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**PREVALENCE OF BENIGN PAROXYSMAL POSITIONAL VERTIGO SYMPTOMS IN  
ELDERLY PEOPLE: CURRENT INSIGHT**

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**ABSTRACT**

**Objective:** To determine the prevalence of symptoms of benign paroxysmal positional vertigo in the elderly.

**Methodology:** 120 elderly men and women over the age of 50 who were not receiving treatment for balance issues or dizziness were enlisted. The subjects filled out questionnaires with information on their demographics, medical and surgical histories, and baseline symptoms that are typically connected to BPPV. The subjects were evaluated for inclusion after a physician diagnosed BPPV. The Berg Balance Scale and ADDS (Amer Dizziness Diagnostic Scale) were the outcome measures that were employed. The Research Ethical Committee approved this study (BMU/FPT/213).

**Result:** The significant level of dizziness and balance impairment were found in Elderly people with BPPV.

**Conclusion:** The percentage of elderly patients with previously undiagnosed BPPV, which can cause severe physical and psychological restrictions if left untreated, was shown to induce symptoms of headache, nausea, and dizziness. Analysis revealed that BPPV patients had issues with balance and dizziness. This is significant since BPPV is a diagnosis that is frequently disregarded despite having a well-established, very successful treatment.

**Keywords:** Prevalence, BPPV, Balance, Dizziness.

**INTRODUCTION**

The most prevalent marginal vestibular pathologic disease is called benign paroxysmal positional vertigo (BPPV), which was initially recognized by Barany. The term "BPPV" refers to an unusual sensation of movement that is typically brought on by abrupt head movements. BPPV is a prevalent condition that is typified by transient bouts of nausea, dizziness, and unsteadiness. Some authors claim that benign paroxysmal positional vertigo (BPPV) is the most frequent vestibular disorder, and it is one of the most prevalent (17–42%) causes of broadly characterized abnormalities of the balance system. [1, 2, 3]. The disparities in the documented occurrence rates can be attributed to the distinct standards employed for BPPV diagnosis, in addition to the relatively elevated rates of self-healing or remission with varying durations. Patients who are too easily categorized as belonging to the BPPV population may receive incorrect diagnosis and treatment due to the belief that benign vertigo that persists in patients does not pose a threat to their lives [4,5,6]. Dizziness and vestibular symptoms are common

and serious issues in the elderly; the prevalence of these conditions has been estimated to be 30% in those over 60 [7,8] and to be close to 50% in those over 85 [7].

Dizziness is a remarkable predictor of falls in the elderly, which are the primary cause of unintentional death in people over 65. [9] Dizziness is more common in women [10] and is a significant contributing cause to impairment in people over 65 [11]. Since patients tend to report nonspecific dizziness and instability more often and rotatory vertigo less frequently than younger patients with the same condition, common causes of vertigo in the elderly may present differently, with a more perplexing constellation of symptoms [12]. Compared to younger people with a similar condition, older patients with balance difficulties tend to complain more of generic unsteadiness and dizziness and less of rotatory vertigo.

Generally, a shift in the head or body's direction with respect to gravity causes these symptoms. Typical acts like reclining down in bed or reaching up to get something off a high shelf frequently cause these postural shifts. Every episode of vertigo usually lasts less than a minute. The research has revealed that the lifetime prevalence of BPPV can reach 2.1% and the prevalence can vary from 10.7–64/100,000. Although BPPV can strike at any age, it is most commonly identified in the fifth and seventh decades [13,14]. Although the exact origin of BPPV is still unknown, head trauma or a number of inner ear conditions may be linked to it [15].

Schuknecht, who studied the morphology of the inner ear, proposed cupulolithiasis as the pathomechanism of BPPV. This condition is characterized by the overburdening of the ampullary cupula within the posterior semicircular canal by otolithic fragments that have been displaced from the otolithic membrane of the utricular macula. Because of the increased cupular mass, abnormal stimulation of the cupula occurs when head position is altered in regard to the gravity force vector [16]. The clinical manifestation of BPPV is not always so obvious or straightforward. It has been noted more frequently that BPPV may occur with other abnormalities of the balance system, which could make its clinical presentation less distinct [1,6,17]. When additional illnesses or involvement processes within the neural system exist, the age of the patient is a significant component that frequently accounts for variances from the normal presentation of BPPV. The fact that most BPPV cases involve people over 50 makes this all the more significant [6,18,19].

