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Fall Prevention Knowledge and Practice Patterns in Home Health Physical Therapists

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ABSTRACT

Physical therapists play a vital role in fall risk assessment and prevention due to their focus on modifiable physical risk factors. **Objectives:** To assess home health physical therapists' knowledge of evidence-based fall prevention guidelines and fall risk assessment tools. **Methods:** A cross-sectional study was conducted using both online and handwritten questionnaires. Data were collected from therapists working with elderly patients in home-based care using purposive sampling. The sample size was determined based on an estimated 25% prevalence of key practice patterns from prior studies, which would provide $\pm 7\%$ precision at a 95% confidence level for our primary outcomes. Informed consent was obtained before data collection. Data were analyzed using SPSS version 23.0. **Results:** A total of 151 physiotherapists participated. Among them, 30.5% reported that most of their patients were aged 50 or above. Regarding screening, 80.8% agreed that all clients aged 50+ should be assessed for fall risk. However, only 31.8% conducted regular fall risk assessments, while 21.2% did not assess at all. Tools commonly used included the Berg Balance Test (39.1%) and the Timed Up and Go Test (TUG)(13.9%). Most therapists(75.5%) followed standard assessment flow charts, though 24.5% did not. Preventive measures were used by 90.7% of low-risk and 64.2% of high-risk patients. **Conclusions:** While awareness of fall risk screening is high among physiotherapists, assessment practices vary widely. Many do not use standardized protocols or assess consistently. There is a need for targeted training and standardized guidelines to improve fall prevention in older adults.

INTRODUCTION

For older persons, falls are a prevalent concern that frequently leads to injuries, a decreased quality of life and a fear of falling. Risk factors can be changed to reduce the chance of falls. Physical therapists are essential to risk factor evaluation and intervention since physical function is included in several of the modifiable risk variables [1]. When developing preventative actions, identifying risk factors is crucial. Instead, during the past 20 years, the issue of falls among the elderly has drawn more attention recently. Numerous studies have shown the frequency, the effects, the complex etiology, and the potential for risk factor management through a multidisciplinary approach [2]. Accordingly, 30% of those 65 and older are thought to

fall at least once a year. The United Nations Population Fund estimates that 20% of elderly people pass away within a year following a hip fracture [3]. Falls are common and can have detrimental effects on one's physical and mental health. Injuries occur in between 30% and 50% of in-facility falls. Even a fall without any injuries might result in decreased physical activity, worry, discomfort, despair, and a fear of falling [4]. One area of physical therapy that is expanding quickly is home health care [5]. Reducing falls among elderly persons requires effective fall prevention techniques. There is a dearth of information on physiotherapists' experiences preventing falls in developing nations, despite the fact that rehabilitation



specialists like an essential part of the fall prevention team is the physiotherapist [6]. In order to determine who is susceptible to falling, assist in preventing current or recurring falls, and minimize injuries caused by falls, home healthcare (HHC) providers must conduct fall preventative assessments on older persons [7]. Falls are a major financial burden on the healthcare system and are frequently linked to osteoarthritis in the knee. Thus, it is important to look at the attitudes and behaviors of physical therapists with regard to prevent and screen for falls among osteoarthritis patients. Patients with knee osteoarthritis are more likely to fall than those without the condition, according to many research [8]. Physical therapy (PT) is crucial, especially for individuals who have mobility issues or are at risk of falling [9]. There is a 50% chance of repeated falls [10]. With the ultimate objective of delivering high-quality patient care, it is necessary to continue identifying and implementing proactive, collaborative service delivery models as the population ages and more clients with complicated, long-term health care requirements stay at home [11]. If more falls can be averted, then improving practice in this area might have significant advantages for patients and the health system [12]. The majority of the therapists (>75%) polled did not have the chance to look into modifiable risk factors linked to falls, even though they reported having sufficient expertise [13]. Most elderly patients who survive hip fractures nonetheless have mobility issues. However, understanding the effectiveness of existing care approaches is necessary for any endeavor to systematically minimize mobility limitations following hip fractures [14]. Therefore, physiotherapeutic exercise regimens are a great way to lower the risk of falls in older people while also improving their quality of life [15]. For clients 65 and older, physiotherapists' fall risk knowledge and behaviors should be improved by treatments that follow a standard assessment-treatment flow chart [16]. In addition to assistance devices like walkers and canes, elderly persons who are at a high risk of falling may benefit from home hazard evaluation and modification [17]. Given the large number of elderly people who are at risk for falls and the potential for cognitive impairment to go unnoticed, physical therapists should test for cognitive impairments as part of falls risk assessments [18]. Increased self-efficacy, perception of fall prevention intervention, fall prevention knowledge, and in certain cases, a reduction in the frequency of falls are some advantages of fall prevention education [19]. The degree and efficacy of physical therapists' efforts to promote health among their elderly patients remain unknown [20]. For older persons who are at risk of falling, customized fall prevention strategies and fall risk assessments can help reduce the

frequency of falls. According to the findings of systematic reviews, treatments including strength and balance training, home environment changes, and medication reviews lower the number of fallers and falls while still being reasonably priced [21]. The World Health Organization (WHO) reports that 37.3 million falls require medical attention each year, and 684,000 people worldwide lose their lives as a result of falls. Patients' worry and fear of falling are examples of psychological impacts that might impair their ability to live independently and increase their reliance on family members [22].

