinning, which can make an individual feel like they might fall or the surrounding is moving.[1] Sometimes a person feels nausea and confusion, which is accompanied by excessive sweating, headache, changes in vision, and fatigue. Theses sensation may vary from mild to moderate and severe, and sometimes people feel like they have ringing in the ears, an unbalanced walk, and hearing issues.[2] It is more common in older people the estimated age range of 65 years old. The annual consultation rate due to dizziness is higher, from 8 to 18 percent, among individuals whose age is between 85 and older. Individuals face many difficulties in describing their symptoms or their complaints.[3] The consultants of primary care settings see at least half of the patients who present with the complaint of dizziness. The most common cause of dizziness is anxiety, a high level of stress, decreses the level of sugar, which usually happens in diabetic patients, because a sudden fall in blood pressure while they sit or stand causes postural hypotension.[4] The prevalence of dizziness is common in people who are more than 65 is around thirty percent increases fifty percent in those older than 85.[5]

The term benign paroxysmal positional vertigo (BPPV) is the most common cause of dizziness in older adults. Basically, Benign paroxysmal positional vertigo is a common disorder of the inner ear that causes intense spinning situation by performing head movements.[6] Benign paroxysmal positional vertigo (BPPV) is the main cause of dizziness in the adult population and in individuals over the age of 70 years old.[7] The symptoms of Benign paroxysmal positional vertigo (BPPV) include spontaneous dizziness, nausea, and disturbed body equilibrium. Mainly, the reason for benign paroxysmal positional vertigo is brain injuries, ear surgery, or insufficiency of the vertebrobasilar system, and other disorders.[8] Typically, the first episode of benign paroxysmal positional vertigo (BPPV) occurs between 49 and 60 years. Successful therapeutic maneuvers in older patients with benign paroxysmal positional vertigo (BPPV) lead to a significant reduction in falls.[9] Although benign paroxysmal positional vertigo (BPPV) most commonly affects the posterior semicircular canal In otherwise healthy individuals, benign paroxysmal positional vertigo (BPPV) can easily be diagnosed with the provocation maneuvers, e.g., Dix-Hallpike and supine roll maneuvers.[10]

The Dix-Hallpike is performed by a single and expert therapist, in which they guide the different positions of this procedure. This procedure is performed by quickly lowering the patient from a seated position into a supine, head-hanging posture while the head is rotated 45 degrees to one side. The patient is then brought back to the sitting position, the head is turned 45 degrees toward the opposite side, and the maneuver is repeated by lowering the patient again into the head-hanging position.[11,12] As with any procedure, there can be some small risks to performing the Epley (and Dix- Hallpike) manoeuvres. These risks include a possibility of: Canal conversion – crystals get from one wrong part of the inner ear to another wrong part.[13] The study aims to assess the dizziness and benign paroxysmal positional vertigo (BPPV) among the older adult population by using the maneuver.

METHODOLOGY

It was a cross-sectional survey conducted among the older adults of Karachi. The sample size of

348. The non-probability convenience sampling technique was used to choose the research participants before the collection of data. The duration of our study was July 2025 to January 2026. The inclusion of our study included both male and female genders, age groups between 50 to more than 71 years, and all diseased and disease-free older adults. People who are not willing to participate and who are schizophrenic, or crazy were excluded from this study. The two validated questionnaires was used named: Amer Dizziness Diagnostic Scale (ADDS) and Kim et.al[14] questionnaire was used to determine dizziness the benign paroxysmal positional vertigo among older adults. Statistical analysis was done through SPSS Version 23.

RESULT

A total of 348 research participants were recruited for the study. The demographics of the research participants included their age, gender, and the issues of the participants were asked, as shown in the table no.1:

Table No.1: Demographical Representation

S.no.	Variables	
1.	Age 50-60 61-70 >71	 97 (27.87%) 133 (38.21%) 118 (33.90%)
2.	Gender Male Female	 123 (35.34%) 225 (64.65%)
3.	Problem Dizziness BPPV	 106 (30.45%) 242 (69.54%)

When we asked the research participants about the factors of dizziness in an individual. Most of the research participants highlighted some issues, like they felt dizzy while lying down, around 20.75%, then the second factor was turning their head to the left, around 17.92%, and the third factor was looking up, which felt rare, around 5.66%, as shown in Figure no.1:

