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Original Article

Perception, Knowledge, and Attitude of Medical Doctors in Pakistan About the Role of Physiotherapists in Vestibular Rehabilitation: A Cross-Sectional Survey

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ABSTRACT

Background: Vestibular rehabilitation is an evidence-informed intervention for dizziness, vertigo, imbalance, gait instability, and other vestibular disorders. Physiotherapists can contribute to vestibular care through assessment, rehabilitation, balance retraining, gaze-stabilization exercises, habituation training, patient education, and functional recovery planning; however, doctors' awareness of this role may influence referral behavior and multidisciplinary care. Objective: To evaluate the knowledge, attitudes, and perceptions of medical doctors in Pakistan regarding the role of physiotherapists in vestibular rehabilitation. Methods: A cross-sectional observational survey was conducted among 196 practicing medical doctors in Pakistan using a structured, pre-tested Knowledge, Attitude, and Perception questionnaire adapted from previous literature. Participants were recruited through non-probability convenience sampling. Data were analyzed using IBM SPSS Statistics version 26, and descriptive statistics were reported as mean ± standard deviation for continuous variables and frequencies with percentages for categorical variables. Results: The mean age of participants was 38.44 ± 6.78 years; 53.6% were male and 46.4% were female. Most respondents (76.0%) had seen patients with vestibular disorders. BPPV was the most commonly reported vestibular disorder (49.0%). Only 13.8% selected physical therapists as suitable providers of vestibular rehabilitation, 25.5% believed physiotherapists were trained in vestibular rehabilitation, and 2.0% believed physiotherapists could treat vestibular disorders. Conclusion: Surveyed medical doctors frequently encountered vestibular disorders but showed limited recognition of physiotherapists' therapeutic role in vestibular rehabilitation, indicating a need for interprofessional education, clearer referral pathways, and improved communication between doctors and physiotherapists. Keywords: Vestibular Rehabilitation; Physiotherapy; Medical Doctors; Knowledge; Attitude; Perception; Pakistan.

INTRODUCTION

Vestibular disorders represent a clinically important group of conditions involving dysfunction of the peripheral or central vestibular pathways, resulting in dizziness, vertigo, imbalance, postural instability, motion sensitivity, gaze disturbance, and reduced functional mobility. These symptoms may arise from peripheral causes such as benign paroxysmal positional vertigo, vestibular neuritis, Meniere's disease, labyrinthitis, unilateral or bilateral vestibular hypofunction, or from central causes involving the brainstem, cerebellum, cortex, cerebrovascular disease, traumatic brain injury, multiple sclerosis, or other neurological conditions. Because vestibular dysfunction affects postural control, spatial orientation, gait stability, and confidence in daily movement, untreated or poorly managed vestibular

disorders can substantially impair quality of life, increase fall risk, reduce work productivity, and contribute to psychological distress, particularly anxiety, fear of movement, and social restriction (1).

Vestibular rehabilitation is an evidence-informed therapeutic approach designed to reduce dizziness, improve gaze stability, enhance static and dynamic balance, promote vestibular compensation, and restore functional mobility in individuals with vestibular disorders. It commonly includes gaze-stabilization exercises, habituation training, balance retraining, dynamic gait activities, canalith repositioning procedures where indicated, and individualized functional exercises based on the patient's impairments and clinical presentation. Physiotherapists are well positioned to provide vestibular rehabilitation because their professional training includes assessment and treatment of neuromuscular, sensorimotor, balance, gait, and functional movement impairments. Within multidisciplinary vestibular care, physiotherapists may therefore contribute not only to rehabilitation after diagnosis but also to functional assessment, patient education, fall-risk reduction, and long-term recovery planning (2).

