

PRACTICES OF PHYSIOTHERAPISTS ON THE RISK OF FALLS AND PREVENTION IN CLIENTS AGED 65 AND OLDER: ONLINE SURVEY RESULTS

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ABSTRACT

Purpose: Physiotherapists frequently interact with elderly clients. We aimed to determine the physiotherapists' practices for fall risk and prevention in clients at 65 years and older.

Material and Methods: Seventy-two physiotherapists responded to online survey including questions about demographic and professional characteristics, the awareness and practices of physiotherapists on falling and preventing falls.

Results: Ninety-one point seven percent of physiotherapists reported that fall risk should be determined in all clients at 65 years and older. Thirty point six percent of them stated that they evaluated the risk of falling in case of necessity, 83.3% stated that they did not use a standard assessment-treatment flow chart for risk of falling. In elderly clients with low or no risk of falling, 8.1% of physiotherapists; In elderly clients with high risk of falling 83.3% of physiotherapist applied a preventive physiotherapy approach to prevent falls. The rate of physiotherapists who provide education and advice on fall prevention to elderly clients with low or no fall risk is 67.9%, while 73.5% prefer assistive device reclamation in elderly clients with a high risk of falling.

Conclusion: Interventions should be planned to improve fall risk awareness and practices among physiotherapists by following a standard assessment-treatment flow chart for their clients 65 years and older.

Keywords: falls, health services, preventive, physical therapists

INTRODUCTION

With the advancing age, deterioration of neuromusculoskeletal system and added health problems, balance and mobility difficulties begin to occur, and falls increase. The addition of possible complaints such as inner ear problems, cognitive problems, sedentary lifestyle, some chronic unbalanced

diseases, multiple drug use, drug side effects, dizziness and sudden blood pressure changes increase the risk of falling [1]. Fall-related injuries are one of the main reasons for hospitalization of the elderly [2]. One third of individuals over the age of 65 years old fall at least once a year, and this rate reaches 50% for individuals over the age of 80 years

old [3]. In studies conducted in our country on falls in the elderly, the prevalence of falls varies between 36.2% and 47.7% [4-6].

Falling can result in adverse health problems, from a simple cut to injuries that may require hospitalization, dependency, deterioration in general physical and mental health, or death [7,8]. Fall prevention is a more cost-effective approach than post-fall health care. Consequently, it is necessary to determine the balance and mobility problems and the risk of falling in the elderly individuals, and to take precautions against risk factors [9,10].

According to the evidence, the risk of falling can be reduced by 30-40% with various interventions such as educating the elderly about fall prevention strategies, medication management, addressing foot problems and enhancement of functional mobility, strength and balance [11,12]. Therefore, it is an effective approach to evaluate the elderly clients who come to the clinic for any reason (diagnosis, treatment, follow-up, rehabilitation-physiotherapy etc.), in terms of falling. The relevant health professional (doctor, nurse, physiotherapist) should be aware of the fall risk factors and should direct the individual to other health professionals when necessary [8,12]. Fall risk assessment tools are categorised as algorithm, the functional mobility assessments and the multifactorial assessment tools in a recent systematic review. The algorithm is often starts with fall history and contains one or more mobility assessments and fall risk identification questions to understand fall risk severity. The Functional mobility assessments comprises several mobility assessments which may refer to balance, strength and gait assessments (Timed Up and Go Test, Berg Balance Test etc) traditionally administered by physiotherapists. The multifactorial assessment tools contain questions related to intrinsic and/or extrinsic fall risk factors [13].

Individual approach and exercise program is the most effective method in terms of preventing the risk of falling. Evidence from randomized controlled trials suggests that falls can be reduced through exercise. When the fall risk assessment of the elderly client directed to the physiotherapist is completed, the physiotherapist can prepare a program specific to the individual [14-17]. Physiotherapists, who have an important role in preventive public health, encounter clients over the age of 65 years old spend more frequently and longer time compared to other healthcare professionals, due to the nature of their

profession. Accordingly, physiotherapists may have opportunities to evaluate the fall risk of the elderly clients, to raise awareness and, when necessary, to engage in practices aimed at improving the physical fitness parameters such as muscle strength, balance and coordination, related to the risk of falling.