Aging is a process that affects human existence by causing gradual, impulsive, and progressive changes in the body's structure over time [20,21, 22]. Our population's life span has expanded recently due to factors like rising life expectancy, advancements in medical technology, promotion of public health, and declining death rates [23]. As a result, an increase in the old population is anticipated in the future. There are 600 million older people in the globe now, and by 2050, that figure is expected to rise to 2 billion, or 22% of the total population [24, 25]. High blood pressure, urinary tract issues, stroke, Parkinson's and Alzheimer's diseases, dizziness, balance issues, and falls are among the common issues and illnesses that affect the elderly [20]. Among the health issues that older people face,

Walking and balance are seen to be markers of an older person's functional independence. In terms of biomechanics, balance is the capacity to sustain body of mass (BOM) in base of support (BOS) area, cope with protuberances (internal or external), and maintain a state for voluntary actions [26, 27]. Interaction between the central nervous system's motor and sensory (visual, vestibular, and somatosensory) systems is necessary for maintaining balance [28]. Aging causes metabolic and physiological system changes that can impact the musculoskeletal, vestibular, somatosensory, and visual systems as well as an individual's ability to maintain balance. These changes put older adults at risk for accidents like falls, fractures, and long-term disability. Negative changes endanger the quality of life of the elderly and make it difficult for them to carry out their daily activities (ADLS).

### **METHODOLOGY**

120 elderly men and women over the age of 50 who were not receiving treatment for balance issues or dizziness were enlisted. The subjects filled out questionnaires with information on their demographics, medical and surgical histories, and baseline symptoms that are typically connected to BPPV. The subjects were evaluated for inclusion after a physician diagnosed BPPV. The Research Ethical Committee approved this study (BMU/FPT/213).

Inclusion Criteria:

- Patients with diagnosis of BPPV, Both male and female were included.

Exclusion Criteria:

- Patients with any orthopaedic complications, any other neurological condition, any Peripheral vascular complication, any visual and hearing problem, Gynecological Disorders, Psychiatric conditions like depression, anxiety, Uncooperative subject.

### **Outcome Measures:**

AMER Dizziness Diagnostic Scale (ADDS), Berg Balance Scale.