The burden of dizziness and balance disorders is substantial across healthcare systems. Epidemiological evidence suggests that dizziness and balance problems affect a considerable proportion of the general population, with prevalence increasing with age and comorbidity burden (3). Benign paroxysmal positional vertigo, vestibular neuritis, Meniere's disease, vestibular migraine, and other peripheral vestibular disorders are frequently encountered in clinical practice and may result in recurrent healthcare visits, medication use, activity limitation, and delayed recovery when appropriate rehabilitation is not initiated promptly (4). The consequences of vestibular disorders extend beyond physical symptoms, as affected individuals may experience restriction in mobility, reduced independence, fear of falling, emotional distress, and decreased participation in occupational and social activities (5). These clinical and functional consequences make timely recognition, referral, and interdisciplinary management essential components of effective vestibular care.

Despite the recognized role of vestibular rehabilitation, access to physiotherapy-led vestibular services may be influenced by the awareness, knowledge, and referral behavior of medical doctors. Medical doctors are often the first point of contact for patients presenting with vertigo, dizziness, imbalance, nausea, auditory symptoms, or gait instability. Their understanding of physiotherapists' role in vestibular rehabilitation can therefore directly influence whether patients are referred for appropriate conservative management, whether rehabilitation is delayed, and whether multidisciplinary collaboration occurs. If doctors perceive vestibular rehabilitation as outside the scope of physiotherapy, patients who could benefit from physiotherapy-led intervention may remain dependent on pharmacological management, repeated consultations, or specialist referral alone. Conversely, better awareness among doctors may facilitate early referral, coordinated care, and more efficient use of rehabilitation resources (6).

International literature indicates that knowledge gaps regarding vestibular rehabilitation and the role of physiotherapists are not limited to one healthcare system. Prior research has reported limited awareness among doctors regarding physiotherapists' contribution to vestibular rehabilitation, low referral rates to physiotherapy, and uncertainty about professional competence in vestibular care (7). Other studies among rehabilitation professionals have similarly highlighted insufficient formal training, limited clinical exposure, lack of confidence, and service-level barriers that restrict the implementation of vestibular rehabilitation in routine practice (8). These findings suggest that the underuse of vestibular rehabilitation may reflect both interprofessional knowledge gaps and system-level limitations, including inadequate education, weak referral pathways, and limited availability of trained clinicians (9).

In Pakistan, vestibular symptoms are commonly encountered across general practice, otolaryngology, neurology, internal medicine, and other clinical settings, yet the role of physiotherapists in vestibular rehabilitation remains insufficiently documented from the perspective of medical doctors. The available evidence from Pakistan is limited, and most existing discussion has focused either on clinical vestibular disorders or professional awareness in selected specialties rather than on broader medical doctors' knowledge, attitudes, and perceptions regarding physiotherapists' role in vestibular rehabilitation. This

creates a relevant knowledge gap because medical doctors' perceptions may strongly influence referral patterns, interprofessional communication, and patient access to physiotherapy-led vestibular care. Understanding these perceptions is essential for designing continuing medical education, interprofessional training, referral guidelines, and collaborative care models suited to the Pakistani healthcare context (10).

Using a knowledge, attitude, and perception framework, the present study focused on practicing medical doctors in Pakistan and examined their awareness and views regarding physiotherapists' role in vestibular rehabilitation. The population of interest was medical doctors working in clinical practice; the domain of interest was their knowledge, attitude, and perception toward physiotherapists' involvement in vestibular rehabilitation; and the outcome of interest was the pattern of perceived professional suitability, perceived physiotherapist training, perceived ability to assess, diagnose, and treat vestibular disorders, and feedback from patients referred to physiotherapy. Therefore, the objective of this study was to evaluate the knowledge, attitude, and perception of medical doctors in Pakistan regarding the role of physiotherapists in vestibular rehabilitation (11).

MATERIAL AND METHODS

This study was designed as a cross-sectional observational survey to evaluate the knowledge, attitudes, and perceptions of practicing medical doctors in Pakistan regarding the role of physiotherapists in vestibular rehabilitation. A cross-sectional design was selected because the objective was to describe existing professional views, clinical exposure, and perception patterns at a single point in time rather than to test an intervention or establish causality. The study was conducted in Pakistan over a six-month period among doctors working in clinical settings, including government hospitals, private hospitals, and private clinics.