In the literature, studies to determine the practices for the risk of falling have been carried out mostly in caregivers of the elderly [18], in nurses [19], in teams consisting of physiotherapists working in institutions such as nursing homes [20,21], in home care [22] or among physiotherapists caring for patients of all ages [23]. In our country, most undergraduate curricula include geriatric physiotherapy courses. In addition, the importance of preventing falls in the elderly within the scope of preventive services is a generally accepted fact. In our country, the approaches and practices of actively working physiotherapists to prevent the risk of falling in clients aged 65 and over are unknown. We think that physiotherapists evaluate the history and risks of falling in clients aged 65 and over and take relevant approaches when necessary. Therefore, this study was planned to determine the practices of physiotherapists for fall risk evaluation and fall prevention in clients aged 65 and above.

MATERIAL AND METHODS

Graduated physiotherapists who actively work as physiotherapists in Turkey were included in the cross-sectional descriptive study. Physiotherapists were reached through social media platforms and the e-mail group of the Turkish Physiotherapy Association, and the study was carried out through an online questionnaire prepared in electronic environment. The survey was open for access for 3 months (February-April 2022). In the statement at the beginning of the questionnaire, physiotherapists who work in fields such as pediatric rehabilitation, sports physiotherapy or physiotherapy with animals and do not have clients aged 65 and above were asked not to answer the questionnaire. The data of all physiotherapists who answered the survey questions were included in the study.

In the first part of the questionnaire, there were questions about demographic (age, gender, education level) and professional characteristics (working area, year and place, etc.). In the second part of the form, the awareness and practices of physiotherapists regarding the risk of falling and preventing falls were evaluated. Physiotherapists encounter with clients 65 years of age were also

Table 1. Characteristics of physiotherapists (n=72)

Variables		n (%)
Education level	Bachelor	34 (47.2)
	Master's degree (n=24)/Philosophy of Doctorate (n=14)	38 (52.8)
Working time (years)	0-9	32 (44.4)
	10-19	14 (19.4)
	20-29	20 (27.8)
	30 and over	6 (8.3)
Type of institution	Public Hospital	19 (26.4)
	University Hospital	14 (19.5)
	Private clinic	11(15.3)
	Nursing home	11(15.3)
	Private physiotherapy and rehabilitation center	8 (11.1)
	Private hospital	8 (11.1)
	Wellness center	1 (1.4)
Work area (multiple marking possible)	Orthopedics	37 (51.4)
	Geriatrics	35 (48.6)
	Neurology	27 (37.5)
	Pediatrics	16 (22.2)
	Cardiopulmonary	13 (18.1)
	Athlete health	13 (18.1)
	Prosthesis-orthotics	6 (8.3)
	Musculoskeletal	3 (4.2)
	General	3 (4.2)
	Rheumatology	2 (2.8)
	Manual therapy	1 (1.4)
	Intensive care	1 (1.4)
	Women's health	1 (1.4)
Physiotherapist clients aged 65 and above	All	10 (13.9)
	Almost all	5 (6.8)
	More than half	12 (16.7)
	Half	19 (26.4)
	Less than half	13 (18.1)
	Very little	13 (18.1)

asked how much they agree with the statement "fall risk should be determined in all clients over the age of 65 years old", the frequency of taking a fall history and assessing fall risk factor, and whether they evaluate the risk of falling or not. In addition, physiotherapists were asked about the fall risk assessment methods (scale, device, questionnaire, test, etc.), their level of knowledge on interpreting the results of these methods, their use of a standard fall risk assessment-treatment flow chart, and their approach to elderly clients with different degrees of fall risk. Barriers to physiotherapists' practice that prevent falls and what types of fall prevention practices physiotherapists find practical were asked. The questionnaire included questions, which was created by utilizing the studies [18,22,23] conducted to understand the practices of physiotherapists and other healthcare professionals regarding the risk of

falling and preventing falls. The informed consent form was included at the beginning of the questionnaire.

Statistical Analysis

Descriptive statistics were used to analyze demographic information and answers to survey questions. Results are presented as mean, + standard deviation (+SD), and percentage values. All statistical analyzes were performed using SPSS for Windows v22.0 software (SPSS Inc. Chicago, IL, USA).

