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The Effectiveness of Structured Vestibular Assessment Form in the Diagnosis Process

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ABSTRACT

Objective: This study investigated the role of vestibular assessment form in the differential diagnosis of peripheral vestibular disorders, and disorders originating from central or other non-vestibular causes.

Methods: Data from individuals aged 18 and older who visited the audiology unit with complaints of dizziness and/or balance disorders and underwent vestibular/balance evaluation were analyzed. The vestibular disease diagnoses of the individuals and their responses to the vestibular assessment form were evaluated. The vestibular assessment form included questions about the episodes, associated symptoms, auditory symptoms, exacerbating factors, comorbidities, and relieving factors.

Results: The study included 56 individuals with peripheral vestibular pathology (mean age: 48.41±18.15 years, range: 18-77 years) and 29 individuals with non-peripheral vestibular pathology (mean age: 54.55±16.99 years, range: 21-80 years). Vertigo and vestibulo-visual symptoms were more common in individuals with peripheral vestibular pathology, whereas dizziness and postural symptoms were more frequent in individuals with non-peripheral vestibular pathology ($p<0.01$). Auditory symptoms and relieving factors were more common in individuals with peripheral vestibular pathologies ($p<0.05$). In contrast, symptoms such as headache, photophobia, and phonophobia were more frequent in those with non-peripheral vestibular pathologies ($p<0.01$).

Conclusion: The presence of auditory symptoms, vertigo, vestibulo-visual symptoms, neurovegetative symptoms (such as nausea and vomiting), the relieving effect of standing still or resting, and the response to medical treatment in the patient's history, suggest peripheral vestibular pathology. A detailed history is crucial for selecting the appropriate clinical examination, determining the need for additional tests, and ensuring a time- and cost-effective evaluation of patients with vestibular symptoms.

Keywords: Vertigo, dizziness, vestibular symptoms, vestibular disorders, positional vertigo, medical history

INTRODUCTION

Vertigo and dizziness are common reasons for medical consultation, accounting for 2.6% of primary care visits and 3.3-4.4% of emergency department visits (1). Vertigo and dizziness may stem from various sources, including central or peripheral neurological disorders, peripheral organ pathology, and systemic conditions such as hyperlipidemia, diabetes, hypertension, coronary artery disease, and asthma. Therefore, experiencing vertigo and dizziness alone is not enough to make a diagnosis. Associated symptoms, episode details, exacerbating and relieving factors, and comorbidities are crucial for an accurate diagnosis. A detailed medical history is essential to obtain this information. The medical history is a crucial part of the evaluation, where the patient and clinician collaborate to communicate the patient's symptoms (2). Van de Berg and Kingma (3) suggest four key steps in history-taking: i) identifying episodes of dizziness and/or vertigo, ii) identifying chronic vestibular symptoms, iii) screening for psychological and psychiatric comorbidities, and iv) providing a comprehensive diagnosis that considers all possible co-occurring vestibular symptoms.

Many diseases and/or disorders, primarily otological, neurological, and systemic, may play a role in causing symptoms of vertigo and dizziness. The characteristics, presentation, and accompanying symptoms of vertigo and dizziness vary depending on the affected centers and systems (2). In vestibular diseases, many typical features such as exacerbating factors, episode duration, and accompanying symptoms are key to the differential diagnosis (4). For example, neurological symptoms are diagnostic signs

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of vestibular migraine, while auditory symptoms are key for diagnosing Meniere's disease (5,6). However, excluding specific diseases, the differential criteria in the vestibular assessment form for distinguishing between peripheral and non-peripheral vestibular pathologies in clinical patients remain unclear. Therefore, it is important to narrow the range of differential criteria for vestibular pathologies and classify diseases to improve understanding and diagnosis (7).

Based on this information, the study aimed to investigate the role of the vestibular assessment form in the differential diagnosis of vestibular pathologies. The study focused on differentiating between peripheral vestibular pathologies and non-peripheral vestibular disorders, with the latter referring to central vestibular conditions and other diseases related to vertigo. It was anticipated that an effective, well-planned patient assessment process where the clinician addresses all relevant questions about symptoms would save both time and money in reaching a diagnosis.

METHODS

This retrospective study was conducted between January 1, 2022, and April 30, 2022, and included data from individuals aged 18 years and older who presented to Hacettepe University Adult Hospital with complaints of dizziness and/or balance disorders. All participants were referred to the Audiology Unit for vestibular and/or balance evaluation following an examination by an otorhinolaryngologist.