The target population comprised male and female medical doctors aged 28 to 50 years who were actively practicing in Pakistan in any clinical setting and had at least one year of clinical practice experience. Doctors were eligible if they were working in government or private healthcare settings, were involved in clinical practice, and provided informed consent to participate. Doctors who were not currently practicing in a clinical work setting, doctors working only in academic institutions without clinical practice, medical undergraduates, doctors practicing outside Pakistan, and participants who submitted incomplete questionnaire responses were excluded from the final analysis.

Participants were recruited using a non-probability convenience sampling technique. The questionnaire was distributed electronically through Google Forms to practicing doctors who met the eligibility criteria. Before participation, the purpose of the study was explained, voluntary participation was emphasized, and informed consent was obtained from each participant. Only responses from consenting participants who completed the questionnaire and met the eligibility criteria were included in the analysis. Incomplete responses were rejected before data analysis to preserve dataset completeness and reduce reporting error.

Data were collected using a structured Knowledge, Attitude, and Perception questionnaire adapted from previously published work on medical doctors' views regarding physiotherapists' role in vestibular rehabilitation (11). The questionnaire was pre-tested before use and was designed to collect information on sociodemographic characteristics, professional background, vestibular practice exposure, and perceptions regarding physiotherapists' role in vestibular rehabilitation. Sociodemographic and professional variables included age, gender, marital status, city of residence, medical specialty, years of clinical experience, and workplace setting. Vestibular practice variables included whether the doctor had encountered patients with vestibular disorders, the approximate number of vestibular patients seen per month, and the types of vestibular disorders commonly diagnosed in practice. Perception-related variables assessed which professions doctors considered suitable for vestibular rehabilitation, whether they believed physiotherapists were trained in vestibular rehabilitation, whether physiotherapists could

assess and diagnose vestibular disorders, whether physiotherapists could treat vestibular disorders, which vestibular conditions they believed physiotherapists could not manage, and whether they had received patient feedback after referral to physiotherapy.

For operational purposes, knowledge referred to doctors' awareness of physiotherapists' training and role in vestibular rehabilitation; attitude referred to their professional acceptance of physiotherapists as appropriate providers of vestibular rehabilitation; and perception referred to their beliefs regarding physiotherapists' ability to assess, diagnose, treat, and manage specific vestibular conditions. Several questionnaire items allowed multiple responses, including commonly diagnosed vestibular disorders, professions considered best suited for vestibular rehabilitation, and vestibular conditions perceived as not manageable by physiotherapists. Percentages for these variables were therefore interpreted using the total sample as the denominator for each response option and were not expected to total 100%.

To reduce selection and information bias, eligibility criteria were defined before data collection, only practicing doctors were included, and incomplete questionnaires were excluded before analysis. The electronic form was structured to standardize item presentation across participants. Data were reviewed for completeness and consistency before statistical analysis. Because the study was descriptive in nature and used non-probability sampling, findings were interpreted as patterns within the surveyed sample rather than as nationally representative estimates for all medical doctors in Pakistan. Potential confounding by specialty, workplace, and clinical experience was recognized because these factors may influence exposure to vestibular disorders and awareness of physiotherapy-led vestibular rehabilitation.

The sample size was calculated using OpenEpi sample-size software, and a final sample of 196 practicing medical doctors was included in the analysis. Data were entered, cleaned, and analyzed using IBM SPSS Statistics version 26. Continuous variables were summarized using mean and standard deviation when distributional reporting was appropriate, while categorical variables were summarized using frequencies and percentages. Age was reported as mean ± standard deviation and range. Categorical variables, including gender, marital status, residence, specialty, years of experience, workplace, vestibular practice exposure, and perception items, were reported as n (%). Descriptive statistics were used to address the study objective. No causal inference was made because of the cross-sectional design.

Data integrity was maintained by screening responses for eligibility, excluding incomplete submissions, using a consistent denominator for reported percentages, and analyzing only finalized responses. Participant confidentiality was preserved by collecting and reporting data in aggregate form. Written informed consent was obtained from all participants before inclusion in the study.