Ethical Approval

Ethical approval of the study was obtained from Dokuz Eylül University Non-Interventional Research Ethics Committee (Decision No: 2021/28-07, Date: 13.10.2021)

Table 2. Opinions of physiotherapists on determining fall risk in clients aged 65 and above (n=72)

Variable	n (%)	
The risk of falling should be determined in all clients aged 65 and above.	Absolutely agree	47 (65.3)
	Agree	19 (26.4)
	Uncertain	4 (5.6)
	Don't agree	2 (2.8)
	Strongly disagree	0 (0.0)

RESULTS

Seventy-two physiotherapists answered the online questionnaire. The mean age of 47 (65.3%) female and 25 (34.7%) male physiotherapists was 37.3±8.9 years. Professional information of the participants is presented in Table 1. Forty-seven-point two percent (n=34) of the physiotherapists had bachelor's degree and 52.8% (n=38) postgraduate education. The average duration of active working in the profession was 14.51±9.2 years. Physiotherapists working in public hospitals constituted the majority (n=19; 26.4%). Physiotherapists were allowed to mark more than one work area. Fifty-one-point four percent (n=37) of the physiotherapists were working in orthopedics and 48.6% (n=35) were working in geriatrics. Sixty-three-point nine percent (n=46) of the physiotherapists had clients, at least half of whom were 65 years or older (Table 1).

When were physiotherapists asked that "Do you have the knowledge to interpret the results of fall risk assessment methods?"; 63.9% (n=46) of them answered as "I have knowledge"; 36.1% (n=26) of them answered as "I do not know much". The rate of physiotherapists who agreed with the statement "fall risk should be determined in all clients over 65 years of age" was determined as 91.7% (Table 2).

The attitudes of physiotherapists regarding the assessment of falls in clients aged 65 and above are presented in Table 3. Four-point two percent (n=3) of the physiotherapists reported that they almost never question fall history and do not evaluate any fall risk factors. While 52.8% (n=38) of physiotherapists do not assess fall risk, 83.3% (n=60) do not have a standard assessment-treatment flow chart to determine fall risk.

The assessment methods that physiotherapists use and know for fall risk assessment are presented in table 4 in two parts, namely those specified in general statements and specific methods. Forty-one-point seven percent (n=30) and 86.1% (n=62) of

physiotherapists, answered the questions "Which method/methods do you use to assess the risk of falling?" and "Can you write what you know about the methods used to assess the risk of falling?" with at least 1 method, respectively.

According to the survey results, 68.1% (n=49) and 83.3% (n=60) of the physiotherapists apply preventive physiotherapy approaches to prevent falls for elderly clients with low or no fall risk and high risk of falling, respectively. While 67.9% (n=38) of physiotherapists provide training and advice on fall prevention for elderly clients with low or no fall risk; 73.5% (n=50) of them evaluate assistive devices for elderly clients with a high risk of falling (Table 5).

The rate of physiotherapists who reported that there was no obstacle in fall prevention practices was 29.2% (n=21). On the other hand, 45.8% (n=33) of the physiotherapists reported insufficient time, and 33.3% (n=24) reported difficulty in changing the clients' behavior as a barrier. In the provision of fall prevention services by physiotherapists, the recommendation of "integrating brief consultations into routine consultations" was in the first place with a rate of 59.7% (n=43). In the second and third place, "separate one-to-one consultations" with 50% (n=36) and "group sessions" with 40.3% (n=29) were ranked (Table 6).

DISCUSSION

In our cross-sectional study conducted through an online questionnaire, we aimed to determine the practices of physiotherapists to determine the risk of falling and prevent falls when they encounter clients aged 65 and above. More than half of the physiotherapists, were working with clients those at least half of them were aged 65 and above. Physiotherapists varied widely in terms of field, institution and year of work.