The study was conducted in accordance with the principles outlined in the Declaration of Helsinki, and ethical approval was obtained from the Hacettepe University Non-Interventional Clinical Research Ethics Committee (decision no: 2022/10-7, date: 07.06.2022).

The inclusion criteria for the study were as follows: participants had to be 18 years of age or older, have completed the vestibular assessment form (updated on January 1, 2022), and have both hearing and vestibular evaluation results available. Participants were excluded from the study if they failed to complete the vestibular assessment form thereby limiting the assessment of subjective vestibular symptoms or if there was no confirmed or documented final diagnosis, which would have prevented proper interpretation of clinical findings within a diagnostic framework.

Vestibular Evaluation Procedure

A detailed medical history (anamnesis) was obtained from all patients as part of the vestibular evaluation procedure. Following bedside physical examination, all patients underwent a videonystagmography test battery. This battery included spontaneous nystagmus assessment, oculomotor tests, and positional tests, all of which were administered to every participant.

Additional tests, including the caloric test, cervical and ocular vestibular evoked myogenic potentials, video head impulse test, and computerized dynamic posturography, were administered selectively based on clinical judgment regarding the appropriateness and necessity for each patient.

The results of all tests performed were documented in the vestibular assessment form (Appendix 1).

The vestibular assessment form consisted of seven main sections, in addition to demographic information. These sections included: (i) Episodes (onset and duration, recovery between episodes, imbalance between episodes, viral infection, fullness, and tinnitus before the episode); (ii) Symptoms (dizziness, lightheadedness, vestibulo-visual symptoms, postural symptoms); (iii) Exacerbating factors (spontaneous, active body movement, active head movement, cervical rotation, sound, physical stress, mental stress); (iiii) Auditory symptoms (hearing loss, tinnitus, earache, fluctuations in hearing, fullness); (vi) Associated symptoms (nausea, vomiting, pallor, motion sickness, childhood motion sickness, headache, neck pain, visual impairment, photophobia, osmophobia); (vi) Comorbidities (metabolic diseases, cardiovascular diseases, eye diseases, neurological diseases); and (vii) Relieving factors (spontaneous, standing still, resting, cervical rotation, medication use). The relationship between participants' responses on the vestibular assessment form and the diagnosis of vestibular disease, as determined by clinical examination, was analyzed.

Statistical Analysis

The research data were analyzed using the SPSS v28 program. Since the data collected consisted of categorical variables, descriptive statistics such as percentages and frequencies were used. The comparison of groups (peripheral and non-peripheral) was carried out using the chi-square test, with a statistical significance value of 5%.

RESULTS

The study analyzed data from 85 individuals who were divided into two groups based on their diagnoses: group 1 for those with peripheral vestibular pathology and group 2 for those with non-peripheral vestibular pathology. Group 1 consisted of 56 individuals (mean age: 48.41±18.15 years; 33 females, 23 males), while group 2 included 29 individuals (mean age: 54.55±16.99 years; 22 females, 7 males). No statistical significance was observed in the gender distribution comparison between group 1 and group 2 (p=0.197). No significant difference in age was observed between the groups (p=0.792). This indicates that both groups were comparable regarding gender and age.

Diagnoses of peripheral vestibular pathology in the study (65.8%, n=56) were as follows: benign paroxysmal positional vertigo (BPPV): 25.8% (n=22); idiopathic dizziness: 15.3% (n=13); unilateral vestibulopathy: 11.8% (n=10); presbyopia/presbyvestibulopathy: 7.1% (n=6); and bilateral vestibulopathy: 5.8% (n=5). Non-peripheral vestibular pathologies (34.2%, n=29) included dizziness/drowsiness of cardiological origin, 9.45% (n=8), vestibular migraine, 9.45% (n=8), psychogenic dizziness/drowsiness, 8.2% (n=7), and dizziness/drowsiness of neurological origin, 7.1% (n=6). When comparing the groups with peripheral and non-peripheral vestibular pathologies, a statistically significant difference was found in Figure 1 in terms of vertigo (p=0.005), dizziness (p=0.010),

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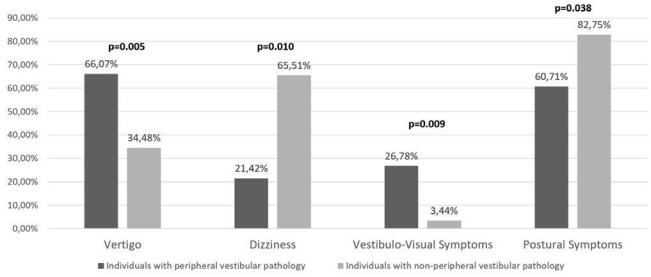

Figure 1. Comparison of the presence of vestibular symptoms in individuals with peripheral and non-peripheral vestibular pathology

vestibulo-visual symptoms (p=0.009), and postural symptoms (p=0.038). Vertigo and vestibulo-visual symptoms were more commonly observed in peripheral vestibular pathologies, while dizziness and postural symptoms were more frequent in non-peripheral vestibular pathologies.