RESULTS

A total of 196 practicing medical doctors from Pakistan were included in the final analysis. The mean age of participants was 38.44 ± 6.78 years, with an age range of 28 to 50 years. Most participants were male (53.6%), married (70.4%), and practicing in government hospitals (42.9%). The highest city-wise representation was from Lahore (29.6%), followed by Karachi (13.3%) and Islamabad (11.2%). General physicians represented the largest specialty group (21.9%), followed by pediatricians (11.7%), cardiologists (8.7%), family physicians (8.2%), and neurologists (8.2%). Most participants had 4–8 years of clinical experience (37.8%), followed by 1–3 years (27.6%) and 9–15 years (24.5%).

Table 1. Sociodemographic and Professional Characteristics of Medical Doctors (n = 196)

Variable	Category	n (%)
Age, years	Mean ± SD	38.44 ± 6.78
	Range	28–50
Gender	Male	105 (53.6)
	Female	91 (46.4)
Marital status	Married	138 (70.4)
	Single	50 (25.5)

Variable	Category	n (%)
	Divorced	6 (3.1)
	Widow/Widower	2 (1.0)
Residence	Lahore	58 (29.6)
	Karachi	26 (13.3)
	Islamabad	22 (11.2)
	Rawalpindi	18 (9.2)
	Peshawar	16 (8.2)
	Gujranwala	13 (6.6)
	Faisalabad	12 (6.1)
	Sialkot	9 (4.6)
	Multan	8 (4.1)
	Hyderabad	6 (3.1)
	Quetta	5 (2.6)
	Bahawalpur	3 (1.5)
Medical specialty	General physician	43 (21.9)
	Other specialties	26 (13.3)
	Pediatrician	23 (11.7)
	Cardiologist	17 (8.7)
	Family physician	16 (8.2)
	Neurology	16 (8.2)
	ENT specialist	14 (7.1)
	Psychiatrist	11 (5.6)
	General surgeon	9 (4.6)
	Gynecologist	9 (4.6)
	Dentist	6 (3.1)
	Dermatologist	6 (3.1)
Years of clinical experience	1–3 years	54 (27.6)
	4–8 years	74 (37.8)
	9–15 years	48 (24.5)
	>15 years	20 (10.2)
Workplace setting	Government hospital	84 (42.9)
	Private hospital	72 (36.7)
	Clinic	40 (20.4)

SD, standard deviation.

The participant profile indicates that the sample included doctors from multiple cities, specialties, experience levels, and workplace settings. Lahore contributed the largest proportion of respondents at 29.6%, while government hospitals were the most common workplace setting at 42.9%. The sample was not limited to male doctors; females represented 46.4% of respondents. General physicians formed the largest specialty group at 21.9%, which is relevant because general physicians may often serve as first-contact clinicians for patients presenting with dizziness, vertigo, and balance-related symptoms.

Most doctors reported clinical exposure to vestibular disorders, with 149 participants (76.0%) indicating that they had seen patients with vestibular disorders in practice. Among all respondents, 50 doctors (25.5%) reported seeing fewer than 5 vestibular patients per month, 48 (24.5%) reported seeing 5–10 patients per month, 35 (17.9%) reported seeing 11–20 patients per month, and 16 (8.2%) reported seeing more than 20 patients per month. Benign paroxysmal positional vertigo was the most frequently reported vestibular disorder diagnosed in practice, followed by vestibular neuritis and Meniere's disease.

Table 2. Vestibular Practice Exposure Among Medical Doctors (n = 196)

Variable	Category	n (%)
Doctors who saw patients with vestibular disorders	Yes	149 (76.0)
	No	47 (24.0)
Vestibular patients seen per month	<5 patients	50 (25.5)
	5–10 patients	48 (24.5)
	11–20 patients	35 (17.9)
	>20 patients	16 (8.2)
	Not applicable	47 (24.0)
Vestibular disorders commonly diagnosed by doctors*	BPPV	96 (49.0)

Variable	Category	n (%)
	Vestibular neuritis	73 (37.2)
	Meniere's disease	53 (27.0)
	Unilateral/bilateral vestibular hypofunction	52 (26.5)
	Vestibular migraine	50 (25.5)
	Traumatic brain injury	39 (19.9)
	Motion sensitivity	37 (18.9)
	Multiple sclerosis	28 (14.3)
	Cervicogenic dizziness	17 (8.7)
	Vestibular paroxysmia / mal de débarquement syndrome†	11 (5.6)

BPPV, benign paroxysmal positional vertigo.