In a study evaluating the knowledge, behaviors and practices of employees in institutions providing elderly care services, 38% of the participants stated that they felt "very knowledgeable" about the fall prevention practices recommended in the guidelines; and 58% stated that they perceived themselves as "somewhat knowledgeable" [19]. In another study conducted only with physiotherapists in Nigeria, when practices for fall risk factors and fall prevention were examined, 89% of physiotherapists evaluated the level of their knowledge and 64% of them evaluated the level of their practice levels as high on preventing falls in elderly [23]. In our study, more than half of the

Table 3. Attitudes of physiotherapists regarding the evaluation of falls in clients aged 65 and above (n=72)

Variables		n (%)
Frequency of getting fall history	Never	0 (0.0)
	Almost never	3 (4.2)
	Sometimes	28 (38.9)
	Often	27 (37.5)
	Almost always	8 (11.1)
	All the time	6(8.3)
Frequency of identifying fall risk factors	Never	3 (4.2)
	Almost never	10 (13.9)
	Sometimes	24 (33.3)
	Often	20 (27.8)
	Almost always	8 (11.1)
	All the time	7 (9.7)
Do you make a fall risk assessment for your clients 65 years and older?	No, I do not evaluate	34 (47.2)
	No, another healthcare professional at my institution routinely assesses fall risk	4 (5.6)
	Yes, I routinely assess fall risk	12(16.7)
	Yes, I evaluate when I think it is necessary	22(30.6)
Do you have a standard assessment-treatment flow chart for determining fall risk?	Yes	12 (16,7)
	No	60 (83.3)

physiotherapists (63.9%) stated that they had knowledge in interpreting the results of methods that assess the risk of falling. Some physiotherapists failed to mention specific assessment methods namely Berg Balance Test, Timed Up and Go etc [24]. When describing the assessment methods used and known in fall risk assessment. Among the specific methods, it was observed that they wrote the Berg Balance Test, Itaki Fall Risk Scale, Tinetti Balance and Walking Test/Fall Activity Scale, Timed Up and Go Test, One-Legged Standing Test and Functional Reach Test. Among the answers, methods that are not directly related to the risk of falling, such as the Romberg Test and the Geriatric Depression Scale, were also written. The Romberg test, a diagnostic test, tests the function of dorsal column medial lemniscal pathway by asking the patient to first take the test position with eyes open, and subsequently with eyes closed. Poor performance on the modified Romberg is associated with a accompanying increase fall risk [25,26]. The Geriatric Depression Scale touches on the affective and behavioral symptoms of depression and excludes many of the symptoms that may be confused with somatic illness or dementia [27]. Depression and antidepressant use both increase fall risk [28]. Including depression screening for multifactorial fall assessments may

benefit[29]. However, questioning the existence of depression, which is known as an intrinsic risk factor, may be included in the algorithms in the last stages [30].

It is important in terms of preventive rehabilitation in clients aged 65 and above that physiotherapists trust more on their knowledge in practices for the assessment and prevention of fall risk in the elderly clients.

In a multicenter survey conducted with home care professionals including doctors, physiotherapists and nurses, 94.1% of the participants stated that it is important to take falls history in elderly care [20]. In our study, although most of the physiotherapists (91.7%) agreed with the statement "The risk of falling should be determined in all clients aged 65 and above", 47.3% of the participants evaluate the fall risk routinely or when necessary. In a different study, whose participants were only physiotherapists, it was found that they showed moderate practice in the documentation of fall risk factors and treatment planning in the elderly clients [23]. However, when we look at the evaluation frequencies in our study, it is seen that the fall history is evaluated more frequently than the evaluation of the fall risk factors. This may be because most physiotherapists do not have a standard assessment-treatment flowchart to

Table 4. Attitudes of physiotherapists regarding the evaluation of falls in clients aged 65 and above (n=72)