METHODS

This cross-sectional study assessed fall prevention knowledge and practices among 151 home health physical therapists for six months (January 2024 to Jun 2024). Data were collected from therapists working with elderly patients in home-based care using purposive sampling. The sample size was determined based on an estimated 25% prevalence of key practice patterns from prior studies, which would provide $\pm 7\%$ precision at a 95% confidence level for our primary outcomes. While no formal power analysis was conducted for subgroup comparisons, this sample size aligns with similar published studies in rehabilitation research and provides adequate power to detect clinically meaningful differences in practice patterns sample size of 151 home health physiotherapists was based on the feasibility and the relevancy of previous studies with similar aspects in fall prevention practices. Inclusion criteria included graduate-level physiotherapists actively practicing in home health with older adults; those not working in this setting were excluded. Informed consent was secured, and confidentiality was ensured through secure data storage. Participants faced no risks and could withdraw at any time without consequences. This study used self-reported surveys where all participants answered identical questions. As no group comparisons or subjective assessments were made, blinding of researchers did not apply to this design. In this study, data were collected using online and handwritten questionnaires. The questionnaire was based on the published studies of research opportunities, knowledge, and practice regarding fall prevention in a healthcare professional workforce [23]. Expected content validity by means of professional assessment involving three senior physiotherapists who dealt with geriatrics and fall prevention was obtained. The first section covered demographics and professional details, while the second assessed physiotherapists' knowledge and practices regarding fall risk and prevention. Questions were based on prior research on fall prevention among healthcare professionals. Informed written consent was obtained at the beginning of the questionnaire [24]. Data were

analyzed using SPSS version 23.0.

RESULTS

The results show that the group mainly included women as the participants (55.6) of baccalaureate degree (68.9) and 1-5 years of work experience (60.9). Most of them worked in university hospitals (45.7%) and thus were young professionals, with a majority of them having an academic interest in their jobs (Table 1).

Table 1: Exercises and their Intended Improvement

Variables	Frequency (%)
Gender	
Male	67 (44.4%)
Female	84 (55.6%)
Total	151 (100%)
Education	
Bachelor	104 (68.9%)
Master	32 (21.9%)
PhD	15 (9.9%)
Working Experience	
1-5 Years	92 (60.9%)
6-10 Years	13 (8.6%)
11-15 Years	6 (4.0%)
16-20 Years	5 (3.3%)
More Than 20 Years	35 (23.2%)
Type of Institution	
Public Hospital	21 (13.9%)
University Hospital	69 (45.7%)
Private Clinic	15 (9.9%)

The majority of participants perceived a high risk of falls, with 73.2% indicating that at least half of patients are affected. Most agreed that age over 50 increases fall risk (80.8%), and over half (52.3%) reported that falls occur sometimes, reflecting moderate awareness and experience with fall incidents (Table 2).

Table 2: Participants' Perceptions and Experiences Related to Fall Risk (n=151)

Variables	Frequency (%)
All	46 (30.5%)
More Than Half	34 (22.5%)
Half	28 (18.5%)
Less Than Half	32 (21.2%)
Very Little	11 (7.3%)
Risk of Falling Age >50	
Absolutely Agree	54 (35.8%)
Agree	68 (45.0%)
Uncertain	27 (17.9%)
Don't Agree	2 (1.3%)
Frequency of Getting Fall	
History	30 (19.9%)
Never	24 (15.9%)
Sometimes	79 (52.3%)

All the time	18 (11.9%)
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The balance assessment procedure was the most popular method of determination of the fall risk (35.1%), and 23.8 percent of these assessments included the gait observation and coordination observation during the training. The less utilized strategies were musculoskeletal assessment, assistive device inspection, and mental or proprioceptive analysis, which showed no homogeneous strategy, but approaches mostly on physical functions (Table 3).

Table 3: Methods Used by Participants to Assess Fall Risk (n=151)

Methods	Frequency (%)
Balance Assessment	53 (35.1%)
Observation During Gait and Balance-Coordination Training/Exercises	36 (23.8%)
Musculoskeletal Evaluation	22 (14.6%)
Assistive Device Evaluation	11 (7.3%)
Mental Assessment	9 (6.0%)
Observation	7 (4.6%)
Evaluation of Activities of Daily Living	6 (4.0%)
Proprioceptive Assessment	7 (4.6%)
Total	151 (100%)

The most popular form of assessment of fall risk was the Berg Balance Test (39.1%), followed by the Timed Get Up and Go Test (13.9%), risk factor inquiry, and analysis of gait (13.2%). Alternative tests such as Romberg test, short physical performance battery and other functional tests were also less popular, suggesting a wide variety but poor consistency of assessment types (Table 4).