*Multiple responses were permitted; percentages are based on the total sample and do not sum to 100%.

†The original manuscript label requires clinical terminology verification before final submission.

The clinical exposure pattern shows that vestibular disorders were commonly encountered by the surveyed doctors, as 76.0% had seen such patients in practice. BPPV was the most frequently reported diagnosis at 49.0%, followed by vestibular neuritis at 37.2% and Meniere's disease at 27.0%. These findings suggest that a substantial proportion of participating doctors encounter vestibular presentations in routine practice, making their awareness of vestibular rehabilitation and referral options clinically relevant.

Doctors' perceptions regarding professional suitability for vestibular rehabilitation showed a strong preference for medical doctors and audiologists. A total of 170 respondents (86.7%) considered medical doctors suitable for vestibular rehabilitation, while 152 (77.6%) selected audiologists and 92 (46.9%) selected ENT specialists. In comparison, only 27 doctors (13.8%) selected physical therapists, and 29 (14.8%) selected occupational therapists.

Table 3. Professions Considered Suitable for Vestibular Rehabilitation by Medical Doctors (n = 196)

Profession*	n (%)
Medical doctor	170 (86.7)
Audiologist	152 (77.6)
ENT specialist	92 (46.9)
Occupational therapist	29 (14.8)
Nurse	28 (14.3)
Physical therapist	27 (13.8)

ENT, ear, nose, and throat.

*Multiple responses were permitted; percentages are based on the total sample and do not sum to 100%.

The perception pattern indicates limited recognition of physical therapists as providers of vestibular rehabilitation. Although medical doctors were selected by 86.7% of respondents and audiologists by 77.6%, physical therapists were selected by only 13.8%. This difference is central to the study objective because it demonstrates a substantial interprofessional perception gap regarding the role of physiotherapy in vestibular rehabilitation.

Regarding physiotherapists' training and clinical role, 50 doctors (25.5%) believed that physiotherapists were trained in vestibular rehabilitation, whereas 146 (74.5%) did not. A larger proportion, 156 respondents (79.6%), believed physiotherapists could assess and diagnose vestibular disorders; however, only 4 respondents (2.0%) believed physiotherapists could treat vestibular disorders, while 192 (98.0%) did not.

Table 4. Medical Doctors' Perceptions of Physiotherapists' Role in Vestibular Rehabilitation (n = 196)

Variable	Response	n (%)
Doctors believed physiotherapists are trained in vestibular rehabilitation	Yes	50 (25.5)
	No	146 (74.5)

Variable	Response	n (%)
Doctors believed physiotherapists can assess and diagnose vestibular disorders	Yes	156 (79.6)
	No	40 (20.4)
Doctors believed physiotherapists can treat vestibular disorders	Yes	4 (2.0)
	No	192 (98.0)

The findings demonstrate an important perception mismatch. While 79.6% of respondents believed physiotherapists could assess and diagnose vestibular disorders, only 2.0% believed physiotherapists could treat these conditions. Similarly, 74.5% did not believe that physiotherapists were trained in vestibular rehabilitation. This pattern suggests that doctors may recognize some assessment-related role for physiotherapists but may not accept or understand their therapeutic role in vestibular rehabilitation.

When asked about vestibular conditions they believed physiotherapists could not manage, 137 respondents (69.9%) selected any vestibular disorder, and the same proportion selected BPPV. Perilymphatic fistula was selected by 92 respondents (46.9%), cervicogenic dizziness by 67 (34.2%), traumatic brain injury by 63 (32.1%), and multiple sclerosis by 44 (22.4%). Fewer respondents selected Meniere's disease, vestibular migraine, and vestibular paroxysmia / mal de débarquement syndrome.