Variables	General statements	n	Specific methods	n	
Which method/methods do you use to assess the risk of falling? (41.7%, n=30 answered the question with at least 1 method,)	Scale/survey	6	Ittaki fall risk scale	5	
	Balance assessment	5	Berg balance test	4	
	Observation during gait and balance-coordination training/exercises	4	Tinetti balance and walking test / fall activity scale	4	
	Musculoskeletal evaluation (muscle strength, normal range of motion, etc.)	4	Timed get up and go test	4	
	Assistive device evaluation	2	Risk factor inquiry (environment, assistive device, multiple drug use, etc.)	4	
	Mental assessment	2	Romberg test	2	
	Verbal assessment	2	Gait analysis	2	
	Fear of falling assessment	1	ProKin balance assessment system	1	
	Observation	1	Short physical performance battery	1	
	Evaluation of activities of daily living	1	Functional reach test	1	
	Proprioceptive assessment	1	Sit to stand test	1	
				Stand on one leg	1
	Can you write what you know about the methods used to assess the risk of falling? (86.1%, n=62 answered the question with at least 1 method)	Balance test	8	Berg balance test	17
Scale/survey		4	Ittaki fall risk scale	15	
Balance coordination assessment		4	Timed get up and go test	12	
Observation		4	Tinetti balance and walking test/ fall activity scale	9	
Assessment of the environment and home environment		3	Stand on one leg	5	
Musculoskeletal evaluation (muscle strength, normal range of motion, etc.)		3	Functional reach test	5	
Mental/dementia assessment		2	Five Times Sit to Stand Test	4	
Cardiovascular assessment		1	International falling efficiency scale	2	
Neurological assessments		1	Fall history	2	
Cardiovascular assessment		1	6 minutes walking test	2	
Verbal assessment		1	Short physical performance battery	2	
Device		1	Walking speed	2	
Fear of falling assessment		1	Harizmi fall risk assessment scale	2	
Evaluation of activities of daily living		1	Romberg test	2	
				DENN fall risk scale	1
				Hendrich II fall risk model	1
				Tandem	1
			Morse fall scale	1	
			Biodex	1	
			Geriatric Depression scale	1	

Table 5. Practices of physiotherapists to prevent the risk of falling in clients aged 65 and above

Variables		n (%)
Do you apply preventive physiotherapy approaches for fall prevention for your elderly clients with low or no risk of falling? (n=72)	Yes	49 (68.1)
	No.	23 (31.9)
What are your approaches to fall prevention for your elderly clients with low or no risk of falling? (multiple marking possible) (n=56)	I provide training and advice	38 (67.9)
	I evaluate assistive device use	33 (58.9)
	I propose regulations for indoor environment	31 (55.4)
	I give a home program	30 (53.6)
	I give supervised exercise program	29 (51.8)
	I refer other healthcare professionals when necessary	12 (21.4)
	I give a brochure	5 (8.9)
	Other: I evaluate the use of shoes and slippers	1 (1.8)
	Other: I tell him to keep his metabolic values under control	1 (1.8)
	I refer to another physiotherapist	1 (1.8)
Do you apply preventive physiotherapy approaches for your elderly clients with high risk of falling? (n=72)	Yes	60 (83.3)
	No	12 (16.7)
What are your approaches to fall prevention for your elderly clients with high risk of falling? (multiple marking possible) (n=68)	I evaluate assistive device use	50 (73.5)
	I give supervised exercise program	43 (63.2)
	I propose regulations for indoor environment	43 (63.2)
	I provide training and advice	40 (58.8)
	I give home program	38 (55.9)
	I refer other healthcare professionals when necessary	25 (36.8)
	I give you a brochure	13 (19.1)
	I refer to another physiotherapist	6 (8.8)
	Other: I optimize the use of shoes and slippers	1 (1.5)

question the fall history. In the study of Asiri F et al., 80.8% of the participants stated that they always or almost always asked about the fall history and 74.5% of them asked about fall risk factors [20]; unlike, in our study, these rates were approximately 20%. This difference may be due to the majority of nurses among the participants, who evaluated falls more in the study. In the aforementioned study, the number of physiotherapists was the lowest, and those who made the least evaluation and spent the least time with the elderly clients compared to nurses and doctors were stated as physiotherapists.

Asiri F et al. reported that 69.2% of the participants always or almost always have interventions to eliminate fall risk factors [20]. In an other study including physiotherapists working in home care, it was determined that most of the participants evaluated the risk of falling in the elderly clients and provided interventions to reduce the risk, but a

substantial portion of the interventions were not associated with a specific risk factor. In the same study, while the majority of therapists gave strength exercises, balance and gait training including Tai Chi, more than half of them gave environmental adaptation suggestions and patient education; 25% were referring to other health professionals when necessary [21]. In a study examining fall prevention interventions without distinguishing between low and high risk of falling, it was determined that physiotherapists preferred balance training (85.6%), strengthening exercises (78.8%) and patient education (75.8%) [23]. Differently, in our study, physiotherapists were asked about their practices for the elderly clients with low or no fall risk and high risk of falling, separately. According to the survey results, 68.1% of the physiotherapists, in the no or low risk of falling, 73.5% of them, in high risk of falling, stated that they applied preventive physiotherapy