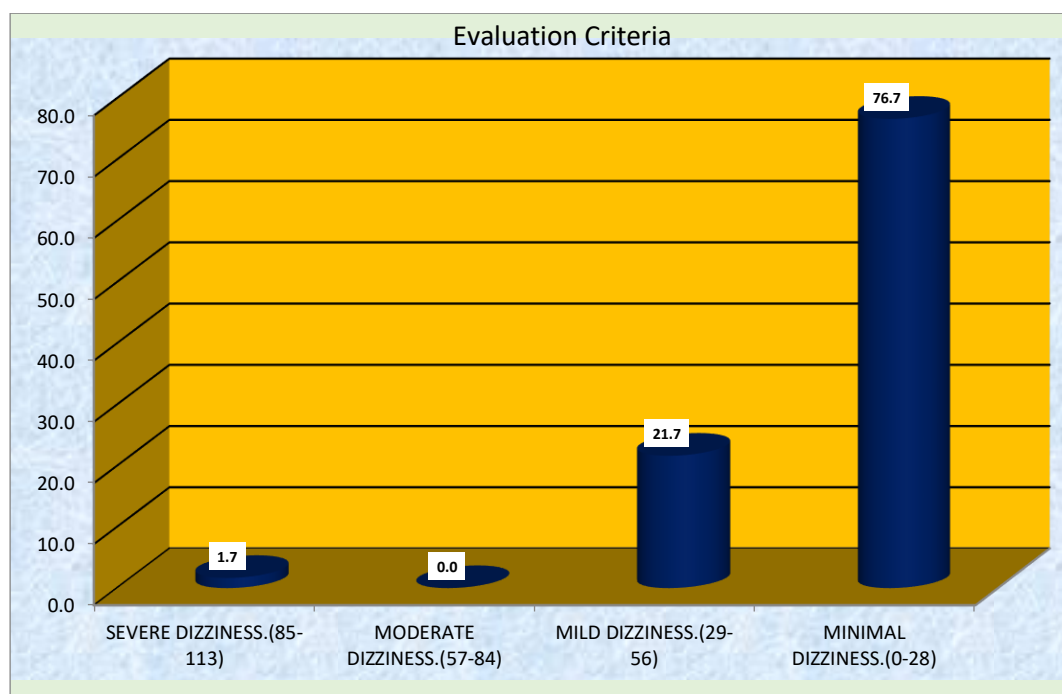
### **STATISTICAL ANALYSIS AND RESULT**

The analysis and interpretation were completed in compliance with the study's established objectives. The aim of analysis is to transform the data into a comprehensible and significant format, enabling comparisons and identification of importance. In order to analyze the data, scores for frequency, percentage, mean, standard deviation, and chi-square were computed. Descriptive and inferential statistics were used to analyze and interpret the data in accordance with the goals. A significant threshold of  $p \leq 0.05$  was selected.

**Table 1. –: Frequency & Percentage distribution level of **ADDS**.**

<b>CRITERIA MEASURE OF ADDS SCORE</b>		
<b>LEVEL OF SCORES N= 120</b>	<b>PERCENTAGE</b>	<b>FREQUENCY</b>
SEVERE DIZZINESS.(85-113)	1.7	2
MODERATE DIZZINESS.(57-84)	0.0	0
MILD DIZZINESS.(29-56)	21.7	26
MINIMAL DIZZINESS.(0-28)	76.7	92

Maximum =113 Minimum=0



**Figure 1.: Diagram showing the percentage distribution level of ADDS**

**Table 2 –: Descriptive statistics of ADDS**

N= 120							
Descriptive Statistics	Mean	Median	S.D.	Maximum	Minimum	Range	Mean %
ADDS SCORE	20.26	15	13.54	96	0	96	17.93

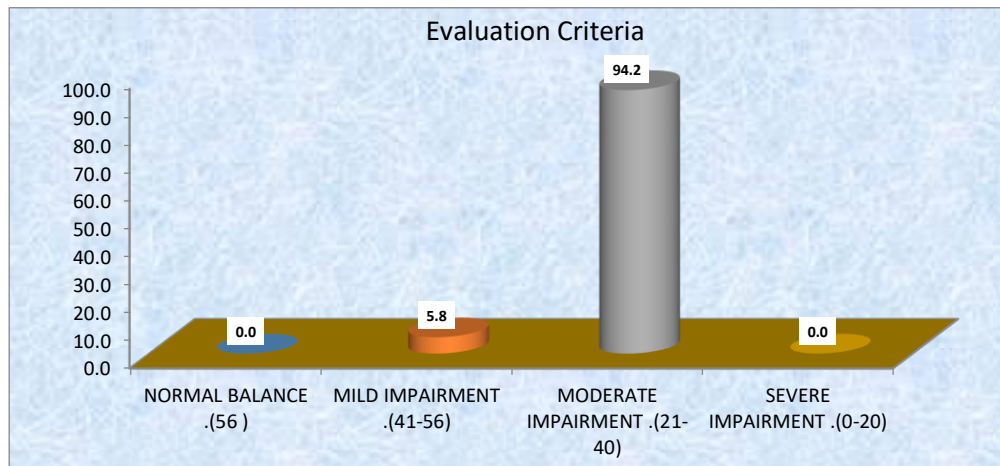
Maximum=113 Minimum=0

The variability, or spread, of the scores around the mean is indicated by the 13.54 standard deviation. A larger standard deviation denotes more variation in participants’ dizziness scores.