Table 5. Vestibular Conditions Doctors Believed Physiotherapists Could Not Manage (n = 196)

Condition*	n (%)
Any vestibular disorder	137 (69.9)
BPPV	137 (69.9)
Perilymphatic fistula	92 (46.9)
Cervicogenic dizziness	67 (34.2)
Traumatic brain injury	63 (32.1)
Multiple sclerosis	44 (22.4)
Motion sensitivity	42 (21.4)
Vestibular neuritis	40 (20.4)
Unilateral/bilateral vestibular hypofunction	29 (14.8)
Meniere's disease	20 (10.2)
Vestibular migraine	17 (8.7)
Vestibular paroxysmia / mal de débarquement syndrome†	4 (2.0)

BPPV, benign paroxysmal positional vertigo.

*Multiple responses were permitted; percentages are based on the total sample and do not sum to 100%.
†The original manuscript label requires clinical terminology verification before final submission.

The most notable finding in this domain was that 69.9% of doctors believed physiotherapists could not manage any vestibular disorder, and 69.9% also believed physiotherapists could not manage BPPV. This is clinically important because BPPV is one of the most frequently encountered vestibular disorders in the sample, reported by 49.0% of respondents as a commonly diagnosed condition. The combined pattern suggests a potential mismatch between the frequency of vestibular presentations seen in practice and doctors' recognition of physiotherapy-led management options.

Patient feedback after referral to physiotherapy was limited. More than half of respondents, 109 doctors (55.6%), reported that they had never received feedback after referring patients to physiotherapy. Among those reporting feedback, 47 (24.0%) described patients as highly satisfied, 34 (17.3%) as moderately satisfied, and 6 (3.1%) as not satisfied.

Table 6. Patient Feedback Reported by Doctors After Referral to Physiotherapy (n = 196)

Patient feedback category	n (%)
Highly satisfied	47 (24.0)
Moderately satisfied	34 (17.3)
Not satisfied	6 (3.1)
Never received feedback	109 (55.6)

The feedback pattern indicates a communication gap between physiotherapy services, patients, and referring doctors. Although 41.3% of respondents reported highly or moderately satisfied patient feedback after referral, 55.6% had never received feedback. This absence of feedback may contribute to

uncertainty among doctors regarding physiotherapists' effectiveness in vestibular rehabilitation and may weaken interprofessional referral confidence.

Figure 1 Physician Exposure, Referral Feedback, and Perceived Physiotherapy Role in Vestibular Rehabilitation

The panelled figure demonstrates a marked mismatch between doctors' clinical exposure to vestibular disorders and their recognition of physiotherapists' therapeutic role in vestibular rehabilitation. Although 76.0% of respondents reported seeing patients with vestibular disorders and 79.6% believed physiotherapists could assess or diagnose vestibular disorders, only 25.5% believed physiotherapists were trained in vestibular rehabilitation, 13.8% selected physical therapists as suitable providers, and only 2.0% believed physiotherapists could treat vestibular disorders. Profession-level responses showed strong preference for medical doctors (86.7%) and audiologists (77.6%), with substantially lower selection of physical therapists (13.8%). Condition-specific responses further showed that 69.9% of doctors believed physiotherapists could not manage any vestibular disorder and the same proportion believed they could not manage BPPV, despite BPPV being the most commonly reported vestibular disorder in the study. More than half of respondents (55.6%) had never received feedback after physiotherapy referral, suggesting that limited referral communication may reinforce uncertainty about physiotherapists' role in vestibular care.

DISCUSSION

The present study evaluated the knowledge, attitudes, and perceptions of practicing medical doctors in Pakistan regarding the role of physiotherapists in vestibular rehabilitation. The findings show that vestibular disorders were commonly encountered in clinical practice, as 76.0% of surveyed doctors reported seeing patients with vestibular disorders. However, recognition of physiotherapists as vestibular rehabilitation providers was limited. Only 13.8% of respondents selected physical therapists as suitable professionals for vestibular rehabilitation, 25.5% believed that physiotherapists were trained in vestibular rehabilitation, and only 2.0% believed that physiotherapists could treat vestibular disorders. These findings indicate a substantial gap between doctors' clinical exposure to vestibular disorders and their awareness of physiotherapists' therapeutic role in vestibular care.