approaches to prevent falls. Frequently preferred practices, in the absence or low risk of falling, include patient education, assistive device evaluation and advice for the home environment for fall prevention; in high risk of falling, assistive device evaluation, recommendations for the indoor environment, and a supervised exercise program are preferred. Among the approaches that physiotherapists can take part in, as specified in the American Geriatrics Society/British Geriatrics Society Clinical Practice Guideline for Prevention of Falls in Older Persons, are individual fall risk assessment and management, strength, balance, individual exercise program including gait, home assessment and adaptation, assistive device evaluation and education, foot problems and shoe management, education for fall prevention have been reported [14]. In our study, although the approaches preferred by physiotherapists for falling are in parallel with the literature, a low level of practice in referral to other health professionals was reported. In a study conducted with physiotherapists, this rate was found to be 50% [23]. This situation may also be caused by the differences in the functioning of the health system. Among the barriers to the practices of physiotherapists to prevent falls, the lack of time and the thought that they cannot change the client's behavior are among the first, while approximately one third of the physiotherapists reported that there was no barrier. Physiotherapists mostly recommended brief consultations integrated into routine consultations, separate one-on-one consultations, and group sessions, for practices aimed at preventing the risk of falling. Although the lack of time was mentioned as a barrier in the first place, group sessions that ensure effective use of time were suggested after consultations that would require relatively more time. It was shown in a study that when the elderly clients and their companions who come to physiotherapy are given a 2-session training and a reminder brochure containing information on falling, risk of falling and preventing falls at the beginning and end of the physical therapy process; it was observed that awareness of falling risk increased, the number of falls decreased compared to previous years, and more precautions were taken to prevent falls at home [31]. Most falls can be avoided with appropriate approaches following an algorithm including fall assessment and prevention strategies, such as management of fall risk factors, raising awareness of the elderly about falling and exercise training for functional fitness etc. Educating

elderly clients about falls will help them cope with the devastating effects of falls.

In the literature, it is seen that studies to determine the practices of healthcare professionals regarding the risk of falling in the elderly clients are mostly carried out on people responsible for the care of the elderly. In these studies, it is emphasized that caregivers should be made aware of fall prevention and risk of falling [20], and that physiotherapists have an important role in this regard [23].

Limitations

While online survey studies offer a practical means of engaging participants, the response rate from volunteers may sometimes remain modest. Although the number of physiotherapists who participated in the questionnaire was deemed adequate, it still represented a limited proportion relative to the total count of graduated physiotherapists within Turkey. Additionally, the comparability and in-depth analysis of findings have been hindered by the scarcity of studies exclusively focused on physiotherapists. Nonetheless, with the gradual increase in the number of analogous studies over time, the prospects for comprehensive literature discussions and meaningful comparisons are anticipated to expand.

CONCLUSION

The rise in life expectancy has led to a notable increase in the elderly population. Consequently, individuals aged 65 and above are increasingly seeking the services of physiotherapists for treatment due to their coexisting health conditions. Given the prolonged nature of physiotherapy and rehabilitation, interactions between physiotherapists and the elderly clients have become more frequent. While fall prevention strategies continue to hold significance as preventive measures, the insights provided by physiotherapists on this matter are crucial.

Approximately two-thirds of physiotherapists consider themselves proficient in interpreting the outcomes of fall risk assessment methods. Despite a considerable portion recognizing the importance of assessing fall risk, nearly half of them do not actively conduct such assessments. Moreover, many physiotherapists do not employ a standard assessment-treatment flow chart, also known as an algorithm. Although most physiotherapists are acquainted with fall risk assessment techniques, fewer actually integrate them into their practice. The prevalence of reported barriers hindering fall prevention practices among

physiotherapists is noteworthy. In terms of service delivery to prevent the risk of falls, physiotherapists have proposed several suggestions, including the integration of brief consultations into routine sessions, conducting dedicated one-on-one consultations, and organizing group sessions. Consequently, the current findings suggest the potential for interventions aimed at enhancing the practices of physiotherapists. This could involve the implementation of a standardized assessment-treatment flow chart for assessing fall risk in elderly clients, thereby enhancing the efficacy of their interventions and reducing the impact of these barriers.

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