A comparison of the information regarding episodes, associated symptoms, and auditory symptoms from the vestibular assessment form is presented in Table 1. A statistically significant difference was observed between the groups regarding episode duration and onset (p<0.01). Complaints of hearing loss, hearing fluctuations, and fullness were more prevalent in individuals with peripheral vestibular pathology (p<0.05).

When the co-occurrence of auditory symptoms among individuals with peripheral vestibular pathology was compared, the simultaneous occurrence of hearing loss and tinnitus was found to be statistically significant (p<0.001). However, no significant relationship was found between hearing loss and symptoms of fluctuation in hearing (p=0.937), earache (p=0.466), and ear fullness (p=0.596). Similarly, no statistically significant difference was observed between symptoms of tinnitus and hearing fluctuation (p=0.253), earache (p=0.891) and fullness (p=0.149). On the other hand, it was determined that participants with complaints of fluctuation in hearing were also significantly more likely to have the symptom of ear fullness (p<0.001).

Additionally, the distribution of comorbidities, exacerbating and relieving factors, in those with peripheral vestibular pathology and non-peripheral vestibular pathology is shown in Table 2. Cenation (food and beverage) and sound were more commonly identified as exacerbating factors in individuals with peripheral vestibular pathology compared to those with non-peripheral vestibular pathology (p<0.05). Additionally, standing still and consuming medication were reported more frequently as relieving factors in individuals with peripheral vestibular pathology (p<0.05). The spontaneous occurrence of symptoms without a triggering factor was absent in individuals with peripheral pathology; however, it was significantly more prevalent in those with non-peripheral pathology (p=0.001). Analysis of comorbidities revealed higher rates of neurological diseases, photophobia, and phonophobia to among individuals with non-peripheral vestibular pathology (p=0.004).

DISCUSSION

The patient's complaint is the first point of contact between the patient and the clinician, providing valuable insight into the nature and scope of the symptoms. The first step of the vestibular assessment, history-taking, should allow time for careful listening, enabling the patient to discuss not only their symptoms but also how the disease has impacted their daily life (8,9). Treatment and rehabilitation are determined by the diagnosis, physical findings, and the impact of the disease on daily activities. The severity of conditions underlying vestibular symptoms spans a wide clinical spectrum, ranging from benign to life-threatening (9). This study was conducted to investigate the diagnostic value of the responses to the questions in the vestibular assessment form, with the aim of making the history-taking process more effective and structured. As a result of this study, a correlation was observed between the clinical diagnoses of the patients and their responses in the vestibular assessment form.

Peripheral vestibular pathology was diagnosed in 65.8% (56 patients) and non-peripheral vestibular pathology in 34.2% (29 patients) of the individuals who presented to the audiology unit during the specified period for this retrospective study. The study findings are consistent with the literature, indicating a higher prevalence of peripheral vestibular pathologies (10-12). In the group with peripheral vestibular pathology, the most common diagnosis was BPPV (39.3%), followed by unilateral vestibulopathy, presbyvestibulopathy, and bilateral vestibulopathy. In the group with non-peripheral vestibular pathology, the most common diagnosis was vertigo or dizziness of cardiological origin (9.5%), followed by vestibular migraine, psychogenic or neurologically-originated vertigo. Numerous studies have identified BPPV as the most prevalent cause of dizziness of peripheral origin (11,13,14).

The Barany Society classifies vestibular symptoms into four categories: vertigo, dizziness, vestibulo-visual symptoms, and postural symptoms (15). In our study, these categories were used to classify vestibular symptoms. A statistically significant difference was found between patients with peripheral and non-peripheral vestibular pathology, in each of these categories (p<0.05). In our study, vertigo and vestibulo-visual symptoms were more common in patients with peripheral vestibular pathology, while dizziness and postural symptoms were more prevalent in patients with non-peripheral vestibular pathology. These findings are consistent with those described in the literature (16,17).