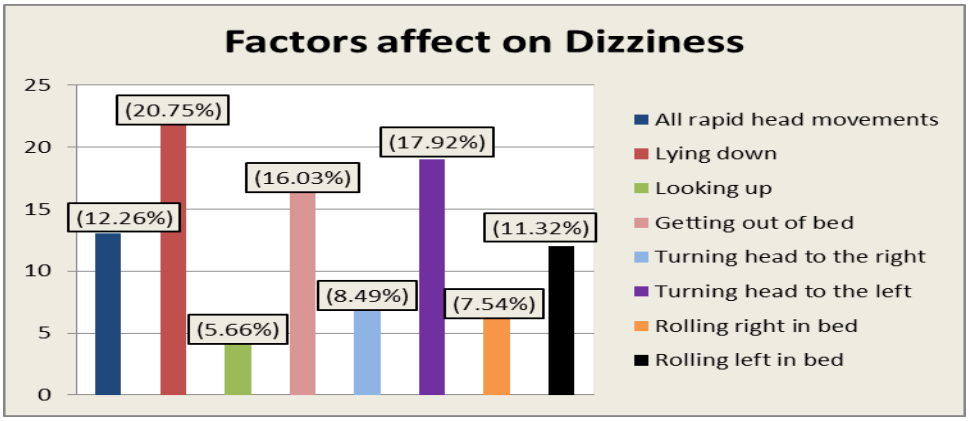

Figure No.1: Factors affected on Dizziness

When we asked a question about the signs and symptoms of dizziness from the research participants, most of the participants said they feel ringing in the ears around 29 (27.35%), and the lowest sign they feel is vomiting around 8 (7.54%) as shown in Figure no.2:

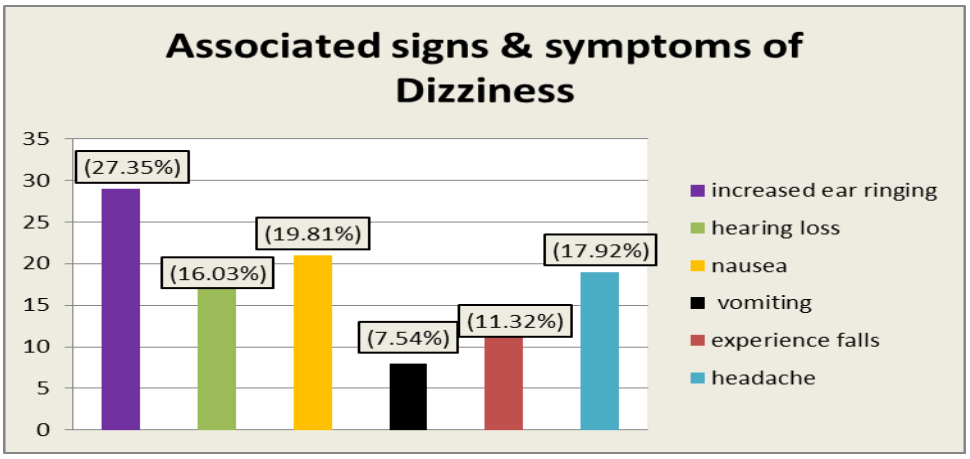

Figure No.2: Associated signs and symptoms of Dizziness

When we asked different questions related to the BPPV condition from the research participants like they feel spinning sensation, they replied yes around 146 (60.33%).

When we asked about whether they feel dizzy when they move their head, they replied yes around 208 (85.95%). When asked about the episode of dizziness lasting up to less than 3 minutes, they said yes around 126 (52.06%).

When we asked the research participants, they felt more dizzy while they were turning their heads to the right and left. Most of the participants replied they feel more dizzy while turning their head to the left, around 147 (60.74%), as shown in Table no.2:

Table No.2: Questions related to BPPV

S.no.	Questions	Frequency(%)
1.	Do you experience a spinning or rotating sensation? Yes No	 146 (60.33%) 96 (39.66%)
2.	Does dizziness mainly occur when you move your head? Yes No	 208 (85.95%) 34 (14.04%)
3.	Does each episode of dizziness last less than three minutes? Yes No	 126 (52.06%) 116 (47.93%)
4.	Which head movement causes greater dizziness? • Turning your head to the right • Turning your head to the left	 95 (39.25%) 147 (60.74%)
5.	How long does dizziness caused by head movement persist? • Less than one minute • Longer than one minute	 113 (46.69%) 129 (53.30%)

When we asked from the research participants that which intervention they take for the resolving of issue most of the participants around 227 (65.22%) take hallpike maneuver as shown in figure no.3:

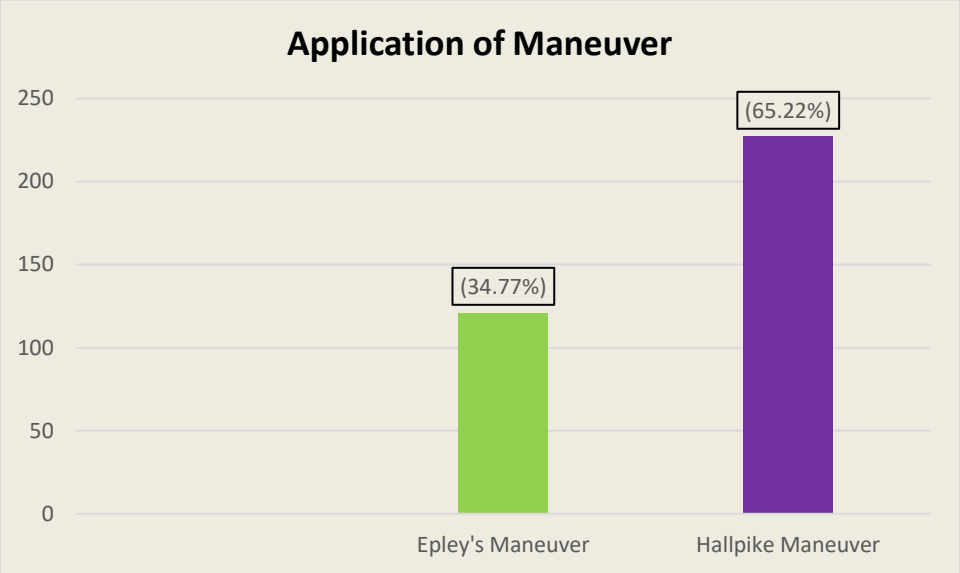

Figure No.3: Application of Maneuver

DISCUSSION

The commonest clinical condition which affect the older population is dizziness and BPPV it can increase risk of fall and reduce the quality of life. It is an ear disorder which causes vertigo, spinning sensations.[15] The symptoms can be last with in a minute along with nausea and vomiting. [16] The diagnosis of BPPV was done through The Dix Hallpike Maneuver. But this maneuver sometimes compromised due to some limitations such as: pain, stiffness specially among the weak patients. In this study, we determine the prevalence and assessment of BPPV among the older adults. Among the older adults who were suffering from dizziness around: 30.45% and those who have presented with BPPV around: 69.54%. BBPV is a recurrent type of disease and commonly it is misdiagnosed due to the nature of disease is asymptomatic but can be diagnosed when it shows symptoms. BPPV presented in patient with dizziness become symptomatic within sixty days in a year. There is not another way to estimate the symptomatic days without performing a test.[17] A study conducted on the basis of neurogical survey among adults 8% of patients was presented with moderate to severe dizziness with BPPV symptoms.[18]

Which is low in figures as compared to this our study showed, participants feel dizziness while lying down around: 20.75%, turning their head to the left feel dizziness around: 17.92%, and the rare but possible that looking upward causing dizziness around: 5.66%. A study revealed, only those older adults who has severe dizziness and had a chance of fatigue towards the hospital through transport was evaluated at their dizziness centres.[19] Another study stated, the prevalence of BPPV is lower among the adult population as compared to the older population which showed the burden on disease is more likely towards the old age people.[20] There may be a chance of human error by using the questionnaire survey with the dizzy patient who was unable to understand and give the satisfied answers to the researcher. So to rule out this problem we can use the structured interviews among all research participants to enhance the reliability of the test.[21] In the present study, All the research participants presented with BPPV was successfully treated by an specialist in the absence of nystagmus during the maneuver.

While the factors which triggers the clinical issues are not different between the dizziness and BPPV patients. This property supports that the performance of BPPV maneuver should be applied for diagnoses in every individual unless they have the presence of symptoms or not. Furthermore, the lack of the presence of symptoms among patients with or without BPPV can also have the problem of dizziness.[22].

CONCLUSION

It is concluded that BPPV maneuver is positive in majority of the older population of our study who were affected with dizziness. Although, BPPV is not always seems to be symptomatic but its prevalence is increasing by the time passes. In the present study the symptoms that create the difference between the positive and negative cases are: ear ringing, nausea, headache, and hearing loss. In addition, the patients who were suffering from dizziness should take regular followup and tested for BPPV even the symptoms are shown or not. Th Hallpike maneuver is effective and should be used as a treatment intervention to reduce the strain and improvement of therapeutic effects.

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