Table 4: Tools and Tests Used for Fall Risk Assessment by Participants

Tools and Tests	Frequency (%)
Ittaki Fall Risk Scale	13 (8.6%)
Berg Balance Test	59 (39.1%)
Timed Get Up and Go Test	21 (13.9%)
Risk Factor Inquiry	20 (13.2%)
Romberg Test	5 (3.3%)
Gait Analysis	20 (13.2%)
Short Physical Performance Battery	6 (4.0%)
Functional Reach Test	3 (2.0%)
Sit To Stand Test	3 (2.0%)
Stand on One Leg	1 (0.7%)
Total	151 (100.0%)

DISCUSSION

Falls are a common issue among the elderly, leading to injuries, fear, and reduced quality of life. The WHO defines a fall as "an event which results in a person coming to rest accidentally on the ground, floor, or other lower level." This cross-sectional study aimed to assess home health physiotherapists' knowledge of evidence-based fall prevention and risk assessment. Even though the

compliance rate is 90.7% with regards to implementing preventive measures on low-risk patients, there is a dire discrepancy since the population with patients at high-risk has a compliance rate of 64%. High-risk clients are in particular need of fall prevention services, and this partial compliance indicates that better training and awareness and the importance to utilize clinical protocols regularly are necessary. A total of 151 physiotherapists participated via online and handwritten questionnaires. Of these, 55.6% were female and 44.4% male; 68.9% held bachelor's degrees, 21.2% master's, and 9.9% PhDs. Most (60.9%) had 1–5 years of experience. Participants worked in universities (45.7%), public hospitals (13.9%), private clinics (9.9%), and other healthcare settings, including wellness centers and specialized fields like orthopedics, geriatrics, and neurology. A previous study reported that 63.9% of the physiotherapists had half of their clients are of older age. While current study reported that 18.5% physiotherapists treated half of their patients who were elderly. 22.5% of physiotherapists treated more than half of their patients were elderly, 21.2% had less than half, and 7.3% had very few, 30.5% of physiotherapists said that the majority of their patients were 50 years of age or older [19]. A 2021 study found that 91.7% of physiotherapists believed all elderly clients should be assessed for fall risk. Recent research showed 45% agreed and 35.8% strongly agreed that clients over 50 should be assessed, while 1.3% disagreed and 17.9% were unsure. In the earlier study, 8.3% always had patient fall history, 11.1% almost always, 37.5% often, 38.9% sometimes, and 4.2% rarely. In the recent study, 11.9% always had fall history, 52.3% sometimes, 19.9% had it, and 15.9% had no fall history [20]. A 2019 study found that 64% of Nigerian physiotherapists practiced fall prevention effectively, and 89% had strong knowledge of it. In the current study, 10.6% failed to identify fall risk factors, 36.4% sometimes did, 28.5% often, 15.2% almost always, and only 9.3% identified them all the time [23]. The most frequent reason for emergency hospital admissions for elderly patients is fall-related injuries, and elderly patients account for around 40% of ambulance attendance. Serious injuries from falls include hip fractures. According to a substantial growth in hip fractures in the UK over the past 20 years, hip fractures that result from falls may cause up to 140,000 hospital admissions annually by 2036 if rates keep rising. Several decades of study have identified fall risk factors since the early 1980s. These risk factors are typically separated into three categories: Intrinsic risk factors (i.e., those related to the person's health, like arthritis, vision), extrinsic risk factors (those related to a person's environmental characteristics, like home hazards), and behavioral risk factors (individual cognition, insight, attitudes, and distraction, like decision-making,

habits, using ladders, and impulsivity) [25]. Peel C's study found most home health physiotherapists assess fall risk in seniors, but fewer than half refer patients to other professionals. In the current study, 31.8% frequently assessed fall risk, 27.8% did so only when necessary, 21.2% did not assess at all, and 19.2% delegated the task to others [1]. A 2023 Swiss study showed 62% of physiotherapists used standardized fall risk tools, while 25% relied on subjective assessments. Assessment varied by education level and job context. Common tools included the Tinetti (47%), TUG (57%), and Berg Balance Scale (58%). In the current study, physiotherapists used various methods: balance tests (35.1%), gait observation (23.8%), musculoskeletal evaluation (14.6%), and mental screening (6%). Specific tools included Berg Balance Test (31.1%), TUG (13.9%), Gait Analysis and Risk Inquiry (13.2% each), Ittaki Scale (8.6%), and others like Romberg (3.3%), SPPB (4%), and Sit-to-Stand (2%) [26].

CONCLUSIONS

The survey identifies the fact that the majority of physiotherapists recognize the significance of screening older adults to evaluate the risk of falls, but only one-third of them assessed fall risk with regular frequency. It means that a considerable number of them do not always consider risk of falls in their practice. Despite the use of commonly known techniques, such as the Berg Balance Scale and clinical observation, the adherence to the screenings that are performed according to the standard procedure is very weak. To improve fall prevention, clear guidelines have to be devised and introduced, as well as specific training programs.

Authors Contribution

Conceptualization: RA

Methodology: SS¹, SL, ST

Formal analysis: RA

Writing review and editing: SS², TA, RMAY

All authors have read and agreed to the published version of the manuscript

Conflicts of Interest

All the authors declare no conflict of interest.

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