Since vertigo and dizziness are to often triggered symptoms and many vestibular disorders are characterized by the presence or absence of specific exacerbating factors, it is important to provide detailed definitions of these symptoms when exacerbated (15). When analyzing symptom exacerbating factors, it was observed that episodes were triggered in all individuals with peripheral vestibular pathology (e.g., head-body movement, sound, etc.), whereas, 27.5% of individuals with non-peripheral vestibular pathology experienced episodes that started spontaneously without any identifiable trigger. Similar findings have been

Table 1. Comparative analysis of vertigo episode informations and associated symptoms for peripheral and non-peripheral vestibular disorders

	Peripheral vestibular pathologies (n=56%) n (%)	Non-peripheral vestibular pathologies (n=29%) n (%)	p-value*
Vertigo episode	Suddenly: 40 (71.4%)	Suddenly: 25 (86.2%)	0.120
	Gradually: 16 (28.6%)	Gradually: 4 (13.8%)	
Onset of episode	In a week: 4 (7.1%)	In a week: 0 (0%)	**0.007**
	In a month: 11 (19.7%)	In a month: 0 (0%)	
	3 months ago: 4 (7.1%)	3 months ago: 8 (27.6%)	
	6 months ago: 5 (8.9%)	6 months ago: 2 (6.9%)	
	1 year ago: 11 (19.7%)	1 year ago: 3 (10.4%)	
	Over 1 year: 21 (37.5%)	Over 1 year: 16 (55.1%)	
Duration of episode	Sec/min: 29 (51.8%)	Sec/min: 20 (69%)	**0.001**
	Hours: 18 (32.1%)	Hours: 0 (0%)	
	Days: 8 (14.3%)	Days: 3 (10.3%)	
	Months: 1 (1.8%)	Months: 6 (20.7%)	
Recovery between episodes	39 (69.6%)	18 (62.1%)	0.480
Imbalance between episodes	33 (58.9%)	10 (34.5%)	**0.030**
Viral infection before the episode	5 (9%)	4 (34.5%)	0.490
Tinnitus before the episode	16 (28.6%)	6 (20.7%)	0.430
Fullness before the episode	12 (21.5%)	4 (13.8%)	0.390
Associated symptoms			
Nausea	39 (69.6%)	6 (20.7%)	**0.010**
Vomiting	28 (50%)	2 (6.9%)	0.090
Paleness	13 (23.2%)	4 (13.8%)	0.670
Motion sickness	5 (9%)	2 (6.9%)	0.740
Childhood motion sickness	6 (10.7%)	7 (24.1%)	0.100
Headache	9 (16%)	14 (48.3%)	**0.002**
Neck pain	4 (7.1%)	2 (6.9%)	0.140
Visual impairment	23 (41.1%)	8 (27.5%)	0.220
Light sensitivity	4 (7.1%)	8 (27.5%)	**0.010**
Hyperosmia	13 (23.2%)	4 (13.8%)	0.300
Auditory symptoms			
Hearing loss	31 (55.4%)	8 (27.5%)	**0.010**
Tinnitus	35 (62.5%)	18 (62.1%)	0.960
Earache	6 (10.7%)	4 (13.8%)	0.670
Fluctuation in hearing	7 (12.5%)	0 (0%)	0.040
Fullness	9 (16%)	0 (0%)	**0.020**

Statistically significant values are shown in bold
Chi-square test

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Table 2. Comparison of comorbidities and exacerbating and relieving factors during the vertigo episode in participants with peripheral and non-peripheral vestibular disorders

	Peripheral vestibular pathologies (n=56%) n (%)	Non-peripheral vestibular pathologies (n=29%) n (%)	p-value
Comorbidities			
Metabolic disease	24 (42.9%)	12 (41.4%)	0.890
Cardiovascular disease	24 (42.9%)	14 (48.3%)	0.630
Eye diseases	2 (3.5%)	4 (13.8%)	0.080
Neurological diseases	0 (0%)	4 (13.8%)	**0.004**
Head and neck trauma	8 (14.3%)	2 (6.9%)	0.310
Mental disorders (anxiety, depression etc.%)	9 (16%)	3 (10.4%)	0.470
Photophobia	0 (0%)	4 (13.8%)	**0.004**
Phonophobia	0 (0%)	4 (13.8%)	**0.004**
Exacerbating factors			
Spontaneous	0 (0%)	8 (27.5%)	**0.001**
Active body movement	17 (30.4%)	8 (27.5%)	0.790
Active head movement	34 (60.7%)	12 (41.4%)	0.090
Cenation	8 (14.3%)	0 (0%)	**0.032**
Sound	8 (14.3%)	0 (0%)	**0.032**
Physical stress	24 (42.9%)	12 (41.4%)	0.890
Mental stress	32 (57.1%)	17 (58.6%)	0.890
Relieving factors			
Spontaneous	31 (55.4%)	10 (34.5%)	0.060
Stand still	34 (60.7%)	6 (20.7%)	**0.001**
Take a rest	26 (46.5%)	20 (69%)	0.050
Cenation	0 (0%)	2 (6.9%)	0.050
Consuming medication	18 (32.2%)	3 (10.4%)	**0.020**