A particularly important finding was the mismatch between doctors' perception of physiotherapists' diagnostic and treatment roles. Although 79.6% of respondents believed that physiotherapists could assess and diagnose vestibular disorders, 98.0% believed that physiotherapists could not treat these conditions. This suggests that doctors may acknowledge some assessment-related contribution of

physiotherapists while remaining uncertain or unconvinced about their ability to provide vestibular rehabilitation interventions. This distinction is clinically relevant because vestibular rehabilitation is not limited to diagnosis; it involves targeted therapeutic strategies such as gaze-stabilization exercises, habituation training, balance retraining, dynamic gait training, canalith repositioning where indicated, patient education, and functional mobility restoration. If doctors do not recognize this treatment role, patients with dizziness, vertigo, imbalance, and vestibular hypofunction may experience delayed referral, fragmented care, or underuse of rehabilitation services.

The low recognition of physiotherapists' role is especially important because most respondents reported direct clinical exposure to vestibular presentations. BPPV was the most commonly reported vestibular disorder, identified by 49.0% of respondents, followed by vestibular neuritis and Meniere's disease. Despite this, 69.9% of doctors believed that physiotherapists could not manage BPPV, and the same proportion believed that physiotherapists could not manage any vestibular disorder. This perception is inconsistent with the established role of vestibular rehabilitation in many vestibular conditions and may reflect limited undergraduate or postgraduate exposure to physiotherapy-led vestibular management. It may also reflect weak interprofessional communication, limited visibility of vestibular physiotherapy services, or uncertainty regarding professional scope of practice in the Pakistani healthcare context.

The present findings are consistent with the study by Alyahya and Kashoo, who reported limited awareness among medical doctors in Saudi Arabia regarding physiotherapists' role in vestibular rehabilitation and low referral orientation toward physiotherapy services (12). Similar to the present study, their findings suggested that physicians may frequently encounter vestibular patients but may not fully recognize physiotherapists as rehabilitation providers in this specialty area. This similarity across settings indicates that the issue may not be limited to Pakistan but may reflect a broader regional gap in interprofessional awareness and referral pathways for vestibular rehabilitation.

The findings also align with evidence from studies examining physiotherapists' own preparedness for vestibular rehabilitation. ALShammari et al. reported that although vestibular rehabilitation was viewed as important by physical therapists in Saudi Arabia, knowledge and clinical application were limited, suggesting gaps in formal education, clinical exposure, and confidence (13). Ferri et al. similarly reported that rehabilitation professionals in Italy identified lack of training, insufficient knowledge, and limited clinical experience as key barriers to vestibular rehabilitation practice (14). These studies support the interpretation that limited awareness among doctors may coexist with limited availability or visibility of trained physiotherapists, creating a reciprocal barrier: doctors may not refer because they are unaware of physiotherapists' role, while physiotherapists may have fewer opportunities to demonstrate competence because referral pathways remain underdeveloped.

The present study also supports barriers reported by Meldrum et al., who identified lack of awareness, limited local service provision, and insufficient numbers of trained professionals as obstacles to vestibular rehabilitation delivery in Europe (15). Although that study focused on vestibular rehabilitation practice from a different professional and geographic perspective, the barriers are relevant to the present findings. In Pakistan, limited feedback after physiotherapy referral may further reinforce uncertainty among doctors. In the present study, 55.6% of respondents reported that they had never received patient feedback after referral to physiotherapy. This lack of feedback may reduce doctors' confidence in physiotherapy services and may weaken interdisciplinary collaboration. Conversely, systematic referral feedback, discharge summaries, shared clinical notes, and structured communication between doctors and physiotherapists may improve trust, clarify professional roles, and strengthen referral behavior.

The findings are also comparable with Sung's study among Korean physical therapists, which reported limited vestibular rehabilitation education despite recognition of its importance and a desire for further training (16). Taken together, these studies suggest that vestibular rehabilitation remains an evolving area of clinical practice in many settings and requires stronger integration into professional education.