**Table 3. Frequency & Percentage distribution level of Berg Balance Scale.**

<b>CRITERIA MEASURE OF BERG BALANCE SCALE SCORE</b>		
<b>LEVEL OF SCORES N= 120</b>	<b>PERCENTAGE</b>	<b>FREQUENCY</b>
SEVERE IMPAIRMENT.(56)	0.0	0
MODERATE IMPAIRMENT.(41-56)	5.8	7
MILD IMPAIRMENT.(21-40)	94.2	113
NORMAL BALANCE.(0-20)	0.0	0

Maximum =56 Minimum=0



**Figure 2. Diagram showing the percentage distribution level of Berg Balance Scale**

**Table 4-: Descriptive statistics of BERG BALANCE SCALE**

N= 120							
Descriptive Statistics	Mean	Median	S.D.	Maximum	Minimum	Range	Mean %
BERG BALANCE SCALE SCORE	27.54	27	4.76	48	21	27	49.18

Maximum=56 Minimum=0

The variability, or spread, of the scores around the mean is indicated by the 4.76 standard deviation. A larger standard deviation denotes more variation in participants' balance scores.

**CONCLUSION**

It was determined that individuals with benign paroxysmal positional vertigo had a notable degree of balance impairment and dizziness.

**DISCUSSION**

The purpose of the current study was to assess the prevalence of BPPV patients among elderly individuals. BPPV is a prevalent condition that is typified by transient bouts of nausea, dizziness, and unsteadiness. Some authors claim that benign paroxysmal positional vertigo (BPPV) is the most

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frequent disorder of the vestibular system, and it is one of the most prevalent (17–42%) causes of broadly characterized disorders of the balance system [1, 2, 3]. The disparities in the documented occurrence rates can be attributed to the distinct standards employed for BPPV diagnosis, in addition to the relatively elevated rates of self-healing or remission with varying durations. Patients who are too easily categorized as belonging to the BPPV population may receive incorrect diagnoses and treatment due to the belief that benign vertigo that persists in patients does not pose a threat to their lives [4,5,6]. Dizziness and vestibular symptoms are common and serious issues in the elderly; the prevalence of these conditions has been estimated to be 30% in those over 60 [7,8] and to be close to 50% in those over 85 [7]. Dizziness is a significant predictor of falls in the elderly, which are the primary cause of unintentional death in people over 65 [9]. Women are more likely to have dizziness [10, 11], and it is a significant contributing cause to disability in those over 65. While patients tend to report generic dizziness and instability more often and rotatory vertigo less frequently than younger patients with the same condition, common causes of vertigo in the elderly may present differently, with a more perplexing collection of symptoms.

These symptoms are usually brought on by a shift in the head or body's orientation with respect to gravity. These shifts often happen during everyday activities like lying down in bed or reaching up to get something off a high shelf. Each vertigo attack usually lasts less than a minute. The literature reports that the prevalence of BPPV can range from 10.7–64/100,000 and that the lifetime prevalence can reach 2.1%. BPPV can occur at any age, but it is most commonly identified in the fifth and seventh decades [13, 14]. The exact cause of BPPV is unknown, but it may be linked to a number of inner ear conditions or head trauma [15].

It was recently suggested that low intensity, horizontal, direction-changing apogeotropic positional nystagmus, which frequently appears in instances with horizontal SCC BPPV, may be the cause of chronic, persistent dizziness in the elderly [30]. The authors claimed that this moderate form of BPPV occurred rather commonly in the elderly, as evidenced by the fact that 49% of a total of 200 senior people with persistent dizziness investigated had this type of nystagmus. There are 600 million elderly people in the globe today, and by 2050, that number is expected to rise to 2 billion, or 22% of the total population. High blood pressure, urinary tract issues, stroke, Parkinson's and Alzheimer's diseases, dizziness, balance issues, and falls are among the common issues and illnesses that affect the elderly. When it comes to health issues affecting the elderly, functional independence issues are increasingly significant.

H.J. van der Zaag-Loonen (2015) investigated the prevalence of undiagnosed benign paroxysmal positional vertigo in elderly people. It was discovered that 226 patients, or 23% of the total, experienced dizziness, 101 of them had a possible BPPV diagnosis. Thirteen (29%) of the forty-five (n = 45) patients who underwent the diagnostic maneuver tested positive for BPPV. One patient experienced BPPV

during follow-up, resulting in a total of 14 positive patients (overall prevalence: 1.4%). There was no difference observed between BPPV positive and BPPV negative patients. One-quarter of a sizable cohort of elderly individuals report feeling lightheaded, and 1.4% report having definite BPPV [31].

**Conflict of Interest:** Nil

**Source of Funding:** Nil

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