Statistically significant values are shown in bold

reported in the literature, suggesting that symptoms associated with peripheral pathology are more specific and closely linked to external factors (18-20). In contrast, symptoms in individuals with non-peripheral pathology may be exacerbated by internal mechanisms that are more specific. The types of exacerbating factors also highlight an important distinction. The majority of individuals with peripheral vestibular pathology (60.7%) reported that active head movements triggered their symptoms, whereas most individuals with non-peripheral vestibular pathology (58.6%) experienced symptom exacerbation due to mental stress. This underscores the differences in the causes and manifestations of peripheral and non-peripheral vestibular disorders.

An analysis of symptom-relieving strategies revealed notable differences between individuals with peripheral and non-peripheral vestibular pathologies. Spontaneous relief was more frequently reported by individuals with peripheral vestibular disorders, potentially reflecting the episodic and self-limiting nature of conditions such as BPPV and vestibular neuritis. In addition, remaining still was identified as a more effective strategy for symptom alleviation in this group, which may be attributed to the movement-provoked nature of peripheral symptoms a hallmark of peripheral vestibular involvement. Furthermore, individuals with peripheral vestibular pathology demonstrated a higher rate of symptom improvement following medical treatment, aligning with prior findings that pharmacological interventions are often more beneficial in cases involving localized and well-defined lesions.

In the present study, auditory symptoms were more frequently observed in individuals with peripheral vestibular pathology. This finding aligns with previous research highlighting the concurrent involvement of the peripheral auditory and vestibular systems, largely attributed to their close anatomical proximity within the inner ear (21-24). Specifically, 55.4% of individuals with peripheral involvement reported hearing loss, 62.5% experienced tinnitus, 12.5% noted hearing fluctuations, and 16% reported aural fullness. In contrast, these symptoms were less frequently observed among those with non-peripheral vestibular pathology, suggesting that peripheral damage may more directly impact auditory structures.

Peripheral vestibular disorders, such as Meniere's disease and labyrinthitis, frequently involve both cochlear and vestibular

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structures, leading to a range of auditory symptoms including hearing loss, tinnitus, aural fullness, and hearing fluctuation (5). In the current study, a statistically significant association was identified between hearing loss and tinnitus in individuals diagnosed with peripheral vestibular pathology. In contrast, no significant correlations were observed between hearing loss and other auditory symptoms such as hearing fluctuation, otalgia, or aural fullness. Similarly, tinnitus was not significantly associated with these accompanying symptoms. These findings suggest that while hearing loss and tinnitus often co-occur, other auditory complaints may manifest more inconsistently and could reflect different underlying mechanisms or stages of disease progression. Taken together, these findings underscore the clinical importance of evaluating auditory symptoms in the differential diagnosis of vestibular disorders. The presence, combination, and severity of these symptoms can provide valuable clues for distinguishing peripheral from non-peripheral vestibular conditions and for guiding diagnostic and therapeutic decision-making.

Analysis of symptom profiles in individuals with peripheral vestibular pathologies demonstrated a predominance of autonomic and emetic manifestations. Nausea (69.6%), vomiting (50%), and paleness (23.2%) were frequently reported, aligning with the established role of vestibulo-autonomic pathways in mediating motion-induced autonomic responses. The symptom profile of individuals with non-peripheral vestibular pathology follows a different pattern. In this group, symptoms such as nausea (20.7%), vomiting (6.9%), and paleness (13.8%) are less common, while headache (48.3%) and light sensitivity (27.5%) are more prevalent. The findings suggest that the peripheral vestibular system is more closely linked to emetic and autonomic reactions. Nausea and vomiting are more commonly associated with peripheral vestibular pathologies, while non-peripheral vestibular pathologies are more closely related to neurological symptoms such as headache and photophobia.