For doctors, education should emphasize which vestibular conditions are appropriate for physiotherapy referral, expected rehabilitation outcomes, red-flag symptoms requiring specialist evaluation, and the complementary role of physiotherapists within multidisciplinary vestibular care. For physiotherapists, additional training should focus on vestibular assessment, clinical reasoning, evidence-based intervention, outcome measurement, and communication with referring physicians.

The present results differ from findings reported by Ilyas et al., who found more favorable knowledge, attitudes, and perceptions among ENT specialists in Pakistan regarding physiotherapy in vestibular rehabilitation (17). This contrast may be explained by differences in the study populations. ENT specialists are more likely to encounter vestibular disorders routinely and may have greater familiarity with vestibular rehabilitation pathways than a broader sample of medical doctors from multiple specialties. The present study included general physicians, pediatricians, cardiologists, family physicians, neurologists, ENT specialists, psychiatrists, surgeons, gynecologists, dentists, dermatologists, and other specialists, which may explain the lower overall recognition of physiotherapists' role. These differences suggest that specialty-specific exposure to vestibular patients may influence awareness and referral attitudes.

The findings have practical implications for clinical education, referral systems, and interdisciplinary care. Continuing medical education programs should include focused content on vestibular rehabilitation, physiotherapy scope of practice, and referral indications for common vestibular disorders such as BPPV, vestibular neuritis, vestibular hypofunction, vestibular migraine, motion sensitivity, cervicogenic dizziness, and post-traumatic vestibular impairment. Interprofessional workshops involving medical doctors, ENT specialists, neurologists, audiologists, and physiotherapists may improve mutual understanding of professional roles and promote earlier referral. At the service level, standardized referral forms, feedback templates, multidisciplinary vestibular clinics, and shared outcome documentation may help reduce uncertainty and improve care coordination. These interventions may be especially useful in settings where physiotherapy-led vestibular rehabilitation is available but underutilized because of limited awareness among referring doctors.

Several limitations should be considered when interpreting the findings. The study used a cross-sectional design, so it can describe perceptions but cannot determine causality or changes in referral behavior over time. The use of non-probability convenience sampling may introduce selection bias, and the findings should not be interpreted as nationally representative of all medical doctors in Pakistan. Data were self-reported and may be influenced by recall bias, social desirability bias, or differences in respondents' understanding of vestibular rehabilitation. The study reported descriptive statistics only, and subgroup differences by specialty, workplace setting, years of experience, or frequency of vestibular patient exposure were not examined. The questionnaire was adapted from previous work, but further reporting of local validation, reliability, scoring structure, and domain interpretation would strengthen methodological transparency. In addition, some items allowed multiple responses, and future studies should clearly distinguish single-response and multiple-response questions during questionnaire design and reporting.

Future research should use larger, multicenter, probability-based or stratified samples to provide more representative estimates of doctors' awareness and referral attitudes. Studies should also examine predictors of positive perception toward physiotherapists' role in vestibular rehabilitation, including medical specialty, years of experience, workplace type, prior referral experience, exposure to vestibular patients, and previous interprofessional training. Qualitative research may further clarify why doctors accept physiotherapists' assessment role but not their treatment role. Interventional studies evaluating educational workshops or referral-feedback systems could determine whether targeted professional education improves doctors' knowledge, referral behavior, and collaboration with physiotherapists in vestibular care.

CONCLUSION

This study found that most surveyed medical doctors in Pakistan had encountered patients with vestibular disorders, but recognition of physiotherapists' role in vestibular rehabilitation was limited. Although many respondents believed that physiotherapists could assess and diagnose vestibular disorders, very few believed that physiotherapists could treat these conditions or considered physical therapists suitable providers of vestibular rehabilitation. The findings suggest a substantial interprofessional awareness gap that may contribute to under-referral, delayed rehabilitation, and limited multidisciplinary care for patients with vestibular disorders. Targeted medical education, clearer referral pathways, stronger physiotherapy visibility, and improved feedback communication between doctors and physiotherapists are needed to strengthen collaborative vestibular rehabilitation services in Pakistan.

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