The findings regarding the episodes align with those reported in the literature (16,24). In our study, episodes in individuals with peripheral vestibular pathology typically lasted seconds to minutes or seconds to hours (83.9%). In contrast, episodes in individuals with non-peripheral vestibular pathology were mostly brief (seconds to minutes), with 20.7% of cases experiencing episodes lasting for months. These data reveal significant differences in episode duration between individuals with peripheral and non-peripheral vestibular pathology, which may aid in the differential diagnosis.

Additionally, when the onset of episodes was examined, it was found that individuals with non-peripheral vestibular pathology seek care at otolaryngology and audiology clinics later than those with peripheral vestibular pathology. This delay may be attributed to the shorter diagnostic period for individuals with peripheral vestibular pathology compared to those with non-peripheral vestibular pathology, who often consult multiple departments, thus prolonging the diagnostic process. Another important finding of this study is that 38.8% of individuals with peripheral vestibular pathology experience imbalance between episodes, compared to 11.8% of individuals with non-peripheral vestibular pathology. These results indicate that imbalance is more commonly reported between episodes in individuals with peripheral vestibular pathology. This finding could be valuable for guiding the rehabilitation processes of patients. When comorbidities were assessed, our study found no significant difference in the prevalence of metabolic, cardiovascular, and psychiatric diseases between individuals with peripheral and non-peripheral vestibular pathologies. Neurological diseases, photophobia, and phonophobia were not observed in any of the individuals with peripheral vestibular pathology, but were present in 13.8% of those with non-peripheral vestibular pathology. In addition, migrainous headaches, visual aura, and moderate to severe vestibular symptoms serve as important indicators for the diagnosis of vestibular migraine (25).

Study Limitations

The limited number of individuals with non-peripheral vestibular pathologies was insufficient to identify generalizable symptoms for these conditions. Moreover, the broad spectrum of diseases within this group further complicates the identification of common symptoms. A larger sample size may enable the determination of pathology-specific symptom rates.

Although summary reports of patients' hearing and vestibular evaluations were available in the form of clinician-generated conclusions, detailed findings were not accessible to a degree that would allow for parameter-based analysis. As a result, it was not possible to assess correlations between patients' subjective symptoms and objective test parameters. In future studies, we recommend including objective audiovestibular test results to enable such analyses. While vestibular history forms cannot replace objective assessments in audiovestibular evaluations, they can serve as a strong foundation for guiding the selection of appropriate diagnostic tests and for supporting potential diagnoses.

CONCLUSION

The most important step in the diagnostic process of patients with vertigo or dizziness, particularly for otolaryngologists and audiologists, is distinguishing between peripheral and non-peripheral vestibular pathologies. In some non-peripheral vestibular pathologies, the information obtained from the patient is crucial for differential diagnosis, particularly when objective tests may yield normal results. For this reason, asking the right questions on the vestibular assessment form is crucial. In our study, individuals with peripheral vestibular pathology commonly experienced vertigo and vestibulo-visual symptoms, while those with non-peripheral vestibular pathologies more frequently reported dizziness and postural symptoms. Additionally, individuals with peripheral vestibular pathology experienced higher rates of auditory symptoms, while relieving factors such as standing still/resting and medical support were more commonly observed. These findings are expected to aid clinicians and

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researchers by enhancing the history forms they use, serving as both a supplement to and a precursor for objective tests.

Ethics

Ethics Committee Approval: The study was conducted in accordance with the principles outlined in the Declaration of Helsinki, and ethical approval was obtained from the Hacettepe University Non-Interventional Clinical Research Ethics Committee (decision no: 2022/10-7, date: 07.06.2022).

Informed Consent: Retrospective study.

Footnotes

Author Contributions: Concept - S.Ö., N.B.A.; Design - S.Ö., N.B.A., Ö.Y.; Data Collection and/or Processing - S.Ö., N.B.A., Ö.Y.; Analysis and/or Interpretation- S.Ö., N.B.A., Ö.Y.; Literature Search - S.Ö., N.B.A., Ö.Y.; Writing - S.Ö., N.B.A., Ö.Y.

Conflict of Interest: There is no potential conflict of interest between the authors and/or their family members and scientific and medical committee membership or relationships with committee members. Additionally, there is no conflict due to consultancy, expert witness status, employment status in any company, shareholding status, or similar status regarding this study.

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Appendix Link: https://l24.im/HdQ